

Request for Bid
Fixed-Price Defined Scope of Work
to Complete Remediation Project and Closure Activities

Solicitor

Firmstone Lakewood Fuels – Former Lakewood Oil Company
1421 Crosstown Highway - SR 370
Lakewood, PA 18439
Preston Township, Wayne County
PADEP FACILITY ID #64-13651
PAUSTIF CLAIM #2006-0205(F)

Date of Issuance

March 8, 2016

Revised Calendar of Events March 9, 2016

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The Pennsylvania Underground Storage Tank Indemnification Fund (PAUSTIF), on behalf of the claimant who hereafter is referred to as the Client or Solicitor, is providing this Request for Bid (RFB) to prepare and submit a bid to complete the Scope of Work (SOW) for the referenced Site. The Solicitor is the current owner and operator of the Site. PAUSTIF has determined that the claim reported by the Solicitor is eligible for coverage from the PAUSTIF subject to the applicable statutes and regulations. Reimbursement of Solicitor approved reasonable and necessary costs, not to exceed the claim aggregate limit, for the corrective action work described in this RFB will be provided by PAUSTIF subject to 80% proration. Solicitor is responsible to pay any applicable deductible and/or proration.

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

Calendar of Events

Activity	Date and Time
Notification of Intent to Attend Site Visit	March 22, 2016 at 5:00 PM
Mandatory Pre-Bid Site Visit	March 24, 2016 at 11:00 AM
Deadline to Submit Questions	April 1, 2016 at 5:00 PM
Bid Due Date and Time	April 15, 2016 at 3:00 PM

Contact Information

Technical Contact
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 RFB and the subject Site conditions must be directed via email to the Technical Contact identified above with the understanding that all questions and answers will be provided to all bidders. The email subject line must be “[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 conduct a Site tour for one (1) participant per bidding company. The Technical Contact may answer questions at the Site meeting or may collect questions and respond via email. All questions and answers will be provided via email to all attendees. This meeting is mandatory for all bidders, no exceptions. This meeting will allow each bidding company to inspect the Site and evaluate Site conditions. **A notice of the bidder's intent to attend this meeting is requested to be provided to the Technical Contact via email by the date listed in the Calendar of Events with the subject "[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 email. Notification of intent to attend is appreciated; however, it is not required. Attendance at the Pre-Bid Site Meeting is mandatory.

Submission of Bids

To be considered for selection, **one (1) hard copy of the signed bid package and one (1) electronic copy (one (1) PDF file on a compact disk (CD) included with the hard copy) must be provided directly to the PAUSTIF's third party administrator, ICF, to the attention of the Contracts Administrator.** The Contracts Administrator will be responsible for opening the bids and providing copies to the Technical Contact and the Solicitor. Bid responses will only be accepted from those companies that attended the Mandatory Pre-Bid Site Meeting. **The ground address for overnight/next-day deliveries is ICF International, 4000 Vine Street, Middletown, PA 17057, Attention: Contracts Administrator. The outside of the shipping package containing the bid must be clearly marked and labeled with "Bid – Claim # [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 Pre-Bid Site Meeting of an extended due date. The hour for submission of bids shall remain the same. Submitted bid responses are subject to the Pennsylvania Right-to-Know Law.

Bid Requirements

The Solicitor wishes to execute a mutually agreeable contract with the selected consultant ("Remediation Agreement"). The Remediation Agreement is included as Attachment 1 to this RFB. The bidder must identify and document in their bid any modifications that they wish to propose to the Remediation Agreement language in Attachment 1 other than obvious modifications to fit this RFB (e.g., names, dates, and descriptions of milestones). The number and scope of any modifications to the standard agreement language will be one (1) of the criteria used to evaluate the bid. **Any bid that does not clearly and unambiguously state whether the bidder accepts the Remediation Agreement language in Attachment 1 "as is", or that does not provide a cross-referenced list of requested changes to this agreement, will be considered non-responsive.** This statement should be made in a Section in the bid entitled "Remediation Agreement". Any proposed changes to the agreement should be specified in the bid; however, these changes will need to be reviewed and agreed upon by both the Solicitor and the PAUSTIF.

The selected consultant will be provided an electronic copy (template) of the draft Remediation Agreement in Microsoft Word format to allow agreement-specific information to be added. The selected consultant shall complete the agreement-specific portions of the draft Remediation Agreement and return the document to the Technical Contact within 3 business days from date of receipt. Please note that the Remediation Agreement turn around time for the selected consultant was shortened from the typical 10 days to 3 days for this RFB in an effort to expedite the execution of the Remediation Agreement due to the firm RAP deadline of June 30, 2016.

The Remediation Agreement fixed costs shall be based on unit prices for labor, equipment, materials, subcontractors/vendors, and other direct costs. The total cost quoted in the bid by the selected consultant will be the maximum amount to be paid by the Solicitor unless a change in scope is authorized and determined to be reasonable and necessary. There may be deviations from and modifications to this SOW during the project. The Remediation Agreement states that any significant changes to the SOW will require approval by the Solicitor, PAUSTIF, and PADEP. NOTE: Any request for PAUSTIF reimbursement of the reasonable costs to repair or replace a well will be considered on a case-by-case basis.

The bidder shall provide its bid cost using the Bid Cost Spreadsheet (included as Attachment 2) with descriptions for each task provided in the body of the bid document. Please note, if costs are provided within the text of the submitted bid and there is a discrepancy between costs listed in the Bid Cost Spreadsheet and in the text, the costs listed within the Bid Cost Spreadsheet will be used in the evaluation of the bid and in the Remediation Agreement with the selected consultant. Bidders are responsible to ensure spreadsheet calculations are accurate. The technical score for bids will be based solely on those tasks represented as milestones included in the Bid Cost Spreadsheet and the total bid cost. Any optional bidder-defined tasks,

milestones, or cost adders that are not requested as part of this RFB will not be considered by the Bid Evaluation Committee in the technical review and technical score for the bid.

In addition, the bidder shall provide:

1. The bidder's proposed unit cost rates for each expected labor category, subcontractors, other direct costs, and equipment;
2. The bidder's proposed markup on other direct costs and subcontractors (if any);
3. The bidder's estimated total cost by task consistent with the proposed SOW identifying all level-of-effort and costing assumptions; and
4. A unit rate schedule that will be used for any out of scope work on this project.

