**ATTACHMENT D**

**Statement of Work**
**for**
**Remedial Investigation/Feasibility Study**
**Hamilton/Labree Roads Groundwater Contamination Site**
**Chehalis, Washington**

## *I. INTRODUCTION*

This Statement of Work ("SOW") outlines the general management approach that will serve as a basis for the development and implementation of a Remedial Investigation/Feasibility Study ("RI/FS") for the Hamilton/Labree Roads Groundwater Contamination Site ("Site") to be performed by S. C. Breen Construction Company ("Respondent"). The Site is located in Lewis County, approximately 3 miles south of Chehalis, Washington.

EPA has identified two potential sources of perchloroethylene ("PCE") that have been detected at the Site: releases from property currently or formerly owned by S. C. Breen Construction Company ("Breen Property" as described on Attachment A) and releases from a source located across Hamiliton Road from the United Rentals Property, approximately 1/3 mile southeast of the Breen Property ("Hamilton Road Impacted Area" as shown on Attachment B).

For purposes of the Administrative Order On Consent (AOC) and SOW, the following definitions shall apply:

a. "Site" shall mean the Hamilton/LaBree Roads Ground Water Contamination Superfund Site, which includes the Breen Property and the Hamiliton Road Impacted Area, and all areas where the PCE ground water plume attributable to these source areas has come to be located.

b. "Hamilton Road Impacted Area" shall mean the area depicted in Attachment B to the AOC.

c. "United Rentals Property" shall mean the area depicted in Attachment B to the AOC.

d. "Breen Property" shall mean the real property currently or formerly owned by the Respondent at the Site, and as further described in Attachment A and depicted in Attachment B to the AOC.

e. "Local Aquifer Systems" consists of surface water that is in communication with a shallow aquifer that is defined as the water-bearing zone from ground surface to a thick silt and clay aquitard at a depth of approximately 50 feet below ground surface ("bgs"), and a deep aquifer that underlies the aquitard. The Local Aquifer Systems shall include surface water and groundwater in the shallow and deep aquifers within the Hamilton Road Impacted Area (except for the source of PCE within the Hamilton Road Impacted

Area and possible sources at the United Rentals Property), surface water and groundwater in the shallow and deep aquifers and source areas on the Breen Property, and surface water and ground water in the shallow and deep aquifers which is down gradient and/or cross gradient from the Breen Property and the Hamilton Road Impacted Area.

The strategy for the general management of the RI/FS for the Hamilton/Labree Roads Groundwater Contamination Site is as follows:

Respondent will:

1. Conduct the RI/FS with the following exceptions:

   a. The source area investigation within the Hamiliton Road Impacted Area;
   b. Any source area investigation at the United Rentals Property; and
   c. Sampling the deep aquifer will be limited to monitoring 4 wells (PW-1, PW-6, PW-8, and the deep well on the Reggie Hamilton property).

   The RI/FS conducted by the Respondent will characterize the local hydro-geological system that includes Berwick Creek, the Newakum River, and other pertinent surface waters, delineate the areal extent of the contamination in the Local Aquifer Systems, conduct limited monitoring of deep aquifer, define any soil contamination sources (other than the source of PCE identified within the Hamilton Road Impacted Area and any sources at the United Rentals Property), and evaluate potential cleanup alternatives to respond to contaminants in the Local Aquifer Systems.

2. Conduct a Risk Assessment to estimate the impacts that contamination associated with the Local Aquifer Systems has or may have on humans and the eco-system.

EPA will:

1. Provide a credit to the Respondent (in the form of a reduction of EPA's oversight bill) for surface water and groundwater sampling and analysis costs associated with the Hamilton Road Impacted Area, as described in the AOC;

2. Investigate and cleanup sources within the Hamilton Road Impacted Area and possible sources at the United Rentals Property (unless there is evidence which shows that the Respondent is liable under CERCLA for the sources in these areas); and

3. Supply potable water to parties whose drinking water has been affected by PCE in groundwater.

The AOC does not require the Respondent to conduct an RI/FS for the "deep aquifer" located beneath the shallow aquifer at the Site because all groundwater samples taken to date, except one groundwater sample recently collected from PW-6, have not detected concentrations of

hazardous substances in the deep aquifer. However, EPA and Respondent understand and agree that if continued monitoring of the deep aquifer demonstrates that concentrations of hazardous substances are migrating to the deep aquifer from a source on the Breen Property, or from a source at the Site which EPA determines the Respondent is liable for under CERCLA, then EPA and Respondent will discuss the need for additional RI/FS work as set forth in Paragraph 50 of the AOC. If, after these discussions, EPA determines that "additional work" is necessary, then the SOW will be modified as appropriate.

The RI/FS Work Plan for the Local Aquifer Systems will describe tasks to be completed by the Respondent as part of the RI/FS. The objectives of the RI/FS for the Local Aquifer Systems are:

1. Determine the nature and extent of contamination and any threat to the public health, welfare, or environment caused by the release or threatened release of hazardous substances, pollutants, or contaminants to the Local Aquifer Systems. This objective will be accomplished by consolidating data collected to date and by conducting an RI for the Local Aquifer Systems, which shall include identifying sources of contamination to, and extent of the plume within, the Local Aquifer Systems with the exceptions listed above;

2. Determine and evaluate alternatives for remedial action (if any) to prevent, mitigate, or otherwise respond to or remedy any release or threatened release of hazardous substances, pollutants, or contaminants to the Local Aquifer Systems. This objective will be accomplished by conducting an FS;

3. Define, if possible, the extent to which releases from the Breen Property and releases from other sources, including the source within the Hamilton Road Impacted Area and/or possible sources at the United Rentals Property, have impacted the Local Aquifer Systems;

4. Operate and maintain the wellhead treatment system at the Thurman Property; and

5. Identify and recommend potential interim response action(s) regarding source control and/or plume reduction for the Local Aquifer Systems.

The RI and FS are intended to be interactive and should be developed concurrently so that the data collected in the RI influences the development of remedial alternatives in the FS, which in turn affects the data needs and the scope of treatability studies, if deemed necessary.

Respondent shall develop the RI/FS Work Plan and conduct the RI and FS for the Local Aquifer Systems. Community relations components are the responsibility of EPA, with input from Respondent as appropriate. Respondent will produce RI and FS deliverables in accordance with this SOW, the RI/FS Work Plan, the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (U.S. EPA, Office of Emergency and Remedial Response, October 1988) (hereinafter called the "RI/FS Guidance"), and other EPA guidance documents listed in Attachment I to this SOW.

The final RI and FS reports and the final risk assessment produced by Respondent will, with the administrative record, form the basis for EPA's selection of remedial actions to be taken for the Local Aquifer Systems and will provide the information necessary to support EPA's development of the Record of Decision ("ROD") for the Local Aquifer Systems.

As specified in Section 104(a)(1) of CERCLA, EPA will provide oversight of all of Respondent's activities throughout the RI/FS process. Respondent will support EPA's initiation and conduct of activities related to the implementation of oversight activities and will coordinate with EPA on all SOW activities. Respondent will furnish all necessary personnel, materials, and services needed, or incidental to, performing this work, except as otherwise specified in the AOC.

