

Example
Scope of Work
Phase I Environmental Site Assessment and Systematic Project Planning

1.0 Project Description

List specific addresses of properties to be assessed, known or suspected site activities, and briefly summarize results of any previous site investigation or cleanup activities.

2.0 Project Objectives

2.1 Phase I Environmental Site Assessment (ESA)

The objective for this work is to identify recognized environmental conditions on the site(s) identified in Section 1.0 above. Recognized environmental conditions means the presence or likely presence of any hazardous substances [as defined by CERCLA Sections 101(14)], pollutants and contaminants [as defined by CERCLA Sections 101(33), including asbestos and lead-based paint], or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release into structures on the property or into the ground, groundwater, or surface water of the property. The scope of the inquiry is to identify releases and threatened releases of hazardous substances that cause or threaten to cause the incurrence of response costs.

2.2 Systematic Planning

- Conduct systematic planning to clarify project goals and objectives, identify options to identify and manage uncertainty, and ensure the requisite type, quality, and quantity of data are obtained to satisfy project objectives that lead to informed decisions and site close out in a cost effective and timely manner. The investigation and cleanup strategy should utilize USEPA's Triad work strategy. The Triad approach includes systematic planning, a dynamic work plan strategy, and real-time measurements where appropriate.

3.0 Description of Work

3.1 Phase I ESA Activities

Conduct a Phase I ESA compliant with section 101(35)(B) of CERCLA, as amended by the Small Business Liability Relief and Brownfields Redevelopment Act (Pub. L. 107-118, 115 stat. 2356, "the Brownfields Amendments").

Adherence to this statute is required by any party who receives a brownfields grant awarded under CERCLA Section 104(k)(2)(B) and uses the grant money to conduct site characterization or assessment activities. This includes state, local and tribal governments that receive brownfields site assessment grants for the purpose of conducting site characterization and assessment activities. Such parties are required under CERCLA Section 104(k)(2)(B)(ii) to

conduct such activities in compliance with the standards and practices established by EPA for the conduct of All Appropriate Inquiries.

The Phase I ESA will be conducted in accordance with 40 CFR Part 312 – Innocent Landowners, Standards for Conducting All Appropriate Inquiries. The ESA will adhere with the proposed rule for “Standards and Practices for All Appropriate Inquiries” [http://www.epa.gov/brownfields/aai/proposed_rule.pdf (Federal Register, August 26, 2004)] to include the following ten criteria as established by the Brownfields Amendments (criteria in italics represent practices that were revised by the Brownfields Amendments):

- The results of an inquiry by an environmental professional;
- *Interviews with past and present owners, operators, and occupants of the facility for the purpose of gathering information regarding the potential for contamination at the facility;*
- *Reviews of historical sources, such as chain of title documents, aerial photographs, building department records, and land-use records, to determine previous uses and occupancies of the real property since the property was first developed;*
- *Searches for recorded environmental clean-up liens against the facility that are filed under federal, state, or local law;*
- Reviews of federal, state, and local government records, waste disposal records, underground storage tank records, and hazardous waste handling, generation, treatment, disposal, and spill records concerning contamination at or near the facility;
- *Visual inspections of the facility and adjoining properties;*
- Specialized knowledge or experience on the part of the defendant;
- *The relationship of the purchase price to the value of the property if the property was not contaminated;*
- Commonly known or reasonably ascertainable information about the property; and
- The degree of obviousness of the presence or likely presence of contamination at the property and the ability to detect the contamination by appropriate investigation.

Additionally, there may be environmental issues or conditions at the property that may need to be assessed in connection with the property that are outside the scope of the ASTM E1527-2000 standard, as revised. Some substances may be present on the property in quantities and under conditions that may lead to contamination of the property or nearby properties but are not included in CERCLA’s definition of hazardous substances or do not otherwise present potential CERCLA liability. The presence of other potential hazards may impact subsequent Phase II Site Characterization activities, analysis of cleanup alternatives, and cleanup remedy selection and design. Therefore, assessment for the presence of the following potential hazards and conditions are included in this scope:

- Radon
- Wetlands
- Regulatory compliance
- Cultural and historic resources
- Industrial hygiene
- Health and safety

- Ecological resources
- Endangered species
- Indoor air quality
- High voltage power lines