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

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

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

Each bid response document must include at least the following:

1. Demonstration of the bidder's understanding of the Site information provided in this RFB, standard industry practices, and objectives of the project.
2. A clear description, specific details, and original language of how the proposed work scope will be completed for each milestone. The bid should specifically discuss all tasks that will be completed under the Remediation Agreement and what is included (e.g., explain groundwater purging/sampling methods, which guidance documents will be followed, what will be completed as part of the Site specific work scope/SCR/RAP

implementation). Recommendations for changes/additions to the Scope of Work proposed in this RFB shall be discussed, quantified, and priced separately; however, failure to bid the SOW “as is” may result in a bid not being considered.

3. A copy of an insurance certificate that shows the bidder’s level of insurance consistent with the requirements of section 7.a. of the Remediation Agreement.

As per section 7.b. of the Remediation Agreement, the Solicitor has requested that additional Excess Liability and Business Interruption insurance be obtained by the selected bidder. The cost associated with this additional coverage shall be negotiated between the Solicitor and the selected bidder, is NOT eligible for reimbursement by PAUSTIF, and shall NOT be incorporated into the total cost quoted in the Bid Cost Spreadsheet.

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, professional liability insurance, and excess liability and business interruption insurance as negotiated commensurate with the level stated in the Remediation Agreement and for the work to be performed.

4. The names and brief resumes/qualifications of the proposed project team including the proposed Professional Geologist and Professional Engineer (if applicable) who will be responsible for overseeing the work and applying a professional seal to the project deliverables (including any major subcontractor(s)).
5. Responses to the following specific questions:
 - a. Does your company employ a Pennsylvania-licensed Professional Geologist that is designated as the proposed project manager? How many years of experience does this person have?
 - b. How many Pennsylvania Chapter 245 projects is your company currently the consultant for in the PADEP Region where the Site is located? Please list up to 10.
 - c. How many Pennsylvania Chapter 245 Corrective Action projects involving an approved SCR, RAP, and RACR has your company and/or the Pennsylvania-licensed Professional Geologist closed (i.e., obtained Relief from Liability from the PADEP) using any standard?
 - d. Has your firm ever been a party to a terminated PAUSTIF-funded Fixed-Price (FP) or Pay-for-Performance (PFP) contract without attaining all of the milestones? If so, please explain.

6. A description of subcontractor involvement by task. Identify and describe the involvement and provide actual cost quotations/bids/proposals from all significant specialized subcontracted service (e.g., drilling/well installations, laboratory, etc.). If a bidder chooses to prepare its bid without securing bids for specialty subcontract services, it does so at its own risk. Added costs resulting from bid errors, omissions, or faulty assumptions will not be considered for PAUSTIF reimbursement.
7. A detailed schedule of activities for completing the proposed SOW including reasonable assumptions regarding the timing and duration of Solicitor reviews (if any) needed to complete the SOW. Each bid must provide a schedule that begins with execution of the Remediation Agreement with the Solicitor and ends with completion of the final milestone proposed in this RFB. Schedules must also indicate the approximate start and end date of each of the tasks/milestones specified in the Scope of Work, and indicate the timing of all proposed key milestone activities (e.g., within 30 days of the contract being executed).
8. A description of how the Solicitor, ICF, and the PAUSTIF will be kept informed as to project progress and developments and how the Solicitor (or designee) will be informed of and participate in evaluating technical issues that may arise during this project.
9. A description of your approach to working with the PADEP. Describe how the PADEP would be involved proactively in the resolution of technical issues and how the PADEP case team will be kept informed of activities at the Site.
10. Key exceptions, assumptions, or special conditions applicable to the proposed SOW and/or used in formulating the proposed cost estimate. Please note that referencing extremely narrow or unreasonable assumptions, special conditions, and exceptions may result in the bid response being deemed “unresponsive”.

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

Firmstone Lakewood Fuels – Former Lakewood Oil Company
1421 Crosstown Highway - SR 370
Lakewood, PA 18439
Preston Township, Wayne County

Site Location and Operation Information

The Site is an active bulk storage and distribution facility owned by Firmstone Lakewood Fuel (formerly Lakewood Oil Company) and located on the north side of State Route 370 in Preston Township, Wayne County, Pennsylvania. The Site is tiered into an upper and lower levels. As a bulk fuel storage facility, underground storage tank (UST) and above-ground storage tank (AST) systems are located at the Site as well as a one (1) story garage built slab on grade. The garage is used to store a fuel delivery truck. The garage is located on the western portion of the upper level. The garage is supplied with heat from a 250 fuel oil AST. The UST and AST systems are located on the upper level and are connected to a loading rack also located on the upper level. The UST system consists of one (1) 5,000 gallon gasoline UST and one (1) 8,000 gallon diesel fuel UST. The AST system consists of one (1) 4,000 gallon diesel fuel AST, one (1) 20,000 gallon diesel fuel AST, and one (1) 10,000 gallon kerosene AST. The surrounding properties are a mix of residential and commercial properties. The Site does not have water or sewer service. Surrounding properties are provided with water from private groundwater wells. A Site Location Map and a current Site Plan are provided as Figures 1 and 2, respectively.

Site Background Information

During December 2006 UST system closure activities, localized soil and extensive groundwater contamination was identified within the UST cavity. Groundwater was observed in the excavation at approximately 6 feet below grade (ftbg). Post excavation soil samples were below their respective PADEP statewide health standards (SHS). Post excavation groundwater

samples identified PADEP unleaded gasoline target compound concentrations exceeding their respective SHS.

On December 18, 2006, Pundock Construction Services (Pundock) submitted a Notice of Contamination (NOC) to the PADEP based on UST system closure site assessment observations.

PADEP issued a Notice of Violation (NOV) on December 22, 2006 based on the results of the post excavation soil and groundwater samples requiring completion of site characterization activities.

During May 2007, Pennsylvania Tectonics installed monitoring wells MW-1, MW-1s, MW-2, MW-2s, MW-3, MW-3s, MW-4, MW-4s and MW-5.

