

## **Request for Bid**

**Fixed-Price Bid to Result**

**Supplemental Site Characterization, Site Remediation, Exposure Evaluation / Risk Assessment, Attainment Demonstrations, RACR Preparation, and Site Restoration**

### **Solicitor**

**Bernard III Land Co., Inc.**

**Bernard III Land Co., Inc. – “Indiana Site”**

**4470 West Pike Road  
Armstrong Township, Indiana County, PA 15701**

**PADEP Facility ID #: 32-32708      PAUSTIF Claim #: 2010-0017(S)**

### **Date of Issuance**

**September 13, 2013**

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The Pennsylvania Underground Storage Tank Indemnification Fund (PAUSTIF), on behalf of the claimant who hereafter is referred to as the Client or Solicitor, is providing this Request for Bid (RFB) to prepare and submit a bid to complete the Scope of Work (SOW) for the referenced site. The Solicitor has an open claim with the PAUSTIF and the corrective action work will be completed under this claim. Reimbursement of Solicitor-approved, reasonable and necessary costs up to claim limits for the corrective action work described in this RFB will be provided by PAUSTIF. Solicitor is responsible to pay any applicable deductible and/or proration.

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

## Calendar of Events

Activity	Date and Time
Notification of Intent to Attend Site Visit	September 27, 2013 by 5 p.m.
Mandatory Pre-Bid Site Visit	October 1, 2013 at 11 a.m.
Deadline to Submit Questions	October 10, 2013 by 5 p.m.
Bid Due Date and Time	October 18, 2013 by 3 p.m.

## Contact Information

ICF International	Solicitor	Technical Contact
<p>Mr. Jerry Hawk ICF International 4000 Vine Street Middletown, PA 17057</p>	<p>Mr. Mike Jewart Bernard III Land Co., Inc. P.O. Box 128 Indiana, PA 15701</p>	<p>Mr. Robert D. Breakwell, P.G. Excalibur Group, LLC 1193 State Road Monessen, PA 15062 <a href="mailto:rbreakwell@excaliburgrpilc.com">rbreakwell@excaliburgrpilc.com</a></p>

All questions regarding this Request for Bid (RFB) and the subject site conditions must be directed via e-mail to the Technical Contact identified above with the understanding that all questions and answers will be provided to all bidders. The email subject line must be "**Bernard III Land Co., Inc. Indiana Site, Claim #2010-0017(S) – RFB QUESTION**". Bidders must neither contact nor discuss this RFB with the Solicitor, PAUSTIF, the Pennsylvania Department of Environmental Protection (PADEP), or ICF International (ICF) unless approved by the Technical Contact. Bidders may discuss this RFB with subcontractors and vendors to the extent required for preparing the bid response.

## **Requirements**

### **Mandatory Pre-Bid Site Meeting**

The Solicitor, the Technical Contact, or their designee will hold a mandatory site visit on the date and time listed in the calendar of events to answer questions and conduct a site tour for one participant per bidding company. This meeting is mandatory for all bidders, no exceptions. This meeting will allow each bidding company to inspect the site and evaluate site conditions. **A notice of the bidder's intent to attend this meeting is requested to be provided to the Technical Contact via email by the date listed in the calendar of events with the subject "Bernard III Land Co., Inc. – Indiana Site, Claim #2010-0017(S) – SITE MEETING ATTENDANCE NOTIFICATION".** The name and contact information of the company participant should be included in the body of the e-mail.

### **Submission of Bids**

To be considered for selection, **one hard copy of the signed bid package and one electronic copy (one PDF file on a compact disk (CD) included with the hard copy) must be provided directly to the PAUSTIF's third party administrator, ICF, to the attention of the Contracts Administrator.** The Contracts Administrator will be responsible for opening the bids and providing copies to the Technical Contact. Bid responses will only be accepted from those companies that attended the mandatory pre-bid site meeting. **The ground address for overnight/next-day deliveries is ICF International, 4000 Vine Street, Middletown, PA 17057, Attention: Contracts Administrator. The outside of the shipping package containing the bid must be clearly marked and labeled with "Bid – Claim #2010-0017(S)".** Please note that the use of U.S. Mail, FedEx, UPS, or other delivery method does not guarantee delivery to this address by the due date and time listed in the Calendar of Events for submission. Companies mailing bids should allow adequate delivery time to ensure timely receipt of their bid.

**The bid must be received by 3 p.m., on the due date shown in the Calendar of Events.** Bids will be opened immediately after the 3 p.m. deadline on the due date. Any bids received after this due date and time will be time-stamped and returned. If, due to inclement weather, natural disaster, or any other cause, the PAUSTIF's third party administrator, ICF's office is closed on the bid due date, the deadline for submission will automatically be extended to the next business day on which the office is open. The PAUSTIF's third party administrator, ICF, may notify all companies that attended the mandatory site meeting of an extended due date. The hour for submission of bids shall remain the same. Submitted bid responses are subject to Pennsylvania Right-to-Know Law.

## **Bid Requirements**

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

The selected consultant will be provided an electronic copy (template) of the draft Remediation Agreement in Microsoft Word format to allow agreement-specific information to be added. The selected consultant shall complete the agreement-specific portions of the draft Remediation Agreement and return the document to the Technical Contact within 10 business days from date of receipt.

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

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

In addition, the bidder shall provide:

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

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

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

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

Each bid response document must include at least the following:

1. Demonstration of the bidder's understanding of the site information provided in this RFB, standard industry practices, and objectives of the project.
2. A clear description, specific details, and original language of how the proposed work scope will be completed for each milestone. The bid should specifically discuss all tasks that will be completed under the Remediation Agreement and what is included (e.g., explain groundwater purging/sampling methods, which guidance documents will be followed, what will be completed as part of the site specific work scope/SCR/RAP implementation). Recommendations for changes/additions to the Scope of Work proposed in this RFB shall be discussed, quantified, and priced separately; however, failure to bid the SOW "as is" may result in a bid not being considered.
3. A copy of an insurance certificate that shows the bidder's level of insurance consistent with the requirements of the Remediation Agreement. Note: The selected consultant shall submit evidence to the Solicitor before beginning work that they have procured and will maintain Workers Compensation; commercial general and contractual liability; commercial automobile liability; and professional liability insurance commensurate with the level stated in the Remediation Agreement and for the work to be performed.
4. The names and brief resumes/qualifications of the proposed project team including the proposed Professional Geologist and Professional Engineer (if applicable) who will be responsible for overseeing the work and applying a professional seal to the project deliverables (including any major subcontractor(s)).

5. Responses to the following specific questions:
  - a. Does your company employ a Pennsylvania-licensed Professional Geologist or Professional Engineer that is designated as the proposed project manager? How many years of experience does this person have?
  - b. How many Pennsylvania Chapter 245 projects is your company currently the consultant for in the PADEP Region where the site is located? Please list up to ten.
  - c. How many Pennsylvania Chapter 245 Corrective Action projects involving an approved SCR, RAP and RACR has your company and/or the Pennsylvania-licensed Professional Geologist or Professional Engineer closed (i.e., obtained Relief from Liability from the PADEP) using any standard?
  - d. Has your firm ever been a party to a terminated PAUSTIF-funded Fixed-Price (FP) or Pay-for-Performance (PFP) contract without attaining all of the Milestones? If so, please explain.
  
6. A description of subcontractor involvement by task. Identify and describe the involvement and provide actual cost quotations/bids/proposals from all significant specialized subcontracted service (e.g., drilling/well installations, laboratory, etc.). If a bidder chooses to prepare its bid without securing bids for specialty subcontract services, it does so at its own risk. Added costs resulting from bid errors, omissions, or faulty assumptions will not be considered for PAUSTIF reimbursement.
  
7. A detailed schedule of activities for completing the proposed SOW including reasonable assumptions regarding the timing and duration of Solicitor reviews (if any) needed to complete the SOW. Each bid must provide a schedule that begins with execution of the Remediation Agreement with the Solicitor and ends with completion of the final Milestone proposed in this RFB. Schedules must also indicate the approximate start and end of each of the tasks/milestones specified in the Scope of Work, and indicate the timing of all proposed key milestone activities.
  
8. A description of how the Solicitor, ICF and the PAUSTIF will be kept informed as to project progress and developments, and how the Solicitor (or designee) will be informed of and participate in evaluating technical issues that may arise during this project.
  
9. A description of your approach to working with the PADEP. Describe how the PADEP would be involved proactively in the resolution of technical issues and how the PADEP case team will be kept informed of activities at the site.
  
10. Key exceptions, assumptions, or special conditions applicable to the proposed SOW and/or used in formulating the proposed cost estimate. Please note that referencing extremely narrow or unreasonable assumptions, special conditions and exceptions may result in the bid response being deemed “unresponsive”.

## **General Site Background and Description**

Each bidder should carefully review the existing information and documentation provided in Attachment 3. The information and documentation has not been independently verified. Bidders may wish to seek out other appropriate sources of information and documentation specific to this site. If there is any conflict between the general site background and description provided herein and the source documents within Attachment 3, the bidder should defer to the source documents.

### ***General Site Features and Site History***

The Bernard III Land Co., Inc. (BLCI) Indiana, Pennsylvania facility (BLCI “facility” or BLCI “property”) is located at 4470 West Pike Road (State Route 4422) in Armstrong Township, Indiana County, Pennsylvania (Figure 1-1) and currently operates as a Pacific Pride-branded fleet fueling facility. The property was purchased by The Lockard Company (a.k.a. BLCI) from Mahoning Distribution, Inc. (MDI) in January 1999. Existing features on this approximate 1.53-acre parcel consist of three slab-on-grade structures located in the western portion of the property that include an office / garage / maintenance building and two storage buildings. There is an active fuel dispensing island with multiple product dispensers and canopy cover located in the central part of the property and four (4) underground storage tanks (USTs) containing various petroleum products positioned near the southwest property corner. Additional information regarding the current and historical facility UST systems is provided in the next subsection of this RFB.

As part of the previous site characterization activities, a total of thirteen (13) groundwater monitoring wells have been installed at the BLCI site including on-property wells MW-01 through MW-06, MW-11 and MW-13 and off-property wells MW-07 through MW-10 and MW-12. In addition to the wells, a soil vapor monitoring point (SG-01) is present at the southwest corner of the office / garage / maintenance building. The southern portion of the property in the vicinity of the site buildings, USTs and dispensers is covered by asphalt or concrete pavement. Although there is no zoning in Armstrong Township, the Solicitor has indicated that the anticipated future use of the property is to remain nonresidential / commercial. The general facility layout and surrounding area is depicted in Figure 1-2 and site features are depicted in Figure 2-2. Figures are provided in Attachment 3A and site photographs are contained in Attachment 3B.

The BLCI property is serviced by public utilities including municipal water (Indiana County Municipal Services Authority [ICMSA]), overhead and underground electric (Penelec), and overhead telephone / cable (Verizon). Although regional sanitary sewer service is provided by the ICMSA, the main office / garage / maintenance building is serviced by an on-property sewage holding tank located north of the USTs. There is no natural gas service available near the BLCI property. The locations of buried and overhead utilities are provided in Figures 1-2 and 2-2.

Although the BLCI facility is serviced by a municipal water supply, a functioning on-property groundwater supply well (identified as SW-03) exists on the property. According to the Solicitor, the well is currently unused and was only used previously in the garage for washing vehicles during warm weather months. The construction and location of the inactive facility water supply well are unknown and only the accessible plumbing system has been located. Note that Figures 1-2 and 2-2 depict the location of SW-03 near the southeast corner of the garage building. However, this location represents the jet pump, from which it is believed samples have historically been collected, and does not reflect the actual well location. As discussed later in this RFB, the water supply well has been impacted by a release of unleaded gasoline and, as a result, the SOW addressing this RFB shall include locating and abandoning the well.

