COMPETITIVE FIXED-PRICE BID SOLICITATION

SUPPLEMENTAL SITE CHARACTERIZATION ACTIVITIES AND REPORT

Request for Proposal (RFP)
Supplemental Site Characterization,
Fate and Transport, Risk Assessment, and
Remedial Alternatives Evaluation Activities and Report
Prepared on Behalf of ICF International and USTIF

Project: L & L Fuel Service / SGL, Inc.
51 South Main Street, Stewartstown, PA
PAUSTIF Claim No. 01-0107(F)
PaDEP Facility ID# 67-62730

Thank you for your interest in this Request for Bid (RFB). ICF International (ICF) on behalf of the Underground Storage Tank Indemnification Fund (USTIF) is providing this RFB for completing supplemental site characterization, fate and transport, risk assessment, and remedial alternatives evaluation activities for the L&L Fuel Service/SGL, Inc. property located in Stewartstown, PA (Site). The L&L Fuel Service / SGL, Inc. (L&L Fuels) Site consists of an inactive retail gasoline station and convenience store with a residential apartment (currently occupied) above the store. The Site is located at 51 South Main Street (State Route (S.R.) 24), Stewartstown Borough, York County, Pennsylvania**.** The Site location is shown on the USGS Topographic Map provided as **Figure 1 in Attachment 2**. A satellite image map of the Site and surrounding areas is provided as **Figure 1A in Attachment A**. A Site location area map properties (based on surveyed property tax maps and aerial images) showing the location of the Site relative to surrounding properties is provided as Figure 1B in Attachment 2.

The Solicitor has an open claim [Claim #2001-0177(S)] with the Pennsylvania Underground Storage Tank Indemnification Fund (PAUSTIF) and the work outlined in this RFB will be completed under this claim. Reimbursement of Solicitor-approved reasonable, necessary and appropriate costs (within claim limits) for the work described in this RFB will be provided by PAUSTIF. This claim has not been prorated (funding has been set at 100%). USTIF and ICF are requesting that the consultant respond with a proposal that presents detailed costs for implementing the proposed scope of work provided herein.

While certain Site characterization activities have previously been completed at the Site, the data-base has been determined to be incomplete and the existing monitoring well network inadequate for Site characterization purposes or for the development of a remedial action plan capable of Site cleanup. An FT/RA/RAE is to be completed concurrently with the Site characterization work to determine the horizontal and vertical extent of gasoline hydrocarbon material emanating from the former tank field area and the former dispenser island area its potential risk to the Site and adjacent properties, and alternatives for Site cleanup. Completion of this work should provide the technical basis to help determine closure goals so that an appropriate Remedial Action Plan (RAP) consistent with subsurface conditions may be developed for the Site.

The Act 2 Guidance Manual specifically references the American Society for Testing and Materials (ASTM) Standard E1739-95 (Risk-based Corrective Action Applied at Petroleum Release Sites [RBCA]) that affords the opportunity to utilize exposure pathway assessment and pathway elimination to establish risk-based remediation goals for petroleum release sites. While historic/recent soil sampling and groundwater sampling provides data to evaluate site conditions, due to the uncharacterized nature of dissolved phase and adsorbed phase unleaded gasoline constituents in shallow soils and groundwater both on and off the site, the collection of additional soil samples, the installation of additional monitoring wells, and the installation of vapor probes is believed to be necessary to provide the basis for the

application of a FT/RA evaluation to determine Site-specific closure goals to develop of a remedial action strategy capable of site cleanup to obtain a Relief of Liability for the Site.

In accordance with RBCA protocols, if no exposure pathways exist, or if they can be eliminated, then an Act 2 standard may be met utilizing PaDEP's site specific standard criteria through demonstration that under reasonably anticipated uses/conditions no exposure will occur now, or in the future. In the event certain exposure pathways are identified, it may be possible to determine the level of cleanup necessary to achieve acceptable risk levels for closure, with, or without, engineering and/or institutional controls, dependent on the success of the cleanup.

This RFB proposes three (3) major tasks, with subtasks presented in an outline format for cost analysis and implementation. The costs proposed shall be fixed based on the bid price provided for the RFP scope of work and the contract shall be executed as a Fixed Price Contract. The scope and budget for any identified Out-of-Scope work must be pre-approved to be eligible for payment. Expenditures for deviations from the RFP scope of work that are not approved by USTIF or its representatives will not be reimbursed.

The primary goal of the proposed work is to complete a supplemental site characterization that facilitates meaningful progress toward Site closure by supplying the data needed to aid in the selection of an appropriate remedial strategy for the Site. The work scope is also designed to support future Site closure options and decrease the time and the amount of money via timely collection of information pertinent to past remedial decision-making at an earlier project stage where it may provide the greatest benefit. The technical data obtained may also be utilized to develop subsequent contracting options to promote achievement of a timely and efficient Site closure to obtain an Act 2 Relief of Liability for the Site.

Please note that a bidder's response to this RFB Solicitation Package means it has accepted all the contractual terms and scope of work requirements unless explicitly stated to the contrary in the bid response.

Should your company elect to respond to this RFB Solicitation, one copy of the signed bid package must be provided directly to Jerry Hawk at ICF International (ICFI), at the address specified in Section 1. below. In addition to this one hard copy submittal, the complete bid response must be submitted to ICFI electronically (Adobe PDF format) on a compact disk (CD) to be included with the hard copy bid response. No electronic bids submitted via email will be accepted. The bidders completed Cost Summary Sheet is to be included in Excel format as well on this submitted CD. **The outside of the bid response package must be clearly marked and labeled with "Bid – Claim #2001-0107(F)".**

Please note that the **bid response is to be sent only to ICFI** who will be responsible for opening the bids and providing copies as appropriate to the Technical Contact and the Solicitor. In order to be considered the signed bid package (hard copy and electronic copy) sent to ICFI **must arrive no later than Friday, July 29, 2011 at 5 PM.** Bid responses will be opened after the due date/time elapses.

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 web site (see www.insurance.pa.gov).

While the Technical Contact will assist ICFI, PAUSTIF, and the Solicitor in evaluating the bid responses, it is up to the Solicitor to select the bidder from those bid responses deemed acceptable to PAUSTIF as reasonable, necessary, and appropriate. ICFI and/or the Technical Contact will assist the Solicitor in communicating its choice of the successful bidder, which is anticipated to occur within six (6) weeks after receiving the bid responses.

