

**November 18, 2010**  
**Request for Bid (RFB)**  
**Site Characterization Activities followed by Supplemental Site Characterization Report**  
**Submittal including**  
**Fate and Transport and Risk Assessment**  
**(SSCR including FT/RA)**

**Prepared on Behalf of ICF International and PA USTIF**

**Project**  
*Embody's Sunoco*  
1435 East High Street, Pottstown, PA 19464  
USTIF Claim No. 2009-0113(S)  
PaDEP Facility ID #46-24044

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ICFI, on behalf of USTIF is providing this Request for Bid (RFB) solicitation to prepare and submit a fixed-price proposal to complete tasks including the installation of soil borings, installation of monitoring wells, preparation of a supplemental site characterization report, fate and transport, risk assessment, and remedial alternatives activities for the Embody's Sunoco (Site). The Embody's Site assigned address is 1435 East High Street, Pottstown, PA.

The Solicitor has an open claim (Claim #2009-0113(S)) with the Pennsylvania Underground Storage Tank Indemnification Fund (PAUSTIF) and the work outlined in the RFB will be completed under this aforementioned claim. Reimbursement of Solicitor-approved reasonable, necessary and appropriate costs (within claim limits) for the work described in this RFB will be provided by PAUSTIF.

While certain characterization activities have previously been completed at the Site, the existing data-base has been determined to be incomplete for Site characterization approval or for development of a remedial action program capable of Site cleanup due to incomplete Site Characterization data.

Austin James Associates, Inc. (AJA) on behalf of the PAUSTIF and ICFI, will serve as the technical contact for this RFB solicitation process. As such, any questions related to the Site or the bid should be submitted to the technical contact in writing via email with the understanding that all questions and answers will be provided to all bidders. Bidders must not discuss this RFB Solicitation directly with the Solicitor, PaDEP, PAUSTIF, or ICFI unless approved by the Technical Contact. Questions for any of these parties should also be submitted via email to the technical contact that will respond to any questions and relay the response to all bidders (typically via email). In addition, as technical contact, AJA will hold a mandatory pre-bid Site meeting on **Thursday, December 16, 2010 at 11:00 AM** and assist the Solicitor in evaluating the received bid responses. The Site meeting is mandatory and if not attended, a received bid response will not be considered.

While not mandatory, AJA respectfully requests that you send an email to [ajacurt@epix.net](mailto:ajacurt@epix.net) indicating whether your firm expects to attend the meeting and how many representatives from your firm are expected. Please limit the number of representatives to no more than two (2) per

bidding firm.

The attached RFB package provides the information needed to complete an appropriate bid response. The successful bidder will be expected to sign a contract with the Solicitor which is very similar to the Draft Example provided in **Attachment 4**.

This RFB includes four (4) major components with subtasks presented in an outline format for cost analysis. The costs presented in your proposal will be considered fixed unit costs per task. These tasks will be identified for payment and implemented, in accordance with, and subsequent to, the execution of a fixed price contract (Contract). Expenses in excess of the quoted price for the Contract shall be the consultant's responsibility. The scope and budget for identified out of scope activities must be pre-approved to be eligible for consideration of reimbursement. Any costs associated with deviations from the scope that did not receive prior approval from PAUSTIF or its representatives will not be reimbursed.

It is expected that the selected consultant's approach to completing the bid tasks will be in accordance with generally accepted industry standards / practices and all applicable federal, state, and local rules and regulations, including the requirements of the Storage Tank and Spill Prevention Act (Act 32 of 1989, as amended) and Pa. Code, Title 25, Chapter 245, the Land Recycling and Environmental Remediation Standards Act (Act 2 of 1995) and Pa. Code, Chapter 250 (Administration of Land Recycling Program). Any modification to the selected consultant's authorized SOW will require prior written approval by the Solicitor and PAUSTIF through its third-party administrator.

It is currently anticipated that the successful bidder will be directly reimbursed by PAUSTIF for approved, reasonable, necessary, and appropriate costs (up to the limits of the claim). The Solicitor, USTIF/ICFI Technical Contact, and ICFI Representative information is provided below.

**SOLICITOR**

Mr. Terry Embody  
Embody's Sunoco  
1435 East High Street  
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**USTIF/ICFI Technical Contact**

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All completed bid responses are due to the specified ICFI representative no later than **Thursday, January 27, 2011 at 5:00 PM**. Any bid responses not received by this time will not be considered. Please note that each bidder will need to submit one (1) hard copy and one (1) electronic copy on CD to the ICF representative at the contact information provided in the package. The claim number ("Bid – Claim #2009-0113(S)") should be included on the exterior of the bid shipping package. The received bids will be opened and evaluated after the

aforementioned deadline expires and the solicitor anticipates contacting the winning bidder within six (6) weeks.

## **Site Setting and Background Information**

### **Pottstown Site**

#### **Site Setting**

The Site is located at 1435 East High Street, Pottstown, Montgomery County, Pennsylvania. A topographic map indicating the Site's location is included as **Figure 1** in **Attachment 2**. The Site consists of a vehicle repair facility with three (3) repair bays and retail gasoline sales. The Site and surrounding properties are supplied by public water and connected to the municipal sanitary sewage system. The surrounding adjacent properties on East High Street consist of mainly commercial properties with residential properties located immediately north of the Site. **Figure 2** in **Attachment 2** shows an aerial map of the Site, including nearby properties. **Figure 3** in **Attachment 2** shows a base map of the Site identifying property features and boundaries, UST locations (one 6k gasoline and two 10k gasoline tanks), former diesel UST locations (one 4k diesel UST removed in August 2009) and nearby properties.

The site is a 0.205-acre (8,928 sq. ft.) parcel zoned for commercial use. The existing structure includes a one story building. There are currently three (3) USTs located on the property. The most recent PADEP UST Registration information lists one (1) 6,000 gallon capacity and two (2) 10,000 gallon capacity tanks installed in March 1989. The former 4,000 gallon capacity diesel storage tank (the basis for PA USTIF Claim #2009-0113(S) was removed in August 2009. The Site is connected to public sewer and water.