Two unnamed tributaries to Curry Run flow through culverts beneath the BLCI property that converge at a manhole to the west of the office / garage / maintenance building as depicted in Figures 1-2 and 2-2. The combined tributary is then piped to the southwest to a catch basin followed by approximately 70 feet of open stream channel before entering a concrete box culvert beneath West Pike Road.<sup>1</sup> As further discussed in the *Overview of Site Geology, Hydrogeology and Hydrology* subsection of this RFB, surface water levels in the unnamed tributary to Curry Run have historically been measured at an established and surveyed reference point (BM-01) to assist with determining groundwater flow and discharge to the stream. Surface drainage from the BLCI property is to the south toward Curry Run, or via several storm sewer inlets located throughout the site which drain surface water to the unnamed tributaries of Curry Run or the main channel of Curry Run.

Surrounding the BLCI property, land use consists of mixed commercial and residential parcels. More specifically, the BLCI property is bounded to the north by a bulk fueling facility operated by MDI, to the west by a residential property owned by Patrick and Trudy Altman, and to the east by a residential property owned by Bernard W. and Sandra J. Lockard, Sr. Bordering the southern boundary of the BLCI property is State Route 4422 (West Pike Road) beyond which is a private property (Hummel residence). The Altman residence, located cross-gradient of the BLCI facility, uses a private developed spring (sampling point SW-01) as the potable water source despite a connection to the public water supply. The Hummel residence, located downgradient of the BLCI facility, uses a private supply well (sampling point SW-02) as their principle source of domestic water. Private water supply sampling points SW-01 and SW-02 are indicated in Figure 1-2.<sup>2</sup>

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<sup>1</sup> The main channel of Curry Run flows underground through a 24-inch culvert along the southern side of West Pike Road and surfaces near the outlet of the concrete box culvert where it is joined by the unnamed tributary.

<sup>2</sup> According to the facility SCR / RAP, the Altman groundwater supply spring (SW-01) is at an elevation above site groundwater and is considered hydraulically isolated. The Hummel bedrock supply well (SW-02) is located about 230 feet downgradient / sidegradient of the former dispenser island source area.

### ***History of Facility Petroleum Storage and Dispensing Operations***

The four (4) existing USTs located near the southwest property corner consist of two 3,000-gallon off-road diesel tanks, one 8,000-gallon on-road diesel tank, and one 6,000-gallon unleaded gasoline tank.<sup>3</sup> The former dispensers and product lines connected to these USTs were located in the southern portion of the property in front of the office building. The existing USTs and former dispenser area are indicated in Figure 2-2.

On 11/25/09, a major UST system modification and partial UST system closure was completed which involved the removal of the four product dispensers and related product lines that existed at that time. Following their removal, new product lines were connected to the existing four USTs and extended to a new dispenser island with canopy centrally located on the property (Figure 1-2). The UST system modifications were reportedly completed to replace obsolete components. The partial UST system closure activities were documented in a UST System Closure Report (Attachment 3C) submitted to the PADEP in January 2010 by the current consultant of record, DMS Environmental Services, LLC (DMSE).

During the 11/25/09 product piping and dispenser replacements, field observations indicated potential impacts to soil and groundwater from a release of unleaded gasoline. Additionally, the UST Closure Report noted obvious, localized contamination based on sample results that did not meet established standards. The source for the release was suspected as being derived from galvanized fittings below the product dispensers. A Notification of Reportable Release (NORR) was submitted by the Solicitor to the PADEP Southwest Regional Office (SWRO) on 1/8/10 along with a follow-up 3/31/10 letter indicating that a confirmed release of unleaded gasoline had occurred (Attachment 3D).

Following removal of the dispensers and piping, six (6) confirmatory soil samples were collected from below the dispensers and product lines on 11/25/09 and submitted for laboratory analysis of the PADEP post-March 2008 short list of unleaded gasoline and diesel fuel constituents. The confirmatory soil samples included DISP-01, DISP-02, DISP-03, DISP-04, PL-01 and PL-02 and represented grab samples collected from the base of the excavation at 3 feet below grade (ft-bg). Based on depth to groundwater measurements in monitoring wells positioned near the former dispenser island and piping, all confirmation soil samples were collected from the unsaturated soil zone. As expected, DMSE reported that no groundwater was encountered during the dispenser / piping removal activities. Confirmation soil sample locations are depicted in Figure 1-2 of the UST System Closure Report.

Analytical results reveal that samples DISP-01 and DISP-02 exceeded the non-residential / used aquifer action level for benzene (0.5 milligram per kilogram [mg/kg]) at concentrations of 1.9 mg/kg and 1.1 mg/kg, respectively. All other target analytes were either not detected or substantially below the aforementioned standards. DMSE reports that it is unclear whether the

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<sup>3</sup> The two 3,000-gallon tanks are constructed of steel and were installed in a common cavity in 1983. The other two tanks are constructed of fiberglass and were installed in a separate common cavity in 1990.

release originated from former Dispenser #01, Dispenser #02, or both. However, DMSE surmised that the source was most likely unleaded gasoline Dispenser #01 rather than diesel Dispenser #02 because of the presence of MTBE in the dispenser soil samples. Based on the available project record, it does not appear that over-excavation of excessively impacted soil was completed and, consequently, these impacts remain in-place.<sup>4</sup> Separate-phase hydrocarbon (SPH) recovery efforts were not necessary since no SPH was observed during the dispenser and piping removals.

In response to the soil impacts observed during the dispenser and piping upgrades, the Solicitor retained DMSE's services to develop and implement a plan for site characterization including an evaluation of remedial alternatives. DMSE initiated site characterization activities in January 2010 that generally included on-property soil investigations, on-and off-property groundwater characterization, a surface water assessment, an unsuccessful attempt at soil gas sampling, aquifer testing, professional surveying of facility and environmental features, contaminant fate & transport modeling, and development of a hydrogeologic conceptual site model and risk conceptual site model. The site investigations, as well as the 11/25/09 UST system modifications and an evaluation of remedial alternatives, were documented in DMSE's 6/11/12 Site Characterization Report (SCR) provided as Attachment 3E. After issuing the SCR, DMSE submitted a Remedial Action Plan (RAP) to the PADEP on 11/30/12 that provided a site cleanup strategy designed to address the on-property soil contamination and on- and off-property groundwater impacts and achieve site closure. A copy of the RAP is provided in Attachment 3F. The PADEP unconditionally approved the SCR / RAP in a letter dated 3/19/13 (Attachment G) but cautioned that approval was contingent upon obtaining a PennDOT permit should any proposed soil excavation activities extend into the West Pike Road right-of-way. A brief summary of key information extracted from the SCR and RAP is provided in the following sections. Bidders are referred to the SCR and RAP in Attachments 3E and 3F, respectively, for additional information.

### ***Selection of Remediation Standards***

#### **Soil**

The Solicitor intends to pursue site closure for unleaded gasoline constituents in soil under the PADEP Act 2 Statewide Health Standard (SHS) Medium Specific Concentrations (MSCs) for a used aquifer in a nonresidential setting.

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<sup>4</sup> Approximately one ton of pea gravel was excavated with no obvious or gross contamination and was reused as backfill.

## Groundwater

The Solicitor intends to pursue site closure for unleaded gasoline constituents in groundwater under the PADEP Act 2 Site Specific Standard (SSS) via pathway elimination and/or site-specific risk based standards, as appropriate.

### ***Overview of Site Geology, Hydrogeology and Hydrology***

Geologic characterization of the site subsurface was determined through advancing 21 on-property soil borings (SB-01 through SB-21) within and surrounding the former product dispenser pad and near the two UST basins, and through the completion of borings for on-and off-property groundwater monitoring wells MW-01 through MW-13. The soil borings were advanced to depths ranging from approximately 10.0 to 14.5 ft-bg and the monitoring well borings were completed at depths ranging from about 11.2 to 16.7 ft-bg.

In general, unconsolidated overburden deposits beneath the site study area consist of an approximate 0.5 to 5.8 feet thick layer of fill materials beginning beneath the asphalt surface cover (where present) or at the ground surface. The fill materials consist primarily of gravel with lesser amounts of gravelly clay, silt, sand and ash and were encountered at all on- and off-property boring locations. Underlying the fill materials are natural soil deposits consisting of various mixtures of clay, silt, sand and gravel (with infrequent cobbles), some of which are laterally discontinuous.

Below the soil horizon is weathered shale bedrock that was identified at several on-and off-property soil and monitoring well boring locations beginning at depths of about 10.4 (MW-11) to 15.0 (MW-01) ft-bg. Competent shale bedrock appears to have been encountered in soil borings SB-01, SB-02, SB-06, SB-07, SB-08 and SB-09 at depths ranging from approximately 12.0 (SB-07) to 14.5 (SB-06) ft-bg as suggested by direct-push drilling refusal at these depths. The shale bedrock reportedly belongs to the Pennsylvanian Age Glenshaw Formation that is generally comprised of cyclic sequences of sandstone, siltstone, shale, claystone, limestone and coal. Regarding bedrock structure, the BLCI facility is positioned about 1,000 ft northwest from the axis of the Grapeville-Kinter Hill anticline which trends from southwest to northeast resulting in gently dipping bedrock to the northwest.<sup>5</sup> Additional geologic information is provided on the borings logs and cross-sections contained in the 6/11/12 SCR (Attachment 3E).

The historical groundwater flow maps developed for the unconfined shallow water table aquifer (SCR Figures 4-6 through 4-11) typically reflect radial to semi-radial groundwater movement with converging south to west flow resulting in overall groundwater discharge to the southwest toward the combined tributary to Curry Run and the main branch of Curry Run. The depth to groundwater beneath the site has been measured within the range of 3.64 to 11.19 ft-bg and occurs within the unconsolidated overburden materials and underlying weathered shale

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<sup>5</sup> Bedrock strike and dip (313 / 2°) was directly measured at an outcrop in the eastern part of the BLCI property. However, this suggests bedrock dip to the southwest or northeast.

bedrock. Historical groundwater gauging data is tabulated in the SCR (Attachment 3E) and RAP (Attachment 3F). The horizontal hydraulic gradient for the water table aquifer has ranged from approximately 0.04 to 0.09 ft/ft with an average value of approximately 0.06 ft/ft. Based on slug testing conducted by DMSE in monitoring wells MW-01 through MW-05, the average hydraulic conductivity for the shallow water table aquifer was estimated to range from about 5.9 ft/day to 10.8 ft/day with a geometric mean of 8.1 ft/day. Average linear groundwater velocity for the water table aquifer was also estimated at 1.93 ft/day.

The tributaries to Curry Run that traverse the BLCI facility were discussed previously in this section. Related surface water level monitoring in the open channel portion of the tributary to Curry Run has been performed to assist with determining groundwater flow and discharge to the stream.<sup>6</sup> Surface water level measurement data are tabulated in the SCR. In general, the SCR concludes that overburden groundwater is expected to discharge locally into either the open channel portion of the tributary to Curry Run located across the bulk plant facility road or to Curry Run across West Pike Road (Figure 2-2 in Attachment 3A). Because the tributaries to Curry Run are contained in culverts beneath the BLCI property, it is assumed they are hydraulically isolated from site groundwater over this area except for any possible breaches in the culvert. It is also possible that culvert bedding material (if present) may serve as a preferential migration pathway for site groundwater.

### ***Environmental Database Search***

DMSE completed a search of available environmental databases as part of the site characterization process including the PA Drinking Water Information System (PADWIS), PA Groundwater Information System (PAGWIS), eMapPA and the PA Natural Diversity Inventory (PNDI). Results from these database searches are summarized below.