A. ICFI, SOLICITOR, AND TECHNICAL CONTACT INFORMATION

ICFI Representative	Solicitor	Technical Contact
Mr. Jerry Hawk ICF International 4000 Vine Street Middletown PA 17057 (724) 459-0602 jerryhawk@comcast.net	Mr. Daniel Scarborough SGL Investment Group 51 South Main Street Stewartstown 17363 (717) 993-6846 dan@ddscarb.com	Curt Herman Austin James Associates, Inc. P.O. Box U Pocono Pines, PA 18350 (570) 646-5431 ajacurt@epix.net

There is a single point of contact regarding this RFB Solicitation. All questions regarding this RFB Solicitation must be directed **in written form only via email** to the Technical Contact and must be received no later than seven (7) calendar days prior to the due date (**by Friday, July 29, 2011**) for the RFB bid response. Questions and responses will be provided to all bidders via email. To help avoid confusion and increase efficiency, similar questions may be combined and questions may be paraphrased as needed for clarity, brevity, to avoid ambiguity, to correct an incorrect premise, etc.

Bidders must neither contact nor discuss this RFB Solicitation with the Solicitor, PAUSTIF, or ICFI unless approved by the Technical Contact. This RFB Solicitation may be discussed with subcontractors and vendors to the extent required for preparing the bid response. If a bidder has specific questions it wishes to discuss with the PADEP, these questions should also be provided via email to the Technical Contact who will forward them to the PADEP, but the PADEP may elect not to reply to any questions it receives.

Please note that **all submitted questions and responses will be shared with all bidders on a non-attributable basis** unless a question can be successfully demonstrated to be proprietary in nature. A bidder shall specify any questions it regards as proprietary by submitting those questions to the Technical Contact in a separate email with "PROPRIETARY QUESTION" included in the subject header, and a detailed explanation with justification for the request in the body of the email along with a clearly stated preference for either "ANSWER TO ALL" or "ANSWER TO NONE" in the event a question is not accepted as or cannot be treated as proprietary.

Submitted bid responses are subject to Pennsylvania's Right-to-Know Law.

B. ATTACHMENTS TO THIS RFB SOLICITATION

Attachment 1 - Cost Summary Sheet (includes both general and detailed cost summary sheets)
Attachment 2 - Various figures either recently generated or reproduced from existing files. These figures include:

Figure 1 – USGS Topographic Map / (AJA)
Figure 1A - Satellite Image of Site and Adjacent Surrounding Area / (AJA)
Figure 1B – Base Area Map for the Site and Surrounding Properties / (AJA)
Figure 2 – Source Areas based on Soil Data Collected in 1999, 2002, and 2010 / (AJA)
Figure 2a – Larger Scale Insert of Source Areas based on 1999, 2002, and 2010 Soil Data / (AJA)
Figure 2B – Shallow Groundwater Inferred Elevation Contours based on 9/1/10 elevation data / (UES)
Figure 2C – Shallow Groundwater Inferred Elevation Contours based on 3/22/11 elevation data / (UES)
Figure 3 – Inferred projection of total dissolved phase plume for benzene and MTBE based on 3/21-22/2011 groundwater sampling data
Figure 3a – Inferred projection of dissolved phase plume for benzene based on 3/21-22/2011 groundwater sampling data
Figure 3b – Inferred projection of dissolved phase plume for MTBE based on 3/21-22/2011 groundwater sampling data
Figure 3c – Inferred projection of dissolved phase plume for 1,2,4-trimethylbenzene based on 3/21-22/2011 groundwater sampling data
Figure 3d – Inferred projection of dissolved phase plume for 1,3,5-trimethylbenzene based on 3/21-22/2011 groundwater sampling data
Figure 3e – Inferred projection of dissolved phase plume for ethylbenzene based on 3/21-22/2011 groundwater sampling data
Figure 3f – Inferred projection of dissolved phase plume for naphthalene based on 3/21-22/2011 groundwater sampling data
Figure 3g – Inferred projection of dissolved phase plume for cumene based on 3/21-22/2011 groundwater sampling data
Figure 3h – Inferred projection of dissolved phase plume for toluene based on 3/21-22/2011 groundwater sampling data
Figure 3i – Inferred projection of dissolved phase plume for total xylenes based on 3/21-22/2011 groundwater sampling data
Figure 4 – Proposed soil boring, monitoring well, and vapor intrusion point locations

Attachment 3 - includes available descriptive well logs for monitoring wells MW-1 through MW-19 (construction details included), soil borings SB-1 through SB-24 (completed between 6/29 and 7/1 2010) and vapor point probes VP-2 through VP-6.

Attachment 4 - includes historic soil results obtained during tank removals in 1999; includes results for soil samples collected at the base of the tanks (2/23/99 soil analysis data) and soil samples collected following the removal of additional soil from beneath the tanks (3/15/1999 soil analysis data).

Figure 5 in Attachment 4 – original soil sampling locations completed during tank removal activities in February 1999.

Attachment 5 - includes soil sampling locations and soil analytical data for soil samples collected on 3/11-12/2002 and soil sampling locations and soil analytical data samples collected on 6/29, 6/30, and 7/1, 2011).

Figure 6 - in Attachment 5 – Soil sampling locations for March 11-12/2002 soil sampling event.
Figure 7 - in Attachment 5– S*oil sampling locations for 6/29-30 and 7/1/2010 soil sampling event.*

Attachment 6 – Groundwater Elevation Data 5/5/02 through 3/21/2011 (wells MW1-MW4); 11/6/03 through 3/21/2011 (wells MW4-MW5); 8/9/05 through 3/21/2011 (well MW7); 9/01/2010 through 3/21/2011 (well MW8-MW15); and, 3/21/2011 (wells MW16-MW19).

Attachment 7 - Groundwater Sampling Analysis data for groundwater samples collected on 6/29/02 through 3/21/2011 (wells MW1-MW4); 11/6/03 through 3/21/2011 (wells MW4-MW5); 8/9/05 through 3/21/2011 (well MW7); 9/01/2010 through 3/21/2011 (well MW8-MW15); and, 3/21/2011 (wells MW16-MW19).

Attachment 8 – April 5, 2005 and May 25, 2011 letters from PaDEP.

Attachment 9 – Generic Remediation Agreement includes available soil boring logs and monitoring well logs construction details for monitoring wells MW1 to MW6 at the Site.

Attachment 10 – Competitive Bidding Fund Bulletin #5.

Attachment 11 – Historic Project File Documents. Includes:

- March 2005 Preliminary Site Characterization Report and Interim Remedial Action Plan;
- Stewartstown Municipal Well Locations Map (pump test data will be available to the winning bidder);
- March 2008 – Remedial Action Progress Report;
- April 2008 Remedial Action Progress Report;
- April 13, 2009 Pump Test Report;
- June 19, 2009 Environmental Data Resources well database search;
- August 6, 2009 Third Party Review Report;
- Stewartstown Water Supply Ordinance (Ordinance # 2005-10); and,
- April 2011 Supplemental Site Characterization Report

C. SITE BACKGROUND / SITE CONDITIONS BASED ON DATA GENERATED TO DATE

Tank Closure Information

On February 23, 1999, two 1,000-gallon, one 1,500-gallon and one 5,000-gallon unleaded gasoline underground storage tanks (USTs) and one 1,000 gallon kerosene UST were reportedly removed by PWI Incorporated of New Oxford, PA. Approximately 300 tons of possibly petroleum impacted soil (the strategy to determine soil impact was not described in the files) were excavated, stockpiled on site, and

were "…being handled by Chambers Environmental Group…" presumably disposed of off-site (documentation of disposal was not presented in the ICFI files).

