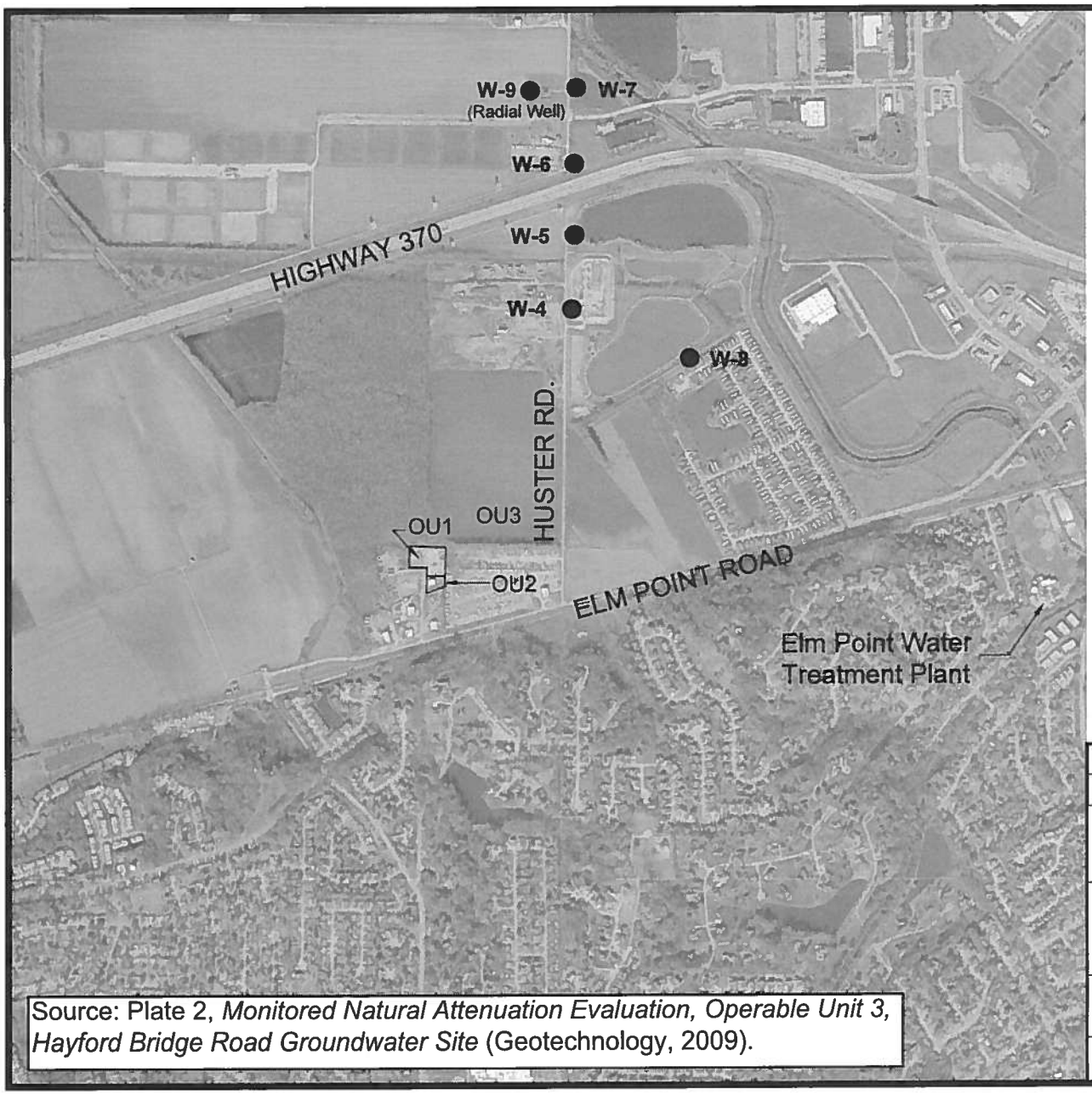
APPENDIX A



Source: Plate 2, *Monitored Natural Attenuation Evaluation, Operable Unit 3, Hayford Bridge Road Groundwater Site* (Geotechnology, 2009).