3.2 Systematic Planning Activities

The EPA requires a systematic planning process for all data collection and use by or for the agency (EPA 1998). Comprehensive, up-front planning is essential to effectively complete any environmental project. Proper planning will assure that the data collected will lead to defensible decisions. The contractor will provide facilitation services to develop the following:

- Define project objectives and associated desired confidence in goal
- Identify stakeholders, timelines, or other constraints
- Establish decisions to be made by:
 - Specifying data and resource needs
 - Identifying boundaries and decision criteria
 - Defining acceptable levels of uncertainty
 - Translating needs into sampling, analysis, and decision-making requirements. Site reuse plans will be used to guide the decision logic.
 - Comprehensive development of alternative site strategies
 - Evaluation of each alternative in terms of objectives and incorporate uncertainties and consequences

To support this process, the contractor will be responsible for the following:

- Document Review. The contractor will perform a detailed review of available site information and documentation regarding past site use and ownership, regulatory or enforcement actions, site assessment or investigations, and corrective actions. Additional information not originally provided may need to be acquired and reviewed during the course of the systematic planning process.
- Project Meeting Facilitation. The contractor will be responsible for setting up, preparing agenda, facilitating, and preparing notes for project planning meetings with team members or stakeholders on an as-needed basis. The contractor will work closely with the CLIENT to determine when a meeting is necessary and who should attend.
- Develop Initial Conceptual Site Model (CSM). A CSM is a functional description of everything that is known about a site and the contamination present. The CSM is developed at the start of a project and is carefully maintained and updated throughout the life of activities at the site. The contractor will provide a draft CSM based on the document review and project planning meetings. The CSM will include:
 - Location of contamination or waste sources
 - Types and expected concentrations of contaminants
 - Potentially contaminated media and migration pathways

- Potential human and ecological receptors
- Key site characteristics that impact the decision process
- Site exit strategies
- Options for remediation (if applicable) and how they relate to the CSM
- Potential interferences and other contingency plans

The CSM should include the information provided in Attachment 1. The contractor will be responsible for providing updates to the CSM through the life of the project and will advise the CLIENT as to necessary modifications to the scope of services required to meet potentially changing project data needs.

- Develop Quality Assurance Project Plan (QAPP). Following the development of a CSM and defining data needs, the contractor will develop a technical scope of work and produce a draft and final QAPP for the site assessment work. The QAPP will follow EPA QA/R-5 guidance.
- Develop Project Work Schedule. The project investigation schedule will be developed to include investigation activities, property purchase decisions, reporting milestones, and other significant project activities and milestones.

4.0 Deliverables

4.1 Phase I ESA Deliverables

- Phase I ESA Report. The report submitted by the contractor shall include the following:
 1. Scope of Services – The report shall describe all services performed in sufficient detail to permit another party to reconstruct the work performed.
 2. Findings – The report shall have a findings section which summarizes known or suspect environmental conditions associated with the property.
 3. Opinion – The reports shall include the environmental professional’s opinion(s) of the impact on the property of known or suspect environmental conditions identified in the findings section.
 4. Conclusions – The report shall include a conclusions section that summarizes all recognized environmental conditions connected with the property and the impact of these recognized environmental conditions on the property.
 5. Deviations – All deletions and deviations from the ASTM E1527-00 practice (if any) shall be listed individually and in detail and all additions should be listed.
 6. References – The report shall include a references section to identify published referenced sources relied upon in the preparing the Phase I ESA report.

7. Signature – The environmental professional(s) responsible for the Phase I ESA shall sign the report.
8. Qualifications – The report shall include a qualifications statement of the environmental professional(s) responsible for conducting the Phase I ESA and preparation of the report.
9. Appendices – The report shall include an Appendix section containing supporting documentation.

4.2 Systematic Planning Deliverables

- Meeting agendas
- Meeting notes
- Draft CSM
- Draft and Final QAPP
- Project work schedule

5.0 Qualifications

Work completed under this contract must be performed by an Environmental Professional as defined by 40 CFR Part 312. Such a person must:

- 1) Hold a current Professional Engineer's or Professional Geologist's license or registration from a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) and have the equivalent of three (3) years of full-time relevant experience; or
- 2) Be licensed or certified by the federal government, a state, tribe, or U.S. territory (or the Commonwealth of Puerto Rico) to perform environmental inquiries as defined in § 312.21 and have the equivalent of three (3) years of full-time relevant experience; or
- 3) Have a Baccalaureate or higher degree from an accredited institution of higher education in a relevant discipline of engineering, environmental science, or earth science and the equivalent of five (5) years of full-time relevant experience; or
- 4) Have a Baccalaureate or higher degree from an accredited institution of higher education and the equivalent of ten (10) years of full-time relevant experience.