On May 23, 2007, a total of twelve (12) direct push soil borings were completed at the Site. Ten (10) soil samples were collected and analyzed for unleaded gasoline and diesel fuel target compounds, as well as 1,2,4-trimethylbenzene (1,2,4-TMB) and 1,3,5-trimethylbenzene (1,3,5-TMB).

During September 2007, Pennsylvania Tectonics installed monitoring wells MW-5s, MW-6, MW-6s, MW-7, MW-7s, MW-8, MW-8s and MW-9s.

On September 10, 2007, fifteen (15) soil borings were completed at the Site. A total of ten (10) soil samples were collected and analyzed for unleaded gasoline and diesel fuel/ target compounds, as well as 1,2,4-TMB and 1,3,5-trimethylbenzene 1,3,5-TMB.

During November 2007, Pennsylvania Tectonics submitted a Site Characterization Report (SCR) to the PADEP.

On December 11, 2007, the PADEP issued a letter stating that the November 2007 SCR is not approved and additional site characterization activities are required.

During May 2008, Pennsylvania Tectonics installed monitoring wells MW-10, MW-10s, MW-11, and MW-11s.

On July 31, 2008, Pennsylvania Tectonics submitted a second SCR (titled Final SCR) to the PADEP.

On September 11, 2008, the PADEP approved the July 31, 2008 SCR as submitted.

During October 2008, Pennsylvania Tectonics installed monitoring wells MW-12 and MW-12s.

On April 23, 2009, Pennsylvania Tectonics submitted a Remedial Action Plan (RAP) to the PADEP. The RAP called for the injection of oxygen into the subsurface to stimulate natural biodegradation.

On May 7, 2009, the PADEP approved the April 23, 2009 RAP as submitted.

On October 6, 2009, Pennsylvania Tectonics installed four (4) replacement point of Compliance (POC) monitoring wells (MW-1ss, MW-2ss, MW-6ss, and MW-13s), one (1) bedrock monitoring well (MW-13), one (1) overburden injection well (IW-s) and one (1) bedrock injection well (IW-1d).

On October 7, 2009, Pennsylvania Tectonics installed three (3) overburden and three (3) bedrock monitoring wells (MW-14, MW-14s, MW-15, MW-15s, MW-16, and MW-16s) as part of an Oxygen Injection Feasibility Pilot Test.

On October 8, 2009, Pennsylvania Tectonics abandoned MW-1s, MW-2s, MW-5s, and MW-6s.

The Oxygen Injection system operated from October 2009 through October 2010.

On December 21, 2010, Pennsylvania Tectonics submitted a modified RAP - Proposed Monitored Natural Attenuation (MNA) letter to PADEP stating that remediation and closure of the Site would be pursued via MNA. PADEP approved the MNA RAP via email dated December 27, 2010.

On February 4, 2011, Mr. Brian Worobey of Aqua Duck purchased the adjacent property (formerly Zegars). Aqua Duck subsequently utilized the onsite production well for sale and off-site transport of non-potable water for use primarily in the drilling industry with some use for filling swimming pools.

Results of the October 13, 2011 groundwater-sampling event indicate concentrations of benzene (25.2 µg/L) were observed in off-site monitoring well MW-12s (Aqua Duck Property) exceeding the respective SHS (5 µg/L).

On October 1, 2012, Pennsylvania Tectonics submitted a RAP that recommended in-situ chemical oxidation via injection of Fenton's reagent into twenty eight (28) temporary injection points. Fenton's reagent injections were completed on May 7-9, 2013 and June 10-12, 2013.

On April 10, 2014, Pennsylvania Tectonics advanced sixteen (16) soil borings in the vicinity of the product loading racks. Fifteen (15) soil samples were collected for laboratory analysis.

On October 22, 2014, Pennsylvania Tectonics advanced seventeen (17) additional soil borings in the vicinity of the product loading racks. A total of thirty (30) soil samples were collected for laboratory analysis.

Pennsylvania Tectonics prepared a Supplemental Site Characterization Report (SSCR) dated February 9, 2015 that was approved by PADEP on May 27, 2015.

Firmstone submitted a RAP submission extension request to PADEP dated October 9, 2015 and the PADEP responded on October 20, 2015 with a request for additional information and contaminant Fate & Transport analysis.

On November 14, 2015, Pennsylvania Tectonics submitted a Fate & Transport Analysis Report to PADEP. The report concluded that average current contaminant concentrations would not impact any receptors (i.e. Aqua Duck production well). However, peak historical contaminant concentrations could impact the adjacent Aqua Duck production well.

Firmstone submitted a letter to PADEP on November 20, 2015 addressing the questions and comments from PADEP's October 20, 2015 letter.

The PADEP's November 24, 2015 letter granted a RAP submission extension until April 29, 2016.

A total of sixty-five (65) soil samples have been collected from soil borings at the Site. One or more PADEP unleaded gasoline target compounds exceeded their respective SHS in eighteen (18) of the samples. Four (4) of the observed exceedance were from vadose zone soils and the remainder were collected from the smear and/or saturated zones.

Groundwater, surface water, potable, and production well sampling has been conducted on a periodic basis from May 2007 through the present. The most recent sampling event was conducted on June 8, 2015 and is summarized in Pennsylvania Tectonics June 19, 2015 Remedial Action Progress Report.

Scope of Work (SOW)

This RFB seeks competitive bids from qualified contractors to perform the activities in the SOW specified herein. The SOW presented in this RFB was provided to the PADEP for review and comment. A response was received from the PADEP with just quick clarification questions. The PADEP response did not request or suggest any changes to the RFB. Just prior to posting of the RFB, PADEP was contacted and an additional RAP submission extension was requested

until June 30, 2016. The PADEP verbally agreed to the extension and will provide written confirmation following receipt of the bidding schedule included in this RFB.