NOTES

1. Plan adapted from a November 12, 2013 aerial photograph courtesy of Google Earth.

LEGEND

● Elm Point Well Field Supply Well

N

0 1,500 3,000

SCALE IN FEET

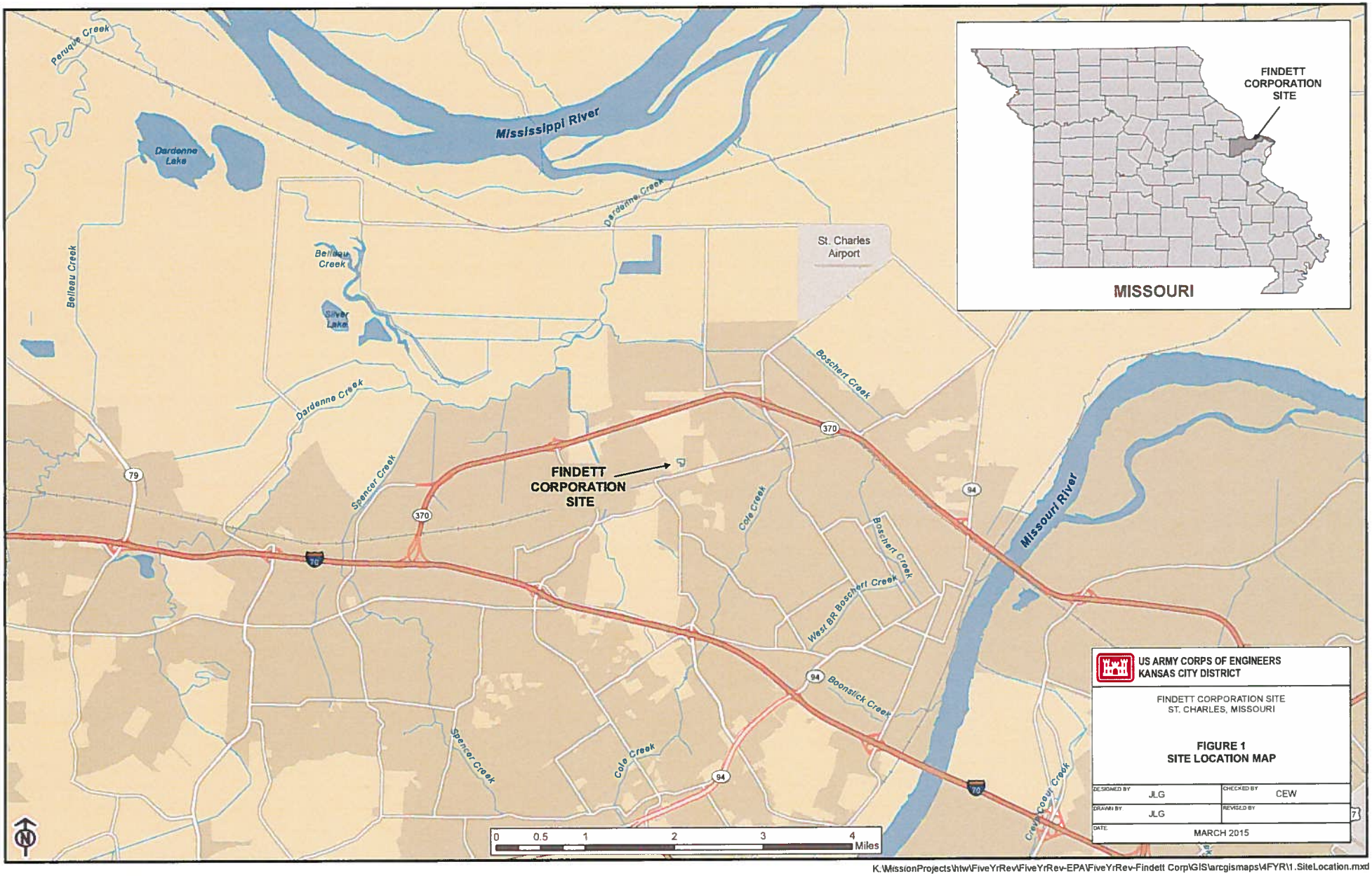
Drawn By: WAH	Ck'd By: VJE	App'vd By: KJH
Date: 6-13-14	Date: 6-13-14	Date: 6-13-14

GEOTECHNOLOGY INC
FROM THE GROUND UP

Operable Unit 3
Hayford Bridge Road Groundwater Site
St. Charles, Missouri

AERIAL SITE PLAN

Project Number J006295.09	**Figure 4**



K:\MissionProjects\htw\FiveYrRev\FiveYrRev-EPA\FiveYrRev-Findett Corp\GIS\arcgismaps\4FYR\1.SiteLocation.mxd

APPENDIX B

STATEMENT OF WORK
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
Huster Road Substation (Ameren)
St. Charles, Missouri

I. OBJECTIVE AND SCOPE

This Statement of Work ("SOW") sets forth the requirements for completing the Remedial Investigation ("RI") and Feasibility Study ("FS") for the Huster Road Substation Groundwater Site ("Site").

The Respondent shall conduct a RI to determine the nature and extent of the release or threat of release of hazardous substances, pollutants, or contaminants at and from the Site and any potential threat to the public health, welfare, or the environment caused by the release or threat of release.

The Respondent shall conduct a FS which will include: (1) a treatability study, if needed as determined by the U.S. Environmental Protection Agency, Region 7 ("EPA"), in consultation with the Missouri Department of Natural Resources ("MDNR"); (2) an individual and comparative analysis of alternatives technical memorandum; (3) an alternative analysis for institutional controls ("ICs") and screening; and (4) a FS Report.

All work previously completed by Respondent can be included in the RI and FS Reports. Some of those documents include: (1) Integrated Site Evaluation Work Plan dated February 2013; (2) Technical Report dated February 2014; (3) Groundwater Monitoring Work Plan dated April 2014; (4) Ameren Missouri's Proposed Remedy Enhancements for the St. Charles, Missouri Public Water Supply dated February 2014; and (5) Pilot Studies dated October 2014, December 2014, May 2016 and October 2016. Set forth below is a chart depicting the various technical reports completed by Respondent and submitted to EPA for review.

Huster Substation Submittals
Technical Reports

2013	2014	2015	2016
Quality Management Plan/ Quality Assurance Project Plan (QAPP)	Updated Site Investigation Report	Plume Remedy Work Plan	Summary Report - Expanded Pilot Tests
Site Investigation Report	Groundwater Monitoring Work Plan	Plume Pilot Test Injection Summary Report (offsite)	Bio Augmentation Work Plan
GCS Work Plan	Feasibility Study - Groundwater/Soil Treatment	Expanded Pilot Test - Injection Summary Report (onsite)	
GCS Design Package	GCS System Operation and Maintenance		

2013	2014	2015	2016
Revised Integrated Site Evaluation Work Plan	Expanded Pilot Test Work Plan – (Potassium Permanganate)		
Antidegration Review	Plume Containment Pilot Study Work Plan		
	Pilot Study Summary Report (inside substation - EHC, Potassium Permanganate, Bioaugmentation)		

The Respondent shall conduct the RI/FS and produce RI and FS Reports that are developed in accordance with this SOW, the "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (OSWER Directive # 9355.3-01, EPA/540/G-89/004, October 1988) and any other guidance documents that EPA relies on in conducting or reviewing deliverables for a RI/FS, as well as any additional requirements in the Administrative Settlement Agreement and Order on Consent ("Settlement Agreement"), Docket No. CERCLA-07-2017-0129.