EPA will provide the results of its continuing investigation of the source of PCE with the Hamilton Road Impacted Area and/or possible sources at the United Rentals Property to Respondent. Because any remediation of the source within the Hamilton Road Impacted Area and/or possible sources at the United Rentals Property will impact the Local Aquifer Systems, EPA will also share with Respondent EPA's evaluation of feasible remedial technologies and its selection of response actions for the source of PCE within the Hamilton Road Impacted Area and/or possible sources at the United Rentals Property in sufficient time to allow Respondent to provide comments on EPA's determinations. EPA will continue to evaluate potential interim response actions to address contamination in existing drinking water wells, including the potential for connecting such properties to the existing city of Chehalis public water system.

### *A. SITE BACKGROUND/SUMMARY*

Previous investigations by the Washington State Department of Ecology ("Ecology") and Washington State Department of Health ("DOH") have identified elevated PCE concentrations in groundwater that is used for drinking water in the vicinity of the Hamilton/Labree Road Groundwater Contamination Site. PCE concentrations in water supply wells in the area (based on data collected in 1998) range from 9 ug/L to 3,740 ug/L. The maximum contaminant level ("MCL") for PCE in drinking water is 5 ug/L. EPA is providing bottled water to businesses and families affected by the groundwater contamination.

Ecology, EPA, and Respondent have initiated several investigations to determine the source of groundwater contamination. Electromagnetic and ground penetrating radar techniques have been used to locate buried drums on the Breen Property. Soil borings have been utilized and groundwater monitoring wells have been installed to identify potential sources and to begin to determine the extent of the concentrations of PCE in groundwater. As a result of these investigations, Ecology identified separate and discrete sources at the Breen Property and upgradient of the Breen Property near Hamilton Road N., within the Hamilton Road Impacted Area.

Respondent entered into Agreed Order No. DE 99TC-S221 ("Order") with Ecology on August 6, 1999. The work required by that Order included determining sources to groundwater contamination associated with the Breen Property. This work resulted in the removal of sixty-six 55-gallon drums, four 30-gallon drums, and several 1- to 5-gallon containers from the Breen

Property. Soil and groundwater samples were collected and analyzed as part of the drum removal action to assess the extent of PCE in the vicinity of the buried drums.

EPA initiated a removal assessment in March 2000 within the Hamilton Road Impacted Area. This assessment has included the collection of soil and groundwater samples which confirmed that elevated concentrations of PCE exist within the Hamilton Road Impacted Area and have contaminated soil and groundwater to depths of 45 to 48 feet bgs. The maximum concentration of PCE detected at the Site was 190,000 µg/L, which was detected within the Hamilton Road Impacted Area.

### *B. SCOPING*

Scoping is the initial planning process of the RI/FS and has been initiated by EPA and Respondent. During the scoping process, the specific objectives of the RI/FS for the Local Aquifer Systems, including the preliminary remediation goals ("PRGs"), are determined by EPA. Scoping is therefore initiated prior to completing the negotiations between Respondent and EPA and is continued and refined throughout the RI/FS process.

In addition to developing the specific objectives of the RI/FS for the Local Aquifer Systems, EPA has defined a general management approach for the RI/FS, as described below. Consistent with the general management approach, the RI/FS will be planned by Respondent and EPA and documented by Respondent in an RI/FS Work Plan. Because the work required to perform the RI/FS is not fully known at this time and is phased in accordance with the complexity and the amount of available information, it may be necessary to modify the RI/FS Work Plan during the RI/FS to satisfy the objectives of the study.

The objectives for cleanup of the Local Aquifer Systems have been preliminarily determined, based on available information, to be the following:

- Eliminate any ongoing or potential source(s) of PCE or other chemicals identified to the Local Aquifer Systems.
- Reduce and control migration of PCE or other chemicals in the Local Aquifer Systems.
- Assure the availability of safe drinking water for all affected properties.
- Eliminate any indoor air contamination resulting from the migration of contamination from groundwater.
- Eliminate exposure to any site-related contaminated media.

When scoping the specific aspects of this project, Respondent shall meet with EPA to discuss all project planning decisions and special concerns associated with the Local Aquifer Systems. EPA will coordinate and share data with Respondent for response action(s) conducted by EPA for the

source of PCE within the Hamilton Road Impacted Area and/or possible sources at the United Rentals Property in a format consistent with the RI/FS Work Plan for the Local Aquifer Systems.

## *II. RI/FS ACTIVITIES*

The following activities shall be performed by Respondent:

### *TASK A. PROJECT MANAGEMENT*

This task is intended to ensure that Respondent carefully manages all aspects of the work required herein and reports to EPA in a timely and consistent manner. This work shall include, but not be limited to, the following:

Prepare a Project Management Plan that will include specific protocols and requirements for the following:

a. A project schedule (including field work, analytical work, deliverables due dates, etc.). The schedule will be revised as necessary with EPA's approval.

b. Distribution of deliverables (to oversight contractor, EPA, Ecology, and others to be specifically defined in the Final Project Management Plan).

c. A list of selected subcontractors, including laboratories, drillers, and disposal contractors, that will be identified and contracted by Farallon Consulting, L.L.C. ("Farallon").

d. Data management procedures to ensure coordination with other site activities including: (1) providing EPA with analytical data within five (5) working days of completing the Quality Assurance/Quality Control ("QA/QC") review of the analytical results and that meet the requirements of the Data Quality Objectives ("DQO") defined for the project, in an electronic format (as specified by EPA, agreed to by Respondent, and defined in the RI/FS Work Plan); (2) use of compatible and transferable geographic information systems locators; and (3) other data management procedures to be specifically defined in the Project Management Plan.

e. Schedule and format for monthly progress reports (including project status, work completed, schedule compliance, issues of concern, work to be performed, and other information to be specifically defined in the Project Management Plan).

f. Schedule and agendas for project meetings that may be necessary.

**Project Management Deliverables:**

Major Deliverables:

a. Project Management Plan
b. Project Schedule

Interim Deliverables:

a. Monthly Reports
b. Meeting Schedules and Agendas
c. Meeting Minutes (including agreements made and "to-do" lists)

## *TASK B. OPERATION AND MAINTENANCE OF RESIDENTIAL TREATMENT SYSTEM AT THURMAN PROPERTY PRIVATE WATER SUPPLY WELL*

The purpose of this task is to ensure that residents at the Thurman Property have safe water. Respondent does not admit that releases from the Breen Property have impacted the private water supply well at the Thurman Property. Respondent agrees, however, to operate and maintain (O&M) the single residential carbon treatment system Ecology previously installed at the Thurman Property private water supply well. The O&M of the treatment system shall include changing water filters, carbon unit(s), and the UV lamp as required. In addition, appropriate monitoring of the treatment system shall be implemented to determine maintenance needs (i.e., expected contamination break through). Respondent will assume responsibility for this task upon authorization of the AOC, and shall continue until EPA determines that Respondent is no longer required to perform this task. EPA agrees to evaluate the responsibility of Respondent to continue the O & M of the private water well treatment system at the Thurman Property at the completion of the RI.

**O&M of Thurman Well Treatment System Deliverables:**

1. Semi-annual report regarding operation of Thurman Private Water Supply Well treatment system (including all data collected, any actions taken, and problems encountered, etc.).

