

**GOVERNMENT OF THE DISTRICT OF COLUMBIA
District Department of the Environment**



Toxic Substances Division

Voluntary Cleanup Program

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COMPREHENSIVE SITE ASSESSMENT

The objectives of the Comprehensive Site Assessment (CSA) 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 with the application package. The detail of a CSA will be determined by the VCP Participant based on the circumstances of the contamination and discovery, and the extent and degree of the contamination. The CSA must provide sufficient data to support the remedial recommendations in the report. The Phase I and Phase II site assessments may be combined and supply most of the information for the CSA. Both the Phase I and Phase II assessments have submission guidelines and a specified format.

A Comprehensive Site Assessment shall include, at the minimum, a background search; a complete on-site investigation that fully defines the extent of the release; potential exposure as a result of the release; the levels of Chemicals of Concern (COC) and a proposal for the cleanup/corrective action plan. If an off-site impact occurs or is indicated, the Participant shall include an off-site investigation as necessary on a case-by-case basis. The following elements shall be included when preparing a Comprehensive Site Assessment, as appropriate to the conditions of the site:

SCOPE

The CSA is a continuation of the work begun under the preliminary investigation and confirmation of contamination. The CSA is directed to focus on collecting field data, and to evaluate the efficiency, effectiveness, and appropriateness of the cleanup/corrective action alternatives.

Where necessary, the CSA must include data from 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 requirements will vary depending on the site.

I. REGULATORY REQUIREMENTS

The following elements should be included when preparing a CSA, as necessary to delineate the extent of the contamination resulting from the release:

- A. The nature of the release, including the chemical compounds present, their concentrations, quantity released and their physical and chemical characteristics as related to potential human health and/or environmental impacts and cleanup 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 full extent of the release, both horizontally and vertically, including whether the contaminant is distributed homogeneously or heterogeneously;
- D. The physical characteristics of the site, including those characteristics affecting the occurrence, distribution, and movement of the released contaminant and those characteristics affecting access to the site which may influence the feasibility of investigation and remediation procedures;
- G. An evaluation of the potential risks posed by the release including identification of environmentally sensitive receptors, and an estimate of the impacts to human health and/or the environment that may occur as a result of the release; and
- H. Any other information required by the Environmental Health Administration (EHA) or deemed useful or necessary by the Participant.

II. WORK PLAN

Prior to the commencement of work, the Participant must submit to the Toxic Substances Division for approval a work plan (Cleanup/Corrective Action Plan (CAP)) 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 (QA/QC) Plan must be prepared and followed for the activities, the QA/QC does not have to be submitted with the CAP 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 One Stop Permit Center, 941 North Capitol Street, N.E., 2nd floor. In addition, the ERA Building Permit Application Supplemental Form, with an accompanying diagram, must be brought to the Environmental Regulation Administration for the appropriate sign-offs. The following activities require a construction permit:

- * Drilling activities (borings, geoprobes, hydropunch, 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

REPORTS FORMAT FOR SITE ASSESSMENT REPORT SUBMISSION

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 (i.e., lakes, ponds, creeks, etc.)
 - Local neighborhood map (within 2-block radius)
 - surface features
 - neighboring properties
 - other potential contaminant sources
 - subsurface features (i.e., sewers, gas, electric, and water)
 - 2) Site history
 - Historical uses of the property
 - Fire Prevention Division records
 - 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 basins
- 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; 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.

E. SUMMARY OF RESULTS

- 1) Site-specific Hydrogeology:
 - Soil: Cross-sectional 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 depicting the horizontal and vertical extent of residual soil contamination; tabular summary of soil field analysis data; and tabular summary of soil laboratory analysis data.
 - Delineation of soluble and/or free product contamination plume: Isoconcentration maps 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 ASSESSMENT

- 1) Potential receptors of contamination (include location and type of all wells and/or surface water bodies).
- 2) 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 District of Columbia's Standards. "Natural Attenuation" with periodic monitoring may be proposed if minor levels of contamination are confirmed. (Note: the Participant must show aerobic and/or anaerobic activity). "Cleanup Action" alternative may be proposed if soil and groundwater cleanup is required.

The Participant shall describe the decision-making process and the rationale for selecting the preferred alternative, including a discussion of the effective limits of the cleanup technology and the time required to reach the District soil, groundwater, and surface water standards. If "Cleanup 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
- 2) Removal of free product
- 3) Soil contamination remediation
- 4) Groundwater contamination remediation

H. APPENDIX

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