The Respondent will furnish all personnel, materials, and services necessary for, or incidental to, performing the RI/FS, except as otherwise may be specified in the Settlement Agreement. As specified in CERCLA Section 104(a)(l), EPA, with assistance from MDNR, will provide oversight of Respondent's activities throughout the RI/FS implementation work, including all field activities.

At the completion of the FS, EPA will be responsible for the selection of the appropriate site remedy and will document this selection in a Record of Decision ("ROD"). The remedial action alternative 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 federal, state and local laws, 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 Final RI and FS Reports and the Administrative Record ("AR") will form the basis for EPA's selection of the Site's remedy and will provide the information necessary to support the development of the ROD.

II. BACKGROUND INFORMATION

The Findett Site is located within the city of St. Charles, Missouri, near the intersection of Elm Point Road and Governor Place. The Findett site was defined as the properties owned by the Findett Real

Estate Corporation (Findett - OU1), including the property formerly owned by the Cadmus Corporation (Cadmus - OU2) and all properties where groundwater contamination has migrated (Hayford Bridge Road Groundwater - OU3). The Site was originally divided into three Operable Units (OUs): (1) OU1 addressed the shallow soil and shallow groundwater contamination on the Findett property; (2) OU2 addressed the soil contamination on the former Cadmus property; and (3) OU3 addressed affected groundwater that had migrated offsite of the OU1 and OU2 property boundaries. While Respondent's operation of the Huster Road Substation is does not appear to be affiliated with the Findett/Hayford Bridge Road Site, the close proximity of these sites warranted EPA designating the Huster Road Substation and associated impacted groundwater as a separate fourth operable of the Findett/Hayford Bridge Road Superfund Site.

Based on unexpected volatile organic compound ("VOC") detections below Maximum Containment Levels ("MCLs") for drinking water at City Well W-5 in 2009 and 2010, EPA and MDNR entered into an Administrative Settlement Agreement and Order on Consent, Docket No. 07-2012-0025, with the original Findett Site OU3 Respondents in September 2012 ("Findett 2012 AOC"). The Findett 2012 AOC required the OU3 Respondents to: (1) complete a direct push technology groundwater investigation; (2) expand the Elm Point Well field (EPW) through the installation of two to three new vertical wells or a radial well; (3) construct a temporary containment well system; and (4) prepare an air stripper tower design and bid package for the EPW water treatment plant facility. The requirements to expand the Elm Point Well Field ("EPW") and construct a temporary containment well system were not completed as EPA subsequently determined that work required by the Findett 2012 AOC was not appropriate for the Findett Site OU3 Respondents to implement.

The results of the Direct Push Technology (DPT) work conducted by the OU3 Respondents in the fall of 2011 and reported in January 2012, identified a northerly plume of DCE contamination that occurred north and west of the Ameren Substation property along and east of Huster Road. Sample results indicated contamination up to 829 ppb DCE and a large area of contaminated groundwater above the Maximum Contaminant Level ("MCL") of 70 ppb for DCE in the northern groundwater plume. The results indicated this northern plume extended north of Missouri Highway 370 at levels in some locations exceeding 200 ppb cis 1,2 Dichloroethene (DCE). Most of the groundwater impacts were detected in the upper third of the aquifer, below the cohesive/clay zone.

In April 2012, Ameren independently conducted a site investigation on its substation property. The data from the site investigation sampling was presented to EPA on May 15, 2012, in Ameren's Preliminary Screening Site Investigation (PSSI) Report. The PSSI Report indicated the presence of surface soil and soil boring sample concentrations of PCE as high as 2,000 ppb at the surface, DCE concentrations as high as 1,080 ppb at 15 feet below ground surface, and numerous widespread detections of a variety of VOCs across the substation property. In 2012, results of sampling from surface soil and soil boring locations, while not overseen by EPA, indicated contamination from VOCs above the State of Missouri Department of Natural Resources Risk Based Corrective Action (MRBCA) trigger levels for soil contaminants affecting drinking water supplies (MRBCA Table 11).

Based on previous investigations, EPA determined that a removal action was necessary to prevent further migration of the groundwater contamination in order to protect the City of St. Charles' public water supply system. On June 25, 2012, EPA issued an Action Memorandum, which identified the threat posed to the Elm Point Wellfield and the need for environmental response actions.

On a separate but parallel track, EPA, MDNR and Ameren Missouri entered into an administrative

Settlement Agreement and Administrative Order on Consent in December 2012, Docket No. 07-2012-0026 ("Ameren 2012 AOC"), which provided for the performance of an integrated site evaluation ("ISE") and operation of a groundwater containment system ("GCS") on Ameren's substation property. The Ameren 2012 AOC included the following:

1. Soil and groundwater sampling at the Ameren Missouri substation;

2. Construction and operation of a GCS that would address groundwater migrating away from the property;

3. Removal and/or treatment of soil from the substation; and

4. Evaluation of potential future response actions.

The GCS was to be operated until:

1. Source area soil cleanup at the site has achieved Missouri Risk Based Corrective Action Standards; and

2. Groundwater beneath the substation and within the GCS containment zone had reached Safe Drinking Water Act ("SDWA") maximum contaminant levels ("MCLs") for chemicals of concern for six consecutive calendar quarters.

Pursuant to the terms of the Ameren 2012 AOC, Ameren Missouri designed and installed and is currently operating the GCS at its substation. In addition, three rounds of soil and groundwater remediation have been completed within the substation property and in the area north to Highway 370. Results from the ISCO and Bio-Enhanced Pilot Studies conducted by Ameren have been compiled and submitted to EPA and MDNR.