2. Technical Memorandum summarizing the results of the Phase I Investigation and RI with respect to the source of PCE in the water recovered in the private water well at the Thurman property.

### *TASK C. DRINKING WATER MONITORING PROGRAM* (including private water supply wells)

The purpose of this task is to collect drinking water samples for laboratory analysis on a scheduled basis to provide data for evaluation of the extent of contamination in the Local Aquifer Systems that has potentially migrated to private water supply wells. The results of the evaluation will be incorporated with the data collected as part of the RI to ensure that all affected parties are addressed with respect to characterizing the extent of contamination in the Local Aquifer Systems. The drinking water monitoring program will also include collection and analysis of groundwater samples from four private water supply wells (PW-1, PW-6, PW-8, and the deep well located on the Reggie Hamilton property) that are screened in the deep aquifer to assist EPA in the assessment of PCE migration in the deep aquifer. The results of the drinking water monitoring will be evaluated to determine if the Drinking Water Monitoring Plan should be revised in future drinking water monitoring events to address changed or newly discovered conditions.

**Drinking Water Monitoring Program Deliverables**:

Major Deliverable

1. Drinking Water Monitoring Plan (including access agreements, basis for design, contingencies for evaluating and responding to the results, field sampling and monitoring requirements, analytical requirements, implementation schedule, and data deliverable format).

Interim Deliverables

1. Written Drinking Water Monitoring Report(s) providing the results of any drinking water monitoring will include analytical results. The Drinking Water Monitoring Reports will also include the location and a description of the private water supply wells sampled, the method of sample collection and analyses, and any other pertinent information. As consecutive monitoring results become available, the Drinking Water Monitoring Reports will evaluate any changes over time.

2. Letter Reports will be prepared for, and addressed to, each affected party and submitted to EPA for review with each Drinking Water Monitoring Report. Letter Reports will be sent to each affected party within ten (10) working days of Respondent receiving written EPA approval.

### *TASK D. COMMUNITY RELATIONS*

EPA is responsible for the development and implementation of community relations activities at the Hamilton/Labree Roads Groundwater Contamination Site. The critical community relations

planning steps performed by EPA include conducting community interviews and developing a Community Involvement Plan ("CIP"). EPA may describe Respondent's community relations responsibilities, if any, in the CIP. Although implementation of the CIP is the responsibility of EPA, EPA may request Respondent to assist by providing information regarding activities or operations conducted at the Local Aquifer Systems, participating in and/or assisting with public meetings, or by contributing to fact sheets for distribution to the general public. EPA will allow Respondent to comment on any community relations documents or activities at least 3 days prior to their implementation. Notwithstanding, the extent of Respondent's involvement in EPA-related community relations activities is left to the discretion of EPA. Respondent will provide notice and an opportunity to comment to EPA of any community relations activities conducted by Respondent, including issuances of press releases, at least 3 days prior to their implementation.

**Community Relations Deliverables:**

To be determined.

### *TASK E. REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS)*

Because the work required to perform an RI/FS is not fully known at this time and is phased in accordance with the complexity of the Local Aquifer Systems and the amount of available information, it may be necessary to modify the RI/FS Work Plan during the RI/FS to satisfy the objectives of the study.

#### Subtask E.1. Phase I Investigation

Respondent has identified data gaps in the existing data that should be addressed prior to the preparation of an RI/FS Work Plan. A Phase I Investigation of the Local Aquifer Systems will be conducted to collect sufficient information to prepare an RI/FS Work Plan that addresses the Local Aquifer Systems. Prior to conducting the Phase I Investigation, a Phase I Investigation Work Plan will be prepared to define the goals and objectives for the Phase I Investigation, as well as a specific scope of work to be completed for the Phase I Investigation. The results of the Phase I Investigation will be incorporated in the data gap analysis section of the RI/FS Work Plan.

**Phase I Investigation Deliverables**

a. Phase I Investigation Work Plan

The Phase I Investigation Work Plan will specifically define the scope of work to be conducted prior to implementation of the RI/FS Work Plan. The Phase I Investigation Work Plan will describe the project objectives and organization, functional activities, and quality assurance and quality control ("QA/QC") protocols that will be used to achieve the desired DQOs defined in the Phase I Investigation Work Plan. Respondent will prepare a Phase I Investigation Health and Safety Plan (Phase I HASP).

b. Phase I Investigation Sampling and Analysis Plan

Respondent will prepare a Phase I Investigation Sampling and Analysis Plan ("Phase I SAP") to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and that the data meet DQOs. The Phase I SAP will define in detail the sampling and data gathering methods that will be used for the Phase I Investigation. It will include drilling methods and monitoring well installation procedures and specifications, sampling objectives, sample location and frequency, sampling equipment and procedures, and sample handling and analysis.

**Subtask E.2. RI/FS Project Planning**

Respondent will incorporate the results of the Phase I Investigation and the results of the Drinking Water Monitoring Program with the existing background information on the Breen Property and Hamilton Road Impact Area to assist in planning the scope of the RI/FS for the Local Aquifer Systems.

a. Collect and Analyze Existing Data and Document the Need for Additional Data (RI/FS Guidance, Section 2.2.2; 2.2.6; 2.2.7)

Before planning RI/FS activities, the results of the Phase I Investigation and all existing and available data on the Hamilton/Labree Roads Groundwater Contamination Site will be thoroughly compiled and presented by Respondent in a data gap analysis section of the RI/FS Work Plan. This information will be utilized in determining additional data needed to characterize the Local Aquifer Systems, better define potential applicable or relevant and appropriate requirements ("ARARs"), and develop a range of preliminarily identified remedial alternatives. DQOs will be established subject to EPA approval which specify the usefulness of existing data. Decisions on the necessary data and DQOs will be made by EPA.

b. Refine and Document Preliminary Remedial Action Objectives and Alternatives (RI/FS Guidance, Section 2.2.3)

Once the existing background information for the Hamilton/Labree Roads Groundwater Contamination Site has been analyzed and an understanding of the potential risks associated with the release of chemicals to the Local Aquifer Systems has been determined, Respondent will review and, if necessary, refine the remedial action objectives. The revised remedial action objectives will be documented in a data gap analysis section of the RI/FS Work Plan and subject to EPA approval. Respondent will then identify a preliminary range of broadly defined potential remedial action alternatives and associated technologies. The range of potential alternatives should encompass, where appropriate, alternatives in which treatment significantly reduces the toxicity, mobility, or volume of the waste, alternatives that involve containment with little or no treatment, and a no-action alternative.

c. Determine the Need for Treatability Studies (RI/FS Guidance, Section 2.2.4)

If remedial actions involving treatment have been identified by Respondent or EPA, treatability studies will be required, except where Respondent can demonstrate to EPA's satisfaction that they are not needed. Where treatability studies are needed (see subtask E.4 below), initial treatability testing activities (such as research and study design) will be planned to occur concurrently with Local Aquifer Systems RI/FS activities.

d. Begin Preliminary Identification of Potential ARARs (RI/FS Guidance, Section 2.2.5)

Respondent will conduct a preliminary identification of potential state and federal ARARs (chemical-specific, location-specific, and action specific) to assist in the refinement of remedial action objectives and the initial identification of remedial alternatives and ARARs associated with particular actions. ARAR identification will continue as the Local Aquifer Systems conditions, contaminants, and remedial action alternatives are better defined.