A person who does not qualify as an environmental professional under the foregoing definition may assist in the conduct of all appropriate inquiries if such person is under the supervision or responsible charge of a person meeting the definition of an environmental professional provided above when conducting such activities.

6.0 Project Planning Reference Documents

Technical Project Planning (TPP) Process. US Army Corps of Engineers. EM 200-1-2. August 31, 1998. (<http://www.usace.army.mil/inet/usace-docs/eng-manuals/em200-1-2/toc.htm>)

Guidance for the Data Quality Objectives Process. EPA QA/G-4. EPA/600/R-96/055. August 2000. (<http://www.epa.gov/quality/qs-docs/g4-final.pdf>)

US EPA Office of Superfund Remediation and Technology Innovation (OSRTI). Information and guidance documents on the Triad Approach to systematic planning, dynamic work plans, and real-time measurement technologies to achieve more cost-effective hazardous waste site cleanup strategies. (<http://www.epa.gov/tio/triad/index.htm#educ>)

Triad Resource Center. (<http://www.triadcentral.org/ref/index.cfm>)

EPA Requirements for Quality Assurance Project Plans. EPA QA/R-5. EPA/240/B-01/003. March 2001. (<http://www.epa.gov/quality/qs-docs/r5-final.pdf>)

References

U.S. Environmental Protection Agency. 1998. The Environmental Protection Agency's Policy and Program Requirements for the Mandatory Agency-wide quality System (Order 360.1 CHG 1).

Attachment 1
Conceptual Site Model Checklist

Facility			
CSM Requirement		Status	Required Action
Identify current and historical facility structures (buildings, drain systems, sewer systems, underground utilities, etc)			
Identify process areas, including historical processing areas (loading/unloading, storage, manufacturing, etc)			
Identify current and historical waste management areas and activities			
Other			

Land Use And Exposure			
CSM Requirement		Status	Required Action
Identify specific land use(s) on the facility and adjacent properties			
Identify beneficial resources (groundwater classification, wetlands, natural resources, etc)			
Identify resource use locations (water supply wells, surface water intakes, etc)			
Identify subpopulation types and locations (schools, hospitals, day care centers, etc)			
Identify applicable exposure scenarios (residential, industrial, recreational, farming, etc)			
Identify applicable exposure pathways (contaminant sources, releases, migration mechanisms, exposure media, exposure routes, receptors)			
Other			

Physical Features			
CSM Requirement		Status	Required Action
Identify topographical features (hills, gradients, surface vegetation, or pavement)			
Identify surface water features (routes of drainage ditches, links to water bodies, etc)			
Identify surface geology (soil types, soil parameters, outcrops, faulting, etc)			
Identify subsurface geology (stratigraphy, continuity, connectivity, etc)			
Identify hydrogeology (water-bearing zones, hydrologic parameters, impermeable strata, direction of groundwater flow, etc)			
Identify existing soil boring and monitoring well logs and locations			
Other			

Attachment 1
Conceptual Site Model Checklist

Release Information			
CSM Requirement		Status	Required Action
Identify potential source(s) of release(s)			
Identify potential contaminants of concern associated with each potential release			
Identify confirmed source locations			
Identify confirmed release locations			
Identify existing delineation of release areas			
Identify distribution and magnitude of COPCs and COCs			
Identify migration routes and mechanisms			
Identify fate and transport modeling results			
Other			

Risk Management			
CSM Requirement		Status	Required Action
Identify a summary of risks			
Identify impact of risk management activities on release and exposure characteristics			
Identify performance monitoring locations and media			
Identify contingencies in the event performance monitoring criteria is exceeded			
Other			

Cleanup			
CSM Requirement		Status	Required Action
Identify study options			
Identify study requirements			
Identify cleanup options			
Identify cleanup requirements			
Other			