Initial Site Assessment

Contents

(Updated April 2013)

Initial Site Assessments

Introduction

Initial Site Assessments (ISAs) are used to collect additional site data early in the life of a release, but will *not* be required or conducted at most petroleum release sites. They are not remedial investigations. Nor are they intended to define the extent and magnitude of releases. They are only intended to gather limited additional information for sites that preliminarily rank as low-priority, but more information is needed to ensure that higher priority risks do not exist.

After the owner or operator (O/O) completes a 30-Day Report, the DEQ project manager (PM) will preliminarily rank the release's priority using the Petroleum Release Site Priority Ranking Sheet in accordance with Technical Guidance Document (TGD) #15. If the priority score ranks high enough, the PM will require the O/O to prepare a Remedial Investigation Corrective Action Plan (CAP) in accordance with Section 3 of this guidance. An ISA will *not* be conducted in this case.

When the preliminary priority ranking score indicates that the release does not rank high enough for DEQ to address it immediately, the PM will evaluate the sufficiency of the information known about the site. If the PM determines that all of the entries in the Release Site Priority Ranking Sheet are based on reliable and accurate information, then the PM will finalize the ranking based on guidance published in TGD #15. An ISA will *not* be conducted in this case either.

If, however, the PM determines that some entries in the Release Site Priority Ranking Sheet are based on incomplete or unreliable information, then the PM may require the O/O to conduct a limited ISA. This ISA will only collect or verify data to accurately complete the Release Site Priority Ranking Sheet and make reliable priority decisions. The PM will explain which data is necessary and guide the O/O in preparing the ISA CAP.

After the O/O conducts the ISA and submits an ISA Report, the PM will re-evaluate the Release Site Priority Ranking Sheet results. If the PM determines that all of the entries in the re-evaluated ranking are based on reliable and accurate information, then the PM will finalize the ranking based on guidance published in TGD #15.

Procedures for Using Standardized ISA CAPs

ISA Corrective Action Plan

The DEQ PM will determine what type of ISA data are necessary and request that the O/O submit a standardized ISA Corrective Action Plan (CAP ISA-01). Section 6 of the ISA CAP provides a format for a variety of investigatory work that may be requested by the PM. The PM will specifically request the type(s) of investigation required, and the O/O will provide workplan information only for those corresponding sections listed in Section 6. Non-requested subsections will be omitted.

In other words, if the PM requests an initial Site History and a Groundwater Check, then the O/O must submit one ISA CAP where Section 6 includes workplan information for both an initial Site History (Section 6.6) and a Groundwater Check (Section 6.8).

Base maps may or may not be required as part of an ISA CAP. When existing map data adequately supports site priority ranking decisions, the PM will not request that a base map be completed as part of the ISA CAP.

The CAP will be reviewed and approved by the PM if it meets the requirements of the standardized CAP ISA-01 and other site-specific guidance provided by the PM. The O/O will be notified of DEQ's approval and given a timeframe to complete the work outlined in the CAP and submit a report to DEQ. If the release is potentially eligible for reimbursement, Petroleum Tank Release Compensation Board staff will also be notified.

ISA Report

Once fieldwork is completed and data gathered, the O/O must document the results of the investigation in accordance with the standardized Report for an Initial Site Assessment at a Petroleum Release Site (Report ISA-01) format, and any additional guidance provided by the PM in the approval letter. If the O/O identifies any unexpected conditions that may pose an immediate risk to receptors at any time during the investigation, the O/O should immediately notify the PM and take steps to mitigate the risks.

Owners and operators will complete a single Report that includes findings for all investigations conducted under the same requirement. Sections 7 and 8 of the ISA Report will contain specific information from the investigation(s) completed. In other words, if the PM requests both an Initial Site History and a Groundwater Check, the O/O will submit one ISA Report where Sections 7 and 8 include only the results of an Initial Site History and a Groundwater Check. Sections for investigations that were not requested will be noted as "not requested or completed." In this example, Section 12 (Appendices) will also contain only those appendices that are applicable to an Initial Site History and a Groundwater Check.