III. GENERAL

This SOW is provided as a format for Respondent to structure its proposed approach to conduct an RI/FS. Respondent shall select and, with EPA approval in consultation with MDNR, develop the appropriate components in the SOW to successfully complete the requirements of the RI/FS. A summary of the major deliverables and proposed schedule for submittals is included in Section V of this SOW. The EPA provides oversight of Respondent's activities throughout the RI/FS process, with assistance from MDNR. Review and approval of the deliverables is a tool to assist this process and to satisfy, in part, EPA's responsibility to provide effective protection of human health, welfare, and the environment. EPA also reviews deliverables to ensure that the RI/FS achieves its goals and that its performance requirements have been met. Acceptance of deliverables by the EPA does not relieve Respondent from its responsibility to submit adequate deliverables to EPA for approval.

The remainder of this SOW describes the work elements associated with the RI/FS. The specific RI/FS activities to be conducted at the Huster Road Substation Site (OU4) are segregated into eleven separate tasks. Upon approval from EPA, after consultation with MDNR, the tasks below may be modified or eliminated because of prior investigative activities completed by Respondent. Specifically, previously

performed work by Respondent, as summarized in the chart herein labeled the "Huster Substation Submittal Technical Reports" may satisfy Tasks numbered (1) through (4) and (6) through (8).

- Task 1 - Project Planning and Support
- Task 2 - Field Investigations
- Task 3 - Sample Analysis
- Task 4 – Data Evaluation
- Task 5 - Risk Assessment
- Task 6 - Remedial Investigation Report
- Task 7 – Treatability Study/Pilot Testing
- Task 8 - Remedial Alternatives Development and Screening
- Task 9 - Feasibility Study
- Task 10 - Feasibility Study Report
- Task 11 - Progress Reports

IV. TASKS

1. TASK 1 – PROJECT PLANNING AND SUPPORT

Respondent shall compile existing information to assist with the preparation of a site background summary. The summary shall include the information below, which shall be included in the RI/FS Work Plan.

1. *Local Regional Summary* – A summary of the site location, pertinent area boundary features and general site physiography, hydrogeology, geology and the locations(s) of any nearby drinking supply wells.

2. *Nature and Extent of Problem* – A summary of the actual and potential on-Site and off-Site health and environmental effects posed by any contamination at the Site. Emphasis should be on providing a conceptual understanding of the sources of contamination, potential release mechanisms, potential routes of migration and potential human and environmental receptors.

3. *History of Regulatory and Response Actions* – A summary of any previous response actions conducted by local, State, Federal or private parties.

4. *Preliminary Site Boundary* – A preliminary site boundary to define the initial area(s) of the remedial investigation. This preliminary boundary may also be used to define an area of access control and Site security.

5. *Conceptual Site Model (CSM)* – A conceptual site model shall be developed based on available historical information. The CSM shall include figures such as plume maps, cross sections and GIS overlays that depict the levels of contamination in each media. The CSM shall be submitted with the Sampling and Analysis Plan and be updated and re-submitted with each data submittal, as applicable.

Respondent shall meet with the EPA to discuss the following:

1. The proposed scope of the project and the specific investigative and analytical activities that will be required.

2. Preliminary remedial action objectives and general response actions.

3. Potential remedial technologies and the need for usefulness of treatability studies.

4. Potential Applicable or Relevant and Appropriate Requirements ("ARARs") associated with the location and contaminants of the Site and the potential response actions being contemplated.

Once the scope has been agreed upon with the EPA, Respondent shall develop: (1) the specific work plan to meet the objectives of the RI/FS; and (2) initiate subcontractor procurement and coordination with analytical laboratories. The RI/FS Work Plan provides a project description and outlines technical approach, complete with corresponding personnel requirements, activity schedules, deliverable due dates for each of the specified tasks and includes a sampling and analysis plan ("SAP") [composed of the field sampling plan ("FSP") and the quality assurance project plan ("QAPP")] and a health and safety plan ("HSP"). In accordance with Section V of this SOW (Schedule for Deliverables/Milestones), Respondent shall submit RI and FS Planning Documents listed below to EPA, with copies to MDNR. Respondent shall prepare the RI/FS planning documents as described in "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (OSWER Directive #9355.3-01, EPA/540/G-89/004, October 1988). The components of the RI/FS Work Plan are described below.

RI/FS Work Plan – Respondent shall prepare a RI/FS Work Plan which shall present the initial evaluation of existing data and background information performed during the scoping process, including: (1) an analysis and summary of the Site background and the physical setting; (2) an analysis and summary of previous response actions; (3) presentation of the conceptual site model which includes an analysis and summary of the nature and extent of contamination and a preliminary assessment of the human health and environmental impacts; and (4) the preliminary identification of general response actions and alternatives and the data needed for the evaluation of the alternatives.

Sampling and Analysis Plan – To the extent that all sampling and analytical activities, necessary for a complete remedial investigation, have not been completed as part of Ameren's previous work at the Site, Respondent shall prepare a SAP, which will provide the detailed description of the Work to be conducted, and shall consist of the following:

A. *Field Sampling Plan* – The FSP shall specify and outline all necessary activities to obtain any additional Site data. It should contain an evaluation explaining what additional data are required to adequately characterize the Site, conduct a baseline risk assessment (human health and ecological), and support the evaluation of remedial technologies in the FS. The FSP should clearly state: (1) sampling objectives; (2) sampling equipment and procedures; (3) sample types, locations, and frequency; (4) sample handling; (5) analysis analytes of interest; and (6) a schedule stating when events will occur and when deliverables will be submitted. All sampling and analysis that will be performed shall conform to EPA direction, approval, and guidance regarding sampling, quality assurance/quality control (QA/QC), data validation, and chain of custody procedures.

