

SITE CHECK OUTLINE



**ENERGY AND ENVIRONMENT CABINET
DIVISION OF WASTE MANAGEMENT
UNDERGROUND STORAGE TANK BRANCH
300 SOWER BLVD, SECOND FLOOR
FRANKFORT, KENTUCKY 40601
502-564-6716**

JULY 2011

SITE CHECK OUTLINE

INTRODUCTION

Pursuant to 401 KAR 42:050 and 42:060, owners and operators shall perform a site check as directed by the cabinet in response to a suspected release. The site check shall measure for the presence of a release where it is most likely to have occurred at a site. Refer to Section 12 of 401 KAR 42:250 for reimbursement requirements related to site checks.

The UST Branch shall require a site investigation if contamination levels, outside the excavation zone, exceed the screening levels prescribed in the Classification Outline, incorporated by reference in 401 KAR 42:080, for regulated petroleum underground storage tank system(s).

A confirmed release shall be reported immediately to the Environmental Response Team at (800) 928-2380 or (502) 564-2380. The Incident Number assigned to the release report shall be included in the Site Check Report.

This outline provides the minimum requirements for a Site Check Report. Some UST facilities have unique features and may require additional information. The cabinet will send a written directive for all field work required.

The completed Site Check Report shall document the presence or absence of contamination, and shall be submitted to the UST Branch of the Division of Waste Management in response to a written directive from the cabinet.

Refer to the Classification Outline for additional information regarding the establishment of site-specific screening levels.

A Classification Guide DEP 8056 and Site Check Report DEP 6082 shall be completed and signed by a Professional Engineer (P.E.) licensed with the Kentucky Board of Licensure for Professional Engineers and Land Surveyors, or a Professional Geologist (P.G.) registered with the Kentucky Board of Registration for Professional Geologists.

For definitions of terms used within this outline, refer to 401 KAR 42:005.

The following shall be addressed in the Site Check Report:

1.0 EXECUTIVE SUMMARY

- 1.1 Provide a detailed description of the incident that initiated the site check.
- 1.2 Provide a discussion of the analytical results of the field investigations. Include a table that summarizes the analytical data.
- 1.3 Provide conclusions drawn from the field investigations and recommendations for additional actions, if necessary.

2.0 SITE INFORMATION AND HISTORY

- 2.1 Provide the site name, location (street address, city, county and latitude/longitude), and Agency

Interest number.

- 2.2 Indicate the name, address, and telephone number of the property owner.
- 2.3 Provide the name, address, and telephone number of the site operator.
- 2.4 Include a discussion of past and present underground storage tank and piping systems at the site. Information shall include tank size, depth of the excavation zone, past and present contents, installation dates, and construction materials of the tanks and piping.
- 2.5 Provide photographs of the UST facility and contiguous properties.

3.0 UST SYSTEM RELEASE DETECTION

- 3.1 Submit a copy of the most recent tank and line tightness test. The cabinet may request an updated tank and line tightness test during site check activities.
- 3.2 Submit a copy of the repair records for the previous twelve (12) months.
- 3.3 Submit a copy of the three (3) most recent months of UST system release detection records which may include daily inventory control records reconciled with delivery invoices to show net loss or gain over the period or other methods of leak detection as required in 401 KAR 42:040.

4.0 FIELD INVESTIGATIONS

- 4.1 Soil samples shall be collected in accordance with a written directive from the cabinet. Sample locations, if not specified by the cabinet, shall be determined by the P.E. or P.G. based on the nature of the stored substance, the type of initial alarm or cause for suspicion, the type of backfill, the depth of groundwater, and other factors appropriate for identifying the presence and source of the release, and shall be collected in areas where contamination is most likely to be present. Provide information on sampling methodologies, such as sample handling, sampling equipment, decontamination procedures, preservation, analyses, logging, reporting, etc. For additional information on soil sample collection, handling, preservation, and analyses, refer to Section 4 and Section 7 of the Site Investigation Outline.
- 4.2 Advance borings to a depth of at least 1 meter below the bottom of the tank. In order to advance borings to the requested depth, appropriate equipment, determined on a site-specific basis (e.g. drill rigs, direct-push technology, hand auger), shall be utilized to penetrate obstructive layers that do not represent bedrock. Alternate locations should be attempted if subsurface obstructions are encountered that are inconsistent with established site-specific conditions. A description of these efforts shall be included in the narrative of the submitted report.
- 4.3 Continuous soil collection and continuous soil screening is required at each soil boring location. A soil sample shall be collected from within every two (2) feet and field screened with a properly calibrated field screening instrument, [e.g. PID (photoionization detector) or FID (flame ionization detector)]. The soil sample from each boring with the highest field screening reading shall be submitted for laboratory analysis. If field screening does not indicate the presence of contamination within a boring, a soil sample from the termination depth of the boring shall be submitted for laboratory analysis. Proper calibration of the field screening instrument shall be documented in the Site Check Report narrative.
- 4.4 A soil sample from the termination depth of the deepest interval or from the soil-bedrock interface shall be collected and analyzed. Drilling shall cease if bedrock is encountered prior to reaching