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 remedial activities 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
- Toluene
- Ethylbenzene
- Xylenes
- MTBE
- Naphthalene
- Cumene
- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene

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 include preparing and implementing plans for health and safety, waste management, field sampling/analysis, and/or other plans that are necessary and appropriate to complete the SOW, and shall also include activities related to establishing any necessary access agreements. Project planning and management shall include identifying and taking appropriate safety precautions to not disturb Site utilities including, but not limited to, contacting Pennsylvania One Call as required prior to any ground-invasive work. As appropriate, project management costs shall be included in each bidder's pricing to complete the milestones specified below.
- Be responsible for coordinating, managing, and completing the proper management, characterization, handling, treatment, and/or disposal of all impacted soils, water, and derivative wastes generated during the implementation of this SOW. The investigation-derived wastes, including purge water, shall be disposed in accordance with standard industry practices and applicable laws, regulations, guidance, and PADEP directives. Waste characterization and disposal documentation (e.g., manifests) shall be maintained and provided to the Solicitor and the PAUSTIF upon request. All investigation derived wastes shall be handled and disposed per PADEP's Regional Office guidance. It is the selected consultant's responsibility to conform

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

with current PADEP Regional Office guidance requirements in the region where the Site is located.

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

Site – Specific Guidelines

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

- **Proposed Remedial Action:** The proposed remedial action is excavation of vadose zone petroleum-impacted soils in the vicinity of the active product loading rack. To facilitate the remedial soil excavation, the solicitor will be contracting (outside of this RFB) a PADEP licensed tank handler to remove the loading rack, associated piping, and canopy in advance of the excavation activities. Upon completion of the soil excavation and backfilling, the same tank-handling contractor will install a new concrete pad and either return the existing loading rack/canopy or install new equipment in the vicinity of the current system. This will require extensive coordination between the solicitor, tank-handling contractor, and selected bidder. Bidders should be prepared to maintain schedule flexibility to accommodate all involved parties (including associated subcontractors and inspections).
- **Scheduling:** As part of this RFB, the selected consultant shall provide a clear deadline (e.g. within 30 days of the contract being executed) as to when each of the milestones will be completed. This includes the expected date (e.g. within 90 days of the contract being executed) when the draft deliverables will be submitted to the Solicitor and PAUSTIF 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, unless the Solicitor provides advanced written approval of expanded work hours.
- **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 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.
- **Selected Standards:** The claimant has selected to remediate the Site soil to the Non-Residential Statewide Health Standards for all constituents of concern and the Site groundwater to the Residential Statewide Health Standards for all constituents of concern.
- **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 additional safety measures other than or beyond what is required in the SOW (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. 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. If your bid proposes to dispose of waste under a permit, then your bid needs to address the potential situation of a permit not being approved. Bids need to specifically indicate that your bid costs include the costs to dispose of the waste even if a permit is not approved. As indicated in the bid, there

should be no assumptions on waste and assuming that a permit will be approved is still making an assumption on waste.

- **Standard Operating Procedures:** Please include in the bid as an attachment, your firm's standard operating procedures for all major field tasks proposed in the scope of work.
- **Optional Cost Adder Milestones:** Milestone A through Milestone L 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 M through Milestone V) need to be addressed in your bid response. These cost adders will not be part of your initially approved base contract price. 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. For consideration of PAUSTIF reimbursement, Solicitor and PAUSTIF approval must be obtained prior to completing Optional Cost Adder Milestones.

Site-Specific Milestones

The following Milestones are to be included in bid responses:

Milestone A – Preparation of a Remedial Action Plan (RAP). Following the execution of the contract, the selected consultant will prepare a comprehensive RAP for the Site that will be submitted to the PADEP and will facilitate the objective to complete regulatory requirements governing a RAP and gain PADEP approval. The RAP should present a structured argument to the PADEP as to why the proposed soil excavation activities are appropriate and applicable for this Site. The RAP should also provide the details and specifications of how the soil excavation proposed at the Site will be completed. In addition, 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, 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 with regards to a Remedial Action Plan. The report will be appropriately signed and sealed by a Professional Geologist and a Professional Engineer registered in the Commonwealth of Pennsylvania.

The draft RAP 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, and well logs) shall be submitted electronically (in Adobe PDF format) to the Solicitor and PAUSTIF for review / comment prior to finalizing the RAP. Once the selected consultant has addressed comments on the draft, the selected consultant shall finalize and issue the report to the PADEP. **The final RAP must be submitted to the PADEP no later than June 30, 2016.**

Milestone B – Abandonment of Monitoring Wells – A total of 4 monitoring wells are proposed for abandonment and re-installation (Milestone E) in an effort to facilitate remediation of vadose zone impacted soils via excavation. The monitoring wells will be abandoned prior to the excavation activities and will be re-installed upon completion of the excavation and backfilling activities. Specifically, monitoring wells MW-3, MW-3s, MW-13, and MW-13s are to be abandoned and re-installed.

The selected consultant will abandon all of the monitoring wells 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. Please note that the costs to be included in Milestone B should be strictly related to the abandonment of the aforementioned wells. All costs related to re-installation should be included in Milestone E.

Milestone C – Private Utility Markout - Prior to any intrusive investigation work at the Site (i.e. excavation project, monitoring well drilling), a private markout is to be conducted at the Site (and/or off-site location where intrusive activities will be conducted) to confirm the location of any obstruction or underground utility present in the vicinity of the proposed intrusive activity locations. 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 F.

Milestone D1 through D7 – Soil Excavation - Bidders shall describe specifics on how the on-site excavation will be completed. Each bid response must clearly describe in detail the bidders approach and provide a cost inclusive of all excavation related activities such as planning, preparation, excavation, backfilling, restoration, etc. The proposed excavation is to be completed in the area of the product loading rack and is

estimated to be approximately 120 cubic yards based on the available data. The approximate extent of the excavation is depicted on Figure 3.

The proposed excavation is in the vicinity of the current product loading rack. The Solicitor will be separately contracting (outside of this RFB) a PADEP licensed tank handler to remove the loading rack, product piping, canopy, and associated equipment immediately prior to completion of the remedial soil excavation. Upon completion of the remedial soil excavation activities, the tank handling contractor will promptly reinstall the current and/or new equipment in an effort to minimize the facility down time. This will require significant coordination between the Solicitor, selected consultant and the Solicitor's licensed tank handling contractor. The selected consultant will need to maintain excellent communication with the other involved parties and be flexible with their schedule to permit coordination of necessary actions with other involved parties. The table included in Attachment 3A provides a breakdown of all anticipated tasks and the responsible party.