- PAGWIS – Ten (10) domestic water supply wells were identified within a 0.5 mile radius of the BLCI property. The Altman spring (SW-01), Hummel private water supply well (SW-02) and BLCI facility water supply well (SW-03) were not identified in the database search results.
- PADWIS – The BLCI facility is serviced by the Shelocta district of ICMSA which purchases surface water from the Pennsylvania American Water Company. The surface water source is reported as the Two Lick Creek reservoir located east of the Borough of Indiana in the Conemaugh River watershed. Because of the significant distance to the reservoir (over five miles) and its hydrologic isolation from the site, impacts to the ICMSA's surface water supply from the unleaded gasoline release on the BLCI property are considered negligible.
- eMapPA – Identified within a 0.5 mile radius of the BLCI facility were several oil / gas wells and a groundwater withdrawal well for a meat-processing facility located at a

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<sup>6</sup> The surveyed surface water measurement point (BM-01) is located at the top of a culvert downstream of the BLCI facility (Figure 2-2 in Attachment 3A).

distance of over 1.6 miles to the west. The SCR indicates that none of these features is known to be influencing, or influenced by, BLCI site conditions.

- The PNDI search identified no potential impacts and, therefore, no coordination with the PA Department of Conservation and Natural Resources was required to screen the site and vicinity.

Appendix C of the SCR (Attachment 3E) provides more detailed information on the database search results.

### **Soil Quality**

A total of 21 on-property soil borings (SB-01 through SB-21) were advanced during the site characterization activities to assist with defining the lateral and vertical extent of subsurface impacts resulting from the leaking product dispenser. Soil boring locations are depicted in Figure 2-2 of Attachment 3A. Two to three soil samples were collected at each boring location from targeted depth intervals including: 1) shallow unsaturated soil with sample depth intervals ranging from 2-4 to 4-6 ft-bg; 2) deep unsaturated soil within the 6-8 ft-bg depth interval; and 3) saturated soil with sample depth intervals ranging from 10-12 to 12-14 ft-bg.<sup>7</sup> The soil characterization program produced a total of 49 soil samples, including four duplicate quality control (QC) samples, that were submitted for laboratory analysis of the PADEP post-March 2008 short-list of unleaded gasoline parameters. Sample selection for laboratory analysis was generally based on headspace screening of organic vapor levels using a photoionization device and observations of petroleum staining and/or odors as described in more detail in the SCR. Soil analytical results were compared to the PADEP Act 2 nonresidential subsurface soil Direct Contact MSCs (2-15 ft), nonresidential unsaturated and saturated Soil to Groundwater MSCs (used aquifer), and the default nonresidential volatilization to indoor air screening values, as appropriate.<sup>8</sup>

Soil analytical results indicate that benzene is the only constituent of concern (COC) and is primarily limited to shallow unsaturated soil. All other target unleaded gasoline compounds were either not detected or were below the comparative standards listed above. More specifically, benzene concentrations in unsaturated soil exceeded the nonresidential Soil to Groundwater MSC and the default volatilization to indoor air screening value at the following boring locations: SB-02 (1.2 mg/kg, 2 to 4'), SB-03 (0.58 mg/kg, 2 to 4'), SB-05 (0.75 mg/kg, 2 to 4'), SB-11 (0.52 mg/kg, 2 to 4'), SB-12 (1.0 mg/kg, 4 to 6') and SB-14 (1.7 mg/kg, 4 to 6'). The soil sample collected from a depth of 10 to 12' in boring SB-02 was the only smear zone sample that contained a concentration of benzene (0.61 mg/kg) in excess of the nonresidential saturated Soil to Groundwater MSC. Samples from three other soil borings contained levels of benzene

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<sup>7</sup> The SCR specifies that no soil samples were collected below the seasonal low water table. Therefore, for clarification, the saturated soil samples reflect periodically saturated soil collected from the smear zone rather than from permanently saturated soil.

<sup>8</sup> A soil sample identified as GT-01 was also collected from a depth interval of 0 to 5' within soil boring SB-08 and submitted for geotechnical analysis (grain size distribution). Geotechnical results are summarized in the SCR.

exceeding only the default volatilization to indoor air screening value including SB-09 (0.39 mg/kg, 2 to 4'), SB-10 (0.4 mg/kg, 2 to 4')<sup>9</sup> and SB-13 (0.50 mg/kg, 4 to 6'). As illustrated in Figure 4-5 of the SCR, the distribution of contaminants in site soil exceeding established standards is limited to the western half of the former dispenser island and beyond the former island to the west at least to the area of boring SB-11. Overall, the soil contamination appears to be defined both laterally and vertically and limited to the BLCI property except possibly to the south of the former dispenser island. In this area, it is difficult to determine whether soil impacts exceeding regulatory standards may extend off-property beneath the West Pike Road right-of-way given a benzene level of 0.97 mg/kg in the duplicate sample from nearby boring SB-10.

### **Groundwater Quality**

Groundwater quality has been assessed through sampling a network of 13 monitoring wells including on-property wells MW-01 through MW-06, MW-11 and MW-13 and off-property wells MW-07 through MW-10 and MW-12. The monitoring wells range in depth from approximately 11.2 to 16.7 ft-bg and intersect the shallow water table aquifer. In addition to the monitoring wells, groundwater samples have also been collected from the private water supply spring located on the Altman property (SW-01), private water supply well installed on the Hummel property (SW-02), and the reportedly functional but unused BLCI facility water supply well (SW-03). Locations of the groundwater monitoring wells and private water supplies are depicted in Figures 1-2 and 2-2 in Attachment 3A and boring logs / well construction details are contained in the SCR provided in Attachment 3E.

For the site monitoring well network, nine groundwater monitoring / sampling events have currently been completed from September 2010 through March 2013<sup>10</sup> that have produced from five to nine sets of groundwater analytical data for each well, depending on the date the well was installed. Additional groundwater gauging events have been completed in the interim between these monitoring / sampling events. The Hummel well and facility water supply well have been sampled more frequently and 15 analytical data sets exist for these private supplies through the late first quarter / early second quarter 2013, respectively. The Altman spring has been sampled only five times through December 2011. Groundwater samples have been analyzed for the PADEP post-March 2008 short list of unleaded gasoline parameters. The historical groundwater analytical database through the March 2013 sampling event is provided in Attachment 3H.

The primary COC in site groundwater is MTBE which continues to exceed the SHS MSC beneath the BLCI property and beyond the property boundary. To a lesser extent, benzene is also a COC in groundwater although the areal extent of the dissolved-phase benzene plume is not as widespread and appears to be limited to the BLCI property. In general, the recent March

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<sup>9</sup> The duplicate QC sample from SB-10 also exceeded the unsaturated soil standard for benzene (0.97 mg/kg, 2 to 4').

<sup>10</sup> Most recent data available at the time this RFB package was prepared.

2013 groundwater analytical results indicate that MTBE and benzene attained concentrations of up to 260 and 120 micrograms per liter (ug/l), respectively, in the source area well MW-5. Aside from MTBE and benzene, the compound 1,2,4-trimethylenzene in site groundwater exceeded the SHS MSC only once during the initial 9/3/10 sampling of well MW-01 (26 ug/l) and, therefore, is not considered a COC. All other target unleaded gasoline constituents have been below the SHS MSCs or the laboratory method detection limits.

For the March 2013 groundwater sampling event, MTBE was identified above the applicable regulatory standard in six of the eight on-property groundwater monitoring wells including MW-02 through MW-05, MW-11 and MW-13. Concentrations of MTBE in these wells ranged from 23 ug/l (MW-4) to 260 ug/l (MW-5) during the March 2013 event and were the most elevated within and adjacent to the former product dispenser source area. Historically, these six on-property wells have exhibited persistent levels of MTBE exceeding the regulatory standard. In the other two on-property wells, MTBE was identified below the standard in MW-01 (6.1 ug/l) and no MTBE was detected in the sample collected from MW-06 during the March 2013 event which is consistent with historical data. The groundwater analytical database indicates that MTBE concentrations exceeding the regulatory standard have also migrated beyond the southern and western BLCI property boundaries which generally correlates with contaminant migration in the direction of groundwater flow. In March 2013, MTBE was present beyond the western property boundary in wells MW-07 and MW-12 at concentrations of 40 and 230 ug/l, respectively, which exceed the regulatory standard. Note that the horizontal extent of the MTBE plume has not been defined off-property to the west-southwest beyond well MW-12, although lateral dissolved-phase contaminant migration in this direction may be partially, or wholly controlled by groundwater discharge to the nearby tributary of Curry Run. To the south across West Pike Road, low levels of MTBE below the applicable standard were present in off-property wells MW-08 (3.8 ug/l) and MW-10 (8.4 ug/l) during the March 2013 sampling event, although no MTBE was detected in the most distant downgradient well MW-09 during that event. However, during previous sampling events, concentrations of MTBE have sporadically exceeded the standard in wells MW-09 and MW-10 at levels reaching 38 and 34 ug/l, respectively. Consequently, there is concern that the private water supply well located on the Hummel property could eventually become impacted.

Benzene analytical results for the March 2013 sampling event indicate that this compound was reported above the laboratory method detection limit in only four on-property wells including MW-01, MW-04, MW-05 and MW-11. Concentrations of benzene exceeded the applicable regulatory standard in MW-05 (120 ug/l) and MW-11 (54 ug/l) located adjacent to the former product dispenser pad, and were below the standard in MW-01 (3.6 ug/l) and MW-04 (3.8 ug/l) at greater distance from the former dispenser pad. Benzene levels in MW-05 and MW-11 have historically fluctuated and exhibited instability which can likely be attributed to the presence of residual source soil and precipitation / infiltration events. Results for wells MW-01 and MW-04 are generally consistent with historical data. Based on available data, levels of benzene

exceeding the SHS MSC appear to be limited to the area surrounding the former dispenser island source area and most likely do not extend beyond the property boundary.

No target unleaded gasoline compounds have historically been identified in the Altman private water supply spring or Hummel private water supply well.<sup>11</sup> Low levels of MTBE slightly exceeding the applicable standard have frequently been detected in the unused facility water supply well (up to 34 ug/l) and most recently attained a concentration equivalent to the standard of 20 ug/l during the April 2013 sampling. All other unleaded gasoline compounds have historically been reported as below laboratory method detection limits in the facility well. The SCR concludes that although the facility water supply well is cross-gradient from the source area, the MTBE impacts are probably due to its proximity to the source area and preferential pathways.

Field parameters measured during the groundwater sampling events have included pH, temperature, specific conductance, dissolved oxygen, turbidity, oxidation / reduction potential, salinity and total dissolved solids. The results from these measurements are tabulated in the SCR. There is no evidence in the project record that surface water samples have ever been collected and analyzed from Curry Run or its tributaries.

### **Soil Gas**

One soil gas sampling point (SG-01) was installed by DMSE in February 2011. Sampling point SG-01 was positioned between the former unleaded gasoline dispenser and the office / garage / maintenance building (Figure 2-2, Attachment 3A) and was screened from 4 to 5 ft-bg. However, a localized zone of shallow perched groundwater inundated the sampling point precluding the collection of soil gas samples. Based on the available site record, no subsequent attempt to collect and analyze soil gas samples has been completed.

### **Separate Phase Hydrocarbons**

Although no separate phase hydrocarbons (SPH) were observed during the 11/25/09 removal of the four product dispensers and related piping, periodic accumulations of SPH were reportedly later measured in on-property monitoring wells MW-03 and MW-11. More specifically, approximately 0.01 foot of SPH was measured in MW-11 in June 2012 and about 0.02 foot of SPH was measured in Well MW-03 in August 2012. Recovery of the limited volume of SPH from these wells has been performed using absorbent socks. The most recent SPH measurement results available (10/17/12) indicate that no free product was identified in any of the site monitoring wells on that particular date. However, whether SPH has reappeared in wells MW-03 and/or MW-11 and the status of any SPH recovery efforts after that date are unknown.

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<sup>11</sup> The Altman spring at an elevation above 1240 ft-msl is considered hydraulically isolated from impacted site groundwater at an elevation of about 1180 ft-msl. The Hummel well is located hydraulically downgradient of the site.