the required depth, and the sampling required in Section 4.3 above shall be performed.

- 4.5** Soil samples from borings may be collected by split-spoons, direct-push soil samplers, or hand augers. Written approval from the UST Branch shall be necessary for other soil collection methodology.
- 4.6** Collection of soil samples and transfer of soil samples from the sampling device to the sample container should minimize disturbance and the amount of time that the sample is exposed to air. Soil sample collection, handling, and preservation shall be achieved in a manner that reduces the loss of VOC (volatile organic compound) contamination due to volatilization and biodegradation. Sample collection and handling shall prevent cross contamination between samples and between sample locations. Samples shall be placed into containers with zero headspace, stored on ice at 4°C or less (plus or minus 2°C), etc. Soil samples shall be analyzed for the appropriate constituents (see Tables A, B, C and D). Documentation of soil sample collection, handling, and preservation procedures shall be reported for all field work. For VOC analyses, analytical results for soil samples collected from auger cuttings or from auger flights will not be accepted by the UST Branch.
- 4.7** A soil boring log shall be submitted for each soil boring. Field screening results, from a properly calibrated instrument, corresponding to each two (2) foot interval shall be recorded on each soil boring log. Soil boring logs shall include a description of soil lithologies, lenses or thin layers encountered, the presence or absence of water and free product, and the depth of water and product if encountered.

NOTE: It is preferred that all soil and unconsolidated lithological logging be completed by utilizing the Unified Soil Classification System (USCS). The USCS is a soil classification system, used in engineering and geology professions, to give field guidance to consistently and objectively determine and describe the texture, grain size and other pertinent properties of a soil or unconsolidated sediment.

- 4.8** If free product is discovered in a boring during site check activities, include a summary of the type of free product, thicknesses, locations, etc., and recommendations for free product recovery in the Site Check Report.
- 4.9** All borings shall be properly decommissioned immediately after obtaining a sample. Proper decommissioning is achieved by sealing the boring with cement/bentonite or bentonite from bottom to top in a manner that prevents communication of surface water and groundwater through the boring and to prevent communication between two or more water-bearing zones through the boring. (Note that if a soil boring is to be converted to a monitoring well, then the soil boring does not need to be properly decommissioned prior to monitoring well installation.)
- 4.10** If monitoring wells are directed in writing by the cabinet, they shall be installed in accordance with the requirements in Section 5.8 of the Site Investigation Outline.
- 4.11** If Groundwater Table 2 or Groundwater Table 3 screening levels are determined, through UST facility classification, to be applicable to the UST facility, the cabinet may require an assessment at the Point of Compliance.

5.0 ANALYTICAL RESULTS

- 5.1** Provide chain-of-custody documentation that identifies who has had possession of the sample, the time of possession, and where the sample has been from the time of collection until the laboratory accepts it. The chain-of-custody shall indicate the method of preservation and the temperature at which the samples were received by the laboratory. Chain-of-custody procedures shall be followed to ensure the validity of all samples. If the chain-of-custody is not maintained

(e.g., if someone leaves a sample unattended), then the integrity of the sample is compromised and may be rejected by the cabinet. The chain-of-custody shall be maintained as indicated by US EPA SW-846 requirements, shall be attached to all analytical results submitted, and shall include the trip blank as required.