Post excavation samples (sixteen soil samples) were collected from beneath the UST's and product lines. Six post excavation soil samples (#1, #2, #3, #4, #6 & #8) exceeded concentrations later determined by Act 2 to exceed regulated unleaded gasoline constituent soil to groundwater Medium Specific Concentrations (MSC) prompting additional characterization of soils and groundwater at the Site. The initial tank closure soil sample locations are shown on Figure 5 in Attachment 4, the results are included in Attachment 4 as well.

Soil Boring Investigations

March 11-12, 2002 Soil Sampling Activities and Results
A total of ten soil borings were installed at the Site in March 11, 2002. Seventeen soil samples collected from these borings were analyzed for existing regulated unleaded gasoline constituents. The March 11, 2002 analytical results are summarized in Figure 6 and Table 1 included in Attachment 6.

Eight of the soil sample results exceeded the soil to groundwater MSC for benzene (0.5 mg/kg) with results ranging from 0.0893 mg/kg to 42.1 mg/kg. The most highly impacted soil sample, SB-6 @ 24' also exceeded the MSCs for toluene, ethyl-benzene, xylenes, and naphthalene with concentrations reported of 978 mg/kg, 230 mg/kg, 1040 mg/kg, and 31.2 mg/kg, respectively.

June 29, 30, and July 1, 2011 Soil Sampling Activities and Results
On June 29, 30, and July 1, 2010, twenty-four additional soil borings were advanced and 48 soil samples were collected for analysis at the Site. The results are summarized on Figures 2and 2a in Attachment 2 and on Figure 7 and Table 2 in Attachment 5.

The soil boring analytical results for the two soil sampling events (2002 and 2010) indicate an impacted area from approximately twelve feet (in the source area) to approximately twenty-eight feet below grade with soil hydrocarbon (benzene) concentrations increasing with depth at the Site. Soil impacts were not fully delineated to the west of the site as shown on Figures 2 and 2a in Attachment 2.

Monitoring Well Installations

A total of nineteen monitoring wells (MW1 – MW19) were installed from April 23, 2002 to March 4, 2011 to characterize Site groundwater both on the Site and adjacent properties. The groundwater data collected from the monitoring well network on March 21-22, 2011 (the first sampling event for all 19 monitoring wells) is included in Attachment 7. The data is summarized and inferred groundwater iso-concentration maps (Figures 3 and Figures 3a through 3i) were developed by AJA to facilitate a determination of the dissolved phase impact for regulated unleaded gasoline components at the Site. The inferred iso-concentration contours were developed for each of the regulated unleaded gasoline components that exceed the SHS both on and off the Site. The results indicate necessity to further characterize the dissolved phase plume to the northeast and substantially to the west on adjacent residential properties.

Geology Discussion

The information obtained during the installation of the existing monitoring wells (MW1-MW7), as well as an evaluation of the data previously collected at other sites located within the study area was interpreted to characterize the site-specific subsurface geology and hydrogeology at the Site. A description of the geology encountered is presented on the monitoring well logs included in Attachment 3. The well logs also include all pertinent details regarding construction, completion and site-specific location.

The bedrock within the study area is predominately overlain by degraded parent bedrock material of varying thickness. The material is preferentially weathered and consists of a brown to orange-brown silty clay. The material is locally mottled, cohesive and is derived from preferential weathering of the underlying metamorphic rock (Wissahickon Formation).

The native unconsolidated material may be described as a brown to orange-brown silty loam to silty clay, containing increased percentages of phyllite and mica with depth as well as various color changes due to chemical weathering processes. Preferential weathering and the soil matrices encountered are remnant fingerprints of the underlying bedrock formation. Degradation was observed to relatively moderate depths and the thickness of the unconsolidated material ranged between near surface to approximately 20' below surface grade across the property. At approximately 20 feet, saprolitic bedrock was encountered which continued to approximately 51 to 64 feet, where competent bedrock was encountered. The saprolitic material still contains the structural footprint of the underlying competent bedrock and fluids will disperse along strike and down-dip within this zone. The drill cuttings and sample returns from the consolidated/bedrock interval are characteristic of the Lower Paleozoic age Wissahickon Formation (approximately 450 to 550 Ma). The formation appears to have become more competent with depth as drilling continued across the gradual transition from the saprolitic zone and into the underlying bedrock. Structural orientation of the bedrock formation (strike and dip of the bedding planes) was measured and evaluated using a Brunton compass on an outcrop of the Wissahickon Formation near the study area. Bedrock appears to strike approximately north 20 degrees west with a dip indicated approximately 30 degrees northeast.

Historic Remediation of the Site

A groundwater extraction, treatment, and bio-stimulation system was installed in 2006/2007. Remedial system operations were initiated in late 2007 and operations continued for approximately 23 through fall of 2009. The remedial system included the withdrawal of groundwater from monitoring wells MW1 and MW2 for removal of dissolved phase hydrocarbons, treatment via carbon filtration, and oxygenation of the treated water along with nutrient addition followed by re-injection into vertical injection points (IW1 through IW3) along the northern and western property boundaries (see figure 2 for former injection well locations).

AJA's preliminary conclusion was that the site was under-characterized and that the implementation of interim remediation prior to understanding site conditions was pre-mature. This early conclusion has been further supported by the more recently collected soil and groundwater supplemental site characterization data in 2010 and 2011 and results. Based on further review, it was apparent that the lack of sufficient or comprehensive Site Characterization data, including documentation of the source area(s) and adsorbed and dissolved plume delineation, limited the ability of the consultant to determine an effective and appropriate remedial strategy for the Site at the time of the remedial system installation.

The groundwater pump and treat/re-injection/in-situ chemical oxidation remedial system was shut down as approved by PaDEP in September 2009 at AJA's request, until such time as the site could be adequately characterized.

Soil and Groundwater Impact Summary Before and After Remediation
Comparing the soil results obtained in March of 2002 to the soil results obtained in June 2010 (benzene generally ranging from 10 to 23 mg/kg with other regulated COC's showing SHS exceedances and essentially no change) strongly suggest that the source area mass has not been affected/reduced or otherwise remediated as a result of remedial efforts that had a duration of approximately 23 months. Groundwater impact between June 2002 and the recent results obtained in March 2011 confirm this conclusion.