To enable demonstration of attainment of the SHS in soils and remove the source area that is leaching into groundwater, the impacted vadose zone soil with contaminant concentrations exceeding SHS shall be removed. Bidders should take into consideration that they may need to field screen and segregate soils from below surface cover all the way to the groundwater interface in the excavation. It should not be assumed that the selected consultant will dig to a uniform depth without analytical data and field PID measurements to justify it. Bidders should assume that the soil will be field screened and segregated to separate the "not suspected to be contaminated" and "obviously contaminated" soil. Bidders will be responsible for proper erosion control and soil pile protective measures for the duration of the project. To be deemed responsive to this task, bids must discuss/provide:

- A clear plan to address project schedule coordination efforts with an emphasis on safely and efficiently completing the project in a timely manner to minimize the facility shutdown period.
- The photoionization detector (PID) screening value selected somewhere around 50 parts per million (ppm) that will be applied to segregate the "obviously contaminated" and "not suspected to be contaminated" soil removed from the excavation;
- The field screening approach and frequency. All "obviously contaminated" soil shall be removed from the site for off-site disposal and "clean" modified crushed stone shall be imported to replace the exported soil.
- The northern end of the excavation borders the soil berm containment structure for the onsite ASTs. The structural integrity of the containment structure must be maintained while removing the vadose zone petroleum impacted soil to the maximum extent practical. Bidders shall explain the measures they plan to employ to

ensure protection of the berm and containment structure. All protection measures should be included in Milestone D1.

Contaminated soil transportation and off-site disposal and clean fill import costs shall not be included in the base fixed excavation cost of Milestone D1. The contaminated soil transportation and off-site disposal costs as well as the clean fill import costs will be handled separately on an actual per ton unit cost in Milestones D2 and D3, respectively.

After the excavation is completed, and prior to backfilling, appropriate systematic random sampling shall be conducted. Bids shall describe the sampling approach, including the number of soil samples, and discuss methods to be used. The soil samples collected following the excavation shall be collected both in laboratory-sterilized sample jars and using a PADEP approved soil sampling method. The samples will then be placed on ice and delivered 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 BTEX, MTBE, naphthalene, cumene, 1,2,4-TMB, and 1,3,5-TMB. 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. 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). Bids should also both discuss and include costs for the appropriate quality assurance/quality control (QA/QC) samples to be obtained for laboratory analysis during the event.

Following collection of the post-excavation soil samples, an in-situ bioremediation augmentation product such as Regenesys ORC Advanced® Pellets (or equivalent) shall be applied to the base of the excavation to facilitate in-situ remediation of any residual petroleum impacted soils and groundwater. The volume of augmentation product applied will vary by manufacturer. Bidders should ensure sufficient application rate to adequately treat the anticipated residual contamination (based on existing saturated soil and groundwater sample results). Bids shall specify the particular product and quantity to be applied. In-situ bio-augmentation costs shall be included in Milestone D4.

Bids shall include backfilling and mechanically compacting the excavated area in lifts. The successful bidder shall backfill to within 5 inches of grade using a combination of reused "clean" site soil and imported modified crushed stone. Excavated material stockpiled on site for re-use shall be sampled prior to backfilling, and the fixed-price bid shall include costs for the sampling and laboratory work in accordance with PADEP guidance documents. Reused clean soils shall only be utilized in non-traffic areas. All traffic areas and underneath the loading rack and canopy structures shall be backfilled with modified crushed stone to provide proper structural compaction. Backfill material

and placement/compaction methods shall result in a stabilized soil condition capable of supporting traffic and use loads. The backfill materials shall be free of vegetation, lumps, trash, lumber, and other unsuitable materials. In general, backfill shall be mechanically compacted by means of tamping rollers, sheep foot rollers, pneumatic tire rollers, vibrating rollers, or other mechanical tampers which are appropriate for the material being compacted. Bids shall also include surface completion / restoration to restore non-paved areas to pre-excavation conditions. The Solicitor's tank handling contractor will be responsible for replacement of the concrete pad in the vicinity of the loading rack.

The details of the soil removal activities shall be documented in an appropriately timed RAPR (either a part of a Quarterly RAPR (Milestone H) or an Annual RAPR (Milestone I) as well as the RACR (Milestone K), and at a minimum shall include the following: scaled drawings depicting the lateral and vertical dimensions of the completed excavation superimposed on the site plan; all field observations and PID readings; the quantity of soil excavated, disposed off site, used as backfill, and imported for backfill; waste profiling documentation; soil waste disposal manifests and disposal facility; source and amount of imported fill; and dated photographs taken before breaking ground, throughout the excavation, and after restoration. Additionally, the locations and results of the soil attainment sampling shall be well detailed and documented in text, photographs and figures.

Specifics on how bidders should prepare costs for each of the excavation related Milestones are discussed below. Please note that Milestone D1 is related to the base soil excavation estimated at 120 cubic yards. Should the selected consultant determine using analytical data and field screening data that the excavation needs to be expanded beyond the 120 cubic yards, then the costs related to the expansion will be handled using Milestones D5 and D6.

Milestone D1 – Milestone D1 will include all of the fixed costs to complete the base excavation activities (Excavating, Sampling, Backfilling, and Restoring the excavation area (assumed to be approximately 120 cubic yards) with the exception of the actual costs for transportation and disposal of the contaminated soil as well as the cost of the replacement clean fill which will be handled under Milestones D2 and D3 on an actual per ton cost. Any costs related to necessary municipal permits, waste profiling, (including any sampling & laboratory work) and securing waste facility acceptance prior to beginning the soil excavation, should also be included in the fixed costs in Milestone D1.

Milestone D2 - Milestone D2 will include the management, loading, transportation and proper off-site disposal of excessively contaminated soils. The cost should be presented on a per ton basis.

Milestone D3 – Milestone D3 will include the purchase, transportation and on-site management of clean imported fill to replace exported excessively contaminated soil.

The cost should be presented on a per ton basis.

