### Post Soil Excavation Report

(***Commercial USTs)***

This report must be used to report a soil excavation completed after the Limited Site Assessment. This report should include the following elements

##### 1.0 Site Information

###### 1.1 Site Identification

|  |  |  |  |
| --- | --- | --- | --- |
| Date of Report: |  | Site Risk: |  |
| Facility I.D.: |  | UST Incident Number (if known): |  |
| Site Name: |  |
| Street Address: |  |
| City/Town: |  | Zip Code: |  | County: |  |
| Description of Geographical Data Point (e.g., diesel fill port): |  |
| Location Method (GPS, topographical map, other): |  |
| Latitude (***decimal degrees***): |  | Longitude (***decimal degrees***): |  |

1.2 Information about Contacts Associated with the Leaking UST System

*(Addresses must include street, city, state, zip code and mailing address, if different)*

|  |  |  |  |
| --- | --- | --- | --- |
| UST/AST Owner: |  | Email: |  |
| Address: |  | Tel: |  |
| UST/AST Operator: |  | Email: |  |
| Address: |  | Tel: |  |
| Property Owner: |  | Email: |  |
| Address: |  | Tel: |  |
| Property Occupant: |  | Email: |  |
| Address: |  | Tel: |  |
| Consultant/Contractor: |  | Email: |  |
| Address: |  | Tel: |  |
| Analytical Laboratory: |  | State Certification No: |  |
| Address: |  | Tel: |  |

1.3 Information about the Release

|  |  |
| --- | --- |
| Date Discovered:  |  |
| Estimated Quantity of Release:  |  |
| Cause of Release:  |  |
| Source of Release (e.g., Dispenser/Piping/UST): |  |
| Sizes and Contents of Tanks or Other Containment from which the Release Occurred: |  |

1.4 Certification (The title page must display the seal and signature of the certifying P.E. or L.G., and the name and certification number of the company or corporation, if applicable [See 15A NCAC 2L .0103I].)

I, , a Professional Engineer/Licensed Geologist *(circle one)* for *(company of employment)*, do certify that the information contained in this report is correct and accurate to the best of my knowledge.

*(Please Affix Seal and Signature)*

 *(Name of company)* is licensed to practice geology/engineering *(circle one or both)* in North Carolina*.* The certification number of the company or corporation is: .

##### 2.0 Executive Summary

Present a brief summary of the most pertinent information about the site and the release, using the following outline:

2.1 Describe the source, date of discovery, and quantity and type(s) of contaminant released;

2.2 Summarize initial abatement actions, including closure, soil removal, NAPL recovery, and provision of alternate water;

2.3 Describe the results of the hydrogeological investigation;

2.4 Summarize the results of soil, groundwater, and surface water assessment and NAPL measurement, indicating the nature and extent of contamination, the estimated rate of migration, and potential for impacting receptors;

2.5 Indicate the risk classification and the criteria for that determination (if known); and

2.6 Indicate the soil, groundwater, and surface water concentration levels to which contamination must be remediated.

##### 3.0 Table of Contents

Provide a table of contents, as follows:

3.1 List sections, indicating page numbers;

3.2 List figures, identifying each by number;

3.3 List tables; identifying each by number; and

3.4 List appendices, identifying each by letter.

##### Site History and Characterization

Present information relevant to site history and characterization, using the following outline:

4.1 Provide information for UST/AST owners/operators and other responsible parties.

List the names, addresses, telephone numbers, and dates of ownership/operation of all previous UST/AST owners, UST/AST operators, and other responsible parties. Present in table form in Section 13 (Use Reporting Table B-2, Site History, UST/AST Owner/Operator and Other Responsible Party Information, Appendix B).

4.2 Provide UST information (inclusive of all USTs, currently and historically in place at facility). For each UST, provide the following information in table form in Section 13 (Use Reporting Table B-1, Site History- UST/AST System and Other Release Information, Appendix B):

* Tank identification number (keyed to a site map showing the locations of all UST systems);
* Last contents of tank;
* Previous contents of tank (if any);
* Capacity of tank in gallons;
* Construction (material and structure);
* Tank dimensions;
* Installation date;
* Description of piping and pump(s) associated with each UST;
* Status of UST (in use or not in use, closed in place, closed by removal; date of last use, date of closure); and
* Indication of a release (Indicate which UST, piping, and/or pump leaked.).

Provide a discussion (to supplement Table B-1 and the UST location map) of the spatial and historical relationships among tanks and between tanks and piping and dispensers and a brief description of all historical compliance issues and releases (indicate incident number).