Summary - Current Understanding of the Source Areas and Soil Impact (Two Sources Indicated and Inferred) and Horizontal and Vertical Extent of the Soil Impact Emanating from those Source

A compilation of the soil sampling data that was collected during the tank removal in 1999 (collected on February 23, 1999 and March 15, 1999), during UES's initial investigation in 2002 (collected on March 11 and 12, 2002), and during the more recent 2010 soil sampling investigation (collected on June 29, and 30, and July 1, 2010) to evaluate and provide an opinion on the source/sources at the Site. The results clearly show the presence of two sources (one emanating from the former 6,000 gallon capacity tank and former dispenser and a second emanating from the area of the former two 1,000 gallon capacity UST's all removed in 1999). These sources are clearly shown on attached Figures 2 and 3 in Attachment 2. The importance of the more recently collected data cannot be understated as it shows that the source area mass has not been significantly affected/reduced or otherwise remediated as a result of approximately 23 months of interim remedial efforts at the Site. Figure 2 shows the inferred extent of the soil adsorbed benzene projecting the concentration of benzene to 1 mg/kg from each of the inferred sources.

Summary - Current Understanding of the Groundwater Impact Emanating from and Further Supporting the Two Inferred Source Areas at the Site

Based on the recently received March 22, 2011 groundwater data there are currently estimated to be up to potentially nine adjacent properties affected by the release (ten counting the L&L supply property – see Figures 2, 3, 3a through 3i in Attachment 1). The inferred dissolved phase impact emanating from the two hydrocarbon sources at the Site based on AJA's evaluation of the project soil and groundwater data-base is shown on Figures 3 and 4. Based on the supplemental soil and groundwater data more recently generated, the extent of the release is demonstrated to be more problematic than historically indicated and still not yet fully characterized. Further characterization will need to include the installation of approximately nine additional monitoring wells and approximately eight additional soil borings to determine the extent of dispersion of both soil and groundwater impact emanating from the source areas (see attached Figure 4 for proposed locations). Following installation the entire well network (29 wells) will need to be sampled to ensure that the dissolved phase plume is sufficiently characterized. The data obtained will subsequently be utilized for a vapor intrusion analysis, a risk assessment, and, a fate and transport evaluation so that the cleanup alternatives may be evaluated for the Site.

The proposed work scope to complete the tasks anticipated to be necessary to complete the characterization of the Site is included in the next section.

D. OBJECTIVES - PROPOSED SCOPE OF WORK

The proposed work scope to complete the tasks referenced above is provided below.

This 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 [Act 2]). The proposed SOW is designed to facilitate the collection and evaluation of supplemental site characterization information so closure goals for the Site may be reasonably well defined so that they can be pursued in an effective and efficient manner. The suggested SOW includes the following tasks:

Task 1 - Project Management
- Task 1.1 - Procurement of Off-site Access Agreements Allowing for the Advancement of Soil Borings and the Installation/Sampling of Monitoring Wells and Vapor Probes from the Various Neighboring Property Owners

Task 2 - Supplemental Site Characterization Activities and Reporting
- 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 - Soil Characterization/Collection of Soil Samples
- Task 2.4 - Monitoring Well Installation(s)/Vapor Intrusion Sampling Probes/In-door air IAQ MSC Evaluations
- Task 2.5a - Initial Water Level Data Collection and Groundwater Sampling
- Task 2.5b - Confirmatory Water Level Data Collection and Groundwater Sampling

Task 3 - Fate and Transport, Risk Assessment, and Remedial Alternatives Evaluation and Reporting
- Task 3.1 - Fate & Transport Evaluation
- Task 3.2 - Hydrocarbon Mass Estimate Documentation
- Task 3.3 - Preliminary Risk Assessment Evaluation
- Task 3.4 Remedial Alternatives Evaluation
- Task 3.5 - Preparation of Supplemental Site Characterization, Fate and Transport, Risk Assessment, and Remedial Alternatives Evaluation Report

There are several critical elements that must be attained in order for this Site characterization approach to successfully determine applicable closure criteria for the Site. The critical elements include:

- Meet with the PaDEP to discuss and obtain approval of the suggested work-scope;
- Procurement of off-site access agreements with neighboring property owners allowing for the advancement of soil borings and the installation/sampling of monitoring wells and vapor probes **(this task is critical and the described work scope cannot be completed without the successful completion of this item)**
- Complete field work with the installation/sampling of soil borings, monitoring wells and vapor probes at the Site.
- Complete slug tests to evaluate the hydrologic characteristics of the shallow groundwater system;

- Complete an exposure pathway assessment and risk assessment to evaluate or eliminate exposure pathways and determine appropriate SHS or Site-specific closure goals for regulated unleaded gasoline components in soils and groundwater at the Site;
- Complete fate and transport evaluations to assess soil, groundwater, and vapor intrusion pathways. Please keep in mind that the data-base for the Stewartstown Borough may be utilized to document capture zones for the supply wells located within the vicinity of the study area. This is critical in determining the potential for impact to any one of the area supply wells, now or in the future; and,
- Complete a comprehensive Supplemental Site Characterization, Fate and Transport, Risk Assessment and Remedial Alternatives Evaluation Report (SSC and FT/RA/RAE Report) and providing documentation of the source area(s) and the vertical and horizontal limits of impacted soil and groundwater as well as the results of the exposure pathway assessments and documents SHS or Site-specific closure goals for soil and groundwater and vapor intrusion issues at the Site. This report should also identify the technically supported remedial alternative(s) which the consultant believes are technically supported and feasible to implement in an effective manner based on site conditions. A site conceptual model based on supplemental site characterization data, fate and transport evaluations and exposure assessment(s) should also be provided.

Out-of-Scope Work
During completion of the proposed activities described herein, additional work, not previously anticipated, may be identified. If out-of scope work is identified and necessary, ICF and its designated representatives must be notified and an estimate of the cost for the additional work must be prepared and sent via e-mail within five days of notification. Approval to proceed will be based on the merits of the proposed work as it pertains to the completion of supplemental Site characterization and FT/RA/RAE activities for the Site and to progress toward Site Closure.

Itemized Proposal Tasks
The proposal should follow the suggested 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**. The suggested Scope of Work is provided below.

Task 1.0 - PROJECT MANAGEMENT

This task includes administrative charges, project management items, and meetings that are not specifically assigned to other tasks. This task also includes coordinating with subcontractors, scheduling, staffing, and interaction with client representatives, ICF and its representatives, and PaDEP's South-central Regional Office. Project management costs may be based on 10% of the total labor charge for all other tasks/activities shown in the detailed costs for **Task 2** and **Task 3.** A Project Manager (professional geologist) should be identified who is responsible for oversight of the project and communications with ICFI, its representatives, USTIF, and PaDEP.

Task 1.1 - Procurement of Off-site Access Agreements

This task includes procurement of off-site access agreements with neighboring property owners allowing for the advancement of soil borings and the installation/sampling of monitoring wells and vapor probes

(this task is critical and the described work scope cannot be completed without the successful completion of this item). The Project Manager and their staff should expect to utilize the assistance of ICFI, its representatives, USTIF, and PaDEP in an effort to successfully gain access to the subject properties.