### ***Contaminant Fate and Transport Modeling***

The documented off-property migration of the dissolved-phase MTBE plume was further evaluated using USEPA's BIOSCREEN groundwater contaminant fate and transport model. It appears that site conditions were simplified for the model run by assuming the creek drainage divide was not present. In general, results from the modeling effort predict that absent the creek, the MTBE migration could extend approximately 525 feet downgradient of off-property well MW-12 at concentrations exceeding the SHS MSC for a used aquifer in a residential setting (UARSHS). BIOSCREEN modeling of the dissolved-phase benzene plume predicts that benzene will not extend beyond Bulk Plant Road west of the BLCI facility or beyond West Pike Road to the south which is consistent with the available groundwater analytical results through the March 2013 sampling event. Additional details regarding the BIOSCREEN contaminant fate and transport modeling are provided in the SCR.

Because existing groundwater analytical data and the BIOSCREEN modeling results indicate that MTBE would likely migrate to the nearest surface water feature (tributary to Curry Run located near and downgradient of MW-12) at concentrations exceeding the edge criterion, MTBE was evaluated using the PADEP's SWLOAD5B model to assess contaminant loading to the stream. Results from the SWLOAD5B modeling conclude that the maximum predicted steady-state concentrations at the groundwater/surface water interface could exceed the edge criterion for MTBE. Although these results require further evaluation using PADEP's PENTOXSD model, there is no Chapter 16 lowest surface water quality criterion in PENTOXSD for MTBE. As an alternative, the resultant surface water concentration of MTBE was estimated using a mass balance calculation assuming 100% mixing. In general, the mass balance calculation predicted a maximum in-stream MTBE concentration of 13 ug/l and concluded that because the concentration of MTBE in the stream at the time of maximum mass loading is quantified at a level lower than the default SHS MSC for a used aquifer in a nonresidential setting (UANRSHS), further demonstration of compliance with surface water criteria is not required.<sup>12</sup> Additional details regarding the SWLOAD5B modeling and mass balance calculations are provided in the SCR.

### ***Preferential Pathway Analysis***

The existing BLCI facility water supply well has often, and recently, contained concentrations of MTBE exceeding the applicable regulatory standard. Although the facility supply well is reportedly now unused and only served for non-potable use in the past (e.g., washing vehicles), it still remains functional and is considered a potentially complete exposure pathway via ingestion (drinking water) and dermal/inhalation exposure (washing). The SCR concluded that there are currently no other identified potentially complete on-site exposure pathways associated with site groundwater and soil. The SCR further concluded that a future potentially

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<sup>12</sup> Because MTBE does not have a lowest surface water quality criterion, the default criterion specified in the Act 2 Technical Guidance manual is the UANRSHS MSC.

complete exposure pathway would exist in the event that a utility corridor would be constructed within saturated zone soil.

### ***Risk Conceptual Site Model***

A human health exposure assessment was completed by DMSE for various categories of potential human receptors and a summary of findings for the retained categories is provided below.

- Construction Worker (on- and off-property) – Unleaded gasoline constituents have been detected in on-property shallow soil and in on- and off-property shallow groundwater at concentrations exceeding the SHS. Therefore, exposure via soil and groundwater was retained for further analysis for the on-property and on- and off-property construction worker, respectively.
- Utility Worker (on- and off-property) – See description for Construction Worker above.
- Indoor Worker – Vapor intrusion into occupied buildings is a potentially complete pathway that was not eliminated by soil gas sampling / screening; therefore, this receptor / potential pathway was retained.
- Recreational User – The SCR concludes that the recreational user will remain a potential receptor until it can be demonstrated that the in-stream concentration is below the screening value. (Note, however, that the mass balance calculation previously discussed predicts a maximum in-stream MTBE concentration of only 13 ug/l which is below the UARSHS.)
- Off-Site Resident – Although no target unleaded gasoline compounds have been identified in the off-property Altman spring or Hummel water supply well, BIOSCREEN fate and transport modeling suggests that dissolved-phase contaminants may migrate as far as the Altman and Hummel properties at concentrations exceeding the residential MSCs. Therefore, this pathway was retained for future off-property receptors on the Altman and Hummel properties.<sup>13</sup>
- Current and Future Groundwater User – On- and off-property overburden groundwater contains unleaded gasoline compounds exceeding both residential and nonresidential SHS MSCs and a municipal mandatory connection ordinance exists that requires only a minimum payment to the public utility but does not otherwise prohibit the use of groundwater for drinking water. Therefore this receptor was retained. A copy of the municipal ordinance is provided in Attachment 3I.

Potential ecological receptors were evaluated via the screening process defined under Chapter 250.311 and a survey of threatened or endangered species was conducted as required under the Endangered Species Act. As described in the SCR, the site passed the ecological screening procedure because light petroleum compounds (unleaded gasoline) were the only

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<sup>13</sup> Although dissolved-phase impacts may, or may not have already migrated onto the Altman property, the Altman spring is considered hydraulically isolated from site overburden groundwater due to elevation differences as previously discussed.

constituents detected which require no on-site evaluation. Also, as previously discussed, a PNDI search identified no potential impacts and, consequently, no coordination with DCNR was required to screen the site and vicinity.

### ***Proposed Site Remedial Approach***

An evaluation of various remedial alternatives was completed by DMSE that are summarized in the SCR. The soil remedial alternatives evaluated for potential site application included soil excavation, transport and disposal, soil vapor extraction (SVE), and *in-situ* chemical oxidation (saturated zone). Remedial alternatives evaluated for groundwater included groundwater extraction and treatment, air sparging / SVE, enhanced bioremediation, in-situ chemical oxidation, and monitored natural attenuation (MNA).

Based on the evaluation of remedial alternatives for soil, the RAP proposes excavation, transport and disposal of excessively impacted soil from the former dispensers area to achieve the SHS. Figures depicting the anticipated limits of soil excavation and proposed soil waste characterization sampling locations are provided in the RAP.<sup>14</sup> Soil excavation is addressed under Milestone D1 of this RFB.

The RAP specifies that obtaining closure for site groundwater under the SSS is the primary objective and that post-excavation groundwater sampling data will be used to complete the required risk assessment. Post excavation groundwater sampling is intended to provide eight consecutive quarters of groundwater data for the primary purpose of compiling a reasonable dataset and evaluating plume stability for completing the risk assessment. The RAP also generically states that under the SSS closure scenario, the selected groundwater remedial alternative will include institutional controls.<sup>15</sup>

As previously mentioned, the RAP was unconditionally approved in a letter issued by the PADEP on 3/19/13. Bidders are directed to the 11/30/12 RAP in Attachment 3F for more details on the remedial strategy proposed by DMSE. Note that for this RFB solicitation, a bidder may elect to propose implementing the RAP “as-is”, may elect to retain but modify certain technical aspects of the site remedy proposed in the RAP, or may choose to propose an alternative site remedy it feels may be more efficient and cost effective to achieve a combination SHS (soil) / SSS (groundwater) site closure.

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<sup>14</sup> The RAP provides a minimum excavation volume estimate of 284 in-place cubic yards based on an assumed excavation depth of 6 ft-bg and an assumed surface area of approximately 1,280 ft<sup>2</sup> which appears consistent with the lateral and vertical extent of identified excessive impacts in shallow unsaturated soil.

<sup>15</sup> Bidders should note that the RAP describes an optional SHS closure strategy for groundwater, if appropriate, based on potential post-excavation improvements in groundwater quality. The approach may rely on biological enhancements injected into lateral piping proposed for installation at the base of the soil excavation, or simply on MNA. However, this optional SHS closure strategy for groundwater would require Claimant, PADEP and PAUSTIF approval and preparation of a revised RAP, and would be subject to the changed conditions clause of the Fixed-Price Agreement. Therefore, bid responses shall be based on the primary SSS closure goal for groundwater.

### **Remedial Feasibility Pilot Testing**

Based on information contained in the SCR and RAP, no remedial feasibility pilot testing has been conducted on any of the remedial alternatives evaluated or retained for possible site application (e.g., SVE, biological enhancement).

### **Scope of Work (SOW)**

This RFB seeks competitive bids from qualified contractors to perform the activities in the Scope of Work (SOW) specified herein. The draft RFB was provided to the PADEP SWRO case manager for review and comment but no response was received.

#### **Objective**

In general, the scope of work described in this RFB requires supplemental site characterization activities, site remediation, an exposure evaluation / risk assessment, attainment demonstrations, preparation of a Remedial Action Completion Report (RACR), and site restoration. **Post remedial care monitoring will be performed on a time and materials basis outside of the scope of the Remediation Agreement.** These work scope elements are intended to achieve site closure for a release of unleaded gasoline via the PADEP Act 2 SHS for soil and SSS for groundwater. The site closure strategy proposed in the PADEP-approved RAP generally involves excavation for soil and development of a risk assessment for groundwater.

The SOW contained in this RFB has been developed and structured as a “**Bid to Result**” type solicitation. “**Bid to Result**” RFBs identify task goals and rely on the bidders to provide a high level of project-specific detail on how they will achieve the goal. Each bid must detail the approach and specific methods for achieving the milestone objectives. In reviewing the quality of bids submitted under “**Bid to Result**” solicitations, there is an increased emphasis placed on technical approach and reduced emphasis on cost (as compared to bids for “Defined Scope of Work” RFBs).

#### **Constituents of Concern (COCs)**

Soil and groundwater samples collected at the BLCI site have been analyzed for the PADEP Act 2 post-March 2008 short-list of unleaded gasoline compounds. Based on these analyses, the site Constituents of Concern include benzene in soil and MTBE and benzene in groundwater.

#### **General SOW Requirements**

The bidder’s approach to completing the SOW shall be in accordance with generally accepted industry standards/practices and all applicable federal, state, and local rules, regulations,

guidance, and directives. The latter include, but are not limited to, meeting the applicable requirements of the following:

- The Storage Tank and Spill Prevention Act (Act 32 of 1989, as amended),
- Pennsylvania Code, Title 25, Chapter 245 - Administration of the Storage Tank Spill and Prevention Program,
- The Land Recycling and Environmental Remediation Standards Act of 1995 (Act 2), as amended),
- Pennsylvania Code, Chapter 250 - Administration of Land Recycling Program, and
- Pennsylvania's Underground Utility Line Protection Law, Act 287 of 1974, as amended by Act 121 of 2008.

During completion of the milestone objectives specified below and throughout implementation of the project, the selected consultant shall:<sup>16</sup>

- Conduct necessary, reasonable, and appropriate project planning and management activities until the project (i.e., Remediation Agreement) is completed. Such activities may include Solicitor communications/updates, meetings, record keeping, subcontracting, personnel and subcontractor management, quality assurance/quality control, scheduling, and other activities (e.g., utility location). Project planning and management activities will also include preparing and implementing plans for Health and Safety, Waste Management, Field Sampling/Analysis, and/or other plans that are necessary and appropriate to complete the SOW, and shall also include activities related to establishing any necessary access agreements.<sup>17</sup> Project planning and management shall include identifying and taking appropriate safety precautions to not disturb site utilities; including but not limited to, contacting Pennsylvania One Call as required prior to any ground-invasive work. As appropriate, project management costs shall be included in each bidder's pricing to complete the milestones specified below.
- Be responsible for coordinating, managing, and completing the proper management, characterization, handling, treatment, and/or disposal of all impacted soils, water, and derivative wastes generated during the implementation of this SOW. The investigation-derived wastes, including purge water, shall be disposed of in accordance with standard industry practices and

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<sup>16</sup> As such, all bids shall include the costs of these activities and associated functions within the quote for applicable tasks/milestones.

<sup>17</sup> For the purpose of this bid solicitation, bidders shall assume that negotiations to secure two (2) access agreements will be required. Should an additional access agreement, or agreements, become necessary, such additional work would be considered out-of-scope and subject to the changed conditions clause of the Fixed-Price Agreement.

applicable laws, regulations, guidance, and PADEP directives. Waste characterization and disposal documentation (e.g., manifests) shall be maintained and provided to the Solicitor and the PAUSTIF upon request.