### **1994 and 2009 Release Incidents**

#### **1994 Check Valve Release (beneath dispenser island)**

Information pertinent to a documented 1994 release (confirmed by the PADEP) of gasoline at a check valve (suction line system) located beneath the dispenser/dispenser equipment on October 21, 1994 is summarized below:

#### **PADEP Status of 1994 Release Incident**

**Release Incident:** A notification of release report was verbally reported by telephone to PADEP's Southeast Regional Office answering service at 6:58 AM on October 21, 1994 (forwarded to ECP at 7:58 that morning). The phone notification of release was logged in to the storage tank program data-base on October 25, 1994. The report indicated that a leaking valve (determined to be from a suction line at the base of the dispenser) resulted in an approximated 10 gallon loss that affected a 10 by 10 (assume square foot) area of soil. Other available documentation (consistent with PADEP) indicates the leak occurred at the dispenser / dispensing equipment.

PADEP does not have any technical information/report(s) or records of any action taken in its files from the property owner or any designated agents as a follow-up to the initial notification of the October 21, 1994 suction line check valve release.

PADEP does not have any correspondence in its files from PADEP to the Property owner that would indicate a specific request by PADEP for information / investigation or a request for specific action by PADEP was requested as a follow-up to the October 21, 1994 release notification.

PADEP indicated the regulatory Site status was changed to "inactive" on December 31, 1999. According to PADEP, this regulatory status means that the Site is considered to be a low profile site but indicates the Site is still considered an open case with regard to the 1994 release.

Documentation on the disposal of approximately 50 gallons of "waste flammable liquid" was included in an Environmental Data Package provided by Environmental Resources, Inc. (EDR). The material was transported by Sealand Environmental Services on November 2, 1994. ICFI and its representatives could not confirm whether or not this waste generated at the Site was related to the October 21, 1994 release.

#### 2009 Hydrocarbon Release during Diesel UST System Removal

This claim (USTIF Claim #2009-0113(S)) relates to a reported release of diesel fuel gasoline first reported to USTIF in August 2009. This release was detected in June 2009 based on the persistence and continued in-take of water into the 4,000 gallon capacity diesel tank. The 4,000 gallon capacity diesel tank was removed on August 18, 2009; five (5) soil samples and two (2) groundwater samples were obtained during tank removal activities. One (1) groundwater sample indicated an exceedance of benzene (5.2 ug/l) and provided the basis for confirmation of a reportable release. A copy of the 2009 4,000 gallon capacity diesel UST Closure Report is included in **Attachment 3**.

#### Other Potential Off-Site Sources within the Study Area

Records for any other potential source area(s) were not evaluated beyond documentation of their location relative to the Embody's Sunoco Site. (See **Figure 2** in **Attachment 2**)

#### Previous Reports Submitted for the Embody's Sunoco Site

##### 1994 Check Valve Release (beneath dispenser island)

No reports submitted.

##### 2009 Hydrocarbon Release during Diesel UST System Removal

In August 2009 Centerpoint Tank Services Inc. (Centerpoint) prepared and submitted an Underground Storage Tank System Closure Report for the 4,000 gallon capacity diesel tank (results from this report, specifically the benzene exceedance in groundwater, formed the basis for PA USTIF Claim #2009-0113(S)). Additional characterization work was completed by

Centerpoint; this work is detailed in the 1<sup>st</sup> Quarter 2010 and 2<sup>nd</sup> Quarter 2010 Site Status Reports. Copies of the August 2009 UST Closure Report, the 1<sup>st</sup> Quarter 2010 Site Status Report, and the 2<sup>nd</sup> Quarter 2010 Site Status Report are included in **Attachment 3**.

Recommendations consistent with completing the Site characterization in order to provide information necessary to ultimately facilitate Site closure include a work scope with elements consisting of the following:

1. Sampling of the existing monitoring well network (existing monitoring wells MW1 thru MW4) prior to the initiation of supplemental site characterization activities.
2. Advance soil borings and sample soils from fourteen (14) soil borings at the suggested locations indicated on **Figure 4a** in **Attachment 2**. Fourteen (14) soil samples should be collected to determine the nature and extent and magnitude of the impacted soils at the Site. Industry standard protocol should be followed for the collection of the soil samples.
3. Install six (6) additional shallow monitoring wells at the locations suggested on **Figure 4** in **Attachment 2**.
4. Replacement of existing deep well MW2 with a "new" short screened deep well labeled MW2D. The location of MW2 is shown on **Figure 4** in **Attachment 2**.
5. Replacement of existing deep well MW4 with two nested piezometers labeled MW4S (shallow) and MW4D (deep). The location of MW4 is shown on **Figure 4** in **Attachment 2**.
6. Perform various aquifer characterization activities, including step down testing to determine pump testing withdrawal rates for each well, followed by shallow (utilizing MW3) and deep zone (utilizing MW2D) 24 pump tests.
7. A sensitive receptor survey should be completed for the Site to evaluate the presence or absence of local supply wells, to determine the presence or absence of other potential leaks or hydrocarbon losses within or in close proximity to the study area, and to provide a history of the storage and distribution of hydrocarbon products and/or discharges at or in close proximity to the Site.
8. A Fate and Transport (FT) evaluation should be completed as appropriate and consistent with Act 2 guidance in order to address contaminant migration scenarios. This evaluation should include dissolved phase concentration trend analysis and groundwater modeling as appropriate for constituents of concern at the site. The FT evaluation should be sufficient to determine the current and future extent of the dissolved phase plume for constituents of concern in groundwater for use in the development of a remedial action plan. It should also consider the degree of attenuation

with respect to any down-gradient receptors and evaluate any supply well impacts (including the possibility/likelihood of offsite sources).