**RI/FS Project Planning/Scoping Deliverables (RI/FS Guidance, Section 2.3)**

At the conclusion of the RI/FS project planning phase, Respondent will submit a RI/FS Work Plan, a RI/FS Sampling Analysis Plan ("RI/FS SAP"), and a RI/FS Site Health and Safety Plan ("RI/FS HASP"). The RI/FS Work Plan and RI/FS SAP will be provided as Draft Reports for review and approval by EPA prior to Respondent submitting Final Reports and conducting field activities.

a. RI/FS Work Plan (RI/FS Guidance, Section 2.3.1) (Major Deliverable)

The RI/FS Work Plan will document the results of the Phase I Investigation, the data gap analysis, and decisions and evaluations completed during the scoping process and will be submitted to EPA as a draft for review and approval. The RI/FS Work Plan will include a comprehensive description and rationale for the work to be performed, including the methodologies to be utilized, as well as a corresponding schedule for completion.

The data gap analysis section of the RI/FS Work Plan will include text, graphics, and summary tables of the data collected for the Phase I Investigation and from previous investigations conducted by others. Specifically, the data gap analysis will summarize the result of the Phase I Investigation and the background information and existing data relating to the varieties and quantities of hazardous substances at the Local Aquifer Systems, past disposal practices, the known distribution of chemicals in groundwater, as well as available data related to the local subsurface geologic and hydrologic conditions of the Local Aquifer Systems. To the degree possible, the data gap analysis will define the location, dimensions, physical condition, and varying concentrations of each contaminant in all media that may have been released or migrated

to the Local Aquifer Systems. This will include results from any previous sampling events that have been conducted at the Hamilton/Labree Roads Groundwater Contamination Site by others and other background data.

The data gap analysis will provide sufficient background information for a preliminary evaluation of ARARs and development of remedial action objectives by EPA. Respondent will refer to Table 2-1 of the RI/FS Guidance for a comprehensive list of data collection information sources.

The RI/FS Work Plan will present a statement of the problem(s) and potential problem(s) posed by the Local Aquifer Systems and the objectives of the RI/FS, including objectives set forth for the human health and ecological risk assessment and PRGs. The RI/FS Work Plan will include a background summary and description including the geographic location of the Local Aquifer Systems and, to the extent possible: (1) a description of the physiography, hydrology, geology, demographics, ecological, cultural, and natural resource features; (2) a synopsis of the Hamilton/Labree Roads Groundwater Contamination Site history and a description of previous responses that have been conducted at the Hamilton/Labree Roads Groundwater Contamination Site by local, state, federal, or private parties; and (3) a summary of the existing data in terms of physical and chemical characteristics of the contaminants identified and their distribution among all the environmental media within the Local Aquifer Systems. The RI/FS Work Plan will include a listing and brief description of: (1) the preliminary remedial action objectives for the RI/FS; (2) the preliminary range of broadly defined potential remedial action alternatives and associated technologies; and (3) the preliminary identification of potential state and federal ARARs. The RI/FS Work Plan will also include the determination of the need for treatability studies.

The major part of the RI/FS Work Plan is a detailed description of the tasks to be performed and information needed for each task, information to be produced during and at the conclusion of each task, and a description of the work products that will be submitted to EPA. These tasks shall include:

(1) Complete the Characterization of The Breen Property Initiated under Ecology's Order

The overall objective of characterization of the Local Aquifer Systems is to define the source areas that may pose a threat to human health or the environment. This will include determining the physiography, geology, and hydrology of the Breen Property. Surface and subsurface pathways of migration will be defined. Respondent will identify the contaminants of concern, sources of contamination and define the nature, extent, and volume of the sources of contamination, including their physical and chemical constituents as well as their concentrations at incremental locations to background in the affected media. Respondent will also investigate the extent of migration of this contamination as well as its volume and any changes in its physical or chemical characteristics to provide for a comprehensive understanding of the nature and extent of contamination at the Breen Property. Using this information, contaminant fate and transport will be

determined and projected. This investigation will focus on property currently or formerly owned by Respondent and any property that may have been affected by migration from a release at or from the Breen Property and will include, but not be limited to:

- Completion of magnetometer work (i.e., location of buried sources) and soil investigation of the Breen Property.

- Investigation of anomalies revealed by previous magnetometer investigations conducted by others and any new anomalies identified through magnetometer work (using borings, test pits, or other specified techniques) at the Breen Property.

- Investigation of the "torpedo tube" (using borings, continuous soil sampling, or other specified techniques to determine soil contamination and impact to groundwater).

- Investigation of the wash pad/old shop area at the Breen Property.

(2) Define Local/Site Specific Hydrogeology and Extent of Local Aquifer Systems

This work will result in production of a year-round conceptual hydrogeologic model of the Local Aquifer Systems that addresses:

- Flood stage groundwater and surface water fluctuations.

- Effects of pumping private water supply wells used for irrigation and/or domestic purposes on the shallow groundwater table and contaminant migration.

- Groundwater interface with Berwick Creek and other surface waters.

This work will also include determination of Local Aquifer Systems characteristics and flow rates.

(3) Determine the Need for Treatability Studies

The RI/FS Work Plan will identify potential remedial options that may require treatability studies to evaluate the technical feasibility for cleanup of the contaminants in the Local Aquifer Systems and/or the Breen Property. The specific requirements for the treatability studies will be specified in the Treatability Testing Work Plan which will be developed as a separate document.

(4) Preliminary Identification of Potential ARARs

The RI/FS Work Plan will identify the preliminary state and federal ARARs that are chemical-specific, location-specific, and action-specific based on the information presented in the data gap analysis of the RI/FS Work Plan. The ARARs will be specified in more detail during the implementation of the RI as more information becomes available.

Respondent will refer to Appendix B of the RI/FS Guidance for a comprehensive description of the contents of the required RI/FS Work Plan. Because of the unknown nature of the Local Aquifer Systems and iterative nature of the RI/FS, additional data requirements and analyses may be identified throughout the process. Respondent will submit a technical memorandum documenting the need for additional data and identifying the DQOs within 20 days of whenever such requirements are identified. In any event, Respondent is responsible for fulfilling additional data and analysis needs identified by EPA consistent with the general scope and objectives of this RI/FS.

b. RI/FS Sampling and Analysis Plan (RI/FS Guidance, Section 2.3.2) (Major Deliverable)

Respondent will prepare a RI/FS Sampling and Analysis Plan ("RI/FS SAP") to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and that the data meet DQOs. The RI/FS SAP provides a mechanism for planning field activities and quality assurance requirements.

The RI/FS SAP will define in detail the sampling and data-gathering methods that will be used for the RI of the Local Aquifer Systems. It will include sampling objectives, sample location and frequency, sampling equipment and procedures, and sample handling and analysis. The RI/FS SAP will describe the project objectives and organization, functional activities, and quality assurance and quality control ("QA/QC") protocols that will be used to achieve the desired DQOs.

