

APPENDIX A  
STATEMENT OF WORK

**STATEMENT OF WORK  
FOR A REMEDIAL INVESTIGATION AND FEASIBILITY STUDY  
AT THE ASHLAND/NORTHERN STATES POWER LAKEFRONT SITE  
ASHLAND, ASHLAND COUNTY, WISCONSIN**

**I. BACKGROUND**

1. What has come to be known as the Ashland/Northern States Power Lakefront Site (Site) under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 (CERCLA/SARA or Superfund), was first identified by a property investigation concerning expansion of the City of Ashland's waste water treatment plant. The investigation revealed soil, wood fill, and groundwater contamination by hazardous substances including, but not limited to, benzene, xylene, benzo(a)pyrene, and naphthalene. Subsequently, the plan for waste water treatment plant expansion in that location was abandoned and the State of Wisconsin Department of Natural Resources (WDNR) followed-up on the property contamination situation.
2. In 1994, WDNR contracted with the firm Short Elliot Hendrickson, Inc. (SEH) to perform a more detailed characterization of the subject property. A historic review was performed and potential contaminant source areas were identified. Pursuant to State law, WDNR issued notification of potential responsibility to the owners of the contaminated property including: the City of Ashland; the Wisconsin Central Railroad; and Northern States Power Company (d.b.a. Xcel Energy, a subsidiary of Xcel Energy Inc.). Since that time, WDNR and Northern States Power Company (NSP) have conducted numerous investigations on portions of the contaminated properties and nearby offshore sediments.
3. In December 2000, the subject property was proposed for the National Priorities List. Based on data collected from the aforementioned investigations, the subject property was added to the National Priorities List in September 2002. The United States Environmental Protection Agency's (EPA's) Contaminated Sediments Technical Advisory Group (CSTAG) reviewed the available information on the Site and provided recommendations based on EPA's Directive 9285.6-08, *Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites* (February 12, 2002). This guidance is to assist site managers make scientifically sound and nationally consistent risk management decisions at contaminated sediment sites.
4. Due to the historic involvement of WDNR in the investigation of this site under state law, and pursuant to a Cooperative Agreement with EPA, EPA intends to consult regularly with WDNR and to seek WDNR input on key decisions and approvals that EPA issues pursuant to the AOC and this SOW.

## **II. PURPOSE**

1. This Statement of Work (SOW) sets forth the requirements for conducting a supplemental Remedial Investigation and Feasibility Study (RI/FS) at the Site. It is considered a supplemental RI/FS because WDNR, through its State authorities and under a cooperative agreement with EPA, and the Respondent, have already completed a significant portion of work that can be utilized in an RI/FS pursuant to Superfund.
2. This SOW defines the necessary steps to complete an RI/FS pursuant to Superfund, addressing the CSTAG recommendations, and utilizing the existing Site data set to the greatest extent practicable. That is, all of the historic data collected pursuant to the City of Ashland's original property investigation work, WDNR's contaminant investigation work, as well as NSP's contaminant investigation work, data previously validated by EPA, and any other technical reports available in the peer-reviewed published literature, shall be utilized qualitatively or quantitatively, depending upon the particular data's level of quality assurance/quality control levels (e.g., as referenced against EPA's requirements as defined in *Guidance for Data Useability in Risk Assessment (Part A) Final* (PB92-963356, April 1992).
3. It is expected that this RI/FS can be expedited and streamlined because of the pre-existing data set and in-depth knowledge already established by WDNR and the Respondent. The Respondent shall utilize, to the extent practicable, previously existing documents to help expedite the work.
4. As this RI/FS work is a continuation of an extensive investigation coordinated by the WDNR and the Respondent, this work is specifically focused on filling the CSTAG, WDNR, and EPA identified data gaps, determining the degree and extent of contamination, and completing risk assessments in accordance with the most recent EPA guidance.
5. While the SOW is designed to focus on four areas, the upper bluff/filled ravine, the Copper Falls Formation, Kreher Park, and the Chequamegon Bay sediments, the Work will include any areas where site-related hazardous substances, pollutants or contaminants have or may have come to be located.
6. The RI Report shall fully evaluate the nature and extent of hazardous substances, pollutants or contaminants at or from the Site. The RI Report shall also assess the risk these hazardous substances, pollutants or contaminants present to human health and the environment. The RI Report shall provide sufficient data to develop and evaluate effective remedial alternatives. The FS Report shall evaluate alternatives for addressing the impact to human health and the environment from hazardous substances, pollutants or contaminants at the Site.
7. The RI/FS shall comply with requirements and guidance for RI/FS studies and reports, the Comprehensive Environmental Response, Compensation and Liability

Act (CERCLA), as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR Part 300) as amended. At a minimum, the Respondent shall prepare and complete the RI and FS Reports consistent with the *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (EPA/540/G-89/004, October 1988) (RI/FS Guidance), and any other guidance that the EPA uses in conducting or submitting deliverables for a RI/FS, as well as any additional requirements in the AOC. The RI/FS Guidance describes the report format and the required report content. Exhibit A sets forth a partial list of guidance used by EPA for a RI/FS.

8. The Respondent shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RI/FS at the Site, except as otherwise specified herein.
9. As specified in CERCLA Section 104(a)(1), as amended by SARA, EPA will provide oversight of the Respondent's activities throughout the RI/FS, including all field sampling activities. The Respondent shall support EPA's initiation and conduct of activities related to the implementation of oversight activities.
10. At the completion of the RI/FS, EPA, in consultation with WDNR, will be responsible for the selection of a Site remedy and will document this selection in a Record of Decision (ROD). The remedial action selected by EPA will meet the cleanup standards specified in CERCLA Section 121. That is, the selected remedial action will be protective of human health and the environment, will be in compliance with, or include a waiver of, applicable or relevant and appropriate requirements of other laws, will be cost-effective, will use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable, and will address the statutory preference for treatment as a principal element. The final RI and FS Reports as adopted by EPA will, with the administrative record, form the basis for the selection of the Site's remedy and will provide the information necessary to support the development of the ROD.

### **III. DOCUMENT REVIEW**

1. The Respondent shall submit all documents or deliverables required as part of this SOW to the EPA, with a copy to WDNR, for review by the agencies and approval by EPA. After review of any plan, report or other submittal/deliverable which is required to be submitted for approval pursuant to the AOC, EPA, after reasonable opportunity for review and comment by the WDNR, may:
  - A. Approve, in whole or in part, the submission;
  - B. Approve the submission upon specified conditions;
  - C. Modify the submission to cure the deficiencies;

- D. Disapprove, in whole or in part, the submission, directing the Respondent to modify the submission; or
  - E. Any combination of the above to conform the submission to the requirements of the AOC, SOW, NCP or EPA guidance.
2. If EPA requires revisions, EPA shall follow the process set forth in Paragraph 21 of the AOC.
3. Electronic Data Management and Analysis Network (EDMAN) is a new data management system being used by the Superfund Division of EPA Region 5 that will allow the Respondent to submit Superfund data electronically. All data collected after the Effective Date of the AOC shall be submitted on a 3.5” diskette, a ZIP™ or ZIP™-compatible disk, or a CD. As specified elsewhere in this SOW, regularly required hard copies of all reports and data summaries will also be sent to the attention of the EPA RPM and WDNR Project Manager. However, in addition, the electronic data must also be submitted on the 3.5” diskette, a ZIP™ or ZIP™-compatible disk, or a CD to the following address, with a cover letter:

EDMAN Data Coordinator  
United States EPA (S-6J)  
77 West Jackson Blvd.  
Chicago, IL 60604.