CAP ISA-01 Initial Site Assessment Corrective Action Plan Format

Montana Department of Environmental Quality Petroleum Technical Section (PTS)

1. COVER LETTER (This letter should be no longer than one page)
   - 1.1 Date
   - 1.2 Responsible party's name and mailing address
   - 1.3 Contact person's name and mailing address (if different from above)
   - 1.4 Subject line with the following information:
     Corrective Action Plan and Budget for Initial Site Assessment for the petroleum release at (facility name and street address); DEQ facility ID (number) and release (number)
   - 1.5 Introductory paragraph containing reference to DEQ's request for a corrective action plan, and general scope of work to be conducted (list all types of initial assessment work being addressed in this CAP)
   - 1.6 Consultant's name, address and phone number (if not on letterhead)
   - 1.7 Name of person who prepared the workplan

2. BACKGROUND NARRATIVE (this portion of the workplan should be used as section 4.2 of the Initial Site Assessment Report)
   - 2.1 When, how, and by whom contamination was discovered
   - 2.2 Type of products stored at site
   - 2.3 Type of contamination
   - 2.4 When and who reported the release to DEQ, and who at DEQ recorded the release
   - 2.5 Summary of initial actions undertaken and by whom
   - 2.6 Current site status. What work has already been done and what do we already know about the release and its potential threats to human health and the environment?
   - 2.7 Location map – preferably a reproduction of a USGS topographic map

3. FACILITY SKETCH/MAP
   - 3.1 If a true scale map has not been prepared, then a "best estimate" site sketch may be acceptable for simple sites. The facility sketch should show the following:
     - 3.1.1 All known and suspected sources of petroleum (tanks, pipes, dispensers, waste pits, French drains, etc.) (current and historical)
     - 3.1.2 Facility buildings
     - 3.1.3 Property lines and easements
     - 3.1.4 Known and estimated utilities (buried and overhead)
     - 3.1.5 Surface cover (asphalt, concrete, etc.)
     - 3.1.6 Adjacent buildings and property use
     - 3.1.7 Locations of environmental and construction activities pertinent to the release (excavations, test pits, soil borings, samples, etc.)
     - 3.1.8 Water wells (include all within map/sketch area – expand area as necessary to include all wells that may be potential receptors)
     - 3.1.9 Local land surface slope
     - 3.1.10 Expected or known flow direction of groundwater
     - 3.1.11 Location of surface water bodies
     - 3.1.12 North arrow and estimated scale

5. PURPOSE AND OBJECTIVES OF INVESTIGATION (this portion of the workplan should be used as Section 5.1 when preparing the Initial Site Assessment Report)

6. PROPOSED WORK
   - 6.1 Initial site reconnaissance (may be verbally approved by the DEQ PM prior to workplan approval)
   - 6.2 Preparation of workplan (may be verbally approved by the DEQ PM prior to workplan approval)
   - 6.3 Project management
     - 6.3.1 Client consultation
     - 6.3.2 DEQ consultation
     - 6.3.3 Preparing scopes of work and soliciting bids from subcontractors
     - 6.3.4 Telephone calls
     - 6.3.5 Tracking budget
   - 6.4 Map preparation (This section should only be completed when the DEQ PM requests a detailed facility map. Otherwise, a facility sketch from existing data is adequate.)
     - 6.4.1 Site mapping
     - 6.4.2 Drafting
   - 6.5 Travel

The corrective action plan should include one or more of the following subsections (6.6 through 6.14). The PTS project manager will provide specific guidance for the scopes of work to be completed in this investigation. Only include those sections that have been requested by the PTS project manager.

   - 6.6 Site History (if requested)
     - 6.6.1 Ownership research (at least back to the time the release from the tank could have occurred)
     - 6.6.2 Site operational research (at least back to the time the release from the tank could have occurred)
     - 6.6.3 Research of all known and suspected leaks, spills, overfills or other releases that occurred on the facility
     - 6.6.4 Preparation of maps and/or aerial photographs
   - 6.7 Receptor/exposure pathway evaluation (if requested)
     - 6.7.1 Identification of all potential receptors in the area
     - 6.7.2 Identification of migration pathways and discussion of potential completion
     - 6.7.3 Exposure potential discussion
     - 6.7.4 Preparation of maps and/or aerial photographs

   - 6.8 Groundwater Check (if requested)
     - 6.8.1 Description of methodology (existing supply wells, monitoring wells, direct push, etc.)
     - 6.8.2 Sampling methodology (collection, field screening, and analysis)