Task 2.0 - SUPPLEMENTAL SITE Characterization Activities and Reporting

Current and Historical Constituents of Concern

The constituents of concern (COCs) at this Site for soils, groundwater, and in-door air are the substances on the PaDEP short list for unleaded gasoline (benzene, ethylbenzene, toluene, xylenes, MTBE, naphthalene, cumene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene).

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. It is expected that this meeting with PaDEP's South-central Regional Office will occur prior to initiation of Site activity and the site meeting will include ICFI and/or its representative(s). Your budget for this activity should include time to prepare for the meeting and should assume the meeting will be held at the Site.

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 historic files and previous reports including files in possession of ICF and PaDEP files.
- Documentation/confirmation of area water supply locations.
- Interviews with Jerry Hawk, Senior Claims manager for ICFI, ICF's third party review consultant Austin James Associates, Inc., and/or the claimant, as necessary, to obtain facts concerning Site characterization history, remedial operations history, and/or Site history.
- 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, etc.).
- Research of County records (local Courthouse or on-line if available) to obtain a property tax map to obtain accurate property boundaries and other appropriate information.
- Documentation/confirmation of area ground-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.
- Obtain Stewartstown Borough supply well records for future evaluation.
- 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 is to be incorporated into the Supplemental Site Characterization, Fate and Transport, Risk Assessment and Remedial Alternatives Evaluation Report (SSC and FT/RA/RAE Report) to aid in the determination of an appropriate remedial strategy/technology(s) for the Site.

Task 2.2.2 - Geology Documentation

This task involves the evaluation and documentation of structural features inherent to the formation and pertinent to hydrocarbon fate and transport to and within the shallow water bearing zone(s). Evaluations of the structural orientation (strike, dip, cleavage features, etc.) of the saprolitic as well as the underlying bedrock formation should be included and generated using accepted geologic practices/interpretation. This information should be incorporated into the SSC and FT/RA/RAE report as applicable.

The consultant should keep in mind that a critical and pressing issue at the Site is the fact that the Site characterization is not complete. Specifically, the source or sources and extent and magnitude of the migration from those source(s) are not yet fully defined. This has apparently contributed to indications that the existing interim remedial technology (groundwater extraction, treatment and recirculation with enhanced bioremediation) has not proven effective in reducing/removing soil and groundwater hydrocarbon mass or dissolved phase concentrations after approximately twenty-seven months of "intermittent" operations. Given the lack of substantive progress and potentially counter-productive aspects of this activity, continued operations are not recommended at this time, pending further evaluation of the Site. There are concerns that operation of the interim remedial system with re-injection has the potential to result in undesirable migration of hydrocarbon components to the north and northwest along strike and down-dip, to areas of the site that are predominantly uncharacterized. Clarification of that issue is critical to the success of any adjunct remedial application for the Site. However, it will be up to the PaDEP South-central Regional Office to approve a temporary cessation of remedial activities. During this interim time period of temporary remedial system shut-down, additional characterization may be completed so a remedial response, consistent with Site conditions, may subsequently be evaluated and implemented.

Task 2.3 - Soil Characterization/Collection of Soil Samples

Eight (8) soil borings are to be completed using the geo-probe direct push method to a total depth of approximately twenty-eight (28) feet at the suggested locations shown on **Figure 4.** Two samples are to be analyzed from each boring for a total of sixteen (16) samples for analysis. During advancement of the soil borings, the soil should be field screened using a Photo-ionization Detector (PID) at two to four foot intervals. The first of the two soil samples to be analyzed should be the soil sample exhibiting the highest PID reading within the uppermost twenty feet of the formation. The second of the two samples for analysis should be the sample collected from the interval that exhibits saturation, within, or just below the prevailing capillary fringe, but not exceeding twenty eight feet below grade. The purpose of the soil boring activity is to collect soil samples and delineate the horizontal and vertical extent of impacted soils relative to historical subsurface contamination previously identified, and relative to the historical storage of hydrocarbon products at the Site. While previous soil sampling has been conducted, the results have not fully characterized the Site sufficiently to determine the best remedial options for the Site. The approximate suggested locations specified for these soil borings (subject to field verification of utility lines, PA One-Call calls and access issues) are shown on **Figure 4**. Consideration should be given for each and every proposed soil boring location shown on **Figure 4** for pre-clearing, as necessary, with an air knife or similar technology to ensure utility clearance.

The sixteen (16) samples specified here should provide a current database for incorporation into the SSC and FT/RA/RAE report, as applicable. The soil results will serve to facilitate the selection of future remedial and closure options. Following collection of each soil sample, the soil matrix 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** parameters including:

BTEX, MTBE, Naphthalene, Cumene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.

Please be sure to include sufficient soil sample material, with added containers and preservation if and as indicated necessary by the analyzing laboratory and by regulatory requirements, for each of the 16 soil samples.

The "methanol preservation" 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).

Task 2.4 - Monitoring Well Installation(s)/Vapor Intrusion Sampling Probes/In-door Air IAQ and MSC Evalautions

Installation of Monitoring Wells
In order to fully characterize the dissolved phase plume and obtain the data necessary to evaluate exposure pathways for the risk assessment, an additional ten (10) new monitoring wells (MW20 – MW29) are to be drilled at or near locations suggested on **Figure 4**. Each of the new 4" monitoring wells are to be installed to an estimated depth of 52 feet below ground surface (bgs) with a screen interval extending from approximately 17 feet to 52 feet bgs (to intersect the shallow water table throughout the hydrologic cycle). The wells should be drilled through the silts and clays and into and through the saprolitic weathered schist. Casing should be extended from the top of the screen at approximately 17 feet to just below surface grade and the well flush mounted for completion. If competent bedrock is encountered above the 52 feet suggested depth (the base of the saprolite is encountered), the depth to bottom for the well should be adjusted so that the bottom the well does not extend more than 1 to 3 feet into the underlying competent bedrock. The approximate locations specified for these wells (subject to field verification of utility lines, PA One-Call calls and access issues) are shown on **Figure 4**. Consideration should be given for each and every proposed monitoring well location shown on **Figure 4** for pre-clearing, as necessary, with an air knife or similar technology to ensure utility clearance.

Prior to conducting any intrusive activities, the required utility clearance call should be obtained through the Pennsylvania One-Call System and the site owner should be consulted for delineation of subsurface property features. Available utility plans for the Site should also be reviewed if available.

The wells should be drilled and constructed in accordance with generally accepted practices as outlined in the PaDEP Groundwater Monitoring Guidance Manual, dated January 1, 1999 (Document # 383-3000-001). Based on anticipated drilling conditions, a Pennsylvania-licensed driller should install the wells using appropriate drilling methods. Drilling should be conducted under the supervision of a Pennsylvania-licensed Professional Geologist, although a field supervisor may be used in the field on a day-to-day basis. The field supervisor should visually inspect subsurface materials encountered during drilling, screen cuttings with a photo-ionization detector (PID), and complete field well construction logs. When

encountered, soils should be described using the Unified Soil Classification System. Bedrock should be described using USGS descriptive protocol, with the identification of the depth of and size of potential fractures and/or other subsurface anomalies.