Respondent will demonstrate, in advance and to EPA's satisfaction, that each laboratory it may use is qualified to conduct the proposed work. This includes use of methods and analytical protocols for the chemicals of concern in the media of interest within detection and quantification limits consistent with both QA/QC procedures and DQOs approved in the RI/FS SAP for the Local Aquifer Systems by EPA.

Each laboratory will have and follow an approved QA/QC program approved by EPA. The laboratory QA/QC program will be submitted for EPA review and approval within at least 20 days prior to conducting the work. EPA may require that Respondent submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment, and material specifications. Respondent will provide

assurances that EPA has access to laboratory personnel, equipment, and records for sample, collection, transportation, and analysis.

c. Site Health and Safety Plan

A RI/FS Health and Safety Plan ("RI/FS HASP") will be prepared in conformance with Respondent's health and safety program and in compliance with OSHA regulations and protocols. The RI/FS HASP will include the eleven (11) elements described in the RI/FS Guidance, such as a health and safety risk analysis, a description of monitoring and personal protective equipment, medical monitoring, and site control. It should be noted that EPA does not "approve" Respondent's RI/FS Health and Safety Plan, but rather EPA reviews it to ensure that all necessary elements are included and that the plan provides for the protection of human health and the environment.

**Subtask E.3. Site Characterization/Implementation of the RI/FS Work Plan**

Respondent will notify EPA by telephone and/or e-mail at least two (2) weeks in advance of each field sampling or characterization event. These activities will be performed by Respondent in accordance with the RI/FS Work Plan and associated RI/FS SAP. Analyses of data collected for site characterization will meet the DQOs developed in the RI/FS Work Plan (or revised during the RI). At a minimum, this will include the following:

a. Implementation and Documentation of Field Activities

Information gathered during the field investigation will be documented by Respondent in well-maintained field logs and laboratory reports and will be summarized in monthly reports. The method(s) of documentation must be specified in the RI/FS Work Plan and/or the RI/FS SAP. Field logs must be utilized to document observations, measurements, and significant events that have occurred during field activities. Laboratory reports must document sample custody, analytical responsibility, analytical results, adherence to prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies. Respondent will maintain field reports, sample shipment records, analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the development and evaluation of remedial alternatives. Analytical results developed under the RI/FS Work Plan will not be included in any Breen Property characterization reports unless accompanied by or cross-referenced to a corresponding QA/QC report. In addition, Respondent will establish a data security system to safeguard chain-of-custody forms and other project records to prevent loss, damage, or alteration of project documentation.

b. Investigate and Define the Local Aquifer Systems Physical and Biological Characteristics

Respondent will collect data on the physical and ecological characteristics of the Local Aquifer Systems, including the physiography, geology, and hydrology, and specific physical

characteristics identified in the RI/FS Work Plan. This information will be ascertained through a combination of physical measurements, observations, and sampling efforts and will be utilized to define potential transport pathways and human and ecological receptor populations. In defining the Local Aquifer Systems physical characteristics, Respondent will also obtain sufficient engineering data (such as pumping characteristics) for the projection of contaminant fate and transport, and development and screening of remedial action alternatives, including information to assess treatment technologies.

c. Define Sources of Contamination

Respondent will locate each source of contamination potentially associated with the Local Aquifer Systems, other than the known source of PCE within the Hamilton Road Impacted Area and the possible sources of PCE on the United Rentals Property. For each location associated with the Local Aquifer Systems, the areal extent and depth of contamination will be determined. The physical characteristics and chemical constituents and their concentrations will be determined for all known and discovered sources of contamination to the Local Aquifer Systems. Respondent shall conduct sufficient sampling to define the boundaries of the contaminant sources to the Local Aquifer Systems to the level established in the DQOs.

Defining the source(s) of contamination to the Local Aquifer Systems will include analyzing the potential for contaminant release (e.g., long-term leaching from soil), contaminant mobility and persistence, and characteristics important for evaluating remedial actions, including information to assess treatment technologies and replace impacted water sources.

d. Describe the Nature and Extent of Contamination

Respondent will gather information to describe the nature and extent of contamination in all media within the Local Aquifer Systems as a final step during the field investigation. To describe the nature and extent of contamination, Respondent will utilize the information and site physical and biological characteristics and sources of contamination to give a preliminary estimate of the areal extent of contaminants in the Local Aquifer Systems. Respondent will then revise the Drinking Water Monitoring Plan and/or implement any study program identified in the RI/FS Work Plan or RI/FS SAP such that by using analytical techniques sufficient to detect and quantify the concentration of contaminants, the migration of contaminants through the various media at the Local Aquifer Systems can be determined. In addition, Respondent will gather data for calculations of contaminant fate and transport (see below). This process is continued until the horizontal and vertical extent of contamination within the Local Aquifer Systems is known. Respondent will use this information to identify the appropriate remedial action alternatives to be evaluated. Respondent will use this information to help determine human health and ecological risk associated with the Local Aquifer Systems.

e. Define Contaminant Fate and Transport

Results of the physical characteristics, source characteristics, extent of contamination analyses, and other information as appropriate will be utilized in the analysis of contaminant fate and

transport of the release(s) associated with the Local Aquifer Systems. This evaluation will include determination of the actual and potential magnitude of releases from the sources identified at the Local Aquifer Systems, the horizontal and vertical spread of contamination and the mobility and persistence of contaminants in the Local Aquifer Systems specific environment. Where modeling is appropriate, such models shall be identified to EPA in a technical memorandum submitted at least 20 days prior to their use. All data and programming with respect to modeling, including any proprietary programs, shall be made available to EPA together with a sensitivity analysis.

**Site Characterization/RI Deliverables:**

Respondent shall provide EPA with the following deliverables as part of the RI:

a. Technical Memorandum on Modeling of Local Aquifer Systems Characteristics (Interim Deliverable)

Where Respondent proposes that modeling is appropriate, Respondent shall submit a technical memorandum on proposed modeling of the Local Aquifer Systems characteristics, as described in and within the time frame specified in the RI/FS Work Plan.

b. Preliminary Site Characterization Summary (RI/FS Guidance, Section 3.7.2)

After completing field sampling and analysis, Respondent will prepare a concise Local Aquifer Systems characterization summary. This summary will review the investigative activities that have taken place and describe and display Local Aquifer Systems data documenting the location and characteristics of surface and subsurface features and contamination at the Site, including the affected medium, location, types, physical state, concentration of contaminants, and quantity. In addition, the location, dimensions, physical condition, and varying concentrations of each contaminant throughout each source and the extent of contaminant migration through each of the affected media will be documented. The Local Aquifer Systems characterization summary will provide EPA with a preliminary reference that Respondent will use to develop the risk assessment and evaluate the development and screening of remedial alternatives and the refinement and identification of ARARs. Respondent shall submit a Local Aquifer Systems characterization summary to EPA within the time frame specified in the RI/FS Work Plan.

c. Technical Memorandum recommending early action regarding source control/plume reduction (Interim Deliverable)

A technical memorandum documenting any proposed early action(s) for the Local Aquifer Systems, as determined appropriate based on investigation activities, will be submitted to EPA. The technical memorandum will document how the situation meets the National Contingency Plan ("NCP") criteria for initiating a removal action. The technical memorandum will provide detailed information pertaining to the Local Aquifer Systems background and threats to public health, welfare, or the environment posed by the Local Aquifer Systems, including expected

changes in the situation if no action is taken or if the action is delayed. The technical memorandum will include projected costs for the actions outlined therein. Respondent shall submit this technical memorandum within the time frame specified in the RI/FS Work Plan.