All investigation derived wastes shall be handled and disposed of per PADEP's Southwest Regional Office guidance. Investigation derived wastes include personal protective equipment, disposable equipment, soil and drill cuttings and groundwater obtained through monitoring well development and purging, as well as equipment decontamination fluids. Investigation derived wastes must be containerized in DOT-approved drums and staged on-site in a pre-determined location, pending results of laboratory analyses and selection of final disposal method(s). Each container must be labeled to indicate contents, site location and date of generation. It is the selected consultant's responsibility to conform with current PADEP Southwest Regional Office guidance requirements.

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

### **Site –Specific Milestones**

**Milestone A – Quarterly Groundwater Monitoring, Sampling and Reporting.** Under this milestone, the ongoing program of quarterly groundwater monitoring, sampling and reporting for the BLCI facility shall be continued. This milestone shall commence immediately following execution of the associated Fixed-Price Agreement and shall be discontinued with the initiation of the bidder's site remedy (Milestone D).<sup>18</sup> For the purpose of this RFB solicitation, bidders shall assume and provide a firm fixed-price to complete three (3) quarterly groundwater monitoring, sampling and reporting events under Milestone A. Each bidder shall provide an all-inclusive fixed unit rate per quarterly event should more or fewer than three (3) events be needed prior to initiation of the quarterly groundwater monitoring, sampling and reporting program to be conducted under Milestone D during implementation of the site remedy.

For the purpose of this bid solicitation, and consistent with the established quarterly groundwater monitoring / sampling program, bidders shall assume the fixed-price cost for this milestone shall include collecting and analyzing groundwater samples from the thirteen (13) on- and off-property monitoring wells including MW-1 through MW-13. Each quarterly sampling event shall also include the collection of groundwater samples from the off-property Hummel private water supply well (SW-02). Although the PADEP-approved RAP specifies monthly

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<sup>18</sup> The first quarterly event conducted under Milestone A shall be timed to continue the pre-existing sequence of quarterly groundwater monitoring events without disruption.

sampling of this well to be protective of human health, no target unleaded gasoline constituents have been reported for this well during nearly 2.5 years of sampling. Also, analytical data for monitoring wells positioned between the site source area and the Hummel well (MW-8, MW-9 and MW-10) have contained only low to very low concentrations of MTBE usually below the SHS MSC. Therefore, immediately following execution of the Fixed-Price Agreement, the selected bidder shall prepare a brief petition to the PADEP requesting that the Hummel well be sampled on a quarterly rather than a monthly basis.<sup>19</sup> Sampling of the Altman private water supply spring (SW-01) will not be necessary since this water supply is hydraulically isolated from the site.

During each quarterly groundwater monitoring and sampling event, the depth to groundwater and any potential separate-phase hydrocarbons (SPH) shall be gauged in each of the 13 existing monitoring wells and prior to purging any of the wells for sample collection. Groundwater level measurements obtained from the site monitoring wells shall be converted to groundwater elevations for assessing groundwater flow direction and hydraulic gradient for the shallow water table aquifer. Each of the 13 monitoring wells shall then be purged and sampled in accordance with the PADEP Groundwater Monitoring Guidance Manual, any other applicable PADEP guidance, and standard industry practices. For consistency with the techniques previously employed by DMSE at the BLCI facility, all site monitoring wells shall be purged and sampled using low-flow techniques. The Hummel well shall be purged and sampled in accordance with PADEP guidance and industry standards / precautions for private water supplies. Any well exhibiting a measurable thickness of SPH shall not be purged and sampled. The selected consultant shall manage equipment decontamination fluids, groundwater generated by the well purging and sampling activities, and other wastes in accordance with PADEP SWRO guidance as discussed earlier in this RFB.

As previously discussed, limited accumulations of SPH (0.01 to 0.02 foot) reportedly have periodically been measured within monitoring wells MW-03 and MW-11. Due to the potential for SPH to reappear in one or both of these wells, bidders shall provide a fixed unit cost per-well for absorbent sock replacement / disposal during each quarterly groundwater monitoring and sampling event.

Groundwater samples collected during each of the quarterly events shall be analyzed for the **post**-March 2008 PADEP short-list of unleaded gasoline parameters by a PADEP-accredited laboratory using appropriate analytical methods and detection levels. Appropriate quality assurance / quality control (QA/QC) samples shall also be collected during each quarterly event and analyzed for the same unleaded gasoline constituents. For the purpose of this RFB solicitation, bidders shall assume collecting one trip blank sample and one blind duplicate sample (from a known impacted well) per quarterly event. In addition, each event shall include measurements for the following field parameters during the well purging and sampling process:

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<sup>19</sup> Although not expected, should the PADEP disapprove the request to sample the Hummel well on a quarterly basis, conducting monthly sampling would be considered out-of-scope and subject to the changed conditions provision of the Fixed-Price Agreement.

pH, temperature, specific conductance, dissolved oxygen (measured in-situ), total dissolved solids and oxidation/reduction potential.<sup>20</sup>

The conduct and results for each groundwater monitoring and sampling event shall be documented in a Remedial Action Progress Report (RAPR) that shall be provided to the PADEP on a quarterly basis consistent with the Department's timetable for RAPR submittals.<sup>21</sup> At a minimum, each RAPR shall contain the following elements:

- As applicable, a summary of site operations and remedial progress made during the reporting period that addresses whether or not the degree of remedial progress is reasonably "on track" to achieve a timely and cost-effective site closure.
- Tabulated groundwater gauging data collected from the monitored wells, including the depth to groundwater, groundwater elevation and thickness of any free product encountered.
- A groundwater elevation contour map developed for the shallow water table aquifer that depicts a licensed professional's interpretation of groundwater movement.
- Tabulated historical quantitative groundwater analytical results, including results from the current quarter.
- The laboratory analytical report(s) for the samples collected during the current quarter.
- One site-wide isoconcentration contour map for each compound detected in groundwater at a concentration exceeding its SHS during the quarter.<sup>22</sup>
- For each well that has exhibited a SHS exceedance during the reporting period and/or during the previous year, a graphical depiction of historical key contaminant concentrations and groundwater elevations to provide an assessment of correlations between fluctuating water levels/precipitation events and contaminant concentrations. This assessment should specifically address whether observed dissolved-phase constituent concentration fluctuations may be related to changing hydrogeologic conditions or whether these fluctuations may be potentially indicative of changed conditions requiring further investigation and/or a possible change in the site closure strategy.
- For each well that has exhibited an SHS exceedance during the reporting period or previously, a graphical depiction of recent key contaminant concentration trends. Each quarter, contaminant concentration trend lines shall be calculated using the previous two-years of analytical data (as available) to be plotted on an x-y scatter plot with a logarithmic scale. The exponential trend lines shall be projected forward in time to assess the pace of or projected timeframe for remediation to achieve attainment of the selected remediation standard.
- A discussion of the data to offer an updated assessment whether these data are consistent with a stable, contracting, or expanding plume and, therefore, whether

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<sup>20</sup> Each bidder's approach to implementing Milestone A shall clearly identify the number of sampling events, number of wells / samples per event, well purging and sampling method(s), QA/QC measures, analytes, and other key assumptions affecting the bid price.

<sup>21</sup> PADEP suggests that Groundwater Monitoring Reports (GMR) be referred to as Remedial Action Progress Reports (RAPR) which are due to the PADEP on January 30, April 30, July 30, and October 30.

<sup>22</sup> All figures included in each quarterly report (e.g., Site plan, groundwater elevation maps, dissolved plume maps, etc.) shall be made available in electronic format from the current consultant of record (DMSE) upon request.

or not the plume appears to be responding to the remedial action in a manner suggestive of a timely and cost-effective site closure.

- Post-remediation soil data (if applicable).
- Treatment and disposal documentation for waste generated during the reporting period.

Each RAPR shall be signed and sealed by a Professional Geologist or Professional Engineer registered in the Commonwealth of Pennsylvania. In addition to the quarterly RAPRs, laboratory analytical results obtained for the Hummel supply well shall be provided to the well owner on a quarterly basis accompanied by a cover letter briefly explaining the results. Methods and results from these quarterly groundwater monitoring and sampling events shall also be summarized in the SCR Addendum (SCRA), Amended RAP (ARAP) or Revised RAP (RRAP) generated under Milestone C and in the Remedial Action Completion Report (RACR) to be prepared under Milestone G.

**Milestone B – Decommission Facility Water Supply Well.** As described in the previous section, the BLCI facility is connected to the municipal water supply but continues to support a functioning, but unused water supply well (SW-03). In order to eliminate this current and future potentially complete exposure pathway and allow sampling of this well to be discontinued at an early stage, bidders shall provide a firm-fixed price for decommissioning the former facility water supply well within four (4) weeks following execution of the Fixed-Price Agreement.<sup>23</sup> Because the location and construction of this well are unknown, bidder's costs for this milestone shall assume a well diameter of 6-inches and a total depth of 50 ft-bg, and shall consider the level of effort necessary for locating the well, removing / disposing the downhole pump, piping, cable and wiring, and sealing the well in accordance with the PADEP Groundwater Monitoring Guidance Manual (PADEP, 2001). Should well construction vary significantly from these costing assumptions, any additional costs would be considered out-of-scope per the Changed Conditions provision of the Fixed-Price Agreement. Well decommissioning activities shall be reported in a concurrent RAPR and the RACR (Milestone G).<sup>24</sup>

**Milestone C – Supplemental Site Characterization Activities and Reporting.** This milestone provides each bidder the opportunity to identify additional site characterization work it believes is necessary before finalizing the remedial approach design and moving ahead with its implementation. Conducting supplemental investigative activities under this milestone is mandatory. PAUSTIF will be reimbursing up to \$10,000 for supplemental site characterization and reporting costs under this milestone. Bidders are to describe what supplemental site

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<sup>23</sup> The RAP recommended that this supply well be decommissioned immediately following receipt of PADEP's letter approving the RAP.

<sup>24</sup> If the facility water supply well cannot be located, or should it no longer be accessible (e.g., wellhead covered by facility construction), decommissioning shall be accomplished through removing the appropriate plumbing fixtures and sealing the piping subject to a cost adjustment under the Changed Conditions clause of the Fixed-Price Agreement.

characterization will be completed, the rationale for the work and how the derived data will be used. For purposes of bidding, and to ensure consistent cost scoring of bids, each bidder will enter exactly \$10,000 as the bid price for Milestone C in the Standard Bid Cost Spreadsheet. PAUSTIF will only reimburse up to \$10,000 of reasonable and necessary costs for those tasks actually performed. The selected bidder must provide time and material documentation in addition to supporting documentation required (in Exhibit C of the executed Remediation Agreement) to support the requested reimbursement and completion of this milestone.

Bidders may use this opportunity to: 1) confirm any elements of the site characterization completed by a previous consultant; 2) address any perceived data gaps in the existing site characterization work; 3) assist in the evaluation and determination of remedial technologies and system design; 4) assist with refining the cleanup timeframe estimate and/or other reasons related to validating the bidder's remedial approach and design. Supplemental work under this task may include additional environmental media sampling and analyses and / or remedial pilot testing.

Based on the evaluation of remedial alternatives presented in the SCR, the RAP identified two technologies requiring further evaluation including SVE, which was retained as a potential remedial alternative for impacts to shallow unsaturated soil, and excavation which was selected as the most cost effective and applicable remedial technology for achieving SHS closure for site soil. However, should a bidder wish to explore the viability of an alternative remedial technology for soil (other than excavation), this milestone provides the opportunity to propose remedial feasibility pilot testing to assist in the evaluation and determination of remedial technologies and system design with the objective of ensuring an efficient and timely site closure.<sup>25</sup> Supplemental site characterization work could consist of activities such as additional source soil delineation, delineation of the off-property dissolved-phase MTBE plume beyond well MW-12, soil gas sampling,<sup>26</sup> surface water sampling, etc. Milestone C activities shall be conducted as soon as possible following execution of the Fixed-Price Agreement and completed concurrent with Milestones A and B. Again, a risk based closure under the SSS was identified in the RAP as the primary closure goal for groundwater.