B. *Quality Assurance Project Plan* – The QAPP should address all types of investigations and shall be conducted in accordance with "Guidance for Quality Assurance Project Plans (QA/G-5), U.S. EPA, December 2002." The QAPP shall include the following discussions:

1. A project description (should be duplicated from the work plan);

2. A project organization chart illustrating the lines of responsibility of the personnel involved in the sampling phase of the project;

3. Data Quality Objectives (DQOs) for data such as the required precision and accuracy, completeness of data, representativeness of data, comparability of data, and the intended use of collected data;

4. Sample custody procedures during sample collection, in the laboratory, and as part of the final evidence files;

5. The type and frequency of calibration procedures for field and laboratory instruments, internal quality control checks, and quality assurance performance audits and system audits;

6. Preventative maintenance procedures and schedule and corrective action procedures for field and laboratory instruments;

7. Specific procedures to assess data precision, representativeness, comparability, accuracy, and completeness of specific measurement parameters; and

8. Data documentation and tracking procedures.

C. *Health and Safety Plan* ("HSP") - Respondent shall develop an HSP on the basis of Site conditions to protect personnel involved in Site activities and the surrounding community. The plan should address: (1) all applicable regulatory requirements contained in 20 C.F.R 1910.120(i)(2) - Occupational Health and Safety Administration, Hazardous Waste Operations and Emergency Response, Interim Rule, December *19*, 1986; (2) U.S. EPA Order 1440.2 -Health and Safety Requirements for Employees Engaged in Field Activities; (3)U.S. EPA Order 1440.3 - Respiratory Protection; (4)U.S. EPA Occupational Health and Safety Manual; and (5) U.S. EPA Interim Standard Operating Procedures (September, 1982). The HSP should provide a Site background discussion and describe personnel responsibilities, protective equipment, health and safety procedures and protocols, decontamination procedures, personnel training, and type and extent of medical surveillance. The HSP should identify problems or hazards that may be encountered and how these are to be addressed. Procedures for protecting third parties, such as visitors or the surrounding community, should also be provided. EPA, in consultation with MDNR, reviews and provides comments to the HSP, but does not "approve" the HSP.

The RI/FS Work Plan will be submitted to the EPA as specified in the Settlement Agreement or as discussed in the initial meeting(s). Respondent will provide a quality review of all project planning deliverables.

2. TASK 2 – FIELD INVESTIGATION

Respondent shall implement the approved RI/FS Work Plan to characterize the Site and to evaluate the actual or potential risk to human health and the environment posed by the Site. Investigation activities will focus on problem definition and result in data of adequate technical content to evaluate potential risks and to support the development and evaluation of remedial alternatives during the FS. The aerial extent of investigation will be finalized during the RI. Site investigation activities will follow the RI/FS Work Plan developed in Task 1. Strict chain-of-custody procedures will be followed and all sample locations will be identified on a Site map. Respondent shall provide management and quality control review of all activities conducted under this task. Activities already substantially completed, but subject to EPA's final review, comment, and approval for this Site are as follows:

1. *Surveying and Mapping of the Site* – Develop a map of the Site that includes topographic information and physical features on and near the Site. If no detailed topographic map for the Site and surrounding area exists, a survey of the Site will be conducted. Aerial photographs should be used, when available, along with information gathered during the preliminary Site visit to identify physical features of the area;

2. *Contaminant Characterization* – Determine the location, type and quantities as well as the physical or chemical characteristics of any hazardous substance, pollutants or contaminants at the Site. If hazardous substances are held in containment vessels, the integrity of the containment structure and the characteristics of the contents will be determined;

3. *Hydrogeological Investigation* – Further evaluate the extent of groundwater contamination. Efforts should begin with a survey of previous hydrogeological studies and other existing data. The survey should address the soils retention capacity/mechanisms, discharge/recharge areas, regional flow directions and quality *and* the likely effects of any alternatives that are developed involving the pumping and disruption of groundwater flow. Results from the sampling program should estimate the horizontal and vertical distribution of contaminants, the contaminants mobility and predict the long-term disposition of contaminants;

4. *Soils and Sediments Investigation* – If necessary, determine the vertical and horizontal extent of contamination of surface and subsurface soils and sediments and identify any uncertainties with this analysis. Information on local background levels, degree of hazard, location of samples, techniques used and methods of analysis should be included. If initial efforts indicate that buried waste may be present, the probable locations and quantities of these subsurface wastes should be identified through the use of appropriate geophysical methods;

5. *Surface Water Investigation* – If necessary, estimate the extent and fate of any contamination in the nearby surface waters. This effort should include an evaluation of possible future discharges and the degree of contaminant dilution expected; and

6. *Vapor Intrusion Investigation* – If additional sampling is required, investigate the extent of contaminant vapors emanating from those contaminants found to be present at the Site. This effort should assess the potential of the contaminants to enter on-Site and off-Site buildings, if any, including office spaces, residential and commercial locations. The vapor intrusion evaluation shall be conducted by following the "OSWER Technical Guidance for Assessing

and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air" June 2015.

Respondent shall incorporate information from this task into the RI/FS Report.

3. TASK 3 – SAMPLE ANALYSIS

Respondent shall maintain its existing data management system including field logs, sample management and tracking procedures, and document control and inventory procedures for both laboratory data and field measurements to ensure that the data collected during the investigation are of adequate quality and quantity to support the risk assessment and the FS. Collected data should be validated at the appropriate field or laboratory QC level to determine whether it is appropriate for its intended use. Task management and quality controls will be provided by Respondent. Respondent will incorporate information from this task into the RI/FS Report appendices.