The cover letter should include:

- Site name, data collection dates, and contact person;
- Explanations about any errors detected and about any revisions to data submitted previously; and
- Any proposed additions to the list of valid values.

The EPA RPM and WDNR Project Manager should also receive a copy of the cover letter.

All of the electronic data requirements are specified at:

<http://www.epa.gov/region5/superfund/edman>

The Respondent can download the Superfund Electronic Data Deliverable Specification Manual from that website.

#### **IV. SCOPE**

Respondent shall complete the following tasks as part of this RI/FS:

Task 1: Project Scoping and RI/FS Planning Documents (see A, B, and C as follows);

Task 2: Community Relations Support, as requested;

Task 3: Site Characterization (the Remedial Investigation);

Task 4: Remedial Investigation Report (including human health and ecological risk assessment);

Task 5: Development and Screening of Alternatives (Technical Memorandum);

Task 6: Treatability Studies;

Task 7: Detailed Analysis of Alternatives (FS Report); and

Task 8: Progress Reports

Details regarding the aforementioned eight (8) tasks are specified as follows:

**TASK 1: PROJECT SCOPING AND RI/FS PLANNING DOCUMENTS**

(A) Technical Letter Report:

1. WDNR had previously contracted with Short Elliott Hendrickson, Inc. (SEH) to complete an RI/FS Work Plan, based on the data gaps identified by WDNR, EPA, and the CSTAG. As such, SEH has prepared an RI/FS Work Plan. The Respondent shall be provided with the WDNR/SEH RI/FS Work Plan no later than seven (7) days after the Effective Date of the AOC.
2. The Respondent has also prepared an RI/FS Work Plan through its contractor, URS. Within thirty (30) days of receipt of the WDNR/SEH Work Plan, the Respondent shall submit a Technical Letter Report to EPA with a copy to WDNR. This Technical Letter Report is not subject to “approval” by EPA and WDNR. Instead, it will serve as the basis for technical discussions at the Technical Scoping Meeting described in (B), below.
3. The Technical Letter Report will contain a concise description of the similarities and differences between the WDNR/SEH Work Plan and the URS RI/FS Work Plan, with regard to field data collection tasks, conceptual site models, and other tasks necessary for completion of an RI/FS at this Site. The Technical Letter Report will not include any qualitative commentary on site histories and descriptions and analysis of previously collected data. Final descriptions of the Site, its history, and analysis of previously collected data will be made in the RI/FS Report. The variations in descriptions present in these two RI/FS Work Plans are not based on the sum total of all of the data and as such, it is expected that all parties will not agree on the precise language and interpretation of data at this time. The goal of the Technical Letter Report instead, is to:
  - a) Provide a factual summary of the existing historical data and each data set’s usage (e.g., qualitative or quantitative) in completing the RI/FS; and
  - b) Identify the technical similarities and differences in the WDNR/SEH and URS

Work Plans for the purpose of identifying/addressing data gaps.

(B) Technical Scoping Meeting:

1. The Respondent's Technical Letter Report will serve as the basis for the Technical Scoping Meeting.
2. EPA, WDNR, and the Respondent will attempt to hold the Technical Scoping Meeting within seven (7) to fourteen (14) business days of EPA's receipt of the Respondent's Technical Letter Report.
3. The goal of the Technical Scoping meeting is to resolve any major technical discrepancies between the two RI/FS Work Plans. That is, precise language describing the site, describing or interpreting previous data will not be discussed. Instead, the meeting will focus on the future use of the various sets of historical data based on its QA/QC; types of field data collection to be performed to address the identified data gaps; the data gaps themselves, and the conceptual site models.
4. EPA will provide the Respondent with a meeting summary subsequent to the Technical Scoping Meeting.

(C) Prepare and Submit Revised RI/FS Planning Documents (Work Plan/Field Sampling Plan/Quality Assurance Project Plan):

(1) General Requirements

- a. Within thirty (30) days of receipt of the Technical Scoping Meeting summary, Respondent will submit Revision 01 to its August 22, 2003 Draft RI/FS Work Plan, based upon its review of the WDNR/SEH Work Plan, its Technical Letter Report, and the agreements made during the Technical Scoping Meeting. This Work Plan will include: the RI/FS Work Plan with a project schedule, the Field Sampling Plan, the Quality Management Plan, and the Quality Assurance Project Plan. These documents will be submitted to EPA, with a copy to WDNR, for review by the agencies, and approval by EPA, pursuant to Section III, Document Review.
- b. The objective of the RI/FS Planning Documents is to develop an RI/FS strategy and general management plan that accomplishes the following:
  - A remedial investigation that determines the nature and extent of the release or threatened release of hazardous substances, pollutants, or contaminants at and from the Site. In performing this investigation, the Respondent shall gather sufficient data, samples, and other information to fully characterize the nature and extent of the contamination at the Site, to support the human health and ecological risk assessments, and to provide sufficient data for the identification and evaluation of remedial alternatives for this Site.

- A feasibility study that identifies and evaluates alternatives for the appropriate extent of remedial action necessary to prevent and/or mitigate the migration or the release or threatened release of hazardous substances, pollutants, or contaminants at and from the Site.
- When scoping the specific aspects of the project, the Respondent shall meet with EPA to discuss all significant project planning decisions and special concerns associated with the Site, if necessary.
- The RI/FS Planning Documents shall include a detailed description of the tasks the Respondent shall perform, the information needed for each task, a detailed description of the information the Respondent shall produce during and at the conclusion of each task, and a description of the work products that the Respondent shall submit to EPA and WDNR. This includes the deliverables set forth in this SOW; a schedule for each of the required activities consistent with the RI/FS Guidance and other relevant guidance; and a project management plan including a data management plan (e.g., requirements for project management systems and software, minimum data requirements, data format and backup data management), monthly reports to EPA and WDNR, and meetings and presentations to EPA and WDNR at the conclusion of each major phase of the RI/FS. The Respondent shall refer to Appendix B of the RI/FS Guidance for a description of the required contents of the RI/FS Planning Documents.
- The RI/FS Planning Documents shall include the preliminary objectives for the remedial action at the Site; preliminary potential state and federal ARARs (chemical-specific, location-specific and action-specific); a description of the Site management strategy developed by the Respondent and EPA during scoping; a preliminary identification of remedial alternatives; and data needs for fully characterizing the nature and extent of the contamination at the Site, evaluating risks and developing and evaluating remedial alternatives. The RI/FS Planning Documents shall reflect coordination with treatability study requirements, if any. The RI/FS Planning Documents shall also include a process for and manner of refining and/or identifying additional Federal and State ARARs, and for preparing the human health and ecological risk assessments and the feasibility study.

(2) Specific Requirements

- a. The Respondent shall develop the RI/FS Planning Documents as described in “Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA,” October, 1988 and shall include:

## i. Site Background

- A brief summary of the Site location, description, physiography, hydrology, geology, demographics, ecological, cultural and natural resource features, Site history, description of previous investigations and responses conducted at the Site by local, state, federal, or private parties, and Site data evaluations and project planning completed during the scoping process.
- The Site background section shall discuss areas of waste handling and disposal activities, the locations of existing groundwater monitoring wells, groundwater extraction wells, and previous surface water, sediment, soil, groundwater, and air sampling locations. The RI/FS Work Plan/Field Sampling Plan shall include a summary description of available data and identify areas where hazardous substances, pollutants or contaminants were detected and the detected levels. This includes the data in previous reports. The RI/FS Work Plan/Field Sampling Plan shall include tables displaying the minimum and maximum levels of detected hazardous substances, pollutants or contaminants in Site areas and media.

