

Underground Storage Tank Technical Bulletin 6 (REVISED)

**Prepared by:
The Underground Storage Tank Indemnification Fund (USTIF)**

Date of Release: January 27, 2011,

The purpose of this Bulletin is to provide a revision to the “Initial Work Plan” portion of Bulletin 6, Released on August 15, 2008.

Initial Site Characterization Work Plan Documentation

USTIF is requiring the submission of a “Work Plan” that includes a concise scope of work for all proposed initial site characterization activities as described below and following the “Administration of the Storage Tank and Spill Prevention Program” regulations at 25 Pa Code Chapter 245 (Sections 309 and 310) for site characterization. The Work Plan includes 8 Sections, Figures and Appendices, and must be completed and submitted following the format provided below.

Copies of the Work Plan should be submitted to USTIF’s Third party Administrator, ICF with or prior to the first routine corrective action invoice. An electronic copy in PDF format should be submitted to ICF. The invoice to prepare the Work Plan should be submitted to the ICF Work Plan Coordinator via email within 30 days of the Work Plan submission. The Work Plan email’s subject title should be “Work Plan, Claim No. **aaa-bbbb(x)**”. **DO NOT SUBMIT THE WORK PLAN TO THE PaDEP.** Reasonable and necessary costs incurred to develop this initial Work Plan for a site up to \$5,000 are reimbursable since they apply to the collection and presentation of information consistent with the Chapter 245 Site Characterization requirements and/or guidelines. This payment will be made regardless of the eventual eligibility determination. If the subject property is already undergoing corrective action because of an earlier release, please contact ICF prior to preparing a Work Plan.

The objective of the Work Plan is to foster the generation and use of basic information by the environmental professional. A secondary purpose is to provide a preliminary cost estimate (to be included as an attachment in the Work Plan as discussed later). With the exception of emergency responses and interim responses as defined in Chapter 245, the Work Plan should be submitted *prior to the initiation of intrusive site characterization and/or corrective action work* (i.e., monitoring wells, soil borings, etc.). To improve the quality of the site characterization, basic information must be obtained by the environmental professional to prepare a complete Scope of Work for the Work Plan. In all cases, the PaDEP remains the regulator of the corrective action process. USTIF’s goal is to improve the quality of the corrective action work for which it reimburses claimants consistent with its fiduciary responsibility.

USTIF understands that the items that will be included in the Work Plan are consistent with § 245.309 (relating to site characterization), should constitute industry best practices, and are consistent with an appropriate standard of care for USTIF-funded work as part of the process for preparation and submittal of a Site Characterization Report to the PaDEP. Nothing in this

document should be construed as conflicting with Chapter 245 or Chapter 250 requirements. Additionally, USTIF's response to the Work Plan will have no impact on the PaDEP's review of Site Characterization Reports or Remedial Action Plans. Lastly, USTIF's Work Plan requirements are not intended to, and should not be construed to, interfere with the claimant's obligations under §§ 245.306 (relating to interim remedial actions), or 245.307 (relating to affected or diminished water supplies). For example, affected water supplies should be replaced immediately, harmful vapors abated immediately, and any other emergency response and/or interim remedial action(s) required in accordance with §§ 245.306 or 245.307 should be completed.

USTIF requires that the claimant cooperate in accordance with 25 Pa Code § 977.32 (relating to participant cooperation) by including the data/items in the Work Plan submittal described below. Failure to include these data/items in the Work Plan submittal may be interpreted by USTIF as a lack of cooperation and affect reimbursement for eligible claims. ICF will review the Work Plan and comment as necessary to the claimant and its environmental professional within 15 business days of ICF's receipt of the Work Plan. It is expected that the environmental professional would undertake this planning step at each site regardless of USTIF requirements and that while the Work Plan is being reviewed by USTIF, necessary additional detailed planning and scheduling tasks would also be undertaken. The intent is not to interfere with the routine judgments of the claimant's environmental professional, but rather it is the intent of USTIF that characterization work: 1) be in compliance with applicable PaDEP regulations and guidance, 2) be planned and well reasoned 3); lead to a full site characterization that can be used to further timely, effective, and comprehensive corrective action; and, 4) be necessary and reasonable to justify reimbursement for eligible claims. Because the Work Plan is preliminary in nature, the information presented therein is subject to change. Even though portions may be preliminary in nature, it is important that it be complete, and that it represent the best professional judgment of the environmental professional in responsible charge of its preparation and submission to ICFI. Therefore, it is appropriate that the environmental professional responsible for preparation may want to use qualifying language such as "*Preliminary Document – Submitted at the Request of USTIF for Project Planning Purposes*", etc. To the extent that the Work Plan involves professional geological work (as defined by the Engineer, Land Surveyor and Geologist Registration Law and its implementing regulations), the Work Plan must be signed and sealed by a Pennsylvania-licensed Professional Geologist.