- 5.2** Provide documentation indicating that recognized methods, in accordance with US EPA SW-846, were followed for sample collection, sample preservation, sampling equipment, decontamination procedures, sample containers, sample size, and maximum sample holding times (see Table C). Samples shall be delivered to an appropriate materials testing laboratory for the analysis required (see Tables A and B). The date the sample was collected, received, analyzed, and percent surrogate recovery, as well as all the US EPA SW-846 methods used to extract and analyze the sample, shall be indicated on the laboratory report. The laboratory report shall follow the US EPA SW-846 requirements. Analytical data sheets from the laboratory shall be submitted for site check reports. A trip blank, as defined in 401 KAR 42:005, shall accompany all water samples collected for BTEX analysis and the trip blank analysis shall be included with the laboratory analysis within the Site Check Report as required by written directive from the cabinet. Trip blanks are not required for water samples collected for PAH and total lead analysis where BTEX analysis is not required.
- 5.3** Site check reports submitted to the cabinet shall discuss the validity of any flagged data (e.g., surrogate recovery data out of range, samples received at high temperature, etc.). An opinion about the validity of analytical results may be submitted from the laboratory.

6.0 REQUIREMENTS FOR THE MANAGEMENT OF MATERIALS RESULTING FROM SITE CHECK

Provide receipts, manifests or other documentation verifying proper disposal, treatment, or recycling of materials, at a permitted facility, generated during the site check. Refer to Section 7.0 of the Closure Outline for more information.

7.0 SUBMITTAL OF SITE CHECK REPORT

- 7.1** The Site Check Report, DEP 6082 (with all required attachments) and the Classification Guide DEP 8056 shall be submitted in response to a written directive from the cabinet. The Agency Interest number shall be clearly marked on the first page of each document.
- 7.2** Provide a detailed site-specific map. The site map shall illustrate tank and piping locations, all sampling locations, depth of all tank pits, approximate property boundaries and adjacent properties, any other pertinent features at the site, and indicate any areas where future sampling would be prohibited. The map shall also include approximate locations of all underground utility lines (to scale, indicating the type of service of each line). The map shall be to scale and include a north arrow and legend.

8.0 OTHER CONSIDERATIONS

The cabinet reserves the right to require additional information or sampling. The owner/operator will be contacted in writing if more information is required.

The owner/operator/contractor/consultant bears the responsibility of exploring, identifying and addressing all potential safety hazards throughout the course of their work.

For information about reimbursement eligibility, refer to 401 KAR 42:250 or contact the UST Branch's Claims and Payments Section at 200 Fair Oaks Lane, Second Floor, Frankfort, Kentucky 40601 or call (502) 564-5981.

Table A

Analytical Requirements for Soil Samples

Product stored in UST System	Required Analysis	Acceptable Method	Maximum Acceptable Reporting Limit
Gasoline, Kerosene, or Jet Fuel	BTEX	Method SW-846 8240, 8260, 8020, or 8021	B: <0.01 ppm T: <0.7 ppm E: <0.9 ppm X: <5 ppm
Diesel or regulated Heating Oil	PAH	Method SW-846 8100, 8270, or 8310	Ch: <15 ppm B(a)A: <0.15 ppm c PAH: <0.3 ppm n PAH: <3 ppm NAP: <1 ppm
Waste Oil	PAH	Method SW-846 8100, 8270, or 8310	Ch: <15 ppm B(a)A: <0.15 ppm c PAH: <0.3 ppm n PAH: <3 ppm NAP: <1 ppm
	Total Lead	SW-846 7420, 7421, or 6010	Total Lead: <400 ppm
New Oil	PAH	Method SW-846 8100, 8270, or 8310	Ch: <15 ppm B(a)A: <0.15 ppm c PAH: <0.3 ppm n PAH: <3 ppm NAP: <1 ppm
Other Petroleum or Non-Petroleum	Contact the UST Branch		

- BTEX: Benzene, Toluene, Ethylbenzene, and Xylene (total)
 PAH: Polynuclear Aromatic Hydrocarbons
 Ch: Screening level individually for Chrysene
 B(a)A: Screening level individually for Benzo(a)anthracene
 c PAH: Maximum Acceptable Reporting Limit Individually for Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, and Indeno(1,2,3-cd)pyrene
 n PAH: Maximum Acceptable Reporting Limit Individually for Acenaphthene, Acenaphthylene, Anthracene, Benzo(ghi)perylene, Fluoranthene, Fluorene, Phenanthrene and Pyrene
 NAP: Naphthalene
 ppm: parts per million (mg/kg)