9. An estimate of the mass of hydrocarbons remaining in the subsurface should be provided. This estimate should use available site data and may take advantage of accepted approximations, however if used such approximations and estimates must be explained and justified.
10. A preliminary risk assessment evaluation should be completed consistent with the guidelines provided in the Act 2 guidance manual (applicable portions of Sections II.C.4, IV.G and IV.H). These sections provide general information on risk assessment, developing site-specific standards and pathway elimination, and guidance on site-specific human health assessment procedures. This guidance should be followed to conduct a baseline risk assessment or to develop site-specific standards.
11. A remedial alternatives analysis should be completed to compare possible cleanup alternatives and evaluate which technology is most appropriate for the Site.
12. The consultant should prepare a Supplemental Site Characterization Report that documents and discusses the data obtained and the conclusions drawn from the completion of the discrete work scope specified in Request for Bid (RFB). At a minimum, Figures that support the text should include the following:
  - USGS Topographic Map of Study Area
  - Aerial Photo or Satellite Image of the Site Area
  - Site Map (showing Site boundaries and pertinent Site features)
  - Area Map (showing Site and adjacent properties, property boundaries, and property features; should be based on tax map)
  - Geologic map (showing area bedrock geology and overburden, if available)
  - Local Geologic Features Map (showing Site geology and pertinent structural features [strike and dip])
  - Soil Sampling Location Map
  - Soil Sampling Results Map (showing source areas or inferred source areas at the Site; iso-concentration maps should be prepared based on the available data)
  - Monitoring Well Location Map (showing existing and new well locations)
  - Groundwater Elevation Contour Map(s) for each sampling event
  - Groundwater Sampling Results Map(s) for each sampling event (with results tabulated on the map)
  - Groundwater Iso-concentration Maps (showing source areas or inferred source areas at the Site; iso-concentration contours should be prepared for benzene and Methyl tert-Butyl Ether (MTBE), as appropriate, based on the available data)
  - Fate and Transport Figures, as appropriate, based on the results obtained from Quick\_Domenico Modeling
  - Figures supporting the Site conceptual model

- Other Figures as appropriate

Figures should be located in the first Appendix for ease of reference. Additional Appendices should be provided to include well and soil-boring logs, soil results tables and data, groundwater results tables and data, aquifer test data and results, soil gas results table and data, and a recent EDR-type report detailing nearby potential receptors and sources, etc.

These supplemental Site characterization activities are intended to fully delineate impacted soil and groundwater at the Site. This RFB specifies preparation of a Supplemental Site Characterization Report (SSCR) to be submitted within four months of the bid award date, pending PADEP approval of the work plan and the schedule for implementation. The SSCR should document and discuss the data obtained and the conclusions drawn from the completion of Tasks 2.1 through 2.5 and incorporating historical groundwater and/or soil data as appropriate. The RFB also requires submittal of a Fate and Transport and Risk Assessment (FT/RA) to be completed as part of the SSCR. The FT/RA work is to be completed concurrently with the Site characterization work to determine the horizontal and vertical extent of gasoline hydrocarbon material emanating from the tank field/dispenser island area and evaluate the potential risk to the Site and adjacent properties. The FT/RA will document and discuss the data obtained and the conclusions drawn from the completion of Tasks 3.1 through 3.4.

## **PROPOSED SCOPE OF WORK**

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

- Meet with the PaDEP to discuss and obtain approval of the suggested work-scope;
- Complete additional monitoring well installation/replacement of existing monitoring wells and sampling at on site locations;
- Complete additional soil sampling to characterize soils in and around former tank excavation;
- Complete aquifer characterization activities; 24 hour pump tests;
- Complete the Site characterization providing documentation of the source area(s) and the vertical and horizontal limits of impacted soil and groundwater with adequate documentation, including a site conceptual model, in a comprehensive Supplemental Site Characterization Report;
- Complete an estimate of the mass of hydrocarbons remaining in the subsurface;
- Complete an exposure pathway assessment and risk assessment to demonstrate or eliminate exposure pathways and determine Site-specific closure goals for regulated gasoline components in soils and groundwater at the Site;
- Complete fate and transport modeling to assess, as necessary, soil, groundwater, and vapor intrusion media pathways to determine if and the extent to which dissolved phase

hydrocarbons have or may be expected to migrate beyond the property boundary, now, or in the future; and,

- Complete a remedial alternatives analysis to compare cleanup methods and which methods would be applicable to the Site.

#### Itemized Proposal Tasks

The proposal should follow the task format outlined herein. Proposals should include a detailed description of the anticipated costs for each task including labor rates, time requirements and equipment costs. A Cost Summary Sheet, to be attached to your proposal, is included as **Attachment 1**.

#### Task 1 - Project Management

- Task 1.1 Preparations of Project Guidance Documents
- Task 1.2 Project Management

#### Task 2 - Supplemental Site Characterization Activities

- Task 2.1 Meet with PaDEP to Discuss and Obtain Approval of the Work Scope
- Task 2.2 Site Documentation
  - Task 2.2.1 - Site Layout/Historic Property Use/Area Water Supply Documentation
  - Task 2.2.2 - Geology Documentation
- Task 2.3 - Installation of Monitoring Wells, Reconstruction of Existing Deep Wells, and Soil Borings
  - Task 2.3.1 - Installation of Six New Shallow Monitoring Wells and Replacement of Two Existing Deep Wells
  - Task 2.3.2 - Installation of Fourteen Shallow Soil Borings
- Task 2.4 - Initial Water Level Data Collection and Confirmatory Groundwater Sampling
  - Task 2.4.1 - Liquid Level Elevation Data Collection
  - Task 2.4.2 - Groundwater Sampling from Monitoring Wells and Piezometers
- Task 2.5 - Hydraulic Parameter Estimates and Aquifer Characterization

#### Task 3 - Fate and Transport/Risk Assessment, and Remedial Alternatives Evaluations

- Task 3.1 - Fate and Transport Evaluation
- Task 3.2 - Hydrocarbon Mass Estimate Documentation
- Task 3.3 - Risk Assessment Evaluation
- Task 3.4 - Remedial Alternative Evaluation