Other than emergency response activity(s) and interim remedial action(s) as may be required by §§ 245.306 (relating to Interim Remedial Actions) or 245.307 (relating to affected or diminished water supplies), failure to submit the Work Plan requested herein, prior to the work being performed, will likely result in an increase in the amount of time necessary to review invoices associated with site characterization activities which could delay reimbursement. USTIF may require that the environmental professional provide justifications for costs post facto that would not have otherwise been necessary if the Work Plan had been submitted to ICF. The preparation of post facto justifications will not be reimbursable.

The Work Plan shall consist of the following Sections, Figures and Appendices.

FORMAT FOR SUBMISSION:

Section 1 – Subject Property History

Please provide a summary of the site history. This summary should include a discussion of ANY AND ALL known or suspected existing and historic petroleum product or waste UST(s) and

AST(s) located at the subject property (fuel, consumptive heating oil, used motor oil, etc.). Also include UST/AST system (tanks, lines, dispensers, etc.) closure/removal/upgrade history and the reasons why, if known. If not known, please specify in the Work Plan. Discuss and provide the quantitative results including location maps of ANY and ALL previous characterization/sampling and/or remediation work including, but not limited to ASTM Phase I and Phase II Environmental Site Assessments, UST/AST closure reports, SCRs, RAPs, RACRs (or Act 2 equivalents). The Work Plan is a stand-alone document and may not include this information by reference to other documents, though relevant figures, tables or excerpts from such documents may be referenced in the Work Plan provided they are attached as exhibits to the Work Plan.

Describe any known emergency responses, interim remedial actions or any corrective action that has taken place prior to the submission of this Work Plan.

To the extent known and to the extent such records are reasonably available; please provide a copy of any historic former or existing property owner notifications of:

- a. Suspected release(s);
- b. Confirmed releases;
- c. PaDEP subsequent responses to historic suspected or confirmed release(s); and,
- d. PaDEP historic "Site closure letters" or "Relief/release of liability" letters.
- e. PaDEP written orders or requests for any matter related to Ch. 245.

The site release history summary may include, but is not limited to, information obtained from sources such as environmental reports, release notifications, NOVs, PaDEP site closure or "no further action" determinations, etc. Also please include any repair and maintenance records that may help to identify or eliminate potential source area(s) at the subject property ("site"). This site history should be used to determine the analytical testing suite.

Geophysical surveys may be proposed as the environmental professional deems necessary to investigate known or suspected historical USTs. File searches at PaDEP regional offices may also be proposed (or if already conducted, included) for the site or adjacent petroleum-related facilities.

Section 2 – Nature of the Release

Please explain whether the release was likely a "chronic" or "catastrophic" release. To the extent it is known; please explain the estimated volume and most likely source of product lost.

Example: The data indicates a catastrophic release occurred and that an estimated 100 to 500 gallons (634 to 3170 lbs.) of unleaded gasoline was released from a leaky fitting 3 feet below grade near an unleaded gasoline dispenser following a line replacement. The loss was estimated to last an estimated three months and the leak was identified and fixed (when and by whom?)

Section 3 - Hydrogeology

Explain the anticipated direction of shallow groundwater flow based, at least, on local topography and surface water features from a USGS 7.5 minute quadrangle or other available data sources. Identify the elevation of surface water feature(s) within one mile of the site and estimate both elevation estimated from a USGS topographic map and horizontal distances in feet. If historical or other relevant information exists (e.g., wells or reports from previous release investigations, Phase II ESA borings), make use of this information.

Considering (at least) local surface water features, and the potential for perched water systems, estimate the anticipated depth to the top of the shallowest zone of saturation (regardless of potential yield).

Section 4 - Geology

Identify the bedrock Formation and site- or area-specific lithology of the shallowest bedrock associated with the site from a source such as:

- a. “Map 61” (Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania – 1981 PA Geological Survey) as indexed at <http://www.dcnr.state.pa.us/topogeo/map61/glossary.aspx>, or;
- b. *the 1980 Geologic Map of Pennsylvania and/or other published map sources, or;*
- c. *any other reliable source such as the USGS, US Department of the Interior, or, Pa Topographic and Geologic Survey, DCNR, among others.*

For sedimentary bedrock, identify and approximate the basic local structural orientation (strike and dip) of the shallow underlying bedrock formation(s).

Also identify areas where soil is expected to be thick and/or permeable, such as areas with glacial outwash or fluvial systems.