4.3 Provide information about petroleum AST systems, petroleum spills, and other non-UST petroleum releases (inclusive of all ASTs, currently and historically in place at site and all spills at site)., as indicated:

* List, describe, and indicate location of ASTs and associated piping and pump(s) currently and historically in place at facility) and describe historical releases (indicate incident number). For each AST, present the information in table form in Section 13 (Use Reporting Table B-1, Site History- UST/AST System and Other Release Information, Appendix B.).; and
* List, describe, and indicate location and date of spills that have occurred at site). For each spill, present the information in table form in Section 13 (Use Reporting Table B-1, Site History- UST/AST System and Other Release Information, Appendix B.).

4.4 Provide a comprehensive description of the release, including date discovered, cause and source (including tank identification number and contents), and the relationship of historical UST releases, non-UST releases, and off-site releases (indicate incident number) to contamination from current release.

4.5 Provide a brief description of site characteristics (including status of facility (active or inactive), land use of site and surrounding area, water supply, topography, vegetation, surface water, wells, buildings, surface cover, soil type, depth to and nature of bedrock, depth to groundwater, direction of groundwater flow, etc.)

4.6 Summarize initial abatement actions, assessment activities, and corrective actions performed to date and list all reports previously submitted.

##### Excavation of Contaminated Soil

1. Describe source and estimated extent of soil contamination determined in previous investigations, referencing maps and cross-sections and tables presenting soil sampling or screening information and results (If there are multiple sources of release, then describe the extent of contamination from each source.), including:
2. Describe excavation process, referencing maps, cross-sections, tables presenting soil screening, sampling information, results, disposal manifests and geological logs, as follows:
* Describe type of equipment used (e.g., backhoe, track hoe, dump truck);
* Describe field screening, if used to determine limits of excavation, including:
* Physical characteristics of the soil samples, as observed during collection;
* Field instrumentation or mobile laboratory systems used to screen soils;
* Field instrument or mobile laboratory system calibration procedures;
* Screening results;
* Indicate the final dimensions of the excavation(s);
* Indicate the volume (in cubic yards) and weight (in tons) of soil excavated from each excavation (show calculations), including documentation where, based on mobile lab screening, an additional volume was approved in excess of the initial abatement limit if Trust Fund reimbursement is anticipated;
* Describe the relationship of the final excavation pit to the former UST system, to groundwater, to bedrock, and to structures; and
* Indicate if the excavation operation ceased on encountering clean soil, groundwater, bedrock, or an obstruction or other condition that rendered further excavation infeasible or impracticable (including the allowable excavation volume being reached at site seeking State Trust Fund eligibility.)
1. Describe post-excavation confirmation soil sampling, referencing maps and cross-sections, tables presenting soil sampling information and results, geological logs as follows:
* Describe sample location and depth, and methods of collection and analysis for each excavation;
* Note if multiple excavations were performed sequentially in an area of contaminated soil, (i.e., if confirmatory sampling following primary excavation indicated that contaminated soil remained,) so that further excavation was performed, and a second set of confirmatory samples was collected and analyzed; and
* If contaminated soil was allowed to remain after final excavation, indicate precisely the location and depth of the residual contamination and explain why it was not removed, (i.e., why it was not economically and/or technologically feasible to excavate it?)
1. Document Soil Investigation.
* Provide soil sampling information for all samples collected for field screening prior to or during the excavation (where applicable) and for confirmation following excavation, and for any samples collected during previous investigations. Refer to Table B-3, Summary of Soil Sampling Results; to figures,; and to appendices. Information should include:
* Lithological descriptions from logs for borings, excavations:
* Type of samples (from excavation, borehole, direct push boring, stockpiled soil, etc.);
* Sample collection procedures (grab, split spoon, hand auger, etc.);
* Location of soil samples;
* Depth of soil samples (feet below land surface);
* Time/date collected;
* Sample identification;
* Indication of phase of sampling, site check; closure, IAA, etc.; and
* Method(s) of soil sample analysis.
* Document quality-control measures information (Refer to tables and appendices provided in Sections 13 and 14.), including:
* Sample handling procedures including sample preservation techniques and sample transport procedures;
* Decontamination procedures;
* Time and date samples were submitted to lab; and
* Collection of samples for quality control purposes (e.g., duplicates, field blanks, trip blanks).
* Describe soil investigation results, including:
* Presentation of analytical results for soil samples (Refer to table provided in Section 13 and to appendix with laboratory analytical results provided in Section 14.);
* Discussion of the results in relation to the appropriate cleanup levels, identifying the samples that exceed the lower of:
* the residential MSCCs or
* the soil-to-groundwater MSCCs.
* Discussion of effect of quality control sample results on the interpretation of soil analytical results.
1. Describe disposal of contaminated soil, referencing tables presenting soil sampling information and results and disposal manifests as follows:
* Indicate volume and weight of contaminated soil removed from each excavation at site;
* Describe construction of any stockpile of contaminated soil, describe collection and analysis of any stockpile samples, and, where applicable, any samples collected from soils hauled offsite for disposal;
* Indicate if soil was treated onsite (Reference documentation);
* Indicate if soil was transported offsite for disposal and, if so, by whom and to what destination; and
* Confirm that excavation was backfilled with clean soil.
1. Present conclusions, as follows;
* Briefly summarize excavation process;
* Describe extent of final excavation(s) and collection of confirmatory samples;
* Indicate if excavation ceased on encountering groundwater, bedrock, or an obstruction that hindered further reasonable access; and
* Indicate whether soil contaminant levels in exceedance of the lowest MSCCs remain in the excavation(s), further excavation being determined infeasible by the UST Section, or soil contaminant levels in final excavation confirmatory soil samples were equal to below the lowest MSCCs.