## ii. Work Plan/Field Sampling Plan

- The Work Plan/Field Sampling Plan (FSP) portion of the RI/FS Planning Documents shall be prepared to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and that the data meet the Site-specific Data Quality Objectives as established in the Quality Assurance Project Plan (QAPP) and FSP. All sampling and analyses performed shall conform to EPA direction, approval, and guidance regarding sampling, quality assurance/quality control (QA/QC), data validation, and chain of custody procedures. The Respondent shall ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with EPA guidance.
- Upon request by EPA, the Respondent shall have such a laboratory analyze samples submitted by EPA for quality assurance monitoring. The Respondent shall provide EPA with the QA/QC procedures followed by all sampling teams and laboratories performing data collection and/or analysis. The Respondent shall also ensure the provision of analytical tracking information consistent with OSWER Directive No. 9240.0-2B, *Extending the Tracking of Analytical Services to PRP-Lead Superfund Sites*.
- Upon request by EPA, the Respondent shall allow EPA or its authorized representatives to take split and/or duplicate samples of any samples collected by the Respondent or their contractors or agents. The Respondent shall notify EPA not less than fourteen (14) business days in

advance of any sample collection activity. EPA shall have the right to take additional samples that it deems necessary.

### iii. Data Gap Description/Data Acquisition

As part of the FSP, the Respondent shall continue its analysis of existing data, which was initiated pursuant to Task 1. The Respondent shall identify those areas of the Site and nearby areas that require further data and/or evaluation in order to define the extent of hazardous substances, pollutants or contaminants. This Section of the FSP shall include a description of the number, types, and locations of samples to be collected. The FSP shall include an environmental program to accomplish the following:

- Site Reconnaissance

The Respondent shall conduct site surveys which may include, but not be limited to: property, boundary, utility rights-of-way, and topographic to assist in map preparation; land surveys; topographic mapping; and field screening.

- Geological Investigations (Soils and Sediments)

The Respondent shall conduct geological investigations to determine the extent of hazardous substances, pollutants or contaminants in surface and subsurface soils and sediments at the Site, which may include, but not be limited to: surface and subsurface soil samples and borings, porosity and permeability sampling, soil gas surveys, test pits, and sediment sampling.

- Air Investigations

The Respondent shall conduct air investigations to determine the extent of atmospheric hazardous substances, pollutants or contaminants at and from the Site, which may include but not be limited to, collection of air samples, establishment of air monitoring stations, and preparation of wind roses.

- Hydrogeological Investigations (Groundwater)

The Respondent shall conduct hydrogeological investigations of groundwater to determine the horizontal and vertical distribution of hazardous substances, pollutants or contaminants in the groundwater and the extent, fate and transport of any groundwater plumes containing hazardous substances, pollutants or contaminants. The hydrogeological investigation may include but not be limited to: installation of well systems; collection of samples from upgradient, downgradient, private, and municipal wells; collection of samples during drilling (e.g., HydroPunch or equivalent); studies to ascertain the hydrologic

relationship between Lake Superior / Chequamegon Bay and the groundwater at the Site; hydraulic testing (e.g., pump tests, slug tests, grain size analyses, porosity, and permeability tests); piezometric testing (groundwater elevation) and the determination of regional and local groundwater flow; groundwater flow modeling; contaminant fate and transport modeling; and identification of local uses of groundwater including the number, location, depth and use of nearby private and municipal wells.

- Hydrogeological Investigations (Surface Water and Sediment)

The Respondent shall conduct hydrogeological investigations to determine the nature and extent of contamination of surface water and sediment from the Site. The hydrogeological investigation may include, but not be limited to: collection of surface water and sediment samples; performance of tidal or other hydrological studies; and surface water elevation measurements.

- Waste Investigation

All on-site solid waste, including hazardous waste, will likely be either investigation-derived waste or impacted media (e.g., contaminated soil, sediment, groundwater, and surface water). Therefore, it is expected that the waste investigation will only need to include characterization of the impacted media at the Site. If any other waste is found to remain on-Site, or any buildings or structures remain on-Site that may contain or be contaminated with solid waste, including hazardous waste, or hazardous substances, the Respondent shall also characterize such waste. The Respondent's work may include, but not be limited to: sampling of gases, liquids, and solids; and disposal of investigation-derived waste.

The Respondents shall characterize and dispose of investigation-derived wastes in accordance with local, state, and federal regulations (see the Fact Sheet, *Guide to Management of Investigation-Derived Wastes*, 9345.3-03FS (January 1992)).

- Geophysical Investigation

The Respondent may conduct geophysical investigations to delineate depths, thicknesses and volume of impacted media; the elevations of the underlying natural soil layer; and the extent of cover over fill areas. A geophysical investigation may include, but not be limited to: magnetometers surveys; electromagnetic surveys; ground-penetrating radar; seismic refraction; resistivity; meteorology; cone penetrometer survey; remote sensing; radiological investigations; test pits; trenches; and soil borings.

- Ecological Investigation

The Respondent shall conduct ecological investigations to assess the impact to aquatic and terrestrial ecosystems from the disposal, release and/or migration of hazardous substances, pollutants or contaminants at the Site which may include, but not be limited to: wetland and habitat delineation; wildlife observations; community characterization; identification of endangered species; biota sampling; and population studies.

- Treatability Studies

If the Respondent or EPA identifies remedial actions that involve treatment, the Respondent shall include treatability studies as outlined in Task 6 of this SOW unless the Respondent satisfactorily demonstrates to EPA that such studies are not needed. When treatability studies are needed, the Respondent shall plan initial treatability testing activities (such as research and study design) to occur concurrently with Site characterization activities.

#### iv. Quality Assurance Project Plan (QAPP)

- The Respondent shall prepare a QAPP that is Site-specific and covers sample analysis and data handling for samples collected during the RI, based on the Administrative Order on Consent and guidance provided by EPA.
- The Respondent shall prepare the QAPP in accordance with “EPA Requirements of Quality Assurance Project Plans (QA/R-5)” (EPA/240/B-01/003, March 2001) and “EPA Guidance for Quality Assurance Project Plans (QA/G-5)” (EPA/600/R-98/018, February 1998).
- The Respondent shall demonstrate in advance, 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 sampled within detection and quantification limits consistent with both QA/QC procedures and data quality objectives (DQO) approved in the QAPP for the Site by EPA. The laboratory must have and follow an approved QA program. If a laboratory not in the Contract Laboratory Program (CLP) is selected, methods consistent with CLP methods that would be used at this Site for the purposes proposed and QA/QC procedures approved by EPA shall be used. The Respondent shall only use laboratories which have a documented Quality Assurance Program which complies with ANSI/ASQC E-4 1994, “Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental

Technology Programs,” (American National Standard, January 5, 1995) and “EPA Requirements for Quality Management Plans (QA/R-2)” (EPA/240/B-01-002, March 2001) or equivalent documentation as determined by EPA.