#### Task 4 - Preparation of Supplemental Site Characterization Report

In addition to the **Attachment 1** Cost Summary Sheet, additional information is provided in **Attachments 2** and **3** to assist in the bidding process. **Attachment 2** provides various figures either recently generated or reproduced from existing files. These include:

- Figure 1 – USGS Topographic Map Showing Site location
- Figure 2 – Satellite Image Map Showing Site Location
- Figure 3 – Base Map
- Figure 4 – Proposed Monitoring Well Location Map
- Figure 4a – Proposed Soil Boring Location Map

**Attachment 3** provides supporting documents, including: copies of the August 2009 UST Closure Report, the 1<sup>st</sup> Quarter 2010 Site Status Report, and the 2<sup>nd</sup> Quarter 2010 Site Status Report.

## **Task 1.0 - PROJECT MANAGEMENT**

### **Task 1.1 Preparation of Project Guidance Documents**

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

### **Task 1.2 Project Management**

The successful bidder shall complete necessary, reasonable, and appropriate project management activities for the duration of the contract period consistent with release investigation projects. Such activities would be expected to include client communications / updates, meetings, permitting, record keeping, subcontracting, personnel and subcontractor management, quality assurance / quality control, scheduling and other activities. A Project Manager should be identified who is responsible for oversight of the project and communications with ICFI, its representatives, USTIF, and PaDEP.

## **Task 2.0 - SUPPLEMENTAL SITE CHARACTERIZATION ACTIVITIES**

### **Task 2.1 - Meet with PADEP to Discuss and Obtain Approval of the Proposed Work Scope**

A meeting with PaDEP has been proposed to present and discuss the elements of the proposed Work-plan. We anticipate scheduling the meeting with PADEP's Southeast Regional Office prior to initiation of Site activity. The consultant should assume the meeting would include ICFI and/or its representatives. Your budget for this activity should include time to prepare for the meeting and should assume the meeting will be held at the Site or the PADEP's Southeast Regional Office.

## Task 2.2 - Site Documentation

### Task 2.2.1 - Site Layout/Historic Property Use/Area Water Supply Documentation

This task involves the completion of general Site documentation that includes, but is not limited to the following:

- Review of Site history through review of historic files and previous reports including files in possession of ICF and PaDEP files.
- Documentation/confirmation of area water supply locations.
- Interviews with ICF's third party consultant, PaDEP, and Embody's Sunoco representatives as necessary to obtain facts concerning Site characterization history and Site history, respectively.
- Documentation of all Site features that may have an impact on the dispersion of regulated dissolved phase unleaded gasoline components at the Site (i.e. Site supply wells, drainage features, wetlands, streams, septic or drain fields, utilities, etc.).
- Research of County Courthouse records to obtain a property tax map to determine property boundaries and other appropriate information.
- Documentation/confirmation of the area water use (both domestic and public), including documentation of the absence or presence of municipal, township, or county restrictions for the future installation of supply wells.
- Any other applicable information and documentation to comply with Title 25, Chapter 245, Administration of the Storage Tank and Spill Prevention Program, 245.309; Site Characterization, and, 245.310; Site Characterization Report.

This information will be incorporated into the SSCR to aid in the determination of the best alternative remedial strategy for the Site.

### Task 2.2.2 - Geology Documentation

This task involves the evaluation and documentation of the structural features inherent to the shallow groundwater formation. Evaluations of the structural orientation (strike, dip, cleavage features, etc.) of the underlying bedrock formation should be included and generated using accepted geologic practices/interpretation as well. This information should be incorporated into the SSCR as applicable, to aid in the determination of the dispersion and migration pathways for dissolved phase hydrocarbon components in groundwater emanating from the source area(s) at the Site.

Task 2.3 - Installation of Monitoring Wells, Reconstruction of Existing Deep Wells, and Soil Borings

Task 2.3.1 - Installation of Six New Shallow Monitoring Wells (wells MW5-MW10) and Replacement of Two Existing Deep Wells (MW2 and MW4)

With regard to the installation of six new shallow wells, replacement of existing deep well MW2 with a new shorter screened deep well deep well (well MW-2D) constructed within the same borehole, and replacement of existing deep well MW4 with two nested piezometers (wells MW-4S/D) constructed within the same borehole (one shallow piezometer and one deep piezometer, well construction considerations are recommended as follows:

Replacement of existing deep well MW2 with a new short-screened deep well (MW-2D): Total depth of existing well – approximately 120 feet. The total depth for reconstructed well – approximately 120 feet. The existing well is recommended to be re-drilled (using a ten-inch bit in the uppermost twenty feet to remove the bentonite and using an eight inch bit for the remaining 100 feet (120 feet total) to remove the existing sand-pack and other borehole debris. If possible, the existing screen and casing should be pulled prior to re-drilling. Construction - the well should be constructed of four-inch schedule 40 PVC (0.02" slot screen) from the base of the borehole to approximately 80 feet continuing with four-inch schedule 40 PVC casing atop the screened interval for the remaining portion of the borehole to approximately 3-inches below the surface grade. The annular space within the screened portion of the borehole is recommended to be filled with #2 Morie sand to a level approximately 4 feet above the well screen interval (to approximately 76 feet). A pressure grout should be placed atop the sand interval and the annular space above the sand grouted to approximately 3 feet below grade. An adequate seal will be essential for this new deep well, therefore, well construction procedures will require a pressure grout using a tremie pipe, grouting from the top of the sand interval (approximately 76 feet) to approximately 3 feet below surface grade with the remaining annular space filled with bentonite to approximately 9-inches below the top of casing. A sand pack or natural material may then be used to fill the last 6-inches, more or less. The wellhead is recommended to be fitted with a locking gripper cap and housed in a watertight manhole with a bolt-down cover to prevent unauthorized access. The location of Replacement well MW-2D is shown on **Figure 4 in Attachment 2**. As always, care must be taken to ensure all underground utilities are cleared. Should there be any question concerning underground conflicts, soft-dig or other adequate clearing procedures should be used prior to installation.