6.8.3 Sample location map
6.8.4 QA/QC plan (may be on file with DEQ or included in an appendix)

6.9 Groundwater Investigation (if requested)
6.9.1 Description of methodology (existing supply wells, monitoring wells, direct push, etc.)
6.9.2 Sampling methodology (collection, field screening, and analysis)
6.9.3 Sample location map
6.9.4 QA/QC plan (may be on file with DEQ or included in an appendix)
6.9.5 Data compilation and synthesis
6.9.6 Preparation of maps, cross-sections, and/or aerial photographs

6.10 Soil Investigation (if requested)
6.10.1 Description of methodology (test pits, borings, direct push, etc.)
6.10.2 Sampling methodology (collection, field screening, and analysis)
6.10.3 Sample location map
6.10.4 QA/QC plan (may be on file with DEQ or included in an appendix)
6.10.5 Data compilation and synthesis
6.10.6 Preparation of maps, cross-sections, and/or aerial photographs

6.11 Utility/Utility Corridor Investigation (if requested)
6.11.1 Utility research (note: a limited amount of research can be pre-approved in order to prepare this workplan)
6.11.2 Description of methodology (test pits, borings, internal inspection, etc.)
6.11.3 Sampling methodology (collection, field screening, and analysis)
6.11.4 Sample location map
6.11.5 QA/QC plan (may be on file with DEQ or included in an appendix)
6.11.6 Data compilation and synthesis
6.11.7 Preparation of maps, cross-sections, and/or aerial photographs

6.12 Soil Vapor Investigation (if requested)
6.12.1 Description of methodology
6.12.2 Sampling methodology (collection, field screening, and analysis)
6.12.3 Sample location map.
6.12.4 QA/QC plan (may be on file with DEQ or included in an appendix)
6.12.5 Data compilation and synthesis (must include field instrument calibration)
6.12.6 Preparation of maps, cross-sections, and/or aerial photographs

6.13 Building/Structure Vapor Survey (if requested)
6.13.1 Description of methodology
6.13.2 Sampling methodology (collection, field screening, and analysis)
6.13.3 Sample location map and diagrams of buildings
6.13.4 QA/QC plan (may be on file with DEQ or included in an appendix)
6.13.5 Data compilation and synthesis (must include field instrument calibration)
6.13.6 Preparation of maps, cross-sections, and/or aerial photographs

6.14 Other Data Results (if requested)

6.15 Report Preparation
6.15.1 Data consolidation and tabulation
6.15.2 Data evaluation
6.15.3 Report writing

7. SCHEDULE
   Include times when phases of work will begin, when they will be completed, and when information and reports will be provided to DEQ. If specific dates cannot be determined until after the CAP is approved, provide generic timeframes.

8. BUDGET

9. APPENDICES
   - 9.1 Quality assurance/quality control (QA/QC) plan for all methods and sampling proposed (may be on file with DEQ)
   - 9.2 Standard operating procedures (SOPs) for all methods and sampling proposed (may be on file with DEQ)
   - 9.3 Disposal of investigation derived waste plan

Report ISA-01 for Initial Site Assessment at a Petroleum Release Site

Montana Department of Environmental Quality Petroleum Technical Section (PTS)

The following is an example of minimal requirements for an Initial Site Assessment Report when specifically requested by DEQ. If any of the topics do not apply to your situation, please omit the section and provide an explanation in the Report.

This outline provides owners/operators and consultants with basic information that an Initial Site Assessment Report at a Petroleum Release Site must contain before it will be reviewed by PTS.

An Initial Site Assessment (ISA) Report is only intended to gather limited additional information for sites that preliminarily rank as low-priority, but more information is needed to ensure that higher priority risks do not exist at the site. ISAs are not Remedial Investigations, nor are they intended to define the extent and magnitude of a release. The PTS project manager will use professional judgment to determine the type(s) of initial investigation or information gathering necessary to adequately document site conditions and evaluate risk. The report format listed below includes most typical technologies that may be required as part of an ISA. Not all of these sections may be required for individual release sites. When sections of this report format are not included in the ISA CAP, omit those sections and make a brief annotation in the report that they were not required.