- The Respondent shall participate in a pre-QAPP meeting or conference call with EPA, if either party deems it necessary. The purpose of this meeting or conference call is to discuss QAPP requirements and obtain any clarification needed to prepare the QAPP.

v. Health and Safety Plan

- The Respondent shall prepare a Health and Safety Plan that conforms to its health and safety program and complies with the Occupational Safety and Health Administration (OSHA) regulations and protocols outlined in Title 29 of the Code of Federal Regulations (CFR), Part 1910.
- The Health and Safety Plan shall 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.
- EPA does not "approve" the Respondent's Health and Safety Plan, but rather EPA reviews it to ensure that all the necessary elements are included, and that the plan provides for the protection of human health and the environment, and after that review provides comments as may be necessary and appropriate.
- The safety plan must, at a minimum, follow the EPA's guidance document *Standard Operating Safety Guides* (Publication 9285.1-03, PB92-963414, June 1992).

**TASK 2: COMMUNITY RELATIONS SUPPORT**

- EPA and WDNR have the responsibility of developing and implementing community relations activities for the Site. The critical community relations planning steps performed by EPA and WDNR include conducting community interviews and developing a Community Relations Plan.
- Although implementing the Community Relations Plan is the responsibility of EPA and WDNR, the Respondent, if directed by EPA, shall assist by providing information regarding the Site's history; participating in public meetings; assisting in preparing fact sheets for distribution to the general public; or conducting other activities approved by EPA.

- All PRP-conducted community relations activities, conducted pursuant to the EPA and WDNR Community Relations Plan, shall be planned and developed in coordination with EPA and WDNR.

### **TASK 3: SITE CHARACTERIZATION**

#### (A) Investigate and Define Site Physical and Biological Characteristics

- i. The Respondent shall collect data on the physical and biological characteristics of the Site and its surrounding areas including the physical physiography, geology, and hydrology, and specific physical characteristics identified in the 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.
- ii. In defining the Site's physical characteristics and in the event existing data proves insufficient for an engineering evaluation, the 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.

#### (B) Define Sources of Contamination

- i. The Respondent shall characterize the media on the Site for sources of contamination. For the Site, Respondent shall determine the areal extent and depth of contamination by sampling at incremental depths on a sampling grid or otherwise defined in the approved Work Plan.
- ii. The Respondent shall determine the physical characteristics and chemical constituents and their concentrations for all known and discovered sources of contamination at the Site.
- iii. The Respondent shall conduct sufficient sampling to define the boundaries of the contaminant sources to the level established in the QAPP and DQOs.
- iv. Defining the source of contamination 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 appropriate treatment technologies.

#### (C) Describe the Nature and Extent/Fate and Transport of Contamination

The Respondent shall gather information to describe the nature and extent of contamination as a final step during the field investigation. To describe the nature and extent of contamination, the Respondent will utilize the information on the Site's physical and biological characteristics and sources of contamination to give a preliminary estimate of the contaminants that may have migrated. The Respondent will then implement an iterative monitoring program and any study program identified in the work plan or sampling plan 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 Site can be determined. In addition, the Respondent shall gather data for calculations of contaminant fate and transport. This process is continued until the area and depth of contamination are known to the level of contamination established in the QAPP and DQOs. The Respondent will build upon existing Site-specific data as well as data generated by this RI/FS.

(D) Evaluate Site characteristics

The Respondent shall analyze and evaluate the data to describe: (1) Site physical and biological characteristics, (2) contaminant source characteristics, (3) nature and extent of contamination and (4) contaminant fate and transport. Results of the Site physical characteristics, source characteristics, and extent of contamination analyses are utilized in the analysis of contaminant fate and transport. The Respondent shall evaluate the actual and potential magnitude of releases from the sources, and horizontal and vertical spread of contamination as well as mobility and persistence of contaminants. Where modeling is appropriate, such models shall be identified to EPA in a technical memorandum prior to their use. All data and programming, including any proprietary programs, shall be made available to EPA together with a sensitivity analysis. The RI data shall be presented electronically according to U.S. EPA Region 5 format requirements. Analysis of data collected for Site characterization will meet the DQOs developed in the QAPP stated in the SAP (or revised during the RI).

(E) Risk Assessment

- i. Previous Risk Assessment work conducted pursuant to WDNR's program shall be reviewed and summarized as a first step in the baseline risk assessment.
- ii. The Respondent shall conduct a baseline risk assessment to determine whether Site contaminants pose a current or potential risk to human health and the environment in the absence of any remedial action. The Respondent shall address the contaminant identification, exposure assessment, toxicity assessment, and risk characterization.
- iii. Respondent shall conduct a baseline human health risk assessment that focuses on actual and potential risks to persons coming into contact with on-Site hazardous substances, pollutants or contaminants as well as risks to the nearby residential, recreational and industrial worker populations from exposure to hazardous substances, pollutants or contaminants in groundwater, soils, sediments, surface water, air, and ingestion of contaminated organisms in nearby, impacted ecosystems. The human health risk assessment shall define central tendency and reasonable maximum estimates of exposure for current land use conditions and reasonable future land use conditions
- iv. The human health risk assessment shall use data from the Site and nearby areas to identify the contaminants of concern (COC), provide an estimate of how and to what extent human receptors might be exposed to these COCs, and provide an assessment of the health effects associated with these COCs. The human health risk assessment shall project the potential

risk of health problems occurring if no cleanup action is taken at the Site and/or nearby areas, and establish target action levels for COCs (carcinogenic and non-carcinogenic).

v. The Respondent shall conduct the human health risk assessment in accordance with EPA guidance including, at a minimum: “Risk Assessment Guidance for Superfund (RAGS), Volume I - Human Health Evaluation Manual (Part A),” Interim Final (EPA-540-1-89-002),” OSWER Directive 9285.7-01A; December 1, 1989; and “Risk Assessment Guidance for Superfund (RAGS), Volume I - Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments),” Interim, (EPA 540-R-97-033), OSWER 9285.7-01D, January, 1998. Additional relevant guidance may be found in Exhibit A of this SOW. Additional applicable or relevant guidance may be used only if approved by EPA’s RPM.

vi. The Respondent shall prepare the Human Health Risk Assessment according to the guidelines outlined below:

- Hazard Identification (sources)  
The Respondent shall review available information on the hazardous substances present at the Site and identify the major contaminants of concern.
- Dose-Response Assessment  
Contaminants of concern should be selected based on their intrinsic toxicological properties.
- Conceptual Exposure/Pathway Analysis  
Critical exposure pathways (e.g., drinking water) shall be identified and analyzed. The proximity of contaminants to exposure pathways and their potential to migrate into critical exposure pathways shall be assessed.
- Characterization of Site and Potential Receptors  
The Respondent shall identify and characterize human populations in the exposure pathways.
- Exposure Assessment  
The exposure assessment will identify the magnitude of actual or potential human exposures, the frequency and duration of these exposures, and the routes by which receptors are exposed. The exposure assessment shall include an evaluation of the likelihood of such exposures occurring and shall provide the basis for the development of acceptable exposure levels. In developing the exposure assessment, The Respondent shall develop reasonable maximum estimates of exposure for both current land use conditions and potential land use conditions at the Site.
- Risk Characterization  
During risk characterization, chemical-specific toxicity information, combined with quantitative and qualitative information from the exposure assessment, shall be compared to measured levels of contaminant exposure levels and the levels predicted through environmental fate and transport modeling. These comparisons shall determine whether

concentrations of contaminants at or near the Site are effecting or could potentially effect human health.