##### Conclusions

If soil contaminant levels in exceedance of the lowest MSCCs remain in the excavation(s) (with further excavation being determined infeasible by the UST Section), if groundwater contamination in exceedance of the applicable 2L standards or surface water contamination in exceedance of the applicable 2B standards has been encountered, or if NAPL is present, it should recommend additional assessment and/or remediation if needed.

##### Figures

Provide the following:

1. A topographic map illustrating the area within 1500-foot radius of the source of the release, showing:
* Topographic contours;
* Site location;
* Buildings;
* Adjacent streets, roads, highways (identified by street names and numbers);
* Surface water bodies;
* Groundwater flow direction (if determined); and
* North arrow and scale.
1. A site map\* illustrating the UST system(s)/excavation area(s), drawn to scale, showing:
* Buildings and property boundaries;
* Underground utilities, such as sewer lines and other conduits; basements; and vaults;
* Water supply wells, surface water bodies;
* Location and orientation of UST(s)/AST(s), pumps, piping, sumps, etc. (current and former); spills;
* Names or descriptions of properties adjacent to the site; and
* North arrow and scale.
1. Map(s)\*, drawn to scale, depicting all soil analytical results obtained to date and final confirmatory sample results, to include:
* Description of soil and bedrock lithology (as determined by investigation to date);
* Location and orientation of UST(s)/AST(s), pumps, piping, sumps, etc. (current and former); spills;
* Soil sample identification (unique letter and/or numerical code), location, and depth;
* Soil sample analytical results;
* Final limits of each stage of excavation for each excavation on site\*\*; and
1. Map(s)\*, drawn to scale, depicting the groundwater and surface water analytical results,\*\* to include;
* Location and orientation of UST(s)/AST(s), pumps, piping, sumps, etc. (current and former); spills;
* Groundwater sample identification (unique letter and/or numerical code referencing monitoring or water supply well) and location;
* Surface water sample identification (unique letter and/or numerical code) and location; and
* Groundwater and surface water sample analytical results.
1. A NAPL map\* showing thickness (in feet) and extent of NAPL\*\* using contour lines; and
2. A potential receptor map that clearly identifies water supply wells (municipal or public/private wells, etc.) and other potential receptors (surface water bodies, basements, utilities, etc.) which are at risk.

***\*Note:*** *Use a single base map to prepare site plans using a map scale of 1 in. = 40 ft.; use a smaller scale for large sites. Maps and figures should include conventional symbols, notations, labeling, legends, scales, and north arrows and should conform to accepted practices of map presentation described in the USGS Geological Survey publication "Topographic Map Symbols”,* <http://store.usgs.gov>. *Scale should be expressed as a graphic scale and a verbal statement (e.g., 1 in.= 40 ft) or ratio. Refer to* <https://pubs.usgs.gov/fs/2002/0015/report.pdf>.

**\*\*** *If applicable*

##### Tables

Provide the following:

1. Site History (Complete Tables B-1 and B-2 from Appendix B);
2. Public and Private Water Supply Well and Other Receptor Information (Complete Table B-5 from Appendix B);
3. Field Screening Results;
4. Summary of Soil Sampling Results (Complete Table B-3 from Appendix B);
5. Summary of Groundwater and Surface Water Sampling Results\* (Complete Table B-4 from Appendix B)\*;
6. Current and Historical Groundwater Elevations and NAPL Thickness (Complete Table B-9 from Appendix B)\*.

*\* If applicable*

##### Appendices

Provide the following:\*

Appendix A Site Specific Health and Safety Plan (HASP)

Appendix B Standard procedures (sampling, field equipment decontamination, field screening, etc.)

Appendix C Soil, water, NAPL, and sludge disposal manifests and soil treatment permits\*

Appendix D Complete chain-of-custody records

Appendix E Copy of all laboratory analytical records, including (if applicable) any mobile laboratory analytical records

Appendix F Photographs of site check, closure, and excavation activities (optional)

*\* If applicable*