1. TITLE PAGE
   - 1.1 Title of report (Initial Site Assessment for…)
   - 1.2 Facility name
   - 1.3 Facility address
   - 1.4 DEQ facility ID number and release number
   - 1.5 Responsible party's name, mailing address and phone number
   - 1.6 Consultant's name, address and phone number
   - 1.7 Contact person's name, mailing address and phone number (if different from above)
   - 1.8 Date report prepared
   - 1.9 Title and date of approved CAP

2. EXECUTIVE SUMMARY
   - 2.1 Summarize release information, results of the investigation, conclusions and recommendations

3. TABLE OF CONTENTS
   - 3.1 Include titles of report sections and page numbers (please use naming/numbering conventions for main sections listed herein)
   - 3.2 List of tables and figures
   - 3.3 List of appendices

4. INTRODUCTION
   - 4.1 Purpose of investigation
   - 4.2 Brief background of release
     - 4.2.1 When, how, and by whom contamination was discovered
     - 4.2.2 Type of products stored at site
     - 4.2.3 Type of contamination
     - 4.2.4 When and who reported the release to DEQ
     - 4.2.5 Summary of initial actions undertaken and by whom
     - 4.2.6 Current site status. What work has already been done and what do we already know about the release and its potential threats to human health and the environment?
     - 4.2.7 Location map – preferably a reproduction of a USGS topographic map

5. INVESTIGATIVE METHODS
   - 5.1 Purpose of investigation
   - 5.2 Description of methods (backhoe pits, borings and monitoring well installations, vapor sampling, heated headspace sampling, or other field screening methods). A separate description should be given for each method used.
   - 5.3 QA/QC plan (may be on file at DEQ)
   - 5.4 A detailed sampling plan and construction techniques may be referenced and placed in appendices or in standard operating procedures (SOPs) on file with DEQ

6. FACILITY SITE MAP (if requested by PTS project manager as part of CAP)
   Facility site map or maps and descriptions or symbols appropriate in scale and scope showing the following within a 500-foot radius (unless otherwise noted) of the site (information may be shown on more than one map for clarity):
   - 6.1 Buildings (on and adjacent to the site)
   - 6.2 Existing and former USTs, ASTs, piping, dispensers, and other sources of petroleum
   - 6.3 Release area or greatest source of contamination (include possible and likely sources of the release (e.g., tanks, pipes, dispenser))
   - 6.4 Known extent of contamination (use dashed lines where unsure)
   - 6.5 Soil boring, test pit, or other sample locations (if completed)
   - 6.6 Monitoring well locations (if completed)
   - 6.7 Underground utilities on and adjacent to the property (sewer, water, telephone, electric) (must be completed before any excavation or drilling)
   - 6.8 Basements and tile drain and sump systems on and adjacent to the property
   - 6.9 Existing and former USTs, ASTs, piping, dispensers, and other sources of petroleum
   - 6.10 Adjacent buildings (structures)
   - 6.11 Domestic, municipal and irrigation wells
   - 6.12 Existing and former hazardous material/waste storage areas
   - 6.13 North arrow and scale

7. INVESTIGATION RESULTS (include only those discussions pertinent to the type(s) of investigation(s) conducted)

7.1 Initial Site History (if conducted)

- 7.1.1 When and who reported the release to DEQ
- 7.1.2 Initial actions undertaken by owner, contractor, consultant, other
- 7.1.3 Local map (2-3 city block area) showing utilities, residences, wells, business or building usages (e.g., children's nursery, machine shop), potential third parties depending on contamination type, property lines, magnitude and extent of soil and groundwater contamination
- 7.1.4 Topographic map of site and surrounding area
- 7.1.5 History of ownership and operation of the facility, since at least the time the release from the tank did or could have occurred, including the following:
  - 7.1.5.1 Name, current address and telephone number of all current owners and operators
  - 7.1.5.2 Name, current address and telephone number (if known) of all past owners and operators
  - 7.1.5.3 Years of current and past ownership and/or operation
  - 7.1.5.4 Description of activities conducted at the site by each current and past owner/operator
  - 7.1.5.5 A general construction history of site
  - 7.1.5.6 Former and existing hazardous material/waste storage areas, lagoons and waste pits
  - 7.1.5.7 Waste management history
- 7.1.6 History of operation of ASTs and USTs since at least the time the release from the tank did or could have occurred at the site, including the following (some or all of this information may be presented in tabular form):
  - 7.1.6.1 Dates of installation and removal of all existing and former tank(s) located on the site
  - 7.1.6.2 Volume of tanks
  - 7.1.6.3 Tank and piping construction material
  - 7.1.6.4 Tank configuration, piping layout, check valves
  - 7.1.6.5 Overfill/spill protection
  - 7.1.6.6 Cathodic protection
  - 7.1.6.7 Date and description of repairs, replacements, modifications to tanks and ancillary equipment
  - 7.1.6.8 Condition of tanks/piping if removed, location and size of perforations
  - 7.1.6.9 Method and results of product inventory reconciliation (describe and attach copies of product inventory charts)