- **Identification of Limitations/Uncertainties**  
The Respondent shall identify critical assumptions (e.g., background concentrations and conditions) and uncertainties in the report.
- **Site Conceptual Model**  
Based on contaminant identification, exposure assessment, toxicity assessment, and risk characterization, The Respondent shall develop a conceptual model of the Site.
- **Final Human Health Risk Assessment Report**  
After the draft Human Health Risk Assessment Report has been reviewed and commented on by EPA, The Respondent will incorporate EPA comments and submit the final Human Health Risk Assessment Report.

vii. The Respondent shall prepare the Ecological Risk Assessment according to the guidelines outlined below:

- Utilize EPA guidance including, at a minimum: “Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments, (EPA-540-R-97-006, June 1997), OSWER Directive 9285.7-25. Additional relevant guidance may be found in Exhibit A of this SOW. Additional applicable or relevant guidance may be used only if approved by EPA’s RPM.
- Evaluate and assess the risk to the environment posed by Site contaminants.

viii. The Respondent shall prepare a draft Ecological Risk Assessment Report that addresses the following:

- **Hazard Identification (sources)**  
The Respondent shall review available information on the hazardous substances present at the Site and identify the major contaminants of concern.
- **Dose-Response Assessment**  
Contaminants of concern should be selected based on their intrinsic toxicological properties.
- **Conceptual Exposure/Pathway Analysis**  
Critical exposure pathways (e.g., surface water) shall be identified and analyzed. The proximity of contaminants to exposure pathways and their potential to migrate into critical exposure pathways shall be assessed.
- **Characterization of Site and Potential Receptors**  
Identify and characterize environmental exposure pathways.

- **Select Chemicals, Indicator Species, and End Points**  
In preparing the assessment, the Respondent will select representative chemicals, indicator species (species that are especially sensitive to environmental contaminants), and end points on which to concentrate.
- **Exposure Assessment**  
The exposure assessment will identify the magnitude of actual or environmental exposures, the frequency and duration of these exposures, and the routes by which receptors are exposed. The exposure assessment shall include an evaluation of the likelihood of such exposures occurring and shall provide the basis for the development of acceptable exposure levels. In developing the exposure assessment, The Respondent shall develop reasonable maximum estimates of exposure for both current land use conditions and potential land use conditions at the Site.
- **Toxicity Assessment/Ecological Effects Assessment**  
The toxicity and ecological effects assessment will address the types of adverse environmental effects associated with chemical exposures, the relationships between magnitude of exposures and adverse effects, and the related uncertainties for contaminant toxicity (e.g., weight of evidence for a chemical's carcinogenicity).
- **Risk Characterization**  
During risk characterization, chemical-specific toxicity information, combined with quantitative and qualitative information from the exposure assessment, shall be compared to measured levels of contaminant exposure levels and the levels predicted through environmental fate and transport modeling. These comparisons shall determine whether concentrations of contaminants at or near the Site are effecting or could potentially effect the environment.
- **Identification of Limitations/Uncertainties**  
Identify critical assumptions (e.g., background concentrations and conditions) and uncertainties in the report.
- **Site Conceptual Model**  
Based on contaminant identification, exposure assessment, toxicity assessment, and risk characterization, The Respondent shall develop a conceptual model of the Site.

#### **TASK 4: REMEDIAL INVESTIGATION (RI) REPORT**

(A) The Final RI/FS Planning documents will contain the schedule for submission of the RI Report, Risk Assessment Reports, Treatability Study Reports, Feasibility Study Reports, and all other deliverables (i.e., monthly progress reports) deemed appropriate by EPA. It is expected that all data collected will be analyzed and validated on a reasonable schedule and will be fast-tracked to the extent possible (depending upon the type of sample, the analytical methods, the

laboratory availability). Schedules for field work, data analysis, and data validation will be included in the project schedule, submitted with the RI/FS Work Plan.

(B) Based on that final approved schedule, the Respondent shall submit to EPA, for review and approval pursuant to Section IV, an RI Report addressing all of the Site.

(C) The RI Report shall be consistent with the AOC and this SOW.

(D) The RI Report shall accurately establish the Site characteristics such as media contaminated, extent of contamination, and the physical boundaries of the contamination. Pursuant to this objective, the Respondent shall obtain only the essential amount of detailed data necessary to determine the key contaminant(s) movement and extent of contamination source areas.

(E) The key contaminant(s) must be selected based on persistence and mobility in the environment and the degree of hazard.

(F) The key contaminant(s) identified in the RI shall be evaluated for receptor exposure and an estimate of the key contaminant(s) level reaching human or environmental receptors must be made.

(G) The Respondent shall use existing standards and guidelines such as drinking-water standards, water-quality criteria, and other criteria accepted by the EPA as appropriate for the situation may be used to evaluate effects on human receptors that may be exposed to the key contaminant(s) above appropriate standards or guidelines.

(H) The Respondent shall complete and submit an RI Report to EPA for review and approval pursuant to Section IV and it shall include the following:

1) Executive Summary

2) Site Background

The Respondent shall assemble and review available facts about the regional conditions and conditions specific to the site under investigation.

3) Investigation

a. Field Investigation & Technical Approach

b. Chemical Analysis & Analytical Methods

c. Field Methodologies

- Biological
- Surface Water
- Sediment
- Soil Boring
- Soil Sampling
- Monitoring Well Installation
- Groundwater Sampling
- Hydrogeological Assessment
- Air Sampling

- 4) Site Characteristics
  - Geology
  - Hydrogeology
  - Meteorology
  - Demographics and Land Use
- 5) Ecological Assessment
- 6) Nature and Extent of Contamination
  - Contaminant Sources
  - Contaminant Distribution and Trends
  - Fate and Transport
  - Contaminant Characteristics
  - Transport Processes
  - Contaminant Migration Trends
- 7) Human Risk Assessment
  - Hazard Identification (sources).
  - Dose-Response Assessment.
  - Prepare Conceptual Exposure/Pathway Analysis.
  - Characterization of Site and Potential Receptors.
  - Exposure Assessment.
  - Risk Characterization.
  - Identification of Limitations/Uncertainties.
  - Site Conceptual Model
- 8) Ecological Risk Assessment
  - Hazard Identification (sources).
  - Dose-Response Assessment.
  - Prepare Conceptual Exposure/Pathway Analysis.
  - Characterization of Site and Potential Receptors.
  - Select Chemicals, Indicator Species, and End Points.
  - Exposure Assessment.
  - Toxicity Assessment/Ecological Effects Assessment.
  - Risk Characterization.
  - Identification of Limitations/Uncertainties.
  - Site Conceptual Model.
- 9) Summary and Conclusions.

**TASK 5: DEVELOPMENT AND SCREENING OF ALTERNATIVES (TECHNICAL MEMORANDUM)**

The Respondent shall develop and screen remedial alternatives to determine an appropriate range of waste management options that the Respondent shall evaluate. This range of alternatives shall include, as appropriate, options in which treatment is used to reduce the toxicity, mobility, or volume of wastes, but which vary in the types of treatment, the amount treated, and the manner

in which long-term residuals or untreated wastes are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action alternative. The Respondent shall perform the following activities as a function of the development and screening of remedial alternatives:

(A) Alternatives Development and Screening Deliverables

The Respondent shall prepare and submit three technical memoranda for this task: a Remedial Action Objectives Technical Memorandum, an Alternatives Screening Technical Memorandum and a Comparative Analysis of Alternatives Memorandum.