When conducting the field reconnaissance, if possible, map on-site and nearby bedrock outcrops (and Brunton Compass readings) and document the findings.

Section 5 – Deep Well Special Case

To expect reimbursement, the total depth of the first monitoring wells installed during an initial investigation phase and intended to be “water table” wells shall not exceed 60 feet without a technically supported argument, prepared by a Pennsylvania-licensed professional geologist, that the water table lies below 60 feet. That is, there is a presumption that the total depth of monitoring wells in the Commonwealth should not be greater than 60 feet. USTIF may deny reimbursement for costs associated with the installation and monitoring of wells that are installed to an inappropriate depth or with inappropriate construction (particularly those wells installed after the initial well and site-specific information has been obtained).

If you do not plan to drill the initial wells to a depth greater than 60 feet, write “NA” under this section heading.

- a. Review of a plan that proposes the installation of any well with a total depth greater than 60 feet when NOT working in the Allentown Area, State College Area, or other unique carbonate bedrock areas will require the Professional Geologist to rebut the presumption that wells greater than 60 feet are inappropriate to obtain reimbursement. For any monitoring well, reimbursement may be denied or adjusted if:
 - i. The shallowest zone of saturation (regardless of low yield) is cased off without the well-reasoned intent to do so (exceptions; piezometers, nested wells, etc. if/as required by the PaDEP);

- ii. The screen is “drowned” (generally meaning that screened interval is entirely below the top of the shallowest encountered saturated zone, i.e., the water table or perched water table), without the well-reasoned intent to do so;
- iii. The well has a screened or open borehole interval that crosses more than one water bearing zone where the potential for cross-contamination is increased without the well-reasoned intent to do so;
- iv. The construction technique is substantially inconsistent with PaDEP’s “Groundwater Monitoring Guidance Manual”;
- v. The well was installed to a depth that should have been recognized as excessive given information available prior to drilling;
- vi. Following installation, the environmental professional does not recognize that static water levels are anomalous. The most likely cause is that shallow groundwater is communicating within the well-bore with deeper water bearing zones. (i.e., water in the well bore is flowing up or down depending on the vertical gradient resulting in the masking of multiple potentiometric surfaces).

A shallow well or two that are dry (e.g., a well drilled to the top of bedrock and completed as a soil monitoring well that is dry) are acceptable and provide valuable information about the site. Soil borings that are drilled before monitoring wells are drilled can be completed as temporary soil piezometers and provide valuable site-specific information.

When working in areas where a depth-to-first-water level (water table) is commonly greater than 60 feet (particularly in carbonate areas such as Allentown, State College, or other unique carbonate bedrock areas), the total depth of the wells may be deeper, but must be justified by a Pennsylvania-licensed Professional Geologist with supporting documentation. This documentation should not rely upon drilling observations or databases focused on “yieldable” quantities of groundwater. Data used to support the depth to the shallowest zone of saturation (regardless of yield) for Sites in any locations may be obtained from local municipalities, US Department of the Interior, USEPA, USGS, PaDEP, USTIF, ICF, drillers, other environmental professionals working in the area, Pa Geologic Society, Pa Topographic and Geologic Survey, etc. In any event, no monitoring wells, regardless of depth, may have overly long open hole or screened intervals as discussed in the PaDEP’s “Groundwater Monitoring Guidance Manual”.

Note: It is USTIF/ICF’s experience that monitoring wells installed to depths and with screened intervals that risk the integrity or continuity of the uppermost water containing interval (i.e., deep, long-screened wells) risk both increased downward migration and the ability to accurately assess the contamination in the shallowest zone. This, in turn, affects the ability to evaluate, design, and implement remedial options for a Site.

Section 6 – Receptor Evaluation

Once the above information requested in Sections 1-5 has been obtained and evaluated, USTIF requests that the environmental professional discuss potential receptors.

Please discuss whether there are current on property or off-property (third party) receptor impacts (supply well impact, surface water impact, ecological, and or vapor intrusion into, on or off-property buildings or utilities).

Please discuss whether public and/or private supply wells that use groundwater or other sensitive receptors are close to the property boundary and whether there is an ordinance that would prohibit the use and/or installation of private and/or public supply wells (if an Ordinance exists, please provide a copy of the document).

Section 7 – Proposed Wells and Borings

Monitoring Wells

Based on the information available to the environmental professional at the time of the preparation of this Work Plan, describe the intended locations, depths, screened intervals and completion units (soil or bedrock) of the proposed initial monitoring well and the rationale for these wells.