- 7.1.7 Describe all known and suspected leaks, spills, overfills, or other releases from USTs, ASTs, or any other petroleum sources located on the site. The following information should be included for each occurrence:
  - 7.1.7.1 Date of release
  - 7.1.7.2 Date release was reported to DEQ
  - 7.1.7.3 DEQ release number (if assigned)
  - 7.1.7.4 Product released
  - 7.1.7.5 Quantity lost
  - 7.1.7.6 Quantity recovered

7.1.7.7 Known or suspected cause of the release
7.1.7.8 Location on site
7.1.7.9 Cleanup action taken
7.1.7.10 Offsite effects

7.2 Receptor/exposure pathway evaluation (if conducted)
- 7.2.1 Receptor Identification
  - 7.2.1.1 Drinking water
    - 7.2.1.1.1 Groundwater wells
    - 7.2.1.1.2 Permeable water mains
    - 7.2.1.1.3 Permeable water service connections
  - 7.2.1.2 Vapors in structures
    - 7.2.1.2.1 Residences/public buildings
    - 7.2.1.2.2 Utility vaults
    - 7.2.1.2.3 Commercial buildings
  - 7.2.1.3 Direct dermal contact with surface soil (< 2ft bgs)
    - 7.2.1.3.1 Residential property
    - 7.2.1.3.2 Commercial property
    - 7.2.1.3.3 Recreational property
  - 7.2.1.4 Buried utilities
    - 7.2.1.4.1 Open utilities (water, sewer, etc.)
    - 7.2.1.4.2 Close utilities (phone, power, etc.)
  - 7.2.1.5 Surface water
    - 7.2.1.5.1 Lakes, rivers, ponds
    - 7.2.1.5.2 Wetlands
    - 7.2.1.5.3 Storm sewers
  - 7.2.1.6 Groundwater (not used for drinking, but protected as 'state water')
- 7.2.2 Migration pathway identification
  - 7.2.2.1 Identify all pathways that may be completed from the contamination source to all potential receptors identified in subsection 7.2.1. Include one subsection for each identified receptor.
- 7.2.3 Exposure Potential Discussion
- 7.2.4 Evaluate potential for pathways identified in subsection 7.2.1 to be completed. Include one subsection for each pathway identified in subsection 7.2.2

7.3 Groundwater check (one well/sampling point) (if conducted)
- 7.3.1 Description of monitoring well, or sampling point completion
- 7.3.2 Field screening results in table form with date and time of measurement, depth, location, penetration measurement if taken; time-series graphs and tables if more than one sampling period
- 7.3.3 Soil sample results from sampling point construction (vertical extent of contamination)
- 7.3.4 Groundwater sampling results
- 7.3.5 Drilling or sampling anomalies

7.4 Groundwater investigation (≤ 4 wells) (if conducted)

7.4.1 Description of monitoring well or sampling point completion
7.4.2 Field screening results in table form with date and time of measurement, depth, location, penetration measurement if taken; time-series graphs and tables if more than one sampling period
7.4.3 Soil sample results from sampling point construction (vertical extent of contamination); include updated soil contamination extent and magnitude map (if applicable)
7.4.4 Geologic cross-section from boring soil information (if applicable)
7.4.5 Groundwater sampling results in tabular format
7.4.6 Depth to water and water table elevation measurements in tabular format
7.4.7 Water table peizometric surface contour map
7.4.8 Isopleth (iso-concentration) map depicting at least one analyte for each contaminant type (gasoline, diesel, etc.) that best shows the extent and magnitude of that contaminant. Consult the PTS project manager for selection of analytes to be depicted
7.4.9 Discussion of sampling or analytical anomalies

7.5 Soil investigation (TP, borings, direct push, etc.) (if conducted)
7.5.1 Description of soil from test pits, boring completion, or other sample retrieval methods
7.5.2 Field screening results in table form, with date and time of measurement, depth, location, and penetration measurement if taken
7.5.3 Soil sample analytical results
7.5.4 Groundwater sampling results (if encountered and sampled from excavation/borings)
7.5.5 Depth to water and water table elevation measurements (if encountered in excavation/borings)
7.5.6 Geologic cross-section from borings/excavations (if applicable)
7.5.7 Discussion of sampling or analytical anomalies