1. Remedial Action Objectives Technical Memorandum

The Respondent shall submit a Remedial Action Objectives Technical Memorandum to EPA and WDNR for review and EPA approval. The Respondent shall submit the Remedial Action Objectives Technical Memorandum within thirty (30) calendar days following submittal of the Draft RI Report. Based on the baseline human health and ecological risk assessments, the Respondent shall document the Site-specific remedial action objectives in the Remedial Action Objectives Technical Memorandum. The remedial action objectives shall specify the constituents of concern and the media of interest; exposure pathways and receptors; and an acceptable contaminant level or range of levels (at particular locations for each exposure route). The Respondent shall incorporate EPA's comments on the Remedial Action Objectives Technical Memorandum in the Alternatives Screening Technical Memorandum.

2. Alternatives Screening Technical Memorandum

The Respondent shall submit an Alternatives Screening Technical Memorandum to EPA and WDNR for review, and EPA approval. The Alternatives Screening Technical Memorandum shall summarize the work performed during and the results of each of the above tasks, and shall include an alternatives array summary. If required by EPA, the Respondent shall modify the alternatives array to assure that the array identifies a complete and appropriate range of viable alternatives to be considered in the detailed analysis. The Alternatives Screening Technical Memorandum shall document the methods, the rationale and the results of the alternatives screening process. The Respondent shall incorporate EPA's comments on the Alternatives Screening Technical Memorandum in the Comparative Analysis of Alternatives Technical Memorandum. The Respondent shall submit the Alternatives Screening Technical Memorandum within thirty (30) calendar days after receipt of EPA's comments on the Remedial Action Objectives Technical Memorandum.

(a) Develop General Response Actions

In the Alternatives Screening Technical Memorandum, the Respondent shall develop general response actions for each medium of interest including containment, treatment, excavation, pumping, or other actions, singly or in combination, to satisfy the EPA-approved remedial action objectives.

(b) Identify Areas or Volumes of Media

In the Alternatives Screening Technical Memorandum, the Respondent shall identify areas or volumes of media to which the general response actions may apply, taking into account requirements for protectiveness as identified in the remedial action objectives. The Respondent shall also take into account the chemical and physical characterization of the Site.

(c) Identify, Screen, and Document Remedial Technologies

In the Alternatives Screening Technical Memorandum, the Respondent shall identify and evaluate technologies applicable to each general response action to eliminate those that cannot be implemented at the Site. The Respondent shall refine applicable general response actions to specify remedial technology types. The Respondent shall identify technology process options for each of the technology types concurrently with the identification of such technology types or following the screening of considered technology types. The Respondent shall evaluate process options 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 Respondent shall summarize and include the technology types and process options in the Alternatives Screening Technical Memorandum. Whenever practicable, the alternatives shall also consider the CERCLA preference for treatment over conventional containment or land disposal approaches.

In the Alternatives Screening Technical Memorandum Respondents shall provide a preliminary list of alternatives to address contaminated soil, sediments, surface water, groundwater, and air contamination at the Site that shall consist of, but is not limited to, treatment technologies, removal and off-Site treatment/disposal, removal and on-Site disposal, and in-place containment for soils, sediments, and wastes. See 40 CFR 300.430(e)(1)-(7). The Respondent shall specify the reasons for eliminating any alternatives.

(d) Assemble and Document Alternatives

The Respondent shall assemble the selected representative technologies into alternatives for each affected medium or operable unit. Together, all of the alternatives shall represent a range of treatment and containment combinations that shall address either the Site or the operable unit as a whole. The Respondent shall prepare a summary of the assembled alternatives and their related action-specific ARARs for the Alternatives Screening Technical Memorandum. The Respondent shall specify the reasons for eliminating alternatives during the preliminary screening process.

(e) Refine Alternatives

The Respondent shall refine the remedial alternatives to identify the volumes of contaminated media addressed by the proposed processes and size critical unit operations as necessary. The Respondent shall collect sufficient information for an adequate comparison of alternatives. The Respondent shall also modify the remedial action objectives for each chemical in each medium as necessary to incorporate any new human health and ecological risk assessment information presented in the Respondent's baseline human health and ecological risk assessment reports. Additionally, the Respondent shall update action-specific ARARs as the remedial alternatives are refined.

3. Conduct and Document Screening Evaluation of Each Alternative

The 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 a detailed analysis. If necessary, the Respondent shall conduct the screening of alternatives to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis. As appropriate, the screening shall preserve the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives shall include options that use treatment technologies and permanent solutions to the maximum extent practicable. The Respondent shall prepare an Alternatives Screening Technical Memorandum that summarizes the results and reasoning employed in screening; arrays the alternatives that remain after screening; and identifies the action-specific ARARs for the alternatives that remain after screening.

**TASK 6: TREATABILITY STUDIES**

(A) If EPA or the Respondent determines that treatability testing is necessary, the Respondent shall conduct treatability studies. In addition, if applicable, the Respondent shall use the testing results and operating conditions in the detailed design of the selected remedial technology.

(B) The Respondent shall perform the following activities if treatability testing is deemed necessary:

1. Determine Candidate Technologies and of the Need for Testing:

The Respondent shall submit a Candidate Technologies and Testing Needs Technical Memorandum, subject to EPA and WDNR review and EPA approval that identifies candidate technologies for a treatability studies program. The Respondent shall submit the technical memorandum as early as project planning (Task 1) and no later than at the time of submittal of the Alternative Screenings Technical Memorandum to avoid any potential delays in the FS. The list of candidate technologies shall cover the range of technologies required for alternatives analysis. The Respondent shall determine and refine the specific data requirements for the testing program during Site characterization and the development and screening of remedial alternatives.

2. Conduct Literature Survey and Determine the Need for Testing:

The Respondent shall conduct a literature survey to gather information on the performance, relative costs, applicability, removal efficiencies, operation and maintenance (O&M) requirements, and implementability of candidate technologies. If the Respondent has not sufficiently demonstrated practical candidate technologies, or if such technologies cannot be adequately evaluated for this Site on the basis of the available information, the Respondent shall conduct treatability testing. If EPA determines that treatability testing is necessary, and the Respondent cannot demonstrate to EPA's satisfaction that such testing is unnecessary, then the Respondent shall submit a statement of work to EPA and WDNR that outlines the steps and the data necessary to evaluate and initiate the treatability testing program within thirty (30) days of a request by the EPA.

3. Evaluate Treatability Studies

Once a decision has been made to perform treatability studies, 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 will 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, within thirty (30) days of a request by EPA, the Respondent shall either submit a separate Treatability Testing Work Plan and SAP, or amendments to the original RI/FS Work Plan, FSP, QAPP for EPA and WDNR review and EPA approval.

4. Treatability Testing and Deliverables

i. Treatability Testing Work Plan and Sampling and Analysis Plan (SAP)

Within thirty (30) days of EPA's request, the Respondent shall prepare a Treatability Testing Work Plan and a SAP, or amendments to the original RI/FS Work Plan, FSP and QAPP, for EPA and WDNR review and EPA approval that describes the Site background, the remedial technology or technologies 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 Respondent shall document the data quality objectives (DQOs) for treatability testing as well. If pilot scale treatability testing is to be performed, the Treatability Study Work Plan shall 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, the plans shall address all permitting requirements.

ii. Treatability Study Health and Safety Plan

If the original Health and Safety Plan is not adequate for defining the activities to be performed during the treatability tests, the Respondent shall submit a separate or

amended Health and Safety Plan. EPA and WDNR will review, but do not "approve" the Treatability Study Health and Safety Plan.

iii. Treatability Study Evaluation Report

Following the completion of the treatability testing, the Respondent shall analyze and interpret the testing results in a technical report to EPA and WDNR. The Respondent shall submit the treatability study report according to the schedule in the Treatability Study Work Plan. This report may be a part of the RI Report or submitted as a separate deliverable. The Treatability Study Evaluation Report shall evaluate each technology's effectiveness, implementability and cost, and actual results as compared with predicted results. The report shall also evaluate full scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

**TASK 7: DETAILED ANALYSIS OF ALTERNATIVES (FS REPORT)**

The Respondent shall conduct and present a detailed analysis of remedial alternatives to provide EPA with the information needed to select a Site remedy.