Table B

Analytical Requirements for Pit Water and Groundwater Samples

Product stored in UST System	Required Analysis	Acceptable Method	Maximum Acceptable Reporting Limit
Gasoline, Kerosene, or Jet Fuel	BTEX **	Method SW-846 8240, 8260, 8020, or 8021	B: <0.005 ppm T: <0.94 ppm E: <0.47 ppm X: <5.89 ppm
Diesel or regulated Heating Oil	c PAH n PAH NAP	Method SW-846 8100, 8270, or 8310	c PAH: <0.005 ppm n PAH: <3 ppm NAP: <0.3 ppm
Waste Oil	c PAH n PAH NAP	Method SW-846 8100, 8270, 8310	c PAH: <0.005 ppm n PAH: <3 ppm NAP: <0.3 ppm
	Dissolved Lead *	SW-846 7420, 7421, or 6010	Dissolved Lead <0.015 ppm
New Oil	c PAH n PAH NAP	Method SW-846 8100, 8270, 8310	c PAH: <0.005 ppm n PAH: <3 ppm NAP: <0.3 ppm
MTBE sampling as required by the cabinet for domestic use water sources only	MTBE	Method SW-846 8240, 8260, 8020, or 8021	MTBE: <0.05 ppm
Other Petroleum or Non-Petroleum	Contact the UST Branch		

- BTEX: Benzene, Toluene, Ethylbenzene, and Xylene (total)
 PAH: Polynuclear Aromatic Hydrocarbons
 c PAH: Maximum Acceptable Reporting Limit Individually for Benzo(a)pyrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, and Indeno(1,2,3-cd)pyrene
 n PAH: Maximum Acceptable Reporting Limit Individually for Acenaphthene, Acenaphthylene, Anthracene, Benzo(ghi)perylene, Fluoranthene, Fluorene, Phenanthrene, and Pyrene
 NAP: Naphthalene
 ppm: parts per million (mg/L)
 * Samples shall be filtered prior to acid preservation. See Table C.
 ** Shall include a trip blank analysis

Table C

Appropriate Containers, Sample Sizes,

Preservation Techniques and Maximum Holding Times*

Parameter	Container Type	Sample Size	Preservation Method	Holding Times (Maximum)
Volatile Organics for Soil (BTEX)	Wide-mouth glass w/ Teflon lined cap	120 ml or 4 oz.	Cool to 4°C	14 days
Volatile Organics for Water (BTEX; MTBE)	Two (2) clear glass w/ Teflon-lined cap (VOA)	40 ml or 1 oz.	Add four drops of HCl to each, Cool to 4°C	14 days
Polynuclear Aromatic Hydrocarbons for Soil (PAH)	Wide-mouth glass w/ Teflon-lined cap	250 ml or 8 oz.	Cool to 4°C	14 days until lab extraction; 40 days after lab extraction
Polynuclear Aromatic Hydrocarbons for Water (PAH)	Amber glass w/Teflon-lined cap	1 liter	Cool to 4°C	7 days until lab extraction; 40 days after lab extraction
Total Lead for Soil	Wide-mouth glass w/ Teflon-lined cap	500 ml or 16 oz.	N/A	180 days
Dissolved Lead for Water (shall be filtered prior to acid preservation)	Plastic or glass	500 ml or 16 oz.	Cool to 4°C Add HNO ₃ after filtering until pH is less than 2	180 days
Volatile Organics for Sludge (TCLP)	Wide-mouth glass w/ Teflon-lined cap	120 ml or 4 oz.	Cool to 4°C	14 days until lab extraction 14 days after lab extraction
Acid/Base/Neutral for Sludge (TCLP)	Wide-mouth glass w/ Teflon-lined cap	120 ml or 4 oz.	Cool to 4°C	14 days (hold) 7 days until lab extraction; 40 days after lab extraction
Metals for Sludge (TCLP)	Wide-mouth glass w/ Teflon-lined cap	500 ml or 16 oz.	Cool to 4°C	180 days until lab extraction 180 days after lab extraction
Mercury for Sludge (TCLP)	Wide-mouth glass w/ Teflon-lined cap	500 ml or 16 oz.	Cool to 4°C	28 days until lab extraction 28 days after lab extraction

- FOR FURTHER INFORMATION REFER TO US EPA SW-846 PUBLICATION.