A separate technical memorandum will be prepared to identify early action(s) for the Breen Property that may be in addition to, or separate from, the early actions proposed for the Local Aquifer Systems. The early action technical memorandum for the Breen Property will be consistent with the early action technical memorandum for the Local Aquifer Systems.

d. Remedial Investigation (RI) Report (RI/FS Guidance, Section 3.7.3) (Major Deliverable)

Respondent will prepare and submit a Draft Remedial Investigation Report ("RI Report") to EPA for review and approval. The RI Report shall be consistent with the SOW, the RI/FS Work Plan, and the RI/FS SAP and shall summarize results of field activities to characterize the Local Aquifer Systems, sources of contamination, nature and extent of contamination, and the fate and transport of contaminants. The RI Report will also include, to the extent sufficient data is available, a graphical representation of the contaminant plume depicting depth, areal extent, various iso-concentration lines, water elevation contours, and groundwater flow direction. Respondent will use the RI/FS Guidance for an outline of the report format and contents. Respondent shall submit the Draft RI Report within the time frame specified in the RI/FS Work Plan.

e. Baseline Risk Assessment (Major Deliverable)

Respondent will complete a risk assessment in accordance with applicable EPA guidance to estimate the impacts that contamination associated with the Local Aquifer Systems may have on human health and the environment. The risk assessment will address potential acute and chronic effects of the contamination associated with Local Aquifer Systems in order to develop site-specific cleanup levels that eliminate a human health hazard and are protective of the environment.

The Risk Assessment will be conducted in close coordination with EPA to ensure that the DQOs are met. Respondent shall communicate with EPA, through meetings, presentations and conference calls, as Respondent develops the scope of work for the Risk Assessment, including identifying the assumptions that will be used, as Respondent gathers data for the Risk Assessment, as Respondent interprets and evaluates such data, and as Respondent evaluates and develops risk scenarios. EPA retains the right to conduct the risk assessment if Respondent fails to follow the necessary risk assessment processes or guidances required for a Superfund Site or if Respondent fails to submit data to EPA in the proper format.

**Subtask E.4. Conduct Treatability Studies (RI/FS Guidance, Chapter 5)**

If appropriate, treatability testing will be performed by Respondent to assist in the detailed analysis of alternatives. Respondent will identify in a technical memorandum, subject to EPA

review and approval, candidate technologies for a treatability studies program during project planning/scoping and during the preparation of the RI Report. The listing of candidate technologies will cover the range of technologies required for an alternatives analysis for the Local Aquifer Systems and/or the Breen Property. The specific data requirements for the testing program will be determined and refined during RI field investigation and evaluation and the development and screening of remedial alternatives.

a. Conduct Literature Survey and Determine the Need for Treatability Testing (RI/FS Guidance, Chapter 5.2)

Respondent will conduct a literature survey to gather information of performance, relative costs, applicability, removal efficiencies, operation and maintenance (O&M) requirements, and implementability of candidate technologies. If practical candidate technologies have not been sufficiently demonstrated, or cannot be adequately evaluated for the Local Aquifer Systems on the basis of available information, treatability testing will be conducted. Where it is determined by EPA that treatability testing in required, and unless Respondent can demonstrate to EPA's satisfaction that they are not needed, Respondent will submit a statement of work to EPA outlining the steps and data necessary to evaluate and initiate the treatability testing program.

b. Evaluation of Treatability Studies (RI/FS Guidance, Chapter 5.4)

Once a decision has been made to perform treatability studies, Respondent and EPA will decide on the type of treatability testing to use (e.g., bench versus pilot). Because of the time required to design, fabricate, and install pilot scale equipment as well as perform testing for various operating conditions, the decision to perform pilot testing should be made as early in the process as possible to minimize potential delays of the FS. To assure that a treatability testing program is completed on time, and with accurate results, Respondent will either submit a separate Treatability Testing Work Plan ("TT Work Plan") or an amendment to the original RI/FS Work Plan for EPA review and approval.

**Treatability Testing Deliverables (RI/FS Guidance, Chapters 5.5; 5.6; 5.8)**

The deliverables that are required, in addition to identifying candidate technologies, where treatability testing is conducted include a TT Work Plan or revised RI/FS Work Plan, a Treatability Testing Sampling and Analysis Plan ("TT SAP"), and a Draft and Final Treatability Evaluation Report. EPA may also require a Treatability Study Health and Safety Plan (TT HASP) or revised RI/FS HASP, where appropriate.

a. Treatability Testing Work Plan (RI/FS Guidance, Chapter 5.5) (Major Deliverable)

Respondent will prepare a TT Work Plan or amendment to the original RI/FS Work Plan for EPA review and approval describing the Local Aquifer Systems background, remedial technology(ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested,

measurements of performance, analytical methods, data management and analysis, health and safety, and residual waste management. The DQOs for treatability testing should be documented as well.

If pilot scale treatability testing is to be performed, the TT Work Plan or revised RI/FS Work Plan will describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, operating conditions to be tested, a sampling plan to determine pilot plant performance, and a detailed health and safety plan. If testing is to be performed off-site, permitting requirements will be addressed. Respondent shall submit the TT Work Plan or revised RI/FS Work Plan within the time frame specified in the RI/FS Work Plan or as agreed to by EPA.

b. Treatability Testing Sampling and Analysis Plan (TT SAP) (RI/FS Guidance, Chapter 5.5) (Major Deliverable)

If the original QAPP or FSP is not adequate for defining the activities to be performed during the treatability testing, a separate Treatability Testing SAP ("TT SAP") or amendment to the original RI/FS SAP will be prepared within the time frame specified in the RI/FS Work Plan or as agreed to by EPA.

c. Treatability Testing Health and Safety Plan (RI/FS Guidance, Chapter 5.5) (Interim Deliverable)

If the RI/FS health and safety plan is not adequate for defining the activities to be performed during the treatment testing, a separate or amended Treatability Testing health and safety plan will be developed by Respondent within the time frame specified in the RI/FS Work Plan or as agreed to by EPA.

d. Treatability Testing Evaluation Report (RI/FS Guidance, Chapter 5.6) (Interim Deliverable)

Following completion of treatability testing, Respondent will analyze and interpret the testing results in a Draft Treatability Testing Report ("Treatability Report") submitted to EPA for review and comment. Depending on the sequence of activities, the Treatability Report may be a part of the Final RI/FS Report or a separate deliverable. The Treatability Report will evaluate each technology's effectiveness, implementability, cost, and actual results as compared with predicted results. The Treatability Report will also evaluate full-scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

### Subtask E.5. Development and Screening of Remedial Alternatives (RI/FS Manual, Chapter 4)

The development and screening of remedial alternatives is performed to develop an appropriate range of cleanup options that will be evaluated. This range of alternatives should include, as appropriate: (1) options in which treatment is used to reduce the toxicity, mobility, or volume of contaminants but varying in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated contamination are managed; (2) options involving containment with little or no treatment; (3) options involving both treatment and containment; and (4) a no-action alternative. The following activities will be performed by Respondent as a function of the development and screening of remedial alternatives.