Each bidder shall describe in detail its scope of work for additional site characterization activities along with corresponding technical justification to support the need for each additional activity. When considering what additional site characterization activities may or may not be necessary, bidders are strongly encouraged to review DMSE's January 2010 UST System Closure Report (Attachment 3C), 6/11/12 SCR (Attachment 3E) and 11/30/12 RAP (Attachment 3F), rather than relying solely on the summary site background information presented in the previous section. As

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<sup>25</sup> No pilot testing of any retained remedial technology (SVE) or other remedial technologies to mitigate unleaded gasoline contamination in shallow soil has been performed.

<sup>26</sup> The Human Health Exposure Assessment for the Indoor Worker contained in the SCR specifies that soil gas sampling would be required to evaluate this potential receptor.

mentioned above, supplemental site characterization activities shall be initiated upon execution of the Fixed-Price Agreement and conducted concurrently with Milestones A and B.

Potential considerations regarding the need for Milestone C activities include: determination of site-specific remedial design data, confirmation that the proposed technology is technically feasible, confirmation that the proposed technology is cost-effective, and confirmation that the proposed technology will provide a timely closure of the site under PADEP Act 2.

Any and all Milestone C activities that are proposed with your firm's bid shall be accompanied by the following:

- The purpose and need for each Milestone C activity and an appropriate breakdown (Milestones C1, C2, etc.).
- A detailed scope description of each activity including the use and incorporation of any pre-existing site data.
- The timing and schedule of each activity relative to the overall project schedule.
- A description of the anticipated results of each activity and how such results may impact your proposed conceptual remedial action plan.
- For activities involving the evaluation of a remedial technology, such as a feasibility study or pilot test, bids shall describe in detail the likelihood that the resulting data will dictate a change in the conceptual remedial action plan proposed in your bid.
- Firm fixed-pricing and any appropriate unit pricing for each Milestone C activity (Milestones C1, C2, etc.) within each bidder's completed Bid Cost Tabulation Spreadsheet (Attachment 2).

The additional site characterization work under Milestone C shall be documented<sup>27</sup> as follows:

- In a SCRA if the proposed site remedial approach will be consistent with the PADEP-approved RAP (i.e., no modifications);
- In a ARAP if the proposed site remedial approach will be generally consistent with the PADEP-approved RAP but with modifications; or
- In a RRAP should an alternative remedial approach be proposed that varies substantively from the PADEP-approved RAP.

The project schedule shall allow two (2) weeks for Solicitor and PAUSTIF review of the draft report before a final version is submitted to the PADEP. Following Solicitor / PAUSTIF review of the draft document, the selected consultant shall address any comments and submit the final report to the PADEP. The report shall be consistent (with regard to approach and level of effort) with the conceptual plan for remedial action provided in the selected consultant's bid and shall be signed and sealed by a Professional Geologist **and** a Professional Engineer registered in the Commonwealth of Pennsylvania. The fixed-price cost for this task must also account for addressing potential PADEP comments on a RAPA or RRAP, as applicable.

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<sup>27</sup> In order to receive reimbursement under this task, thorough documentation of any additional site characterization activities must be provided to PAUSTIF.

#### Pilot Study “Off-Ramp” / Changed Condition

The selected consultant and the Solicitor are protected from being obligated to move forward with a remedial action under Milestone D if the Milestone D proposed remedial approach is not optimal or is expected to fail based on new site characterization or pilot study data from Milestone C. While the selected bidder will be under no obligation to cancel the eventual Fixed-Price Remediation Agreement if the site characterization or pilot test results are outside the criteria or range specified in the bidder’s RFB Solicitation response, the following conditions will apply:

1. With advanced Solicitor and USTIF approval, the selected bidder may elect to modify the Milestone D remediation plan and continue with the project at no additional cost; that is, for the same total fixed price found in the RFB Solicitation response, based on the remaining fixed description and price for the remaining tasks.
2. If the Solicitor or USTIF choose not to approve the selected bidder’s revised plan adjusting to the new Milestone C data, the Remediation Agreement for the project will terminate.
3. Or if the selected bidder adequately demonstrates the site conditions revealed by Milestone C activities are significant and could not have reasonably been expected prior to conducting the Milestone C activities, the selected bidder may elect to not proceed and withdraw from / terminate the Remediation Agreement for the project.

Bidders shall, therefore, specify within their bids the critical criteria (if any) that will be used by Solicitor and the selected bidder to evaluate the significance of data obtained through Milestone C activities. These critical criteria shall be used to assess if the new data change the feasibility of the Milestone D proposed remedial approach. As such, and as applicable, bids shall list an upper and lower limit for each critical criterion that will define the range of acceptable results (i.e., feasibility study or pilot testing results) relevant to the proposed Milestone D remedial approach. These criteria must be measurements or calculations that could be independently measured or verified by others during testing. Based on these criteria, Exhibit A of the Fixed-Price Agreement (Attachment 1) will contain a provision allowing cancellation of the Agreement should test results (i.e., the data obtained during the implementation of Milestone C) not meet certain bidder-defined criteria bounds (ranges). Each bidder, therefore, shall explicitly specify any and all critical criteria and their associated acceptable ranges for key design elements on which the Milestone D proposed remedy depends (i.e., the critical criteria and quantified ranges of values that will make the proposed conceptual remedial action plan technically feasible, cost-effective, and timely).

**For example**, bids shall include language like, “For our Milestone D proposed remedial action approach to be successful and for the technology(ies) used thereby to operate as planned and meet our proposed cleanup schedule, the Milestone C testing must show:

1. Impacted soil can be accessed and excavated;
2. An effective SVE radius of influence of greater than X;
3. The capacity to generate a soil vapor extraction vacuum of at least Y in the native soil while not exceeding a soil flow rate of Z; and
4. Dissolved iron and manganese hardness within groundwater at or below XX milligrams per liter (mg/L).”

**End of example bid language.** Actual bid language, if any, and the associated critical criteria will vary by bidder. Pilot study off-ramp assumptions must be specific to evaluating the feasibility of the technology relative to the consultant’s bid approach. Identifying assumptions regarding the bidder’s remedial system design is not acceptable. Some examples of inappropriate assumptions for this “Bid to Result” include: length of remedial system trenching, number of extraction points, type of remediation equipment, duration of remediation, etc. Please note that the Changed Condition criteria only apply to data from the Milestone C activities. Should it eventually be found once the Milestone D proposed remedial solution is implemented that the site, in fact, does exceed the critical criteria ranges, this will not constitute a Changed Condition since the selected bidder was given the opportunity under Milestone C to finish establishing site conditions.

The critical criteria identified in each bid and their associated acceptable range of testing results will be evaluated by the bid evaluation committee as part of the technical review. **Unrealistic criteria or criteria that are unreasonably narrow will reduce the favorability of the bid as viewed by the bid review committee.**

**Milestone D – Implementation of Remedial Solution.** Under this milestone, bidders shall provide a firm fixed-price bid to alternatively: i) finalize the design for and implement the PADEP-approved RAP “as-is” should a bidder fully accept the remedial approach and conceptual system design proposed by DMSE; ii) implement the general site remedy proposed in the RAP but with significant design modifications under an ARAP; or iii) implement an alternative site remedial approach under a RRAP that a bidder believes may be more efficient and economical for achieving a combination SHS (soil) / SSS (groundwater) site closure. Regardless of which path a consultant chooses to take, bidders shall provide a firm fixed-price for implementing the remedial plan. If the remedial plan involves a remediation system, bids shall provide a firm fixed price for developing the remedial system final design, selection and procurement of remedial system equipment and materials, remedial system permitting, remedial system installation, remedial system start-up and troubleshooting, and remedial system operation and maintenance (including quarterly groundwater monitoring, sampling and reporting during system operation).

Each bidder **shall submit with its bid response a description of the bidder's plan for remedial action** for the BLCI facility that will alternatively rely on the existing RAP, or that will be subsequently documented in an ARAP or RRAP. **This conceptual plan shall provide narrative and graphic information sufficient for both the Technical Contact and USTIF to fully understand the bidder's intentions.**

A responsive bidder's conceptual design shall clearly show how its proposed remedial approach will cost effectively address the site contamination to meet the selected standards in a reasonable timeframe. For in-situ remediation, the proposed conceptual design would be expected to include remediation well locations, areas of influence and underground piping routes. Should ex-situ methods be proposed to address the contamination, the proposed conceptual design would be expected to include the lateral boundaries and maximum depth of soil excavation(s) and how the soil would be screened, segregated, and treated or disposed. There will be added emphasis on remedial design / approach for this bid to result work so successful communication of a bidder's proposed plans will be a key consideration.

The intent of Milestone D is for the bidder to provide an all-inclusive "turnkey" design-build scope of work and the associated pricing to implement the PADEP-approved RAP, or an ARAP or RRAP following PADEP approval. To assist the bid evaluation process, all bids shall incorporate and conform to the following general breakdown of Milestone D activities (both in the bid narrative and on the Bid Cost Tabulation Spreadsheet in Attachment 2).

**Milestone D1 – Soil Excavation (if applicable).**

Each bidder proposing a RAP solution that includes a soil excavation component shall provide a firm fixed-price cost to complete the excavation of residual source soil within the area and downgradient of the former product dispenser island along with associated backfilling and surface restoration per original. Should a consultant not propose soil excavation in its bid response, then a value of \$0.00 shall be entered into the Bid Cost Tabulation Spreadsheet.

Excessive adsorbed-phase impacts are primarily limited to shallow unsaturated soils at depths ranging from approximately 2 to 6 ft-bg in the area of borings SB-02, SB-03, SB-05, SB-09, SB-10, SB-11, SB-12, SB-13 and SB-14 located within and downgradient for the former dispenser island. Only one smear zone soil sample collected from boring SB-02 at a depth between 10 to 12 ft-bg was found to be excessively contaminated. These impacts occur in natural soils comprised of varying mixtures of clay, silt, sand, gravel and cobbles that are overlain by surficial fill materials described as gravel with lesser amounts of gravelly clay, silt, sand and ash. As discussed earlier, available soil boring data suggest that the distribution of contaminants in site soil exceeding established standards is limited to the western half of the former dispenser island and extends to the west at least to the area of boring SB-11. Overall, excessive soil contamination seems to be defined both laterally and vertically and appears to be confined to the BLCI property. However, it is difficult to determine whether soil impacts exceeding

regulatory standards may extend off-property to the south beneath the West Pike Road right-of-way.

For costing purposes, each bid response proposing soil excavation shall assume the 284 in-place cubic yards (i.e., 430 tons) of excessively impacted soil to be excavated, managed, and transported off-property for disposal consistent with the RAP and based on an assumed excavation depth of 6 ft-bg and an assumed surface area of approximately 1,280 ft<sup>2</sup>.<sup>28</sup> The anticipated lateral excavation dimensions are depicted in Figure 4-1 of the RAP and appear to represent a reasonable estimate based on soil analytical results. These estimated excavation dimensions could vary slightly based on possible additional soil delineation efforts that a bidder may choose to conduct under Milestone C or on actual field conditions encountered.