Monitoring wells should be constructed of 4-inch diameter, threaded, flush-joint, schedule 40 PVC riser and 0.010 or 0.020 inch slot width well screen. The well shall be screened from approximately seventeen feet (17') to bottom (maximum of fifty-two feet (52') below surface grade) with casing extending above the screened interval to just below the surface and flush mounted for completion to ensure that the anticipated annual seasonal groundwater fluctuations will remain within the screened interval while permitting a sufficient seal to limit surface infiltration. Please assume that each well will extend to a depth of approximately fifty-two feet (52') for the purpose of cost analysis. A sand filter pack of appropriate grain size shall be placed in the annulus from the bottom of the borehole to not more than one-foot above the screened interval. Hydrated bentonite or bentonite slurry shall be used to seal the annulus above the filter pack. A cement/bentonite grout or bentonite pellets shall be placed above the bentonite seal up to grade.

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

Based on field screening with the PID, drill cuttings 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 15 tons, and costs for containment, treatment, and/or disposal should be included in your proposal.

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. Groundwater removed from the well during development should be treated with a portable granular activated carbon (GAC) treatment system, or other PaDEP approved means. Please keep in mind that appropriate sampling of the discharge water (or disposal water if moving to an off-site facility) should also be completed in accordance with regulatory requirements. Water can only be discharged at the Site on approval from the appropriate PaDEP Regional Office.

Installation of Vapor Intrusion Sampling Probes

In order to further characterize the vapor phase and obtain the data necessary to evaluate remedial options and exposure pathways for the risk assessment, seven (7) nested vapor monitoring points are to be installed at locations shown on **Figure 4.**

The seven (7) points will include three (3) nested vapor intrusion probes per borehole; one at 5-7 feet below grade, one at 13-15 feet below grade and a third at 26-28 feet below grade. Construction should

be consistent with PaDEP's vapor guidance intrusion documentation. One soil gas sample shall be collected from each vapor point collector consistent with the guidance for the collection of soil gas samples as specified in the PaDEP Air Vapor Intrusion Guidance Document. The approximate locations specified for these points are subject to field verification of utility lines, PA One-Call calls and access issues. Proposed vapor monitoring locations, shown on **Figure 4**, must be cleared, as necessary, with an air knife or similar technology to ensure utility clearance.

The vapor samples should be analyzed for regulated **unleaded gasoline** short list components using methods specified in the guidance documents and with detection limits that are sufficiently low to make the necessary evaluations.

The PaDEP guidance document entitled "*Vapor Intrusion into Buildings from Groundwater and Soil under PA Act 2 Statewide Health Standard (SHS)"*, dated January 24, 2004, (and subsequent revisions) should be used to assist in evaluating the soil gas sample results. The guideline specifies that soil gas results should be compared to 100 X the residential indoor air quality (IAQ) MSC values to account for dilution effects.

Potential Vapor Transport Receptors

*There currently are both on-site and off-site residences and/or commercial buildings that are located within the benzene and certain other regulated unleaded gasoline constituent iso-concentrations as determined by the March 2011 groundwater sampling events and the IAQ MSC's from the recent vapor probe sampling at the Site. The existing results (obtained through air sampling utilizing vapor probes at approximately 8 feet and 15 feet below grade) demonstrate the indoor air quality is not in compliance with the IAQ residential medium-specific concentrations (MSC's) for regulated unleaded gasoline constituents. (This task is critical and the described work scope cannot be completed without the successful completion of this item)**. PaDEP has requested that the vapor intrusion pathway be addressed promptly both on and off site. On-site vapor intrusion has been addressed with the installation of a positive displacement radon type system at the former L&L Supply building and the adjacent building. This RFB requests that two operating systems be maintained and sampled throughout the contract process. A fixed budget of $2,500 should be estimated for sampling and continued operation of the two radon systems already in place at the Site.*

The solicitor is requested evaluation of the off-site sources utilizing Johnson and Ettinger screening process as part of the contract. Should any of the off-site receptors fail as indicated from the evaluations from the J&E screening process, a change order will be utilized to install any additional positive displacement radon type systems that are necessary based on the J&E evaluations and findings.

Task 2.5 - Initial Water Level Data Collection and Confirmatory Groundwater Sampling

Liquid level Elevation Data Collection

Water level measurements shall be taken from each of the nineteen (19) existing monitoring wells (MW1-MW19), and the ten (10) new monitoring wells (MW20 through MW29). Water level 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. 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. 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.

Groundwater Sampling from Monitoring Wells

The Consultant shall conduct initial monitoring and sampling from the twenty nine (29) wells listed above approximately two weeks after the new wells (MW20 thru MW29) are completed. Liquid level data shall be measured and recorded for the well using an electronic water level probe or oil/water interface probe, as appropriate and recorded to the nearest 0.01 feet. 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 second confirmatory sampling event shall be conducted approximately 30-45 days later.**

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 or an appropriate low flow sampling technique should be used to help ensure that 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 help 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 pump discharge. All 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. All purge liquids generated during sampling should be treated and discharged or disposed in accordance with and on approval from PaDEP, but also in accordance with township or other prevailing regulatory authority.

Analyses will consist of PaDEP required regulated short-list **unleaded gasoline** parameters including:

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

using the approved laboratory methods capable of reporting to levels which include the SHS criteria for each component. The laboratory to be utilized should be identified in the RFB Response. Upon receipt of the analytical results, the Consultant should forward a copy of the analytical results to ICF and its designated representative(s).

Task 2.6 - Hydraulic Parameter Estimates & Aquifer Characterization

Slug Testing
Rising-head slug tests should be performed at each of the twenty nine (29) monitoring wells (MW1 thru MW29) at the Site. An instantaneous displacement of the water level in each well may be accomplished by quickly removing either a known volume of water or a pre-installed solid "slug" of known volume. Measurements should be taken as soon as possible following the extraction of the "slug" until achievement of the initial static water level (within 10%) in the well recorded prior to its placement. The water level response may be measured using a pressure transducer and electronic data logger, or other appropriate acceptable methods.

Evaluation of the slug test results should reasonably consider and correct for the effects of sand-pack drainage to avoid extreme overestimation of groundwater velocity and/or K and T values.

Upon completion, results from the slug testing shall be forwarded to ICF, its designated representative(s), and the third party reviewer in an effort for all parties to review the data and select the appropriate core area well to be used in the 24 hour pump test.