Replacement of existing deep well MW4 with two nested piezometers (MW-4S/D): Total depth of existing well - 99 feet. Total depth of reconstructed well with two nested piezometers (Well MW4-4S/D): 99 feet. The existing well is recommended to be re-drilled (using a ten-inch bit in the uppermost ten feet to remove the bentonite and using an eight inch bit for the remaining 89 feet (99 feet total) to remove the existing sand-pack and other borehole debris. If possible, the existing screen and casing should be pulled prior to re-drilling.

Deep Piezometer Construction - The deep short screened piezometer should be constructed of two-inch schedule 40 PVC (0.02" slot screen) from the base of the borehole to approximately 76

feet continuing with two-inch schedule 40 PVC casing atop the screened interval for the remaining portion of the borehole to approximately 3-inches below the surface grade. The annular space within the screened portion of the borehole is recommended to be filled with #2 Morie sand to a level approximately 4 feet above the well screen interval (to approximately 72 feet). A pressure grout should be placed atop the sand interval and the annular space above the sand grouted to approximately 28 feet below grade. An adequate seal will be essential for this new deep short-screened piezometer, therefore, well construction procedures will require a pressure grout using a tremie pipe, grouting from the top of the sand interval (approximately 72 feet) to approximately 28 feet below surface grade.

Shallow Piezometer Construction - Total depth 28 feet. The shallow piezometer should be constructed of two-inch schedule 40 PVC (0.02" slot screen) from the top of the sand-pack (approximately 28 feet) to 5 feet continuing with two-inch schedule 40 PVC casing atop the screened interval for the remaining portion of the borehole to approximately 3-inches below the surface grade. The annular space within the screened portion of the borehole is recommended to be filled with #2 Morie sand to a level approximately 1 foot above the well screen interval (to approximately 4 feet) with a bentonite seal atop the sand-pack continued to approximately 9-inches below surface grade. A 6-inch sand pack or natural material may then be used to fill the last 6-inches, more or less. The wellhead is recommended to be fitted with a locking gripper cap and housed in a watertight manhole with a bolt-down cover to prevent unauthorized access. The deep and shallow piezometers should be clearly marked to facilitate future sampling. The location of Replacement well MW-2S/D is shown on **Figure 4** in **Attachment 2**. As always, care must be taken to ensure all underground utilities are cleared. Should there be any question concerning underground conflicts, soft-dig or other adequate clearing procedures should be used prior to installation.

Installation of 6 new shallow monitoring wells MW5-MW10: Total depth 25 feet. The shallow piezometer should be constructed of four-inch schedule 40 PVC (0.02" slot screen) from the base of the borehole (approximately 25 feet) to approximately 5 feet continuing with four-inch schedule 40 PVC casing atop the screened interval for the remaining portion of the borehole to approximately 3-inches below the surface grade. The annular space within the screened portion of the borehole is recommended to be filled with #2 Morie sand to a level approximately 1 foot above the well screen interval (to approximately 4 feet) with a bentonite seal atop the sand-pack continued to approximately 9-inches below surface grade. A 6-inch sand pack or natural material may then be used to fill the last 6-inches, more or less. The wellhead is recommended to be fitted with a locking gripper cap and housed in a watertight manhole with a bolt-down cover to prevent unauthorized access. The location of the proposed new wells (wells MW-5 to MW10) is shown on **Figure 4** in **Attachment 2**. As always, care must be taken to ensure all underground utilities are cleared. Should there be any question concerning underground conflicts, soft-dig or other adequate clearing procedures should be used prior to installation.

Based on field screening with the PID, drill cuttings (for the installation of the wells and the soil borings) shall be segregated into impacted and non-impacted stockpiles at a location designated by the property owner at the Site. Those materials exhibiting PID readings above 10

parts per million (ppm) should be considered impacted and shall be properly containerized or stockpiled on and beneath plastic sheeting pending subsequent characterization and disposal. "Clean" material shall be segregated from the impacted material and shall also be properly containerized, or stockpiled on, and beneath plastic sheeting, pending subsequent characterization and disposal. Soil/rock cuttings and liquids generated during the drilling activities will be managed in a manner consistent with the protocols set forth by PaDEP. Disposal of soil/rock cuttings, if necessary, should be arranged through an approved disposal facility. The volume of the soil/rock cuttings and/or drilling fluids (i.e., impacted water) may be estimated at approximately four (4) tons, and costs for containment, treatment, and/or disposal should be included in your proposal.

Monitoring Well Development - The entire monitoring well network should be developed following the installation of the two replacement wells and six new wells. 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. Groundwater removed from the well during sampling must be managed in accordance with applicable PADEP regulations and policies.

### 2.3.2 Installation of 14 Shallow Soil Borings (SB1 to SB14)

The installation of 14 soil borings (with one sample sent for analysis per borehole) is recommended to ensure characterization / documentation of the anticipated / suspected source areas (diesel tank field area and the dispenser island area) at the site. The borings are placed to ensure adequate coverage of the two potential source areas. The soil borings should be advanced using auger split-spoon sampling techniques with continuous screening fossils retrieved from the borehole. The boreholes should be advanced to the top of bedrock to approximately 5 feet at the Site. Soils retrieved within each split spoon should be screened and the portion of the sample exhibiting the highest PID reading and or the sample exhibiting saturation (whichever comes first) should be secured for analysis. If the PID does not respond (gives a -0- reading), then the sample collected closest to the top or at the top of bedrock should be sent to the lab for analysis.

Soil sample Analysis - Following collection of each soil sample, the soil sample should be secured and preserved using appropriate methods as specified in the regulations for samples to be analyzed for the PaDEP required regulated shortlist unleaded gasoline and diesel fuel parameters including:

- *BTEX, MTBE, Naphthalene, Cumene, 1,3,5-TMB, and 1,2,4-TMB*

The consultant shall be sure to include sufficient sample with added containers and preservation if and as indicated necessary by the analyzing laboratory and by regulatory requirements for each of the samples.