Milestone D4 – Milestone D4 will include post-excavation in-situ bio augmentation material purchase, transportation, and application.

Milestone D5 (Cost Adder Milestone) - Milestone D5 will include the surface restoration of areas beyond the base excavation if the excavation needs to be expanded based on analytical data and field screening data. The cost should be presented on a per square foot basis.

Milestone D6 (Cost Adder Milestone) – Milestone D6 will include all of the costs to complete any additional excavation activities (Excavating, Sampling, Backfilling, and Restoring the excavation area) beyond the base excavation if the excavation needs to be expanded based on analytical and/or field screening data. The cost should be presented on a per in-place cubic yard basis, but should exclude contaminated soil transportation / disposal costs and clean imported fill costs since these are captured on an actual per ton basis under Milestones D2 and D3, respectively.

Milestone D7 (Cost Adder Milestone) – Milestone D7 will include the Management, sampling / analysis, loading, transportation and disposal of impacted groundwater removed from the soil excavation (cost per gallon).

For the purpose of fairly evaluating the costs included in the bid responses, each bidder's unit costs for Milestones D2 and D3 will be added to the bidder's costs provided for Milestones D1 and D4 using the following assumed volumes for Milestones D2 and D3 – 135 tons for T&D of impacted soils (75% excavated from the assumed excavation size provided in Milestone D1) and 135 tons of imported clean fill.

With regards to the soil excavation milestones, bidders should also note the following:

- Monitoring well MW-3, MW-3s, MW-13, and MW-13s are located in the vicinity of the location of the excavation and it is anticipated that the monitoring wells will be destroyed and need replacement as a result of the excavation. Please see Milestones B & E for abandonment and replacement of the affected wells.
- The excavation is expected to extend to the groundwater interface. However, dewatering of the excavation is not anticipated as part of this scope of work. If dewatering is determined to be necessary; then the selected consultant will need to contact the Solicitor and USTIF to discuss and provide photographic documentation. Any groundwater extracted from the excavation will require prior approval and will be handled separately on an actual per gallon unit cost in Milestone D7.

Milestone E – Installation of Monitoring Wells – A total of 4 monitoring wells are proposed for abandonment (Milestone B) and re-installation in an effort to facilitate

remediation of vadose zone impacted soils via excavation. It is expected that the replacement well will be installed as close as practical to the previously abandoned monitoring wells, with similar construction details. Specifically, the monitoring wells to be installed are categorized below:

- Overburden Monitoring wells –
 - MW-3s
 - MW-13s

- Shallow Bedrock Monitoring Wells –
 - MW-3
 - MW-13

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

- All proposed overburden monitoring wells should be constructed in 6-inch diameter boreholes using 2-inch diameter, schedule 40 PVC materials and should be screened from 3 ftbg to the bedrock interface (approximately 6 ftbg -11 ftbg). Shallow replacement monitoring wells should be identified with the “R” suffix added to their well ID number (e.g. MW-3sR).

- All proposed shallow bedrock monitoring wells should be constructed in 6-inch diameter boreholes using 2-inch diameter, schedule 40 PVC materials and should be screened from 2 feet below the top of encountered competent bedrock (approximately 10 ftbg) and should be extended until the first water bearing zone is encountered (approximately 20-22 ftbg). Replacement bedrock monitoring wells should be identified with the “R” suffix added to their well ID number (e.g. MW-3R).

- All on-site monitoring well locations should be advanced as close as practical to the locations of the previously abandoned monitoring wells they are replacing, unless instructed otherwise by the Technical Contact or the presence of utilities, obstructions, or safety concerns requires a change in the location. If due to valid concerns prior to drilling, the general locations of the proposed monitoring wells need to be altered significantly from the previous locations, then the selected consultant will be required to contact PAUSTIF, discuss the need for the changes, and provide PAUSTIF with a revised well location map.

- Prior to the advancement of the monitoring wells, the selected consultant will be required to complete a private markout at the Site to identify the location of obstructions and underground utilities as part of Milestone C. If a consultant feels

it is appropriate and necessary to complete hole-clearing activities before drilling the monitoring wells, 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.

- 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 total depth is approximated based on available information from previous investigations. The screening and casing intervals should be installed appropriately to intersect the appropriately identified aquifer. Bid responses should provide a clear description as to how the consultant anticipates the wells will be installed (i.e. drilling method and anticipated casing and screening lengths) using their professional opinion.
- The wells should be drilled and constructed in accordance with generally accepted practices as outlined in the PADEP Groundwater Monitoring Guidance Manual, dated December 1, 2001 (Document # 383-3000-001). In addition, careful consideration needs to be taken when installing the proposed monitoring wells. Specifically, the wells should not be over drilled, under screened, or screened across multiple water bearing zones. Shallow refusal due to underscoping of equipment is not acceptable and will not be reimbursed. The selected consultant is responsible for appropriately installing the wells.
- A flush-mounted manhole shall be cemented into place to complete each of the wells 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.
- 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.
- Field findings shall be compiled into comprehensive monitoring well construction diagrams and logs that should be submitted in an appropriately timed quarterly or annual RAPR (Milestone H or Milestone I) as well as the RACR (Milestone K),

- 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.
- **All IDW waste** should be disposed of per the instructions included in the “General SOW Requirements” and “Site Specific Milestones” section of the RFB.
- **The expectation is that all proposed monitoring wells will be installed in a single mobilization event and costs included in the bid response should reflect that expectation. Please note, if access to an offsite property leads to a reduction in the number of wells installed during this milestone and needs to be completed in a separate mobilization, then that scenario will be handled using the costs provided in the relevant Cost Adder milestones.**

Milestone F – Site Survey – Following the installation of the replacement monitoring wells, a professional survey of the Site by a Pennsylvania-licensed surveyor, including all current site features (i.e., buildings, property boundaries, monitoring wells, pertinent sanitary and storm sewers, etc.), shall be completed. All onsite and offsite monitoring wells 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. 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 each of the monitored water bearing zones.