Step Down Testing to Determine Applicable Pump Test Flow Rates
A four to eight hour duration preliminary step-down pump test (or applicable duration to determine pump testing withdrawal rate) shall be performed on the core area well selected to determine applicable pumping pump rates for a 24 hour pump test for this 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 so that the pump test may be completed at a constant rate without the potential of dewatering the well during the 24 hour test.

24 Hour Pump Test
Once the pumping rate has been determined a 24-hour constant rate pump test shall be completed using the selected monitoring well as the discharging well at the pump rate determined through the step-test. Applicable shallow wells with a water level higher than the pumping well should be monitored in accordance with acceptable industry protocol during the test. 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. The pumping test should take into consideration the potential influence of the pumping wells from the Stewartstown municipal supply well fields located proximal to the Site.

Task 3.0 - FATE & TRANSPORT, RISK ASSESSMENT, & REMEDIAL ALTERNATIVES EVALUATION ACTIVITIES AND REPORTING

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 should be completed using the Quick_Domenico Model, (available from the PaDEP website at:

http://164.156.71.80/WXOD.aspx?fs=2087d8407c0e0000800004fe000004fe&ft=1).

This is one of the PaDEP approved models referenced in Act 2. Quick_Domenico should be well suited for use at the subject Site given that PaDEP has acknowledged that it can be utilized on fractured rock sites as long as the biodegradation factor is set to zero when significant characterization data exists. Other pumping test alternative evaluations proposed will be accepted as long as the evaluation is accepted/approved by PaDEP.

The pumping test should take into consideration the potential influence of the pumping wells from the Stewartstown municipal supply well fields located proximal to the Site. The pumping tests results for certain municipal wells located in Stewartstown are included as one of the attached historical documents for the Site.

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 preliminary risk assessment evaluation shall be completed consistent with the guidelines provided in the Act 2 guidance manual (applicable portions of Sections II.C.4. IV.G and IV.H). These sections provide general information on risk assessment, developing site-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 risk assessment report.

Task 3.4 - Remedial Alternatives Evaluation

A remedial alternatives analysis should be completed to compare cleanup alternatives and evaluate which one is most appropriate for the Site. It should also explain why the proposed alternative was selected. Considerations should include at a minimum:

Cost-Effectiveness - The proposed remedial action must be cost-effective relative to the risk reduction it would achieve and the prognosis for ultimate Site closure.

Performance – the chosen remedial application should be able to reduce the hydrocarbon mass a t the site in a reasonable period of time and for a reasonable cost. The chosen system should be technically defensible and consistent with site specific conditions at the site.

Protectiveness - The proposed remedial action must be demonstrated protective of public health, safety and welfare and the environment.

Compliance - The proposed remedial action must comply with applicable and relevant state or federal environmental requirements, criteria, or limitations.

Reliability - The proposed remedial action must be effective and reliable in the short and long term.

Implementation - The proposed remedial action must be practicable and implementable.

Safety - The proposed remedial action does not expose the public to hazards during its implementation.

Effects on public health and the environment **-** The proposed remedial action must be demonstrated to mitigate exposure to risks to public health, safety, and welfare and the environment to allowable levels.

Cleanup alternatives may include, but are not limited to the following types of action:
(a) take no further action;
(b) excavate the contaminated soil and/or treat and/or dispose of the same;
(c) in-place soil treatment;
(d) product recovery;
(e) aeration based technologies
(f) groundwater removal and treatment;
(g) groundwater gradient control (hydrodynamic);
(h) enhanced biodegradation;
(i) chemical oxidation; and/or
(j) a combination of the above or other site-specific applicable methods

Task 3.5 - Preparation of Supplemental Site Characterization, Fate and Transport, Risk Assessment, Remedial Alternatives Evaluation Report

The consultant shall prepare a Supplemental Site Characterization, Fate and Transport, Risk Assessment, and Remedial Alternatives Evaluation Report that documents and discusses the data obtained and the conclusions drawn from the completion of **Tasks 2.1** thru **2.6** and **Tasks 3.1** thru **3.4**. 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 accurate 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 at 5, 50, 500 ug/l and MTBE at 20, 200, 2,000 ug/l, as appropriate, based on the available data)
- The areal extent of SPL, if present, shall be designated with apparent product thicknesses tabulated at each well containing product.
- Fate and Transport Figures, as appropriate, based on the results obtained from Quick_Domenico Modeling
- A figure to support text discussing a 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, slug test data and results, soil disposal documentation, as applicable, hydrocarbon mass estimate documentation (adsorbed and dissolved phase, 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 and a recent EDR-type report detailing nearby potential receptors and sources. Other Attachments should be provided as appropriate.

The SSC and FT/RA/RAE Report should comply with the provisions of Chapter 245 Section 245.309 Site Characterization, and, Section 245.310, Site Characterization Report. The report should provide a detailed summary of the tasks completed and provide an interpretation of the results. The report should be submitted within five (5) months of the RFB response approval. The report should also provide a clear and concise discussion of the recommendations for continued use or termination and/or continued applicability of interim remedial action, wells/systems at the site based on the supplemental site characterization information. The results of the FT/RA/RAE evaluation should be utilized to develop closure goals for the Site so that an appropriate RAP (not part of this RFB) consistent with subsurface conditions may be developed.

E. TYPE OF CONTRACT / PRICING

The Solicitor wishes to execute a mutually agreeable, firm, fixed-price, not-to-exceed contract for the SOW addressed by Tasks 1 through 3. A sample generic Fixed-Price Agreement is included as **Attachment 9**. The selected consultant will be provided an electronic copy of the sample contract in Word format to allow contract-specific information to be added. The Fund will facilitate negotiations between the Solicitor and the selected consultant toward executing this Fixed-Price Agreement.

As noted earlier, **a bidder's response to this RFB Solicitation Package means it has accepted all the contractual terms and scope of work requirements (for example, but not limited to, any report submittal deadlines) unless explicitly stated to the contrary in the bid response.** Therefore, any requested changes to the Fixed-Price Agreement must be specified in the bid response. Please note that these changes will need to be reviewed and agreed upon by both the Solicitor and the PAUSTIF.

Each bid is to clearly identify unit cost rates for labor, other direct costs, and equipment, as well as proposed mark-ups on other direct costs and subcontracted services for SOW Tasks 1 through 3 (See **Attachment 1a** Detailed Costs spreadsheet). The by-task quotes are to be entered into the **Cost Summary Sheet** spreadsheet in **Attachment 1** to this RFB. Please note that the total fixed-price bid must include all costs, including those cost items that the bidder may regard as "variable", i.e., these variable cost items will not be handled outside of the Total Fixed Price quoted for the SOW. Finally, please note that referencing extremely narrow or unreasonable assumptions, special conditions, and exemptions may make the bid response too difficult to evaluate and may result in the bid response being deemed "unresponsive."