Respondent will begin to develop and evaluate a range of appropriate cleanup options that, at a minimum, ensure protection of human health and the environment, concurrent with the RI Site characterization effort.

a. Refine and Document Remedial Action Objectives (RI/FS Guidance, Section 4.2.1)

Based on the baseline risk assessment, Respondent will review and, if necessary, modify the Local Aquifer Systems specific remedial action objectives, specifically the PRGs, that were established by EPA prior to or during negotiations between EPA and Respondent. The revised PRGs will be documented in a technical memorandum that will be reviewed and approved by EPA. These modified PRGs will specify the contaminants and media of interest, exposure pathways and receptors, and an acceptable contaminant level or range of levels (at particular locations for each exposure route).

b. Develop General Response Actions (RI/FS Guidance, Section 4.2.2)

Respondent will develop general response actions for each medium of interest defining containment, treatment, excavation, pumping, or other actions, singly or in combination, to satisfy the remedial action objectives.

c. Identify Areas or Volumes of Media (RI/FS Guidance, Section 4.2.3)

Respondent will identify areas or volumes of media to which general response actions may apply, including on the Breen Property, taking into account requirements for protectiveness as identified in the remedial action objectives. The chemical and physical characterization of the Local Aquifer Systems will also be taken into account.

d. Identify, Screen, and Document Remedial Technologies (RI/FS Guidance, Sections 4.2.4; 4.2.5)

Respondent will identify and evaluate technologies applicable to each general response action to eliminate those that cannot be implemented for releases associated with the Local Aquifer Systems. Respondent will also evaluate technically feasible alternatives for providing drinking water to the residences that have concentrations of PCE in water supply wells screened in the shallow aquifer. General response actions will be refined to specify remedial technology types. Technology process options for each of the technology types will be identified either concurrent with the identification of technology types or following the screening of the considered technology types. Process options will be evaluated on the basis of effectiveness, implementability, and cost factors to select and retain one or, if necessary, more representative processes for each technology type. The technology types and process options will be summarized for inclusion in a technical memorandum. The reasons for eliminating alternatives must be specified.

e. Assemble and Document Alternatives (RI/FS Guidance, Section 4.2.6)

Respondent will assemble selected representative technologies into alternatives for each affected medium and/or contaminant. Together, all of the alternatives will represent a range of treatment and containment combinations that will address releases associated with the Local Aquifer Systems. A summary of the assembled alternatives and their related action-specific ARARs will be prepared by Respondent for inclusion in a technical memorandum. The reasons for eliminating alternatives during the preliminary screening process must be specified.

f. Refine Alternatives

Respondent will refine the remedial alternatives to identify contaminant volumes addressed by the proposed process. Sufficient information will be collected for an adequate comparison of alternatives. PRGs for each chemical in each medium will also be modified as necessary to incorporate any new risk assessment information presented in the Local Aquifer Systems baseline risk assessment report. Additionally, action-specific ARARs will be updated as the remedial alternatives are refined.

g. Conduct and Document Screening Evaluation of Each Alternative (RI/FS Guidance, Section 4.3)

Respondent may perform a final screening process based on short- and long-term aspects of effectiveness, implementability, and relative cost. Generally, this screening process is only necessary when there are many feasible alternatives available for detailed analysis. If necessary, the screening of alternatives will be conducted to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis. As appropriate, the screening will preserve the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives will include options that use treatment technologies and permanent solutions to the maximum extent practicable. Respondent will

prepare a technical memorandum summarizing the results and reasoning employed in screening, arraying alternatives that remain after screening, and identifying the action-specific ARARs for the alternatives that remain after screening.

**Alternatives Development and Screening Deliverable (RI/FS Guidance, Section 4.5)**

Respondent will prepare a technical memorandum summarizing the work performed in and the results of each task above, including an alternatives array summary. These will be modified by Respondent if required by EPA's comments to assure identification of a complete and appropriate range of viable alternatives to be considered in the detailed analysis. This deliverable will document the methods, rationale, and results of the alternatives screening process.

**Subtask E.6. Detailed Comparative Analysis of Remedial Alternatives (RI/FS Guidance, Chapter 6)**

The detailed analysis will be conducted by Respondent to provide EPA with the information needed to allow for the selection of a cleanup action to respond to releases of hazardous substances associated with the Local Aquifer Systems. This analysis is the final task to be performed by Respondent during the FS. Respondent will conduct a detailed analysis of alternatives which will consist of an analysis of each option against the set of nine (9) evaluation criteria and a comparative analysis of all options against each other using the same evaluation criteria as a basis for comparison.

a. Apply Nine Criteria and Document Analysis (RI/FS Guidance, Section 6.2.1 - 6.2.4)

Respondent will apply nine (9) evaluation criteria to the assembled remedial alternatives to ensure that the selected remedial alternative will: (1) be protective of human health and the environment; (2) be in compliance with, or include a waiver of, ARARs; (3) be cost-effective; (4) utilize permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable; and (5) address the statutory preference for treatment as a principal element. The evaluation criteria include: (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume; (5) short-term effectiveness; (6) implementability; (7) costs; (8) state (or support agency) acceptance; and (9) community acceptance. (Note: Criteria 8 and 9 are considered by EPA after the RI/FS report has been released to the general public.) For each alternative, Respondent should provide: (1) a description of the alternative that outlines the waste management strategy involved and identifies the key ARARs associated with each alternative; and (2) a discussion of the individual criterion assessment.

b. Compare Alternatives Against Each Other and Document the Comparison of Alternatives (RI/FS Guidance, Section 6.2.5; 6.2.6)

Respondent will perform a comparative analysis between the remedial alternatives. That is, each alternative will be compared against the others using the evaluation criteria as a basis of comparison. EPA will identify and select the preferred alternative. Respondent will prepare a technical memorandum summarizing the results of the comparative analysis.

**Detailed Comparative Analysis of Remedial Alternatives Deliverables (RI/FS Guidance, Section 6.5)**

a. Comparative Analysis

Respondent will submit a technical memorandum that presents the detailed comparative analysis of alternatives. Respondent shall submit the technical memorandum within the time frame specified in the RI/FS Work Plan.

b. Feasibility Study Report (RI/FS Guidance, Section 6.5)

Respondent will prepare a Draft FS Report that combines the alternatives development and screening, the detailed comparative analysis, and the results of Respondent's comparative risk analysis. The FS Report, as ultimately adopted or amended by EPA, and the administrative record, provides a basis for remedy selection by EPA and documents the development and analysis of remedial alternatives. Respondent will refer to the RI/FS Guidance for an outline of the report format and the required report content. Respondent shall submit the Draft FS Report within the time frame specified in the RI/FS Work Plan or as amended by EPA.