Milestones G – Monthly Groundwater and Production Well Monitoring and Sampling and Reporting -

The selected consultant will gauge and sample monitoring wells MW-12 and MW-12s, and the Aqua Duck production well on a monthly basis through RAP implementation. Upon receipt of the laboratory analytical report the bidder shall promptly prepare and submit letter format reports discussing the results of the monthly event to both the Solicitor and the Aqua Duck property owner with copies to PADEP and USTIF. For this RFB, please assume the total number of monthly monitoring and sampling events that will be needed is three (3) events. Please note that PAUSTIF will only pay the selected firm for the actual number of events conducted (i.e., if a firm includes the costs to complete three (3) 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 monthly groundwater sampling event at the Site approximately 30 days after the previously conducted monthly or quarterly groundwater sampling event and conduct each subsequent event approximately 30 days after the previous event through RAP implementation (The current consultant has agreed to continue monthly and quarterly sampling at the Site until execution of a contract with a new consultant).

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 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 and surface water 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 list (benzene, toluene, ethylbenzene, total xylenes, MTBE, naphthalene, isopropylbenzene, 1,3,5-TMB, and 1,2,4-TMB).
- Groundwater samples shall be collected in accordance with the schedules provided in Milestone G, H, & I. Monitoring well locations are provided on Figure 2 in Attachment 3B.
- Surface water samples shall be collected from each surface water sampling points (upstream, midstream, & downstream) for a total of three (3) surface water samples in accordance with the schedules provided in Milestone G, H, & I. Surface water sample locations are provided on Figure 4 in Attachment 3B.
- In addition to the samples collected from the monitoring wells and surface water locations, 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).
- All IDW waste should be disposed of per the instructions included in the "General SOW Requirements" and "Site Specific Milestones" section of the RFB.

Milestones H – Quarterly Groundwater, Surface Water, and Production Well Monitoring, Sampling, and Reporting - The selected consultant will gauge the entire monitoring well and surface water sampling network and will collect samples from the following locations:

Monitoring wells – MW-1ss, MW-1, MW-2ss, MW-2, MW-3s, MW-3, MW-4s, MW-4, MW-5, MW-6ss, MW-6, MW-8s, MW-8, MW-12s, MW-12, MW-13s, MW-13, MW-15s, & MW-15.

Surface Water Samples – Upstream, Midstream, & Downstream

Production Wells – Aqua Duck

Quarterly sampling events are conducted during the first, second, and fourth quarters of each calendar year. The event for the third quarter of the year will be handled as the Annual Sampling Event discussed in Milestone I.

For this RFB, please assume the total number of quarterly monitoring and sampling events that will be needed is eight (8) events. Please note that PAUSTIF will only pay the selected firm for the actual number of events conducted (i.e., if a firm includes the costs to complete eight (8) events, but only seven (7) events are conducted, then the firm will only be paid for the seven (7) events completed). The selected consultant should be prepared to conduct the first quarterly groundwater sampling event at the Site approximately 90 days after the previously conducted quarterly groundwater sampling event and conduct the second event approximately 90 days after the first event (The current consultant has agreed to continue quarterly sampling at the Site until execution of a contract with a new consultant). Please note that the two years of annual and quarterly groundwater sampling events after remediation will be considered attainment events. Following the completion of each quarterly groundwater sampling event, the selected consultant should prepare a summary progress report for submittal to the PADEP. In addition, the selected consultant will need to promptly prepare and submit a letter format report discussing the results of the relevant monthly event sample results to both the Solicitor and the Aqua Duck property owner with copies to PADEP and USTIF.

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 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 and surface water 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 list (benzene, toluene, ethylbenzene, total xylenes, MTBE, naphthalene, isopropylbenzene, 1,3,5-TMB, and 1,2,4-TMB).
- Groundwater samples shall be collected in accordance with the schedules provided in Milestone G, H, & I. Monitoring well locations are provided on Figure 2 in Attachment 3B.
- Surface water samples shall be collected from each surface water sampling points (upstream, midstream, & downstream) for a total of three (3) surface water samples in accordance with the schedules provided in Milestone G, H, & I. Surface water sample locations are provided on Figure 4 in Attachment 3B.

- In addition to the samples collected from the monitoring wells and surface water locations, 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).
- The quarterly progress reports 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. A draft of the progress report should be provided to the Solicitor for review and approval prior to submittal to the PADEP. Once the report is approved by the Solicitor, the report can be finalized and submitted to the PADEP.
- All IDW waste should be disposed of per the instructions included in the “General SOW Requirements” and “Site Specific Milestones” section of the RFB.

Milestones I – Annual Groundwater, Surface Water, and Production Well Monitoring, Sampling, and Reporting -

The selected consultant will gauge and sample the entire monitoring well and surface water sampling network and the Aqua Duck production well during each annual sampling event. For this RFB, please assume the total number of annual monitoring and sampling events that will be needed is three (3) events. Please note that PAUSTIF will only pay the selected firm for the actual number of events conducted (i.e., if a firm includes the costs to complete three (3) 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 annual groundwater sampling events at the Site during the third quarter of each calendar year for the duration of the project. Please note that the two years of annual and quarterly groundwater sampling events after remediation will be considered attainment events. Following the completion of each quarterly groundwater sampling event, the selected consultant should prepare a summary progress report for submittal to the PADEP. In addition, the selected consultant will need to promptly prepare and submit a letter format report discussing the results of the relevant monthly event sample results to both the Solicitor and the Aqua Duck property owner with copies to PADEP and USTIF.

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 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 and surface water 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 list (benzene, toluene, ethylbenzene, total xylenes, MTBE, naphthalene, isopropylbenzene, 1,3,5-TMB, and 1,2,4-TMB).

- Groundwater samples shall be collected in accordance with the schedules provided in Milestone G, H, & I. Monitoring well locations are provided on Figure 2 in Attachment 3B.
- Surface water samples shall be collected from each surface water sampling points (upstream, midstream, & downstream) for a total of three (3) surface water samples in accordance with the schedules provided in Milestone G, H, & I. Surface water sample locations are provided on Figure 4 in Attachment 3B.
- In addition to the samples collected from the monitoring wells and surface water locations, 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). Contact updated on the progress of the investigation.
- The annual progress reports 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. A draft of the progress report should be provided to the Solicitor for review and approval prior to submittal to the PADEP. Once the report is approved by the Solicitor, the report can be finalized and submitted to the PADEP.
- All IDW waste should be disposed of per the instructions included in the “General SOW Requirements” and “Site Specific Milestones” section of the RFB.