The SOW and fixed-price cost for Milestone D1 shall state / provide the following:

- Only excessively impacted soil shall be transported and disposed off-site;
- Any existing monitoring well that may be destroyed during the excavation work shall be replaced at its original location or, based on post-excavation site conditions, at a suitable alternate location as approved by the PADEP;
- A detailed discussion regarding the excavation approach; groundwater management (if applicable); soil screening and segregation techniques (including the screening threshold for determining “clean” versus excessively impacted soil); clean fill sampling and plans for reuse; waste management and profiling; plans for soil staging; the possibility for direct loading of excessively impacted soil; type of backfill; backfilling / compaction methods; plans for surface restoration; records keeping, etc. (Note that post-excavation soil attainment sampling is addressed under Milestone E).
- **A comprehensive and complete fixed-price bid for Milestone D1 that shall *only exclude* the costs for (1) contaminated soil transportation and disposal; and (2) clean fill importation.** Bids must include unit-price rates (\$/ton) on the Bid Cost Tabulation Spreadsheet for: (1) **contaminated soil transportation and disposal**; and (2) **clean fill importation**.
- A schedule for implementing and completing the excavation work.

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<sup>28</sup> Bidders may notice that the deeper soil sample collected from SB-02 exceeding PADEP’s SHS was collected below the RAP-specified excavation depth (i.e., 10-12 foot sample depth vs. 6-foot excavation depth). If excavation is proposed, it would be appropriate for bidders to comment on what deviations from the RAP specified depth (if any) would be necessary and appropriate in the SB-02 vicinity.

The RAP also specifies the installation of two lateral piping runs at the base of the excavation before backfilling. The piping laterals would potentially be used for future groundwater treatment (e.g., injection of bioenhancements) to stimulate contaminant degradation in the event that groundwater treatment is necessary. The need for installing the lateral injection piping is at the discretion of the bidder, and each bid response proposing installation of the laterals shall consider and provide a discussion of how the expected remedial benefits gained substantiate the additional cost incurred. The proposed locations for the two lateral piping runs and their construction are illustrated in RAP Figures 4-3 and 4-4, respectively.

Each bid proposing the soil excavation task shall indicate that the Solicitor, PADEP and PAUSTIF shall be provided the opportunity to observe the soil excavation activities.

The methods and results for Milestone D1 shall be described in the RACR (Milestone G).

**NOTE:** As discussed under Milestone D3 below, **if soil excavation is NOT part of the successful bidder's SOW, then there will be an added performance requirement in the contract governing the work.**

#### **Milestone D2 – Finalizing Remedial Design, Permitting and Installation.**

Should an *in-situ* site remedy be proposed (e.g., SVE), then under this milestone bidders shall provide a detailed SOW and firm fixed-price bid for finalizing the design details for the Milestone D proposed *in-situ* remedial approach, securing all necessary permits required for system installation and operation, and installing the remediation system including system start-up. Specifically, activities under this milestone shall include, but not necessarily be limited to, developing a system final design; equipment and materials selection and procurement; preparation of associated work plans (e.g., Construction QA Plan); securing required permits for system construction and operation (e.g., zoning permit, system discharge permit(s), etc.); remedial system installation; and remedial system startup and troubleshooting.

Each bid proposing *in-situ* remediation shall indicate that the Solicitor and PAUSTIF shall be provided the opportunity to observe and/or inspect and confirm that the new remedial system has been installed and is being operated and maintained as described in the associated Fixed-Price Agreement.

#### **Milestone D3 – Quarterly Remedial System Operation and Maintenance and Groundwater Monitoring, Sampling and Reporting.**

Under Milestone D3, bidders who propose an *in-situ* site remedy shall provide a firm fixed-price cost to conduct remedial system operation, maintenance, and system monitoring (e.g., sampling and analyses of extracted vapor). Additionally, the selected consultant shall evaluate system data to assess remedial progress and make system adjustments, as necessary, to optimize performance. Also under Milestone D3, the selected consultant shall conduct quarterly groundwater monitoring, sampling and reporting during remedial system operation. The

quarterly events shall be an uninterrupted continuation of the requirements specified in Milestone A that begins with implementation of the remedial action under this milestone and ends with the commencement of Milestone E (Soil Attainment Demonstration). Bidders shall detail the O&M activities that will be required for the bidder's proposed remedial system (methods, frequency of site visits, etc.).

Milestone D1 shall be presented within bids and on the associated Bid Cost Tabulation Spreadsheet with a single firm fixed-price (if completed) with only two separate unit prices for (i) contaminated soil transportation and disposal, and (ii) clean fill importation; Milestone D2 shall be presented within bids and on the associated Bid Cost Tabulation Spreadsheet with a single firm fixed-price (if completed); and Milestone D3 shall be presented within bids and on the Bid Cost Tabulation Spreadsheet as a quarterly unit price (if completed). Bids shall also identify the number of quarters the bidder's *in-situ* remedial approach (if proposed) will require to attain the cleanup standard and the basis of this duration. The number of quarters shall be noted in the body of the bid response and on the Bid Cost Tabulation Spreadsheet in Attachment 2. Bidders will note that the Bid Cost Tabulation Spreadsheet in Attachment 2 automatically defaults to extrapolating out the costs for six (6) consecutive quarters of remedial system O&M and groundwater monitoring, sampling and reporting (Milestone D3) irrespective of the bid remedial O&M duration. If the required number of quarters of O&M to complete the cleanup is greater than 6, the number should be changed by the bidder from default value of 6 to the required number of quarters. **No value less than 6 quarters shall be placed in this cell of the Bid Cost Tabulation Spreadsheet.** If a bidder believes that the required duration of O&M for its proposed remediation system is less than 6 quarters, the bidder shall provide a detailed, technically sound and convincing explanation in the body of the bid response for consideration. **Inadequate explanation for the specified duration of remediation will affect the bid's technical evaluation.**

Bids proposing an *in-situ* remedy shall describe the specific remedial system monitoring, permit compliance tests/reporting, operation protocols, and maintenance procedures that will be used to monitor and evaluate its performance. Bids shall also describe how their proposed remediation system may be adjusted to address changing site conditions as the on-site remedial effort proceeds.

**Remediation Performance.** If the residual impacts are to be addressed via *in-situ* remediation, there will be a performance requirement in the contract. In this case, to provide added incentive to the successful bidder for implementing an *in-situ* remedy that achieves the soil cleanup as expeditiously and cost effectively as possible, **10% of each Milestone D3 incremental payment will be withheld and accumulated pending a successful demonstration of soil attainment of the standards under Milestone E.** When attainment has been successfully demonstrated, the accumulation of 10% holdback payments will be reimbursed in one lump sum to the successful bidder. If soil excavation occurs per the approved RAP, there will be no performance incentive holdback of quarterly D3 *in-situ* remediation costs.

**Milestone D4 – Post-Remedial Quarterly Groundwater Monitoring, Sampling and Reporting.**

Irrespective of whether an *ex-situ* or *in-situ* remedy is proposed, **it is mandatory that bids shall include a firm fixed-price cost to conduct eight (8) quarters of post-remediation groundwater monitoring, sampling and reporting** to establish groundwater quality / plume stability as input for developing the quantitative risk assessment (Milestone F). These quarterly events shall also be performed consistent with the requirements of Milestone A including reporting of the methods and results in quarterly RAPRs. Methods and results shall also be reported in the RACR (Milestone G). Post-remedial groundwater monitoring, sampling and reporting shall commence immediately following completion of the soil remedy and shall be an uninterrupted continuation of the ongoing quarterly groundwater characterization program.

Under this task, bidders shall include the cost and describe in detail the approach to be taken for evaluating the groundwater data and demonstrating contaminant plume stability. This work is anticipated to include evaluating contaminant trends in individual wells and performing both qualitative (e.g. contaminant isoconcentration drawings) and quantitative (e.g. contaminant fate-and-transport model) analyses to address all dissolved-phase constituents whose concentrations exceed the residential used aquifer SHS.

Bid responses will be expected to describe how the preponderance of data would be used to assess the nature of overall plume stability with the recognition there may be localized perturbation of constituent concentrations (e.g., due to groundwater fluctuations in the plume core) that may or may not be a reflection of the stability of the plume as a whole. Bidders are expected to provide a description of how plume stability will be evaluated qualitatively (e.g., using a sequence of plume limit contours chronologically over the post-remedial period to evaluate if the plume generally remains in the same area over time). Additionally, if quantitative statistics are proposed to be used by bidders (e.g., Mann-Kendall) to supplement a qualitative evaluation, bidders shall describe these techniques and how any difference between qualitative analysis and quantitative analysis will be resolved. Development of a revised quantitative contaminant fate-and-transport model is described under Milestone F of this RFB.

**Milestone E – Soil Attainment Demonstration.** Under this milestone, bidders shall provide a firm fixed-price for developing and implementing a soil sample collection and analysis program to demonstrate compliance with 25 PA Code 250.703 (General Attainment Requirements for Soil). As described previously under the Site Background Section, the soil investigations completed by DMSE during site characterization activities indicate that concentrations of adsorbed-phase benzene exceeding the applicable SHS MSC exist primarily in shallow unsaturated soil within, surrounding and downgradient of the former product dispenser island.

Should a bidder propose to implement source soil excavation as part of its site remedy under Milestone D1, then it is expected that the soil attainment sampling would be conducted subsequent to the excavation work with post-excavation soil samples for laboratory analysis collected from the floor and sidewalls of the excavation prior to backfilling. If soil excavation is not a component of a bidder's proposed site remedy, then soil samples shall be collected from

points on a grid arrayed across the soil contamination area (i.e., the RAP-identified excavation footprint).<sup>29</sup>

The location, depth and number of soil samples shall be determined using PADEP's systematic random sampling procedures and other relevant guidance, assuming that one soil sample per grid point shall be submitted for laboratory analysis. Bids shall clearly identify the estimated number of excavation sampling points (if any), soil borings (if any), and number of attainment soil samples.

Soil samples shall be analyzed for the **post**-March 2008 PADEP short list of unleaded gasoline parameters using proper analytical methods and detection limits. Appropriate QA/QC samples shall also be obtained for laboratory analysis of the same parameters. The soil sampling results shall be evaluated based on PADEP's 75% / 10x Ad Hoc Rule. Results from the soil attainment demonstration shall be incorporated into the RACR (Milestone G).

**Milestone F – Groundwater Exposure Pathway Evaluation and Quantitative Risk Assessment.** Under this task, bidders shall provide a fixed-price cost for completing an exposure pathway evaluation and quantitative risk assessment for groundwater based on analytical results provided from the post-remedial groundwater sampling program described under Milestone D4. The exposure pathway evaluation shall determine complete, partially complete, or incomplete exposure pathways followed by a risk assessment to establish the constituents of potential concern (COPCs), exposure point concentrations, individual and cumulative current and future potential risks. With respect to any pathway with excessive risks that that cannot be eliminated by means of reasonable environmental covenants (e.g., limiting the BLCI property to commercial use, excluding future groundwater use, etc.), the risk assessment shall calculate acceptable numerical contaminant concentration thresholds (numerical SSS).

The Solicitor will accept placement of an environmental covenant (EC) on his property prohibiting the use of groundwater for any purpose, restricting the property from residential use and may be amenable to other restrictions, if necessary. Bidders shall assume that they will need to petition PADEP for restriction covenant waivers with respect to the prohibition of groundwater production well installations in the roadways, West Pike Road and Bulk Plant Road, and, if necessary, any potentially affected downgradient properties (i.e., Altman and Hummel properties) given the expected period of post remedial care monitoring.

As input for the exposure pathway evaluation and risk assessment, a revised contaminant fate and transport model shall be developed, a residential / commercial well use survey and evaluation of local groundwater ordinances shall be performed to determine any changed

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<sup>29</sup> Soil boring locations shall be cleared through contacting PA One Call and sampling the initial five (5) feet of each boring location using an acceptable method of hand clearing. Below five feet, each soil boring shall be advanced using direct-push sampling methods. Additionally, each soil boring shall be properly sealed and finished at the surface following sample collection and soil boring locations shall be field measured for inclusion on the site plan. Investigation-derived wastes shall be managed as described earlier in this section.

conditions since these activities were last completed by DMSE for preparation of the 6/11/12 SCR, and zoning ordinances, flood zones, and future land use plans for the properties in the area of concern shall be revisited. The exposure pathway evaluation and risk assessment shall also consider all relevant historical information and the results provided from Milestones A through E of this RFB.