4. TASK 4 – DATA EVALUATION

Respondent will analyze all Site investigation data and present the results of the analyses in an organized and logical manner so that the relationships between Site investigation results for each medium are apparent. Respondent shall prepare a summary that describes: (1) the quantities and concentrations of specific chemicals at the Site and the ambient levels surrounding the Site; (2) the number, locations, and types of nearby populations and activities; and (3) the potential transport mechanism and the expected fate of the contaminant in the environment.

5. TASK 5 – RISK ASSESSMENT

Respondent shall assess the potential human health and environmental risks posed by the Site contamination in the absence of any remedial action. This effort will involve four components; contaminant identification, exposure assessment, toxicity assessment and risk characterization.

1. *Contaminant Identification* – Respondent shall review available information on the hazardous substances present at the Site and identify the major contaminants of concern.

2. *Dose Response Assessment* – Contaminants of concern should be selected based on their intrinsic toxicological properties because they are present in large quantities, and/or because they are currently in, or potentially may migrate into, critical exposure pathways (e.g., drinking water).

3. *Exposure Assessment* – Respondent shall 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, Respondent shall develop reasonable maximum estimates of exposure for both current land and groundwater use conditions and potential land and groundwater use conditions at the Site.

4. *Toxicity Assessment* – Respondent shall provide a toxicity assessment of those chemicals found to be of concern during Site investigation activities. This will involve an assessment of

the types of adverse health or 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).

5. *Risk Characterization* – Respondent shall integrate information developed during the exposure and toxicity assessments to characterize the current or potential risk to human health and/or the environment posed by the Site. This characterization should identify the potential for adverse health or environmental effects for the chemicals of concern and identify any uncertainties associated with contaminant, toxicity and/or exposure assumptions.

The Risk Assessment must be done in accordance with the EPA risk assessment guidance, procedures, assumptions, methods and formats.

The Human Health Risk Assessment shall address the following:

- Hazard identification
- Dose-response assessment
- Exposure assessment
- Toxicity assessment
- Risk characterization
- Limitations/uncertainties

The risk assessment shall be submitted to the EPA with the RI Report as a separate deliverable.

6. TASK 6 – RI REPORT(S)

In accordance with the schedule approved by EPA, Respondent shall submit two hard copies and an electronic copy of the RI Report to EPA and MDNR for review and approval by EPA. The RI Report shall provide information to assess risks to human health and the environment and to support the development, evaluation and selection of appropriate response alternatives. The RI Report shall be written in accordance with the "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (OSWER Directive 9355.3-01, EPA/540/G-89/004, October 1988) and "Guidance for Data Usability in Risk Assessment" (EPA/540/G- 90/008, September 1990). The typical components of the RI Report include, but are not limited to, the following:

- Site Background
- Investigation
  - Field Investigation and technical approach
    Chemical analyses and analytical methods
  - Field methodologies (biological, surface water, sediment, soil boring, soil sampling, monitoring well installation, groundwater sampling, hydrogeological assessment)
- Site Characteristics
  - Geology
  - Hydrogeology
  - Meteorology

- Demographics and land use
- Reuse assessment
- Ecological assessment

- Nature and Extent of Contamination
  - Contaminant sources
  - Contaminant distribution and trends
- Fate and Transport
  - Contaminant characteristics
  - Transport processes
  - Contaminant migration trends
- Risk Assessment (Human Health and Ecological)
- Summary and Conclusions

7. TASK 7 – TREATABILITY STUDY/PILOT TESTING

If EPA or Respondent determines that treatability testing is necessary, Respondent shall conduct treatability studies as described in this section of the SOW. In addition, if applicable, Respondent shall use the testing results and operating conditions in the detailed design of the selected remedial technology. Respondent shall perform the following activities.

Identification of Candidate Technologies Memorandum

Respondent shall submit an Identification of Candidate Technologies Memorandum to EPA and MDNR for review and approval by EPA, which identifies candidate technologies for a treatability studies program no later than at the time of submittal of the RI Report. The list of candidate technologies shall cover the range of technologies required for alternatives analysis. Respondent shall determine and refine the specific data requirements for the testing program during Site characterization and the development and screening of remedial alternatives.

Within the Identification of Candidate Technologies Memorandum, 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. Respondent shall conduct treatability studies except where Respondent can demonstrate to EPA's satisfaction that they are not needed.

Treatability Testing and Deliverables

- **Treatability Testing Work Plan and Sampling and Analysis Plan (SAP)**

  If EPA or Respondent determines that treatability testing is necessary, EPA will decide on the type of treatability testing to be used (e.g., bench versus pilot). Within 30 days of receipt of an EPA determination that treatability testing is necessary, Respondent shall submit a paper copy and an electronic copy of a Treatability Testing Work Plan and associated SAP, to EPA and MDNR for review and approval by EPA, that; describes the Site background, the 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, residual waste management and a schedule for completion. Respondent shall

document the Data Quality Objectives for treatability testing as well. If pilot scale treatability testing is to be performed, the Treatability Testing 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.

- **Treatability Study Health and Safety Plan**

  If the Health and Safety Plan is not adequate for defining the activities to be performed during the treatability tests, Respondent shall submit a separate or second amended Health and Safety Plan consistent with the Settlement Agreement. EPA, in consultation with MDNR, reviews, but does not "approve" the Treatability Testing Health and Safety Plan.

- **Treatability Study Evaluation Report**

  Following the completion of the treatability testing, Respondent shall analyze and interpret the testing results in a technical report to EPA, with a copy to MDNR. Respondent shall submit the Treatability Study Evaluation Report according to the schedule in the approved Treatability Testing Work Plan. This Report may be part of the RI Report or submitted as a separate deliverable. The Treatability Study Evaluation Report shall evaluate each technology's effectiveness, implementability, 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.