Milestone J - Fate and Transport Modeling - Previously completed and approved Fate and Transport evaluations shall be updated as appropriate with data collected during the SOW (post-remedial) included in this RFB. All efforts should be completed in a manner 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. The Fate and Transport evaluations should be summarized and included in the RACR to be completed as Milestone K.

Milestone K – Preparation of Remedial Action Completion Report - Prepare and submit a RACR for the PADEP approval that will appropriately present an evaluation of current Site conditions and present significant conclusions and request closure and a release from liability from the PADEP for all COCs. The information gathered during the activities completed as part of Milestone A through Milestone J should be incorporated into a comprehensive RACR that will be submitted to the PADEP and will facilitate the objective to complete regulatory requirements governing the RACR 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, geologic data, results and analysis of historical aquifer testing, discussion on the completed remediation efforts, summary of the predictive modeling efforts completed, risk assessments, 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 Remedial Action Completion Report. The RACR shall be sealed by a Professional Geologist registered in the Commonwealth of Pennsylvania. A draft RACR shall be submitted electronically (in Adobe PDF format) to Solicitor and PAUSTIF for review / comment prior to finalizing the RACR. Once the selected consultant has addressed comments on the draft, the selected consultant shall finalize and issue the report to the PADEP. The report submission is to be submitted no later than the date specified in the schedule presented by the selected consultant. 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, disposal documentation, fate and transport modeling, risk assessment and sensitive receptor information) shall also be submitted electronically and in hard copy to Solicitor and Technical Contact for review / comment prior to finalizing it.

Milestone L – Final Well Abandonment - Following confirmation that the PADEP has granted a Relief from Liability for all applicable COCs and no additional groundwater

sampling efforts will be required, the selected consultant will abandon all of the monitoring wells 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.

Milestone M – Additional Monthly Groundwater and Production Well Monitoring, Sampling, and Reporting (Cost Adder Milestone) - Provide a Unit Cost to complete one additional monthly sampling and reporting event. The scope of work for this cost adder should follow Milestone G.

Milestone N – Additional Quarterly Groundwater, Surface Water, and Production Well Monitoring, Sampling, and Reporting (Cost Adder Milestone) - Provide a Unit Cost to complete one additional quarterly sampling and reporting event. The scope of work for this cost adder should follow Milestone H.

Milestone O – Additional Annual Groundwater, Surface Water, and Production Well Monitoring, Sampling, and Reporting (Cost Adder Milestone) - Provide a Unit Cost to complete one additional Annual sampling and reporting event. The scope of work for this cost adder should follow Milestone I.

Milestone P – Additional Sample collected from an Overburden Monitoring Well during a Groundwater Sampling Event (Cost Adder Milestone) - Provide a Unit Cost to sample one (1) additional overburden monitoring well during a groundwater sampling event (either Monthly, Quarterly or Annual Sampling Event). The provided cost would be to cover all labor, equipment, laboratory, waste, reporting, etc.

Milestone Q – Additional Sample collected from Shallow Bedrock Monitoring Well during a Groundwater Sampling Event (Cost Adder Milestone) - Provide a Unit Cost to sample one (1) additional overburden monitoring well during a groundwater sampling event (either Monthly, Quarterly or Annual Sampling Event). The provided cost would be to cover all labor, equipment, laboratory, waste, reporting, etc.

Milestone R - Obtain Off-Site Access (Cost Adder Milestone) – Provide a Unit Cost to secure off-site access in an effort to install (and/or access) a groundwater monitoring

well. The cost should cover the necessary time and materials needed to contact the off-site property owner, draft an access agreement, and obtain approval with one draft revision to the access agreement. The cost does not include any legal fees, payments or permitting costs. Providing this Unit Cost does not commit the consultant to obtain the access agreement. If necessary, the cost should also cover the necessary time and material needed to provide the PADEP with the information they will require to facilitate access to the property.

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

- **Milestone S1** – Installation of one (1) additional overburden monitoring well during a separate mobilization event. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.
- **Milestone S2** - Installation of one (1) additional overburden monitoring well as an add-on to a drilling investigation where mobilization cost has already been included. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.

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

- **Milestone T1** – Installation of one (1) additional shallow bedrock monitoring well during a separate mobilization event. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.
- **Milestone T2** - Installation of one (1) additional shallow bedrock monitoring well as an add-on to a drilling investigation where mobilization cost has already been included. The provided cost would be to cover all labor, equipment, subcontractors, waste, etc.

Milestone U - Soil Gas Sampling (Cost Adder Milestone) - Provide a Unit Cost for the collection of one round of samples from each of the 3 existing vapor sampling points. The scope of work for this cost adder should consider the following:

- Sampling should be performed using a tracer gas to confirm that ambient air is not short-circuiting and mixing with the soil gas samples. Photodocumentation of the tracer gas procedure should be part of the documentation required for this milestone.
- 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. Bid responses should specifically indicate how the consultant anticipates completing the proposed sampling events.
- Samples should be collected in laboratory provided Summa canisters equipped with laboratory calibrated flow regulators and analyzed for benzene, toluene, ethylbenzene, MTBE, naphthalene, isopropylbenzene, 1,3,5-TMB, and 1,2,4-TMB 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 activities should be summarized and presented in an appropriately timed quarterly or annual RAPR (Milestone H or Milestone I) as well as the RACR (Milestone K),

Milestone V – 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 F.

Additional Information

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

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

List of Attachments

1. Remediation Agreement
2. Bid Cost Spreadsheet
3. Site Information/Historic Documents
 - a. Firmstone Task Schedule
 - b. Figures
 - c. Tables
 - d. July 2008 - Final SCR
 - e. April 2009 - RAP
 - f. December 2010 – Modified RAP
 - g. October 2012 - RAP
 - h. February 2015 – Supplemental SCR
 - i. 3rd Quarter 2015 RAPR
 - j. November 2015 - Fate and Transport Analysis Report
 - k. PADEP Correspondence