Payment Milestones: Milestone payments will occur only after successful and documented completion of the work defined for each milestone. Payment milestones under the Fixed-Price Agreement shall be broken out as follows:

• *Milestone A – Includes:*

Task 1 - Procurement of Off-site Access Agreements Allowing for the Advancement of Soil Borings and the Installation/Sampling of Monitoring Wells and Vapor Probes from the Various Neighboring Property Owners;
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

• *Milestone B – Includes*:

Task 2.3 - Soil Characterization/Collection of Soil Samples
Task 2.4 - Monitoring Well Installation(s)/Vapor Intrusion Sampling Probes

• *Milestone C – Includes*:

Task 2.5a - Initial Water Level Data Collection and Groundwater Sampling
Task 2.5b - Confirmatory Water Level Data Collection and Groundwater Sampling

• *Milestone D – Includes*:

Task 2.6 - Hydraulic Parameter Estimates and Aquifer Characterization

• *Milestone E – Includes*: Task 3 - Fate and Transport, Risk Assessment, and Remedial Alternatives Evaluation and Reporting

Task 3.1 - Fate & Transport Evaluation
Task 3.2 - Hydrocarbon Mass Estimate Documentation
Task 3.3 - Preliminary Risk Assessment Evaluation
Task 3.4 Remedial Alternatives Evaluation
Task 3.5 - Preparation of Supplemental Site Characterization, Fate and Transport, Risk Assessment, and Remedial Alternatives Evaluation Report

Please note that the selected consultant's work may be subject to ongoing review by the PAUSTIF or its representatives to assess whether the proposed and completed work and the associated costs are reasonable, necessary, and appropriate. In order to facilitate review and reimbursement of submitted invoices by PAUSTIF, project costs shall be invoiced following the task structure specified in the selected bidder's bid response. Tracking incremental and cumulative costs by task will also be required to facilitate invoice review.

Unless otherwise noted by the bidder, each bid response received is required to be good for a period of up to 120 days after its receipt. The unit costs quoted in the bid will be assumed to be good for the duration of the period of performance cited in the Fixed-Price Agreement. A period of five months is anticipated for the completion of the work.

F. ADDITIONAL BID PACKAGE REQUIREMENTS

Each submitted bid response must include the following:

• A reasonable demonstration that the bidder (i) understands the objectives of the project, (ii) offers a reasonable approach for achieving those objectives efficiently, and (iii) has reviewed the existing site information provided in or attached to this RFB Solicitation Package.

• Provide an answer to the following questions regarding the bidder's qualifications and experience:

 How many Chapter 245/250 sites has your company closed (i.e., obtained a Release of Liability under Act 2) in Pennsylvania?

 How many Chapter 245/250 sites has your company or the proposed PA-licensed Professional Geologist (P.G.) closed (i.e., obtained a Release of Liability from the PADEP) under either the SHS and/or the Site Specific Standard? [NOTE: The Solicitor requires the work described herein to be completed under the responsible care and directly supervised by a P.G.]

 Has your firm ever terminated work under a fixed-price or pay-for-performance contract before attaining all of the project objectives and milestones? If yes, please list and explain the circumstances of each such occurrence.

• A complete firm fixed-price cost bid for Tasks 1 through 10 by completing the Cost Summary Sheet spreadsheet provided in **Attachment 1** following the SOW task structure specified herein.

• A description and discussion of all level-of-effort and costing assumptions.

• Indicate whether the bidder accepts the proposed contract / terms and conditions (see **Attachment 9**) or has provided a list of requested changes to the Fixed-Price Agreement.

• Provide a statement of applicable / pertinent qualifications, including the qualifications of any proposed subcontractors (relevant project descriptions are encouraged).

• Identify the proposed project team and provide resumes for the key project staff, including the proposed Professional Geologist of Record who will be responsible for endorsing work products prepared for PADEP review and approval.

• Provide a task-by-task description of the proposed technical approach. **Unless explicitly stated to the contrary in its task-by-task description, a bidder's response to this RFB Solicitation Package means it has accepted all the requirements specified herein by task.**

• Identify and sufficiently describe subcontractor involvement by task (if any). Provide a detailed schedule complete with specific by-month dates for completing the proposed SOW, inclusive of reasonable assumptions regarding the timing and duration of client, PAUSTIF, and PADEP reviews needed to complete the SOW. Details on such items as proposed meetings and work product submittals shall also be reflected in the schedule of activities.

• 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 "in the loop."

• Describe how the Solicitor and ICFI / PAUSTIF will be kept informed as to project progress and developments.

G. MANDATORY PRE-BID SITE VISIT

On Thursday, June 30, 2011 at 1:00 PM, the Technical Contact will conduct a **mandatory pre-bid site tour**. Any firm that does not attend this mandatory pre-bid site tour will **not** be eligible to submit a bid response.

While not mandatory, AJA respectfully requests that you send an email to 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 and be ready to provide a **single email address per firm** to be used for subsequent email correspondence related to this bid opportunity.

Questions will be entertained as part of the pre-bid site tour. In order to avoid an excessively slow pace or long meeting time, and depending on the number of attendees, a request may be made for some questions to be submitted in writing at the meeting or documented via subsequent email. Please note that referencing extremely narrow or unreasonable assumptions, special conditions, and exemptions in a bid response may make the bid response too difficult to evaluate. Consequently, bidders are strongly

encouraged to ask clarifying questions sufficient to minimize the number of assumptions, special conditions, and exemptions referenced in the submitted bid response.

SCHEDULE

Your proposal should be submitted electronically to ICFI no later than 5:00 PM on **Friday, July 29, 2011**. A hard copy of your proposal should be submitted no later than **Friday, July 29, 2011**. The tasks described in the scope of work for the Site Characterization should be completed in four months from the bid award date and the proposed scope of work for the FT/RA/RAE evaluation should be completed one month later (five months from the contract award date) culminating in submittal of the combined SSC and FT/RA/RAE Report.

CLOSING

Should your company elect to respond to this RFB Solicitation, one copy of the signed bid package must be provided directly to Jerry Hawk at ICF International (ICFI), at the address specified in Section 1. below. In addition to this one hard copy submittal, the complete bid response must be submitted to ICFI electronically (Adobe PDF format) on a compact disk (CD) to be included with the hard copy bid response. No electronic bids submitted via email will be accepted. The bidders completed Cost Summary Sheet is to be included in Excel format as well on this submitted CD. **The outside of the bid response package must be clearly marked and labeled with "Bid – Claim #2001-0107(F)".**

Please note that the **bid response is to be sent only to ICFI** who will be responsible for opening the bids and providing copies as appropriate to the Technical Contact and the Solicitor. In order to be considered the signed bid package (hard copy and electronic copy) sent to ICFI **must arrive no later than Tuesday, July 29, 2011 at 5 PM.** Bid responses will be opened after the due date/time elapses.

Hard copy submissions should be directed to the following address: Mr. Jerry Hawk, ICF Consulting, Inc., 4000 Vine Street, Middletown, PA 17057 by the above due date.