(A) Detailed Analysis of Alternatives

The Respondent shall conduct a detailed analysis of the remedial alternatives for the Site. The detailed analysis shall include an analysis of each remedial option against a set of nine evaluation criteria, and a comparative analysis of all options using the same nine criteria as a basis for comparison.

1. Apply Nine Criteria and Document Analysis

The Respondent shall apply the nine evaluation criteria to the assembled remedial alternatives to ensure that the selected remedial alternative will protect human health and the environment and meet remedial action objectives; will comply with, or include a waiver of, ARARs; will be cost-effective; will utilize permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable; and will address the statutory preference for treatment as a principal element. The evaluation criteria include: (1) overall protection of human health and the environment and how the alternative meets each of the remedial action objectives; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume; (5) short-term effectiveness; (6) implementability; (7) cost; (8) state (or support agency) acceptance; and (9) community acceptance. (Note: criteria 8 and 9 are considered after the RI/FS report has been released to the general public.) For each alternative the Respondent shall 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. If the Respondent does not have direct input on criteria (8) state (or support agency) acceptance and (9) community acceptance, EPA will address these criteria.

## 2. Compare Alternatives Against Each Other and Document the Comparison of Alternatives

The Respondent shall perform a comparative analysis between the remedial alternatives. That is, the Respondent shall compare each alternative against the other alternatives using the evaluation criteria as a basis of comparison. EPA will identify and select the preferred alternative. The Respondent shall prepare a Comparative Analysis of Alternatives Technical Memorandum which summarizes the results of the comparative analysis and fully and satisfactorily addresses and incorporates EPA's comments on the Alternatives Screening Technical Memorandum. The Respondent shall incorporate EPA's comments on the Comparative Analysis of Alternatives Technical Memorandum in the draft FS Report. The Respondent shall submit the Comparative Analysis of Alternatives Memorandum within thirty (30) calendar days after receipt of EPA's comments on the Alternatives Screening Technical Memorandum.

### (B) Feasibility Study Report

Within forty-five (45) days after receipt of EPA's comments on the Comparative Analysis of Alternatives Technical Memorandum, the Respondent shall prepare and submit a draft FS Report to WDNR and EPA for review pursuant to Section IV. The FS report shall summarize the development and screening of the remedial alternatives and present the detailed analysis of remedial alternatives. In addition, the FS Report shall also include the information EPA will need to prepare relevant sections of the Record of Decision (ROD) for the Site [see Chapters 6 and 9 of U.S. EPA's *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents* (EPA 540-R-98-031, July 1999) for the information that is needed].

### **TASK 8: PROGRESS REPORTS**

The Respondent shall submit monthly written progress reports to EPA and WDNR concerning actions undertaken pursuant to the AOC and this SOW, beginning thirty (30) calendar days after the Effective Date of the AOC, until the termination of the AOC, unless otherwise directed in writing by the RPM. These reports shall include, but not be limited to, a description of all significant developments during the preceding period, including the specific work that was performed and any problems that were encountered; a summary of the analytical data that was received during the reporting period [refer to electronic data submission requirements in Section III, paragraph 3]; and the developments anticipated during the next reporting period, including a schedule of work to be performed, anticipated problems, and actual or planned resolutions of past or anticipated problems. The monthly progress reports will summarize the field activities conducted each month including, but not limited to drilling and sample locations, depths and descriptions; boring logs; sample collection logs; field notes; problems encountered; solutions to problems; a description of any modifications to the procedures outlined in the RI/FS Work Plan, the FSP, QAPP or Health and Safety Plan, with justifications for the modifications; and upcoming field activities.

**EXHIBIT A**  
**PARTIAL LIST OF GUIDANCE**

## EXHIBIT A PARTIAL LIST OF GUIDANCE

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RI/FS process. The majority of these guidance documents, and additional applicable guidance documents, may be downloaded from the following websites:

<http://www.epa.gov/superfund/pubs.htm> (General Superfund)  
<http://cluoin.org> (Site Characterization, Monitoring and Remediation)  
<http://www.epa.gov/ORD/NRMRL/Pubs> (Site Characterization and Monitoring)  
[http://www.epa.gov/quality/qa\\_docs.html#guidance](http://www.epa.gov/quality/qa_docs.html#guidance) (Quality Assurance)  
<http://www.epa.gov/superfund/programs/risk/toolthh.htm> (Risk Assessment - Human)  
<http://www.epa.gov/superfund/programs/risk/tooleco.htm> (Ecological Risk Assessment)  
<http://www.epa.gov/superfund/programs/lead> (Risk Assessment - Lead)  
<http://cfpub.epa.gov/ncea> (Risk Assessment - Exposure Factors/Other)  
<http://www.epa.gov/nepis/srch.htm> (General Publications Clearinghouse)  
<http://www.epa.gov/clariton/clhtml/pubtitle.html> (General Publications Clearinghouse)

- (1) The (revised) National Contingency Plan;
- (2) *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*, U.S. EPA, Office of Emergency and Remedial Response, OSWER Directive No. 9355.3-01, EPA/540/G-89/004, October 1988.
- (3) *Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites*, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-91/001, February 1991.
- (4) *Implementing Presumptive Remedies*, U.S. EPA, Office of Emergency and Remedial Response, EPA-540-R-97-029, October 1997.
- (5) *Presumptive Remedy for CERCLA Municipal Landfill Sites*, U.S. EPA, OSWER Directive No. 9355.0-49FS, EPA-540-F-93-035, September 1993.
- (6) *Presumptive Remedies: CERCLA Landfill Caps RI/FS Data Collection Guide*, U.S. EPA, OSWER 9355.3-18FS, EPA/540/F-95/009, August 1995.
- (7) *Presumptive Response Strategy and Ex-Situ Treatment Technologies for Contaminated Ground Water at CERCLA Sites*, OSWER 9283.1-12, EPA-540-R-96-023, October 1996.
- (8) *Field Analytical and Site Characterization Technologies Summary of Applications*, U.S. EPA, EPA-542-F-97-024, November 1997.
- (9) *CLU-IN Hazardous Waste Clean-Up Information World Wide Web Site*, U.S. EPA, EPA-542-F-99-002, February 1999.