**SOW Deliverables Summary and Schedule**:

All deliverables will be provided in draft format for EPA review and approval prior to finalization. EPA reserves the right to comment on, modify, and direct changes for all deliverables. At EPA's discretion, Respondent must fully correct all deficiencies and incorporate and integrate all information and comments supplied by EPA either in subsequent or resubmitted deliverables. EPA will make the decision (e.g., either to have Respondent resubmit the deliverable or address the deficiency or comment in a subsequent deliverable) and direction clear when providing comments in writing to Respondent on each draft deliverable. If EPA disapproves of, or requires revisions in whole or in part, to any deliverable or submittal identified in this SOW as a "Major Deliverable" from Respondent, Respondent shall amend and submit to EPA a revised draft submittal or deliverable which is responsive to the directions in all EPA comments within twenty-one (21) calendar days of receiving EPA's written comments. If EPA disapproves of, or requires revisions in whole or in part, to any other deliverable or submittal which is not a "Major Deliverable," identified in this SOW as an "Interim Deliverable," Respondent shall amend and submit to EPA a revised draft submittal or deliverable which is responsive to the directions in all EPA written comments within fourteen (14) calendar days of receiving EPA's comments. Following approval or modification by EPA, all final deliverables or submittals shall become incorporated by reference into this SOW and shall be enforceable by EPA through the RI/FS Consent Order.

Items preceded by * and underlined are considered "major deliverables". All days listed below are considered calendar days unless otherwise noted.

| DELIVERABLE | DUE DATE |
|---|---|
| * Project Management Plan | Within 30 days of signed AOC |
| * Project Schedule | Within 30 days of signed AOC |
| Monthly Reports | By the 10th of each month, starting first month after signing of AOC |
| Meeting Minutes | Within 5 days of each meeting |
| Phase I Work Plan | Within 30 days of signed AOC |
| Phase I Sampling and Analysis Plan | Within 30 days of signed AOC |

| | |
|---|---|
| Phase I Health and Safety Plan | Within 30 days of signed AOC |
| * Drinking Water Monitoring Plan | Within 60 days of signed AOC |
| Drinking Water Monitoring Results Report(s) | Within 15 days of receipt of final QA/QC and verified analytical results |
| Letter report(s) regarding private water supply well sampling results | With Drinking Water Monitoring Reports |
| Thurman well semi-annual reports | TBD |
| *Draft RI/FS Work Plan | Within 60 days of receipt of Phase I Investigation final QA/QC analytical data |
| *Final RI/FS Work Plan | Within 20 days of written comments from EPA |
| *Draft/Final RI/FS Sampling and Analysis Plan | With RI/FS Work Plan |
| Laboratory QA Program and Assurances | 30 days prior to sample collection |
| Notification of field sampling or characterization event | 14 days in advance of event via telephone and e-mail |
| Notification of field activities completion | Within 5 days of completion of field work via telephone and e-mail |
| *Draft/Final RI/FS Health and Safety Plan | TBD (in RI/FS WP) |

| | |
|---|---|
| Technical Memorandum: Modeling of Local Aquifer Systems Characteristics | TBD (in RI/FS WP as modified by field conditions and approved by EPA) |
| Technical Memorandum: Source to Thurman Well | TBD |
| Technical Memorandum: Source Control/ Early Action-Local Aquifer Systems | TBD (in RI/FS WP) |
| Technical Memorandum: Source Control/Early Action-Breen Property | TBD (in RI/FS WP) |
| Preliminary Site Characterization Summary | TBD (in RI/FS WP) |
| *Draft/Final Remedial Investigation (RI) Report and Draft/Final Baseline Risk Assessment | TBD (in RI/FS WP) |
| *Draft/Final Treatability Testing Work Plan | TBD (in RI/FS WP) |
| *Draft/Final Treatability Study Sampling and Analysis Plan | TBD (in RI/FS WP) |
| Treatability Testing Health and Safety Plan | TBD (in RI/FS WP) |
| Draft/Final Treatability Study Evaluation Report | TBD (in RI/FS WP) |
| Draft/Final Technical Memorandum: Revised Preliminary Remediation Goals | TBD (in RI/FS WP) |
| Draft/Final Technical Memorandum: Alternatives Development and Screening and Comparative Analysis | TBD (in RI/FS WP) |
| *Draft/Final Feasibility Study Report | TBD (in RI/FS WP) |

## REFERENCES FOR CITATION

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RI/FS process:


The (revised) National Oil and Hazardous Substance Pollution Contingency Plan (NCP).

"Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive No. 9355.3-01.

"Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA," U.S. EPA, Office of Emergency and Remedial Response, August 1993, OSWER Directive No. 9360.0-32.

"Interim Guidance on Potentially Responsible Party Participation in Remedial Investigation and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, Appendix A to OSWER Directive No. 9355.3-01.

"Guidance on Oversight of Potentially Responsible Party Remedial Investigations and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, OSWER Directive No. 9835.3.

"A Compendium of Superfund Field Operations Methods," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.

"EPA NEIC Policies and Procedures Manual," May 1978, revised November 1984, EPA-330/9-78-991-R.

"Data Quality Objectives for Remedial Response Activities," U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March 1987, OSWER Directive No. 9335.0-7B.

"EPA Requirements for Quality Management Plans," U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA QA/R-2, Interim Final, November 1999.

"EPA Requirements for Quality Assurance Plans," U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA QA/R-5, Interim Final, November 1999.

"EPA Guidance on Quality Assurance Project Plans," U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/600/R-98/018, February 1998.

"Users Guide to the EPA Contract Laboratory Program, U.S. EPA, Sample Management Office, August 1982.

"Interim Guidance on Compliance with Applicable or Relevant and Appropriate Requirements," U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.

"CERCLA Compliance with Other Laws Manual," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (draft), OSWER Directive No. 9234.1-01 and -02.

"Guidance on Remedial Actions for Contaminated Groundwater at Superfund Sites," U.S. EPA, Office of Emergency and Remedial Response, (draft), OSWER Directive No. 9283.1-2.

"Draft Guidance on Preparing Superfund Decision Documents," U.S. EPA, Office of Emergency and Remedial Response, March 1988, OSWER Directive No. 9355.3-02.

"Guidance for Data Usability in Risk Assessment," October 1990, EPA/540/G-90/008.

"Performance of Risk Assessments in Remedial Investigation/ Feasibility Studies (RI/FSs) Conducted by Potentially Responsible Parties (PRPs)," August 28, 1990, OSWER Directive No. 9835.15.

"Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions," April 22, 1991, OSWER Directive No. 9355.0-30.

"Health and Safety Requirements of Employees Employed in Field Activities," U.S. EPA, Office of Emergency and Remedial Response, July 12, 1981, EPA Order No. 1440.2.

OSHA Regulations in 29 CFR 1910.120 (Federal Register 45654, December 19, 1986).

"Interim guidance on Administrative Records for Selection of CERCLA Response Actions," U.S. EPA, Office of Waste Programs Enforcement, March 1, 1989, OSWER Directive No. 9833.3A.

"Community Relations in Superfund: A Handbook," U.S. EPA, Office of Emergency and Remedial Response, June 1988, OSWER Directive No. 9320.0-03B.

"Community Relations During Enforcement Activities and Development of the Administrative Record," U.S. EPA, Office of Waste Programs Enforcement, November 1988, OSWER Directive No. 9836.0-1A.

"Interim Guidance on Implementing the Superfund Administrative Reform on PRP Oversight," U.S. EPA, Office of Emergency and Remedial Response and Office of Site Remediation Enforcement, May 17, 2000, OSWER Directive No. 9200.0-32P.