Initially, the selected consultant will be required to develop a revised quantitative contaminant fate and transport model given the significant amount of new data to be generated and remediation work to be conducted under this RFB. The calibrated contaminant fate and transport model shall address all dissolved-phase constituents whose concentrations exceed the relevant PADEP SHS-MSCs for groundwater. It is expected that contaminant modeling will be conducted using the post-remediation groundwater analytical data so that the effects of the site soil remedy are accounted for in the model. Bidders shall assume that the shallow unconsolidated water table aquifer beneath the BLCI property and downgradient properties shall be modeled using the USEPA's BIOSCREEN groundwater contaminant fate and transport modeling application consistent with the previous site modeling effort completed by DMSE. Bidders may also propose an alternate modeling application that is compatible with site conditions (e.g., PADEP's New Quick Domenico model) and acceptable to the PADEP. Prior to implementing this task, the selected consultant shall contact the PADEP project officer for his/her input on the proposed modeling application. Additionally, model input shall incorporate the site-specific values including hydraulic conductivity and hydraulic gradient that were previously determined through DMSE's site investigations. Results from the revised contaminant fate and transport modeling shall be presented in the RACR and shall: (i) describe all model input / output; (ii) include an explanation of model construction along with identification and justification of all input parameter values and sources; and (iii) provide a discussion of the modeling results and conclusions in detail with respect to assessing current and predicted future plume stability and demonstrating the reliability and veracity of the model.<sup>30</sup>

The risk assessment shall encompass an exposure assessment, toxicity assessment, and risk characterization. The identification of exposure pathways for the site shall be based upon guidance from the American Society for Testing and Materials (ASTM) and the United States Environmental Protection Agency (USEPA), as required by Act 2, Section 250.404. The exposure pathway analysis shall consider these four pathway elements:<sup>31</sup>

- A source and mechanism of release;
- A retention or transport medium (e.g., groundwater);

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<sup>30</sup> The need for additional surface water modeling is not expected given the results obtained through DMSE's previous modeling efforts using SWLOAD5B and mass balance calculations that concluded further demonstration of compliance with surface water criteria is not required. Although unexpected, should the PADEP require additional surface water modeling, such modeling would be subject to the "New Conditions" provision of the Fixed-Price Agreement.

<sup>31</sup> All four elements are necessary for an exposure pathway to be deemed complete; otherwise, the pathway is not complete and there is no risk.

- A point where a receptor can contact the impacted medium (e.g., a drinking water well); and
- A mechanism (exposure route) by which the receptor contacts the impacted medium (e.g., ingestion).

Post-remedial groundwater data shall be the primary source of input to the risk assessment. The chemicals of potential concern (COPCs) will be those constituents whose maximum concentrations in groundwater do not screen out when compared to the USEPA RSLs, i.e., if a maximum chemical constituent concentration is less than the respective risk-based screening level, it is not a COPC.<sup>32</sup> Exposure point concentrations (EPCs) shall be determined for the COPCs that do not screen out. Note that EPCs do not need to be maximum detections and can be derived by statistical analysis.

Exposure pathways for the identified COPCs shall then be evaluated to determine if the pathway is complete or can be rendered incomplete through the application of pathway elimination measures (i.e., reasonable and conventional environmental covenants established under Milestone G). For any exposure pathways that cannot be eliminated by means of institutional and/or engineering controls to be codified via environmental covenants, a toxicity assessment and risk characterization shall be performed. The determination of whether exposure to a COPC will cause adverse health effects in exposed individuals shall be evaluated based on available toxicity information and regulatory limits, and, if required, risk-based numeric Site-Specific Standards shall be developed.

For carcinogenic substances, cancer slope factors developed by the USEPA shall be used to assess the increased probability of developing cancer following exposure to a chemical. For non-carcinogenic (or systemic) substances, reference doses developed by the USEPA shall be used to estimate potential for adverse effects other than cancer. The COPCs that yield an adverse risk level shall be further evaluated during the risk characterization step, which shall combine the components of exposure (i.e., estimate of intake) and toxicity to estimate potential risk for the completed exposure pathways.

For those COPCs that cannot be screened during pathway analysis, an ecological screening assessment shall be conducted to determine if the site poses an unacceptable risk to ecological receptors. The screening assessment shall be conducted in accordance with Chapter H of the Pennsylvania Land Recycling Program's Technical Guidance Manual and USEPA RSL screening criteria insofar as is necessary for determining any potential ecological risk.

After completing the exposure analysis and risk assessment, the selected consultant will present its findings to the Solicitor and PAUSTIF for review and comment within the draft RACR.

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<sup>32</sup> Constituent concentrations are to be screened against the USEPA RSLs and not against the PADEP Statewide Health Standards (SHS). Only those constituents that do not screen out against the risk-based screening levels remain as COPCs for the exposure pathway analysis and/or demonstrating attainment of the PADEP SHS or a risk-based numeric SSS.

Regarding assessment of the groundwater contaminant migration / exposure pathway, the selected bidder shall complete a PAGWIS database search for private and public water supplies, public water supply network maps shall be acquired for the site vicinity, and any local groundwater use ordinances shall be researched in the event of any updates since this work was previously completed by DMSE. Searches of any other available public and private water supply databases shall also be conducted. Because only a highway cloverleaf and wooded land exist further downgradient of the BLCI facility and the Hummel and Altman properties, other groundwater assessment activities, such as a door-to-door water supply survey, are not anticipated.

The risk assessment shall identify those institutional or engineering controls needed for the Solicitor's property such that the residual contamination will not present an excessive level of risk under current or future land use. Additionally, for West Pike Road and Bulk Plant Road, the risk assessment shall determine whether groundwater use prohibition EC waivers will adequately protect human health now and in the future. Finally, the risk assessment shall determine whether a groundwater use prohibition EC waiver for any potentially affected downgradient properties (i.e., Altman and Hummel properties) is necessary and, if so, if the waiver along with post remedial care plan (PRCP) implementation will adequately protect human health now and in the future.

**Milestone G – Preparation and Submittal of a Draft and Final Remedial Action Completion Report.** Under this Milestone, bidders shall provide a firm fixed-price for preparing a draft and final RACR following the successful completion of both Milestones E and F. The RACR shall contain all information required under 25 PA Code 245.313 and other applicable statutes, regulations, and guidance and shall be signed and sealed by a Professional Geologist and Professional Engineer registered in the Commonwealth of Pennsylvania. The RACR shall request a ROL relative to soil and groundwater for the petroleum release identified in PAUSTIF Claim #2010-0017(S) by demonstrating compliance with the PADEP Act 2 SHS MSCs for a used aquifer in a nonresidential setting for soil (excluding the need for any soil-related activity or use limitations or institutional / engineering controls) and with the SSS for groundwater via pathway elimination and/or site-specific risk based standards. The RACR shall be of sufficient quality and content to reasonably expect PADEP approval and issuance of a ROL. The RACR shall also provide: i) a post-remedial care section that explains the activity and use limitations to be contained in the EC for the BLCI facility;<sup>33</sup> and ii) a schedule for submitting the EC (Milestone H), conducting site restoration activities (Milestone I), and implementing the Post Remedial Care Plan. As mentioned earlier, post remedial care monitoring will be performed on a time and materials basis outside of the scope of the Remediation Agreement.

The project schedule shall allow two (2) weeks for Solicitor and PAUSTIF review of the draft RACR before a final version is submitted to the PADEP. Following Solicitor / PAUSTIF review

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<sup>33</sup> Post-remedial care inspections and monitoring will substitute for placing environmental covenants on the roadways and any downgradient properties.

of the draft document, the selected consultant shall address any comments and submit the final RACR to the PADEP. Bids shall include time to address any PADEP comments received on the RACR since Milestones H (Finalizing / Filing of EC[s]) and I (Site Restoration) and post-remedial care monitoring will be performed following PADEP approval of the report.

**Milestone H – Finalizing / Filing of EC(s).** Under this task, the bidder shall describe and provide a fixed-price bid for finalizing and filing the EC(s) associated with the PAUSTIF eligible release.<sup>34</sup> The fixed-price shall include all reasonable and necessary activities and required fees to finalize and file the EC(s) for the subject property and neighboring properties, if applicable, with the local court house and other required entities. The successful bidder will be responsible for coordinating this work with the impacted property owner(s) and their legal counsel(s). Legal fees are not to be included in bid costs. PAUSTIF reimbursement of Client and/or third party legal fees will be considered outside of the executed Remediation Agreement.

The fixed price cost for this task shall also include the work necessary in petitioning PADEP for any relevant EC waivers.<sup>35</sup>

**Milestone I – Site Restoration.** Under this milestone, bidders shall provide a firm fixed-price for: i) proper abandonment of all site groundwater monitoring wells and piezometers (as applicable); ii) proper abandonment of all site extraction wells or injection wells / laterals (if applicable); iii) proper abandonment of all site vapor monitoring points (if applicable); iv) removal and proper disposal of all remedial equipment and materials including proper abandonment of below grade piping (if applicable); v) removal and proper disposal of the remediation building / compound (if applicable); vi) as-needed grading of all ground surface areas that have been disturbed by site characterization or remedial action activities; and vii) in-kind restoration (pavement or vegetation) of all ground surface areas that have been disturbed by site characterization or remedial action activities.

Work under Milestone I shall be completed within 60 days of RACR approval by the PADEP and shall be conducted in accordance with standard industry practices and applicable laws, regulations, guidance, and PADEP directives including abandonment of all wells, piezometers, and vapor monitoring points (as applicable) consistent with the PADEP's 2001 Groundwater Monitoring Guidance Manual. Well abandonment and site restoration activities shall be coordinated with the Solicitor.

Work and bid pricing for this milestone shall include all associated documentation required by PADEP, PAUSTIF or the Solicitor. This includes, but is not limited to, daily photo-documentation of all site restoration and well abandonment activities and submitting copies of the completed

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<sup>34</sup> Based on existing information, the EC would be expected to restrict the BLCI property to commercial use only and preclude future installation of wells for potable use in order to eliminate the groundwater ingestion and related potentially complete pathways.

<sup>35</sup> Bidders shall assume requests for groundwater use prohibition EC waivers for the adjacent roadways and potentially affected downgradient properties.

Groundwater Monitoring Abandonment Forms to the PADEP so that the Department may close its files on this facility. Copies of these photographs and well abandonment forms shall also be provided to the Solicitor and PAUSTIF.

If applicable, the selected consultant shall determine whether the Solicitor wishes to maintain any components of the remedial system (e.g. treatment building) before removing them from the Site. All debris and waste materials generated during well abandonment and site restoration activities shall be properly disposed per the PADEP SWRO guidance as directed earlier in this section.

### **Additional Information**

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

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

## **List of Attachments**

1. Remediation Agreement
2. Bid Cost Spreadsheet
3. Site Information/Historic Documents
  - a. Attachment 3A – Figures 1-1, 1-2 and 2-2
  - b. Attachment 3B – Site Photographs
  - c. Attachment 3C – Underground Storage Tank System Closure Report, DMS Environmental Services, LLC (DMSE), January 2010.
  - d. Attachment 3D – Notification of Reportable Release, January 8, 2010
  - e. Attachment 3E – Site Characterization Report (SCR), DMSE, June 11, 2012
  - f. Attachment 3F – Remedial Action Plan (RAP), DMSE, November 30, 2012
  - g. Attachment 3G – PADEP March 19, 2013 letter approving the SCR and RAP
  - h. Attachment 3H – Historical groundwater analytical database
  - i. Attachment 3I – Water Use Ordinance #87-11-20, Correspondence from Indiana County Municipal Services Authority to DMSE, March 16, 2010