The "methanol preservation" or other appropriate method is to be used where applicable (for VOCs), as specified by current regulatory soil sampling procedures. The samples should be collected and sent to a Pennsylvania certified analytical laboratory for appropriate analysis. Upon receipt of the analytical results, the Consultant shall forward a copy of the analytical results to ICF and its designated representative(s).

As always, care must be taken to ensure all underground utilities are cleared. Should there be any question concerning underground conflicts, soft-dig or other adequate clearing procedures should be used prior to installation. Due to the shallow depth to bedrock, any, boreholes subject to potential conflict may be hand-augured to the extent possible. It is critical to obtain samples as close to the suspected releases as possible to ensure the presence or absence of soil adsorbed hydrocarbons in those areas. Removing the dispensers and sumps beneath the island is also an option if the adjacent soil borings are not considered possible. A private mark-out may need to be conducted with appropriate equipment in the area proposed boring locations near/proximal to the dispenser island to locate any underground utilities, the associated piping to the existing tank field, electrical lines, and/or obstructions in the area of the proposed boring locations. If necessary, each boring location may need to be cleared by pre-excavating the location either by hand or by mechanical means. The location of the proposed soil borings (borings SB1 to SB14) is shown on **Figure 4a** in **Attachment 2**. The proper permits (if applicable) will need to be acquired through the City of Pottstown or Montgomery County before performing any intrusive Site activities.

## Task 2.4 - Initial Water Level Data Collection and Confirmatory Groundwater Sampling

### 2.4.1 Liquid Level Elevation Data Collection

Initial water level measurements should be collected from the existing well network (existing wells MW1-MW4) prior to initiation of supplemental site characterization activities. Water level measurements shall be taken from each of the existing four monitoring wells. Measurements should be completed using a probe capable of distinguishing water and/or the presence or absence of SPL to the nearest 0.01 feet. That data shall be recorded and used in the preparation of the SSCR.

A second set of water level measurements shall be collected approximately two to four weeks after the installation of the new wells (wells MW5-MW10) and replacement of the existing deep wells with wells MW-2D and MW-4S/D. The depth to water data shall be recorded and then used to determine water level elevations such that shallow groundwater flow direction across the Site may be determined. Casing elevations shall be surveyed within +/- 0.01 foot relative to an arbitrary benchmark established at the Site (it is recommended that all of the monitoring wells be re-surveyed following the installation of the new wells at the Site. 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 if one exists. Water level depth data (measured from the top of the casing) shall then be subtracted (with appropriate corrections made for the presence of SPL) from respective casing elevations to determine water level elevations relative to the arbitrary benchmark such that shallow groundwater elevations and groundwater flow direction across the property may be determined. Monitoring wells that contain SPL should be corrected for product thickness when calculating the static water levels in these wells.

Liquid level data shall be measured and recorded for the wells using an electronic water level probe or oil/water interface probe, as appropriate and recorded to the nearest 0.01 foot. Liquid levels shall be collected on the same day with the first and last recording collected as close as practical to ensure the collection of representative static water levels in the wells. The SPL thickness (if any) and volume of standing water in the well column should also be calculated. Wells exhibiting measurable SPL should not be sampled. SPL with accumulations of more than 0.10 feet should be removed by bailing and should be collected in a 55-gallon drum to be staged on-site. In the event that the wells do not contain SPL, each well should be sampled to determine the concentration of dissolved unleaded gasoline type hydrocarbons as indicated below.

A third confirmatory liquid level/sampling event shall be conducted approximately 45 days following collection of the second set of data.

#### 2.4.2 Groundwater Sampling from Monitoring Wells and Piezometers

Groundwater samples should be collected from the existing monitoring well network (existing wells MW1-MW4) prior to initiation of supplemental site characterization activities.

A second set of groundwater samples shall be collected from existing monitoring wells MW1 and MW3, new wells (wells MW5-MW10) and replacement wells MW-2D and MW-4S/D approximately two to four weeks after the new wells are completed.

A third set of groundwater samples shall be collected from existing monitoring wells MW1 and MW3, new wells (wells MW5-MW10) and replacement wells MW-2D and MW-4S/D approximately 45 days following the second sampling event.

Groundwater sampling and analysis shall be conducted in accordance with generally accepted practices as outlined in the PaDEP Groundwater Monitoring Guidance Manual, dated January 1, 1999 (Document # 383-3000-001).

Sampling equipment should be decontaminated prior to sample collection in accordance with generally accepted industry practices. Approximately three times the volume of the standing water column shall be purged from the wells prior to sample collection to ensure a representative sample is collected. Purging should be accomplished by using a bailer, peristaltic pump, or a variable-rate, electric, submersible pump. For low volume purge methods,

field parameters such as temperature, pH, specific conductance and dissolved oxygen should be monitored to ensure that the well is adequately purged to draw formation groundwater into the well. At the conclusion of purging, groundwater samples shall be collected as soon as practical. If the well is purged dry, it should generally be allowed to recover to 75%, or for a maximum of 24 hours prior to sampling.

Samples should be collected directly from the bailer or other sampling device. Volatile samples should be collected directly into laboratory-supplied bottle-ware and kept cold (<4° C) through delivery to the analytical laboratory. The groundwater samples should be submitted under chain-of-custody documentation protocols set forth by the laboratory, and consistent with PaDEP protocol.

Analyses will consist of PaDEP required regulated short-list unleaded gasoline and diesel fuel parameters using the approved laboratory methods capable of reporting to levels which include the SHS criteria for each component

- *BTEX, MTBE, Naphthalene, Cumene, and TMBs*

The samples should be collected and sent to a Pennsylvania certified analytical laboratory for appropriate analysis. Upon receipt of the analytical results, the Consultant shall forward a copy of the analytical results to ICF and its designated representative(s).