8. TASK 8 – REMEDIAL ALTERNATIVE DEVELOPMENT AND SCREENING

This task includes Work efforts to develop appropriate remedial alternatives to undergo full evaluation. The alternatives are to encompass a range including innovative treatment technologies consistent with the regulations outlined in the National Contingency Plan (NCP), 40 CFR Part 300, and applicable Agency guidance, procedures and directives, such as the "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (OSWER Directive 9355.3-01) and other OSWER Directives including 9355.4-03, October 18, 1989 and 9283.1-06, May 27, 1992, "Considerations in Ground Water Remediation at Superfund Sites." The development of remedial alternatives shall include institutional controls (ICs) to the extent appropriate. Respondent shall prepare and submit three technical memoranda for this task: (1) Remedial Action Objectives Technical Memorandum; (2) Alternatives Screening Technical Memorandum; and (3) Individual and Comparative Analysis of Alternatives Technical Memorandum. These memoranda may be combined into a single memorandum as appropriate. Activities required under this task include, but are not limited to the following.

Remedial Action Objectives Technical Memorandum

Respondent shall submit a paper copy and an electronic copy of the Remedial Action Objectives Technical Memorandum to EPA and MDNR, for review and approval by EPA. This Technical Memorandum shall be submitted with the Draft RI Report. Based on existing information, the baseline human health risk assessment, Respondent shall provide site-specific remedial action objectives for each chemical in each medium in a Remedial Action Objectives Technical Memorandum. The remedial

action objectives shall specify the contaminant(s) and media of concern, the exposure route(s) and receptor(s) and an acceptable contaminant level or range of levels for each exposure route (i.e., preliminary remediation goals). Preliminary remediation goals should be established based on readily available information (e.g., Rfds) or chemical-specific ARARs (e.g., MCLs). The remedial action objectives shall be developed by considering the factors set forth in 40 C.F.R. § 300.430(e)(2)(i). Respondent shall incorporate EPA's comments on the Remedial Action Objectives Technical Memorandum in the Alternatives Screening Technical Memorandum.

Alternatives Screening Technical Memorandum

Respondent shall submit a paper copy and an electronic copy of the Alternatives Screening Technical Memorandum to EPA and MDNR, for review and approval by EPA. If required by EPA, 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.

Respondent shall incorporate EPA's comments on the Alternatives Screening Technical Memorandum in the Individual and Comparative Analysis of Alternatives Technical Memorandum. The Respondent shall submit the Alternatives Screening Technical Memorandum within 30 days after receipt of EPA's comments on the Remedial Action Objectives Technical Memorandum.

Develop General Response Actions

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

Identify Areas or Volumes of Media

In the Alternatives Screening Technical Memorandum, 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. Respondent shall also take into account the chemical and physical characterization of the Site.

Identify, Screen and Document Remedial Technologies

In the Alternatives Screening Technical Memorandum, Respondent shall identify and evaluate technologies applicable to each response action to eliminate those that cannot be implemented. Respondent shall refine applicable general response actions to specify remedial technology types. 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.

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. 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, Respondent shall provide a preliminary list of alternatives to address the contamination that shall include those listed in 40 C.F.R. § 300.430(e)(1-7). Respondent shall specify the reasons for eliminating any alternatives. Respondent shall prepare a summary of the assembled alternatives and their related ARARs within the Alternatives Screening Technical Memorandum.

Conduct and Document Screening Evaluation of Each Alternative

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, 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 were initially developed. The range of remaining alternatives shall include options that use treatment technologies and permanent solutions to the maximum extent practicable. 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.

9. TASK 9 – FEASABILITY STUDY

This task includes efforts associated with the assessment of individual alternatives against each of the nine evaluation criteria and a comparative analysis of all options against the evaluation criteria. The analysis is to be consistent with the National Contingency Plan (NCP), 40 CFR Part 300, and is to consider the Guidance for Conducting Remedial Investigation and Feasibility Studies under CERCLA (OSWER Directive 9355.3-01), Guide to Developing and Documenting Cost Estimates During the Feasibility Study (OSWER Directive 9355.0-75), and other pertinent OSWER guidance. The analysis will include ICs to the extent appropriate. EPA will make the determination regarding final selection of the remedial alternative.

Apply Nine Criteria and Document Analysis

Respondent shall apply the nine evaluation criteria to each of 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 shall include:

- Overall protection of human health and the environment
- Compliance with applicable or relevant and appropriate requirements (ARARs)
- Long-term effectiveness and permanence
- Reduction in toxicity, mobility or volume through treatment
- Short-term effectiveness
- Implementability - technical and administrative

- Cost
- State acceptance
- Community acceptance

Individual and Comparative Analysis of Alternatives Technical Memorandum

Respondent shall perform a comparative analysis between the remedial alternatives. That is, 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. Respondent shall prepare an Individual and Comparative Analysis of Alternatives Technical Memorandum which summarizes the results of the analyses and fully and satisfactorily addresses and incorporates EPA's comments on the Alternatives Screening Technical Memorandum. Respondent shall incorporate EPA's comments on the Individual and Comparative Analysis of Alternatives Technical Memorandum in the FS Report. Respondent shall submit the Individual and Comparative Analysis of Alternatives Technical Memorandum within 30 days after receipt of EPA's comments on the Alternatives Screening Technical Memorandum.

