

**GOVERNMENT OF THE DISTRICT OF COLUMBIA
District Department of the Environment
Underground Storage Tank Branch
LUST PROGRAM**



COMPREHENSIVE SITE ASSESSMENT (CSA) PROTOCOL

PURPOSE

The objectives of the Comprehensive Site Assessment (CSA) (see 20 DCMR § 6207), 6211 are to conduct a background search, fully characterize the soil and groundwater conditions, and to collect site-specific information suitable and necessary to fully delineate the extent of the contamination, and evaluate and determine the appropriate remedial technology. The CSA must be submitted within forty-five (45) days after release confirmation or as directed by the Case Manager. The responsible party may request an extension in accordance with § 6207.5. The need for a CSA will be determined by the Leaking Underground Storage Tank (LUST) Case Manager based on the circumstances of the release and discovery, and the extent and degree of the release. The CSA must provide sufficient data to support the remedial recommendations in the report.

SCOPE

While the CSA is a continuation of the work begun under the preliminary investigation and confirmation of release, the UST system and site check, and the initial abatement measures pursuant to § 6205, this investigation is a thorough expansion of those activities. The CSA is directed to focus on collecting field data (on and off-site), and to evaluate the efficiency, effectiveness, and appropriateness of the corrective action alternatives. Where necessary, the CSA must include data from the bench and/or pilot scale tests to furnish site-specific data in support of the recommended corrective action. Due to the uniqueness of each site, it is understood that the information that the information requirements will vary depending on the site.

I. REGULATORY REQUIREMENTS

As stated above, pursuant to § 6207.2 of the DC UST Regulations, the following elements should be included when preparing a CSA, as necessary to delineate the extent of the contamination resulting from the release:

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- A. The nature release, including the chemical compound present, their concentrations, quantity released and their physical and chemical characteristics related to potential human health and/or environmental impacts and clean-up procedures;
- B. Data from available sources or site investigations concerning the following factors: surrounding populations, water quality, use and approximate location of wells potentially affected by the release, subsurface soil conditions, climatological conditions, locations of subsurface sewers, and land use;
- C. The results of site check performed pursuant to the requirements of § 6203 and any information gained while performing initial abatement measures pursuant to § 6205;
- D. The results of the free product investigations required under § 6205.7 used by the owner or operator to determine whether free product must be recovered and a free product removal report submitted under the provisions of § 6206;
- E. The aerial extent of the release, both horizontal and vertical, including whether the containment is distributed homogeneously or heterogeneously;
- F. The physical characteristics of the site, including characteristics affecting the occurrence, distribution, and movement of the released containment and characteristics affecting access to the site which may influence the feasibility of investigation and remediation procedures;
- G. An evaluation of the potential risk posed by the release including identification of environmentally sensitive receptors, and estimate of the impacts to human health and/or environment that may occur as a result of the release; and
- H. Any other information required by the LUST Case Manager or deemed useful or necessary by the responsible party.

II. WORK PLAN

Prior to the commencement of work, the responsible party must submit to the UST Branch for approval a work plan that defines the scope, schedule, and approaches for the tasks to be performed. The work plan must also include a site diagram depicting the placement of all borings and wells. NOTE: While a site-specific Quality Assurance/Quality Control (QAQC) Plan must be prepared and followed for the

activities, the QA/QC does not have to be submitted with the CSA but must be available for inspection.

III. PERMITS

All construction activities in the District of Columbia require the acquisition of a permit. All permits must be applied for at the Department of Regulatory Affairs (DCRA) One Stop Permit Center, 941 North Capitol Street, NE. In addition, the Building Permit Application Supplemental Form and a UST/LUST Activity form, with an accompanying site diagram, must be brought to the UST Branch at DDOE Office, for the appropriate sign-offs. The following activities require a construction permit:

- Drilling activities (borings, geoprobes, hydro-punch, and monitoring wells)
- Trench operations
- Installation of recovery equipment (fluid or vapor)
- Vapor extraction tests/recovery operations
- Aquifer tests (pump test) fluid recovery operations
- Soil gas surveys

IV. REPORTS

The responsible party shall conduct the CSA activities in accordance with the approved work plan, and submit the CSA in accordance with the following format:

A. EXECUTIVE SUMMARY OF THE REPORT

B. PURPOSE AND SCOPE

C. SITE BACKGROUND

- 1) Site location
 - Regional map (within 1-mile radius)
 - Surface features-lakes, ponds, creeks, etc.
 - Local neighborhood map (within 2-block radius)
 - Surface features
 - Neighborhood properties
 - Other potential contaminant sources
 - Subsurface features (i.e., sewer, gas, electric, & water)
- 2) Site history
 - Historical use of the property
 - Fire Prevention Division records

Attachment D

- Sanborn Fire Insurance maps
 - Aerial photos
- 3) Existing conditions of the site (current use)
 - 4) Future considerations (commercial/residential, construction, etc.)
 - 5) Hydrogeology (Reference USGS maps)
 - geologic setting
 - regional geology
 - topographical gradient
 - surficial geology and characteristics
 - recharge area
 - natural soils, pavement
 - catchment basin
 - surface water on site
 - dewatering operations
 - aquifers

D. FIELD INVESTIGATION

Activities conducted under this task must focus on the details critical to evaluate the extent of the contamination and the evaluation of an appropriate corrective action alternative. This task may include the following activities; on-site and off-site soil borings, probes, soil gas surveys, and monitoring wells, along with appropriate tests to characterize the stratigraphy, lithology, temporal and spatial variability of the potentiometric surfaces and groundwater flow direction, and tabulate well construction information.

- 1) *Soil:* soil vapor survey (VOC), soil sampling, procedures utilized, and boring locations with descriptive logs, including lithology and stratigraphy.
- 2) *Groundwater:* Monitoring well installations including construction details; groundwater, surface water and free product sampling; collection methods and analytical tests performed before and after purging wells.

D. SUMMARY OF RESULTS

1) Site specific hydrogeology:

- Soil: Maps depicting the geologic characteristics, lithology, etc.

-Groundwater: Site specific hydrogeologic cross-sections indicating well locations, water levels and their elevations, aquifer systems, etc.

2) **Subsurface Contamination:**

Delineation of soil contamination (Horizontal and Vertical):

Isoconcentration maps (TPH and BTEX) depicting the horizontal and vertical extent of residual soil contamination; tabular summary of soil field analysis data; tabular summary of soil laboratory analysis data. (Follow attached data format).

Delineation of soluble and/or free product contamination plume:

Isoconcentration maps (TPH and BTEX) depicting the horizontal and vertical extent of free phase and dissolved phase contamination on-site and off-site; tabular summary of water analysis data (follow attached data format); groundwater level contour map indicating elevations with reference to established regional Bench Mark elevations (mean sea level), groundwater gradient, velocity and flow directions. Include well gauge reports of free product (product thickness and adjusted water level measurements).

F. POTENTIAL IMPACT STATEMENT

- a) Potential receptors of contamination (include location and type of all wells and/or surface water bodies).
- b) Estimation of potential for contamination migration and impact on human health or the environment.

G. RECOMMENDATIONS

The report shall describe the corrective action alternatives and recommend a preferred alternative. The CSA may propose a “No Action” alternative if the levels of contamination are below the D.C. Standards (see 20 DCMR §§ 6210, 6211 and 6212. “Natural Attenuation” with periodic monitoring may be proposed if minor levels of contamination are confirmed. (Note: the responsible party is required to show aerobic and/or anaerobic activity). “Clean-up action” alternative may be proposed if soil and groundwater clean-up is required.

The responsible party shall describe the decision-making process and the rationale for selecting the preferred alternative. Including a discussion of the effective limits of the clean-up technology and the time required to reach the DC soil, groundwater, and surface water standards. If “Clean-up Action” is required, pilot or bench scale tests may be conducted to furnish site-specific data in support of the proposed clean-up technology. The alternative selected must address the following:

- 1) Source Removal

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- 2) Removal of free product
- 3) Soil contaminated remediation
- 4) Groundwater contamination remediation

H. APPENDIX

- 1) Lab, test results including chain of custody, QA/QC data
- 2) Boring logs
- 3) Monitoring well construction
- 4)

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For Additional Information or Clarifications please contact:

District of Columbia Department of the Environment
Toxic Substances Division
Underground Storage Tank Branch
Attention: Branch Chief
1200 First Street, NE, 5th Floor, Washington, DC 20002.
Tel: (202) 535-2600 Fax: (202) 535-1383
Website: www.green.dc.gov, **Email:** ust.ddoe@dc.gov