Groundwater removed from the well during sampling must be managed in accordance with applicable PADEP regulations and policies.

#### Task 2.5 - Hydraulic Parameter Estimates & Aquifer Characterization

##### Step Down Testing to Determine Applicable Pump Test Flow Rates

A four hour duration preliminary step-down pump test (or applicable duration to determine pump testing withdrawal rates for each well) shall be performed on shallow well MW3 and a second step-down test for deep well MW2D to determine applicable pumping pump rates for a 24 hour pump test for each well. Water level responses should be measured using a pressure transducer and electronic data logger, or other appropriate acceptable method. No other wells shall be monitored since the purpose of the test is only to determine applicable or safe yield for each well so that the pump test may be completed at a constant rate without the potential of dewatering the well during each of the tests.

##### 24 Hour Pump Tests

Once the pumping rate has been determined a 24-hour constant rate pump test shall be completed for the shallow zone using monitoring well MW3 as the discharging well at the pump rate determined through the step-test. Water level responses should be measured using a pressure transducer and electronic data logger, or other appropriate acceptable method. All shallow and deep monitoring wells should be monitored in accordance with acceptable industry protocol during the test.

A second pump test (allowing approximately one week between tests) shall be completed for the deeper zone using monitoring well MW2D as the discharging well at the pump rate determined through the step-test. Water level responses should be measured using a pressure transducer and electronic data logger, or other appropriate acceptable method. The field data should be analyzed using industry-standard analytical methods to estimate site-specific values of the aquifer characteristics including horizontal and vertical hydraulic conductivity (K), transmissivity (T), storage capacity (S) and groundwater seepage velocity. Results, including data spreadsheets and graphs should also be prepared.

### **TASK 3.0 - Fate & Transport/Risk Assessment and Remedial Alternatives Evaluations**

#### **Task 3.1 - Fate and Transport Evaluation**

A Fate and Transport (FT) evaluation shall be completed as appropriate and consistent with Act 2 guidance in order to address contaminant migration scenarios. This evaluation should include dissolved phase concentration trend analysis and groundwater modeling as appropriate for constituents of concern at the site. The FT evaluation should be sufficient to determine the current and future extent of the dissolved phase plume for constituents of concern in groundwater for use in the development of a remedial action plan. It should also consider the degree of attenuation with respect to any down-gradient receptors and evaluate any supply well impacts (including the possibility/likelihood of offsite sources).

Fate and Transport groundwater modeling may be completed using the Quick\_Domenico Model. This is one of the PaDEP approved models referenced in Act 2. Quick\_Domenico may be suited for use at the subject Site but given bedrock is shallow and the formation is fractured (PaDEP may have another fate and transport procedure that it recommends for application at the Site). PaDEP has acknowledged that it allows the Quick\_Domenico to be utilized on fractured rock sites as long as the biodegradation factor is set to zero and when significant characterization data exists.

#### **Task 3.2 - Hydrocarbon Mass Estimate Documentation**

An estimate of the mass of hydrocarbons remaining in the subsurface shall be provided. This estimate should use available site data and may take advantage of accepted approximations, however if used such approximations and estimates must be explained and justified.

#### **Task 3.3 - Preliminary Risk Assessment Evaluation**

A risk assessment shall be completed consistent with the guidelines provided in the Act 2 guidance manual (applicable portions of Sections II.C.4. IV.G and IV.H). These sections provide general information on risk assessment, developing site-specific standards and pathway elimination, and guidance on site-specific human health assessment procedures. This guidance should be followed to conduct a baseline risk assessment or to develop site-specific standards.

If complete exposure pathways exist, the fate and transport analysis, which is a part of the exposure assessment, should be documented in the SCCR. The results of the FT/RA evaluation will be utilized to develop closure goals for the Site and to support the selection process for the remedial action option and development and to ensure its consistency with Site conditions.

Any city ordinances that are currently in place should be evaluated in this section.

#### Task 3.4 - Remedial Alternatives Analysis

A remedial alternative analysis should be completed to compare cleanup alternatives and evaluate which technology is most appropriate for the Site.

The results of the FT/RA evaluation will be utilized to develop closure goals for the Site so that an appropriate RAP consistent with subsurface conditions may be developed.

#### **Task 4.0 - Preparation of Supplemental Site Characterization Report**

The consultant shall prepare a Supplemental Site Characterization Report that documents and discusses the data obtained and the conclusions drawn from the completion of Tasks 2.0 and 3.0. At a minimum, Figures that support the text should include the following:

- USGS Topographic Map of Study Area
- Aerial Photo or Satellite Image of the Site Area
- Site Map (showing Site boundaries and pertinent Site features)
- Area Map (showing Site and adjacent properties, property boundaries, and property features; should be based on tax map)
- Geologic map (showing area bedrock geology and overburden, if available)
- Local Geologic Features Map (showing Site geology and pertinent structural features [strike and dip])
- Soil Sampling Location Map
- Soil Sampling Results Map (showing source areas or inferred source areas at the Site; iso-concentration maps should be prepared based on the available data)
- Monitoring Well Location Map (showing existing and new well locations)
- Groundwater Elevation Contour Map(s) for each sampling event
- Groundwater Sampling Results Map(s) for each sampling event (with results tabulated on the map)
- Groundwater Iso-concentration Maps (showing source areas or inferred source areas at the Site; iso-concentration contours should be prepared for benzene and MTBE, as appropriate, based on the available data)
- Fate and Transport Figures, as appropriate, based on the results obtained from Quick\_Domenico Modeling
- Figures supporting the Site conceptual model

- Other Figures as appropriate

Figures should be located in the first Appendix for ease of reference. Additional Appendices should be provided to include well and soil-boring logs, soil results tables and data, groundwater results tables and data, pump test data and results, soil disposal documentation, as applicable, a recent EDR-type report detailing nearby potential receptors and sources, etc, and documentation of Quick Domenico input parameters (including justification where de-fault values were not utilized) and the resulting spreadsheet output pages, risk assessment program (such as RBCA) input and output documentation sufficient for evaluation as required by PADEP. Other Attachments should be provided as appropriate.