Alternative Analysis for Institutional Controls and Screening

For any alternative that relies on ICs, Respondent shall include in the alternatives analysis, the Individual and Comparative Analysis of Alternatives Technical Memorandum and a Feasibility Study which provides an evaluation of the following: (1) the restrictions needed on land, water, or other resources and their relationship to the remedial action objectives; (2) the specific types of ICs that can be used to address and implement the land, water, or other resource use restrictions; (3) when the ICs need to be implemented and how long they must remain in place; and (4) any agreement or other arrangements with the proper entities (e.g., state, local government, local landowners, conservation organizations) on exactly who will be responsible for implementing, maintaining and enforcing the ICs. The alternative analysis for ICs shall also evaluate the ICs identified in the Alternatives Screening Technical Memorandum against the nine criteria outlined in the NCP [(40 C.F.R. § 300.430(e)(9)(iii)] for CERCLA cleanups, including but not limited to costs to implement, maintain, and/or enforce the ICs. The alternatives analysis for ICs shall be submitted as an appendix to the Feasibility Study.

10. TASK 10 – FS REPORT

This task includes Work efforts related to the preparation of findings once remedial alternatives have been screened and evaluated. The task includes preparation of all final reports. Within 60 days after receipt of EPA's approval of the Individual and Comparative Analysis of Alternatives Technical Memorandum, Respondent shall prepare and submit a FS Report to EPA for its review with a copy to MDNR. The FS Report shall summarize the development and screening of the remedial alternatives and present the detailed analysis of remedial alternatives. The FS Report shall include, but is not limited to a discussion of the following:

- Feasibility Study
- Objectives Remedial
- Objectives General
- Response Actions
- Identification and screening of Remedial Technologies

- Remedial Alternatives Description
- Detailed Analysis of Remedial Alternatives (individual and comparative)
- Summary and Conclusions

11. TASK 11 – PROGRESS REPORTS

Progress Reports

Respondent shall submit periodic written progress reports (initially, quarterly) to EPA with copies to MDNR, describing actions undertaken pursuant to the Settlement Agreement, including this SOW, by the 10th day of the month following the end of the reporting period unless otherwise directed in writing by the RPM. Each progress report shall include a description of all significant developments during the preceding reporting period, including the specific work that was performed and any problems that were encountered, a summary of the data that was received during the reporting period, 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 periodic progress reports will summarize the field activities conducted including, but not limited to: drilling and sampling 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 any part of the RI/FS Work Plan, including the FSP, QAPP or Health and Safety Plan, with justifications for the modifications; a summary of all data received during the reporting period; and the analytical results and upcoming field activities. In addition, Respondent shall provide the RPM with all laboratory data within the periodic progress reports. As reflected in the information contained in the reports listed under the Huster Substation Submittals Technical Reports, a significant amount of Work required to complete an acceptable remedial investigation has been performed and described in reports submitted to EPA and MDNR. Once approved by EPA, in consultation with MDNR, Respondent shall combine the information in approved reports into a single Remedial Investigation Report to be submitted for review and approval.

V. SCHEDULE OF DELIVERABLES/MILESTONES

DELIVERABLE	DUE DATE
RI/FS Work Plan and Sampling and Analysis Plan (FSP/QAPP/HASP)	Within 30 days after the Effective Date of the Settlement Agreement
Baseline Human Health Risk Assessment	Within 45 days after collection of last field sample required by the approved Sampling and Analysis Plan
RI Report	Within 45 days after collection of last field sample required by the approved Sampling and Analysis Plan
Identification of Candidate Technologies Memorandum	Within 45 days after collection of the last field sample required by the EPA-approved Work Plan
Treatability Testing Work Plan and SAP	Within 15 days of request of EPA and no sooner than collection of the first field sample required by the EPA-approved Work Plan
Treatability Testing Health and Safety Plan or Amendment to the Original Health and Safety Plan	Within 15 days of request of EPA and no sooner than collection of the first field sample required by the EPA-approved Work Plan

DELIVERABLE	DUE DATE
Treatability Study Evaluation Report	Within 15 days after completion of any treatability testing
Remedial Action Objectives Technical Memorandum	With the RI Report
Alternatives Screening Technical Memorandum	Within 15 days of receipt of EPA's comments on the Remedial Action Objectives Technical memorandum
Individual and Comparative Analysis of Alternatives Technical Memorandum	Within 15 days of receipt of EPA's comments on the Alternatives Screening Technical Memorandum
Alternative Analysis for Institutional Controls Screening	As an appendix to the FS Report
FS Report	Within 15 days of receipt of EPA's comments on the Individual and Comparative Analysis of Alternatives Technical Memorandum
Progress Reports	On the 10th day following the end of a reporting period date

Respondent shall submit all deliverables to EPA and MDNR. Technical specifications for sampling and monitoring data and spatial data are addressed below. All other deliverables shall be submitted in the form specified by EPA's RPM. If any deliverable includes maps, drawings, or other exhibits that are larger than 8.5" by 11", Respondent shall also provide EPA with paper copies of such exhibits.

Sampling and monitoring data should be submitted in standard regional Electronic Data Deliverable (EDD) format. The data should be compatible with EQUIS. Other delivery methods may be allowed if electronic direct submission presents a significant burden or as technology changes. Spatial data, including spatially-referenced data and geospatial data, should be submitted: (1) in the ESRI File Geodatabase format; and (2) as un-projected geographic coordinates in decimal degree format using North American Datum 1983 (NAD83) or World Geodetic System 1984 (WGS84) as the datum. If applicable, submissions should include the collection method(s). Projected coordinates may optionally be included but must be documented. Spatial data should be accompanied by metadata, and such metadata should be compliant with the Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata and its EPA profile, the EPA Geospatial Metadata Technical Specification. An add-on metadata editor for ESRI software, the EPA Metadata Editor (EME), complies with these FGDC and EPA metadata requirements and is available at *https:l/edg.epa.gov/EMEI.*

Each file must include an attribute name for each site unit or sub-unit submitted. Consult *http://www.epa.gov/geospatial/policies.html* for any further available guidance on attribute identification and naming. Spatial data submitted by Respondent does not, and is not intended to, define the boundaries of the Site.