Soil Borings

Describe the intended locations and soil sampling depths of proposed soil borings and what field screening/decision criteria will be used to select soil samples for analysis.

Describe the parameters to be analyzed for both groundwater and soil samples collected (e.g., PaDEP new unleaded gasoline short list) and provide justification why the parameters are being analyzed. If additional sampling is proposed (e.g., surface water, water supply wells, soil vapor), please describe the locations and rationale for this sampling.

Section 8 – Additional Topics

Discuss additional topics that relate to the Work Plan and conditions at the site that are pertinent to the scope of work that are not discussed in Sections 1 through 7. Examples of topics and issues might include, but are not limited to: significant separate phase liquid thickness in a UST excavation at the time of closure, the removal of an unusual amount of soil at the time of UST closure, an adjacent facility with a groundwater plume that has migrated onto the claimant's site, a school next to the site, planned emergency or interim actions, the site is or may be underlain by subsurface coal mines, etc.

Required Figures

The following Figures are REQUIRED. Failure to provide any of these figures may result in the denial of payment for the Initial Work Plan Invoice because the Work Plan can not be reviewed without these figures.

Figure 1: On a north oriented (show arrow), **scaled** Site Map (developed from a tax map, existing property map, detailed air photo-based map, etc.) show the location of **all** known former and existing storage areas (ASTs, USTs, vents, remote fills, lines, dispenser islands and/or dispensers, etc.), major site improvements, and site property lines. To the extent known, show subsurface utilities. This initial information should be obtained from the claimant and other reliable sources (refer to Section 1).

Figure 2: Provide a USGS 7.5 MINUTE TOPOGRAPHIC MAP showing the location of the Site. Do not use other "topographic" maps (e.g., municipality's GIS maps are not appropriate).

Figure 3: Provide a Geologic Map(s) showing the site geology based on published information. Refer to Section 4 for possible sources.

Figure 4: Provide an Area Map (developed from a tax map and/or aerial images/photographs) showing the location of buildings and use of other immediately surrounding properties 1,000 foot radius from the site, more or less). Show area water use (public, domestic wells and surface water intakes). Show the approximate location(s) of residential or public supply wells (if present) on each of the adjacent property(s).

Figure 5: On a north oriented (show arrow), **scaled** Site Map, show the location of the proposed monitoring wells. Also show the anticipated hydraulic gradient and structure (local strike and dip; if you anticipate encountering sedimentary bedrock). Show the location of the proposed soil borings relative to potential sources and anticipated total depth considering the anticipated water table and/or top of bedrock. Show any other anticipated sampling locations.

Required Appendices

The Work Plan must include the following appendices:

Required Appendix A: Provide a site reconnaissance summary (may use field notes) and site and adjacent property photo-documentation. Document any obvious or potential source areas on immediately adjacent properties. If potential off-site source area(s) are indicated, provide the approximate location(s) of the source(s) on a supplemental figure in this Appendix.

Required Appendix B: Document the presence or absence of residential or public water supply or industrial supply resources for the property and for properties immediately adjacent to the site. Provide in this appendix, a copy of any ordinances that document restrictions for the installation and use of private supply wells within one-quarter mile radius of the site or any “must connect” requirements. In the event no such ordinance exists, provide documentation in this appendix, such as a phone log, email, letter, etc. from an appropriate local official (Municipality, Township, and Borough) that one does not exist within a one-quarter mile radius of the site. If an Ordinance exists, please provide a copy of the document.

Required Appendix C: Provide a cost estimate for the scope of work as proposed above. (Estimated number of field and office labor-hours per task, number of soil and groundwater samples, extent of subcontractor participation, and anticipated incidental expenses required to implement the Work Plan. Include unit costs.) It is understood that this is a preliminary cost estimate for a Site where there is limited information, particularly about subsurface conditions. The purpose of the cost estimate is to facilitate USTIF’s overall management of the claim (e.g., does this seem like a minor or major loss from an “insurance” point of view), and to provide input for the claimant in advance for costs that may not be reasonable or necessary so that these issues can be addressed prior to the work being performed instead of after the fact.

REQUIRED COVER SHEET FOR THE WORK PLAN

WORK PLAN SUBMISSION

Preliminary Document – Submitted at the Request of USTIF for Project Planning Purposes

Date: _____

USTIF Claim Number: _____

Claimant Name: _____

Date of Release: _____

Regulated Substance Released

Unleaded gasoline

Diesel

Fuel Oil

Other (Please specify)

Cause/Location of Release (if not known, please specify): _____

DEP Project Officer: _____

DEP Reference Number: _____

Submitted and Sealed By (P.G.): _____

Claimant's name and email: _____

Consultant's email: _____