The SSCR must comply with the provisions of Chapter 245 Section 245.309 Site Characterization, and, Section 245.310, Site Characterization Report. The report shall provide a detailed summary of the tasks completed and provide an interpretation of the results. The report shall be submitted to PADEP no later than 4 months after being awarded the contract. A draft report is requested by ICFI and USTIF 15 days prior to PADEP submittal.

### **QUALIFICATION QUESTIONS**

In order for proposals to be considered administratively complete, the proposals need to provide answers to the five (5) qualifications and experience questions provided below:

- 1) Does your company employ the Pennsylvania licensed Professional Geologist (P.G.) that is designated as the proposed project manager? How many years of experience does this person have?
- 2) How many Chapter 245 projects are your company currently consultant on record for in the Northeast region of Pennsylvania? Please List.
- 3) How many Chapter 245 projects have your company and/or the proposed Pennsylvania licensed P.G. worked on in the Northeast region of Pennsylvania during the last five (5) years?
- 4) How many Chapter 245 projects have your company and/or the Pennsylvania licensed P.G. closed (i.e., obtained relief from liability from the PaDEP) using either the Statewide Health Standards or Site Specific Standards? Please list.
- 5) Has your company ever walked away from a USTIF Fixed Price Contract or Pay For Performance contract without attaining all of the Milestones? If so, please explain why the contract was not fulfilled?

### **CONTRACT INFORMATION AND BID INSTRUCTION**

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

necessary, and appropriate. A draft copy of the proposed fixed price contract is included in **Attachment 4**.

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

- A demonstration of the bidder's understanding of the objectives of the project and the bidders approach to achieving those objectives efficiently based on the existing site information provided in this RFB;
- A fixed price cost estimate for work through the completion of the work plan activities;
- Provide a detailed schedule of activities for completing the proposed scope of work inclusive of reasonable assumptions regarding the timing and duration of client reviews (if any) needed to complete the scope of work;
- Indication of whether the bidder accepts or seeks changes to the proposed contract / terms and conditions;
- The bidder's level of insurance;
- The bidder's proposed unit cost rates for each expected labor category, subcontractors, other direct costs and equipment;
- The bidder's proposed markup on other direct costs and subcontractors (if any);
- Identify and describe the involvement of subcontractors;
- Identify any exceptions, assumptions, or special conditions applicable to scope;
- Cost by task and total costs must be defined within the proposal text and on the cost spreadsheets (Attachment 1);
- The bidder's total cost by task consistent with the proposed scope of work identifying all level-of-effort and costing assumptions;
- A statement of qualifications including that of any major subcontractor(s);
- Describe your approach to working with the PaDEP from project inception to submittal of the SCR. Describe how the PaDEP would be involved proactively in the resolution of technical issues and how the PaDEP case team will be kept informed of activities at the Site;
- Describe how the Solicitor and ICF/PAUSTIF will be kept informed as to project progress and developments and how the Solicitor (or designee) will be informed of and participate in evaluating technical issues that may arise during this project;
- Answers to the qualification questions discussed in the RFB;
- Identify the names of the proposed project team for the key project staff, including the proposed Professional Geologist of Record who will be responsible for overseeing the work and applying a professional geologist's seal to the project deliverables; and
- Provide a description of how the proposed work scope will be completed.

In addition, the bidder shall provide its bid using the format identified in this RFB and will provide brief descriptions of each task in the body of the bid document. In addition, the successful bidder will complete both the cost summary sheet and the detailed cost sheet (electronic version) included in **Attachment 1**. An electronic version of the detailed cost spreadsheet included in **Attachment 1** (in Microsoft Excel Format) has been provided online. In addition to the cost spreadsheet, each bidder should modify the Milestone/Proposed Payment Schedules included as Exhibit B and Exhibit C of the fixed price contract in **Attachment 4** to reflect the Bidder's anticipated time schedule. The detailed cost spreadsheet and the RFB SOW will be

will be incorporated as attachments to the Fixed Price Contract (also included in **Attachment 4**). Actual milestone payments will occur after all tasks in the milestone (as documented in Exhibit B and Exhibit C in the Fixed Price Contract) have been successfully completed and results (reports, analytical data package, boring logs, etc.) have been provided to the claimant and USTIF. The scope of work, as described in this RFB, shall be conducted in accordance with industry standards/practices, and consistent with the PaDEP requirements and guidelines. The bidder's work to complete the tasks discussed will be subject to ongoing review by the PAUSTIF or its representatives to assess whether the work actually completed and the associated incurred costs are reasonable, necessary, and appropriate. In order to facilitate PAUSTIF's review and reimbursement of invoices submitted under this claim, the Solicitor requires that project costs be invoiced by the tasks identified in the bid. The bid responses must clearly and unambiguously accept the provided contract or must clearly cross reference any requested changes.

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

#### **MANDATORY SITE VISIT**

On **Thursday, December 16, 2010 at 11:00 AM**, the Technical Contact (or designee) will be at the site to answer questions and conduct a site tour for a limited number of participants per firm. Please inform the Technical Contact at least five (5) business days in advance of the aforementioned meeting date as to whether your firm will be in attendance. **Any firm that does not attend the December 16, 2010 mandatory site visit will not be eligible to submit a bid response.**

**Attachment 1**

**Cost Summary Sheet**

**Attachment 2**

**Maps and Figures**

**Attachment 3**

**UST Closure Report, August 2009**

**1st Quarter 2010 Site Status Report**

**2nd Quarter 2010 Site Status Report**

**And**

**Monitoring Well MW-4 Log**

**Attachment 4**

**Sample Fixed Price Contract**

**Attachment 5**

**Competitive Bidding Fact Sheet**