7.6 Utility/utility corridor investigation (if conducted)
7.6.1 Detailed site map of buried utilities and service connections showing soil contamination and investigation points
7.6.2 Description of utility construction materials (including gaskets), bedding materials, and any other information pertinent to contaminant permeation or migration
7.6.3 Description of test pits, boring completion, or other utility excavation/ inspection
7.6.4 Field observations of utility construction, contamination present, and condition of utilities. Include any other observations pertinent to contaminant permeation or migration.
7.6.5 Field screening results in table form with date and time of measurement, depth, location, penetration measurement if taken
7.6.6 Soil sample results
7.6.7 Groundwater sampling results (if encountered and sampled from excavation/ borings)

7.6.8 Depth to water and water table elevation measurements (if encountered in excavation/borings)
7.6.9 Geologic cross-section from borings/excavations showing utility corridors in relation to contamination (if applicable)
7.6.10 Observations, field screening data, and sample results from material inside utilities (vapors, water, gas, etc.) (if sampled)
7.6.11 Discussion of sampling or analytical anomalies

7.7 Soil vapor survey (if conducted)
7.7.1 Detailed site map of vapor sampling locations
7.7.2 Description of surface and subsurface structures that may influence the migration of vapors through the soil
7.7.3 Description of soil vapor sampling points and soil conditions recorded during driving of sampling points (if taken)
7.7.4 Field observations made during sampling
7.7.5 Field screening: qualitative or quantitative results in table form with date and time of measurement, depth, location, penetration measurement if taken
7.7.6 Groundwater sampling results (if encountered and sampled from vapor sampling points)
7.7.7 Depth to water and water table elevation measurements (if encountered in sampling points)
7.7.8 Geologic cross-section from borings/excavations showing vapor concentrations (if applicable)
7.7.9 Isopleth map(s) showing vapor concentrations
7.7.10 Discussion of sampling or analytical anomalies

7.8 Building/structure vapor survey (if conducted)
7.8.1 Detailed site map of vapor sampling locations with respect to petroleum contamination (soil, free product, groundwater, and soil vapors) to the extent known
7.8.2 Description of surface and subsurface structures that may influence the migration of vapors through the soil
7.8.3 Description of structure vapor sampling points and other conditions within structures that may influence sampling results
7.8.4 Field observations made during sampling and inventory of petroleum products stored in or near each structure sampled
7.8.5 Field screening: qualitative or quantitative results in table form with date and time of measurement
7.8.6 Discussion of sampling or analytical anomalies

8. CONCLUSIONS (include only those discussions that are pertinent to the type(s) of investigations conducted)
8.1 Discussion of site history and release information regarding potential impact human health or the environment

8.2 Summary of known and potential completed exposure pathways. Discuss eliminated pathways and pathways that still may be completed. Include the level of certainty of any conclusions.
8.3 Summary of known and potential threats to human health and the environment
8.4 Discussion of sampling results in comparison to regulatory standards and screening levels
8.5 Discussion of the vertical extent of soil contamination and potential for future leaching to groundwater
8.6 Discussion of groundwater contamination and potential to impact human health or the environment.
8.7 Discussion of groundwater flow characteristics (flow direction, velocity, gradient, etc.)
8.8 Discussion of fate and transport of contaminants from known and suspected sources
8.9 Discussion of contamination in contact with or approaching utilities
8.10 Discussion of current and potential utility impacts (permeation, transport along backfill, etc.) and potential risks to human health
8.11 Discussion of extent and magnitude of vapors present in soil and their potential to impact receptors
8.12 Discussion of vapor distribution within buildings monitored

9. RECOMMENDATIONS
9.1 Recommend release for closure, or
9.2 Recommend additional data collection and immediacy of corrective action if required
9.3 Signature page (signed and dated)

10. LIMITATIONS

11. REFERENCES

12. APPENDICES (include only those that apply)
12.1 Sampling methods
12.2 Boring logs
12.3 Well completion logs
12.4 Vapor logs
12.5 Field data sheets
12.6 Other logs
12.7 Analytical results and chain of custody forms
12.8 Other data
12.9 EPA notification forms
12.10 QA/QC Plan (unless on file with DEQ)
12.11 SOP (unless on file with DEQ)