- (10) *Field Sampling and Analysis Technology Matrix and Reference Guide*, U.S. EPA, EPA-542-F-98-013, July 1998.
- (11) *Subsurface Characterization and Monitoring Techniques: A Desk Reference Guide, Volumes 1 and 2*, U.S. EPA, EPA/625/R-93/003, May 1993.
- (12) *Use of Airborne, Surface, and Borehole Geophysical Techniques at Contaminated Sites: A Reference Guide*, U.S. EPA, EPA/625/R-92/007(a,b), September 1993.
- (13) *Innovations in Site Characterization: Geophysical Investigation at Hazardous Waste Sites*, U.S. EPA, EPA-542-R-00-003, August 2000.
- (14) *Innovative Remediation and Site Characterization Technology Resources*, U.S. EPA, OSWER, EPA-542-F-01-026b, January 2001.
- (15) *Handbook of Suggested Practices for the Design and Installation of Ground-Water Monitoring Wells*, U.S. EPA, EPA/600/4-89/034, 1991.
- (16) *Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers*, U.S. EPA, EPA-542-S-02-001, May 2002.
- (17) *Ground Water Issue: Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures*, U.S. EPA, EPA/540/S-95/504, April 1996.
- (18) *Superfund Ground Water Issue: Ground Water Sampling for Metals Analysis*, U.S. EPA, EPA/540/4-89/001, March 1989.
- (19) *Resources for Strategic Site Investigation and Monitoring*, U.S. EPA, OSWER, EPA-542-F-010030b, September 2001.
- (20) *Region 5 Framework for Monitored Natural Attenuation Decisions for Groundwater*, U.S. EPA Region 5, September 2000.
- (21) *Ground Water Issue: Suggested Operating Procedures for Aquifer Pumping Tests*, U.S. EPA, OSWER, EPA/540/S-93/503, February 1993.
- (22) *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water*, U.S. EPA, EPA/600/R-98/128, September 1998.
- (23) *Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action and Underground Storage Tank Sites*, U.S. EPA, OSWER Directive 9200.4-17P, April 21, 1999.
- (24) *Ground Water Issue: Fundamentals of Ground-Water Modeling*, U.S. EPA, OSWER, EPA/540/S-92/005, April 1992.

- (25) *Assessment Framework for Ground-Water Model Applications*, U.S. EPA, OSWER Directive #9029.00, EPA-500-B-94-003, July 1994.
- (26) *Ground-Water Modeling Compendium - Second Edition: Model Fact Sheets, Descriptions, Applications and Cost Guidelines*, U.S. EPA, EPA-500-B-94-004, July 1994.
- (27) *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*, U.S. EPA, Office of Solid Waste and Emergency Response, OSWER Directive No. 9200.1-23P, EPA 540-R-98-031, July 1999.
- (28) *Region 5 Instructions on the Preparation of A Superfund Division Quality Assurance Project Plan Based on EPA QA/R-5, Revision 0*, U.S. EPA Region 5, June 2000.
- (29) *Guidance for the Data Quality Objectives Process (QA-G-4)*, U.S. EPA, EPA/600/R-96/055, August 2000.
- (30) *Guidance for the Data Quality Objectives Process for Hazardous Waste Sites (QA/G-4HW)*, U.S. EPA, EPA/600/R-00/007, January 2000.
- (31) *Guidance for the Preparation of Standard Operating Procedures (QA-G-6)*, U.S. EPA, EPA/240/B-01/004, March 2001.
- (32) *EPA Requirements for Quality Management Plans (QA/R-2)*, U.S. EPA, EPA/240/B-01/002, March 2001.
- (33) *EPA Requirements for QA Project Plans (QA/R-5)*, U.S. EPA, EPA/240/B-01/003, March 2001.
- (34) *Guidance for Quality Assurance Project Plans (QA/G-5)*, U.S. EPA, EPA/600/R-98/018, February 1998.
- (35) *Users Guide to the EPA Contract Laboratory Program*, U.S. EPA, Sample Management Office, OSWER Directive No. 9240.0-01D, January 1991.
- (36) *Technical Guidance Document: Quality Assurance and Quality Control for Waste Containment Facilities*, U.S. EPA, EPA/600/R-93/182, 1993.
- (37) *Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual (Part A)*, U.S. EPA, EPA/540/1-89/002, December 1989.
- (38) *Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual (Part B, Development of Risk-Based Preliminary Remediation Goals)*, U.S. EPA, EPA/540/R-92/003, OSWER Publication 9285.7-01B, December 1991.
- (39) *Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual (Part C - Risk Evaluation of Remedial Alternatives)*, U.S. EPA, Office of Emergency and Remedial Response, Publication 9285.7-01C, October, 1991.

- (40) *Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual (Part D - Standardized Planning, Reporting, and Review of Superfund Risk Assessments)*, U.S. EPA, Office of Emergency and Remedial Response, Publication 9285.7-47, December 2001.
- (41) *Risk Assessment Guidance for Superfund: Volume III - Part A, Process for Conducting Probabilistic Risk Assessment*, U.S. EPA, OSWER Publication 9285.7-45, EPA-540-R-02-002, December 2001.
- (42) *Policy for Use of Probabilistic in Risk Assessment at the U.S. Environmental Protection Agency*, U.S. EPA, Office of Research and Development, 1997.
- (43) *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors*, U.S. EPA, OSWER Directive 9285.6-03, March 25, 1991.
- (44) *Exposure Factors Handbook*, Volumes I, II, and III, U.S. EPA, EPA/600/P-95/002Fa,b,c, August 1997.
- (45) *Supplemental Guidance to RAGS: Calculating the Concentration Term*, U.S. EPA, OSWER Publication 9285.7-08I, May 1992.
- (46) *Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities*, U.S. EPA, OSWER Directive 9355.4-12, EPA/540/F-94/043, July 14, 1994.
- (47) *Clarification to the 1994 Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities*, U.S. EPA, OSWER Directive 9200.4-27, EPA/540/F-98/030, August 1998.
- (48) *Guidance Manual for the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children*, U.S. EPA, OSWER Publication 9285.7-15-1, February 1994; and associated, clarifying Short Sheets on IEUBK Model inputs, including but not limited to OSWER 9285.7-32 through 34, as listed on the OSWER lead internet site at [www.epa.gov/superfund/programs/lead/prods.htm](http://www.epa.gov/superfund/programs/lead/prods.htm).
- (49) *Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children*, Version 0.99D, NTIS PB94-501517, 1994 or *Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children*, Windows© version, 2001,
- (50) *Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions*, U.S. EPA, OSWER Directive 9355.0-30, April 22, 1991.
- (51) *Performance of Risk Assessments in Remedial Investigation /Feasibility Studies (RI/FSs) Conducted by Potentially Responsible Parties (PRPs)*, OSWER Directive No. 9835.15, August 28, 1990.

- (52) *Supplemental Guidance on Performing Risk Assessments in Remedial Investigation Feasibility Studies (RI/FSs) Conducted by Potentially Responsible Parties (PRPs)*, OSWER Directive No. 9835.15(a), July 2, 1991.
- (53) *Role of Background in the CERCLA Cleanup Program*, U.S. EPA, OSWER 9285.6-07P, April 26, 2002.
- (54) *Soil Screening Guidance: User's Guide*, U.S. EPA, OSWER Publication 9355.4-23, July 1996.
- (55) *Soil Screening Guidance: Technical Background Document*, U.S. EPA, EPA/540/R95/128, May 1996.
- (56) *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (Peer Review Draft)*, U.S. EPA, OSWER Publication 9355.4-24, March 2001.
- (57) *Ecological Risk Assessment Guidance for Superfund: Process for Designing & Conducting Ecological Risk Assessments*, U.S. EPA, OSWER Directive 9285.7-25, EPA-540-R-97-006, June 1997.
- (58) *Guidelines for Ecological Risk Assessment*, U.S. EPA, EPA/630/R-95/002F, April 1998.
- (59) *The Role of Screening-Level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments*, U.S. EPA, OSWER Publication 9345.0-14, EPA/540/F-01/014, June 2001.
- (60) *Ecotox Thresholds*, U.S. EPA, OSWER Publication 9345.0-12FSI, EPA/540/F-95/038, January 1996.
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