

**Report**

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# **Construction Quality Assurance Plan**

**Ashland/NSP Lakefront Site**  
**Project I.D.: 12X001**

**NSPW**  
**Eau Claire, Wisconsin**

**April 2014**



**Joint Venture**



## Joint Venture

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101 International Drive, P.O. Box 16655  
Missoula, MT 59808

April 9, 2014

Mr. Richard M. Halet  
Project Manager  
Xcel Energy, Inc., on behalf of NSPW  
414 Nicollet Mall, MP 7A  
Minneapolis MN 55401

Dear Mr. Halet:

RE: *Construction Quality Assurance Plan*  
Ashland/NSP Lakefront Site

On behalf of Foth Infrastructure & Environment/Envirocon Joint Venture (FE JV), the *Construction Quality Assurance Plan* for the Ashland/NSP Lakefront Site is enclosed.

Revisions were made to this *Plan* based on comments received from Northern States Power Company and U.S. Environmental Protection Agency. A revised *Plan* has also been posted to the FE JV SharePoint site.

If you have any questions concerning this report, please contact either of the undersigned at (920) 497-2500.

Sincerely,

Foth Infrastructure & Environment/Envirocon Joint Venture

A handwritten signature in black ink that reads "Steve Laszewski".

Steve J. Laszewski, Ph.D.  
*Management Committee Member*

A handwritten signature in black ink that reads "Michael S. Raimonde".

Michael S. Raimonde  
*Project Manager*

# Construction Quality Assurance Plan

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# **Construction Quality Assurance Plan**

Project ID: 12X001

Prepared for

**NSPW**

Eau Claire, Wisconsin

Prepared by

**Foth Infrastructure & Environment/  
Envirocon Joint Venture**

April 2014

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# Construction Quality Assurance Plan

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## List of Abbreviations, Acronyms, and Symbols

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CD	<i>Consent Decree</i>
CQA	Construction Quality Assurance
CQAP	<i>Construction Quality Assurance Plan</i>
FE/JV	Foth Infrastructure & Environment/Envirocon Joint Venture
<i>Final Design</i>	<i>Final Design for Upper Bluff, Filled Ravine and Kreher Park</i>
<i>Long-Term OM&amp;M Plan</i>	<i>Long-Term Operations, Maintenance, and Monitoring Plan</i>
MTTD	medium temperature thermal desorption
NSP	Northern States Power Company
NSPW	Northern States Power Company, a Wisconsin Corporation
OSHA	Occupational Safety and Health Administration
<i>Plan</i>	<i>Construction Quality Assurance Plan</i>
POTW	Publicly Owned Treatment Works
QA	quality assurance
QC	quality control
RA	remedial action
<i>RA HASP</i>	<i>Remedial Action Site Specific Health and Safety Plan</i>
RAO	Remedial Action Objectives
<i>RA WMP</i>	<i>Remedial Action Waste Management Plan</i>
<i>RD Work Plan</i>	<i>Phase 1 Remedial Design Work Plan</i>
<i>ROD</i>	<i>Record of Decision</i>
Site	Ashland/Northern States Power Lakefront Site
USEPA	U.S. Environmental Protection Agency
WDNR	Wisconsin Department of Natural Resources

# 1 Introduction

This *Construction Quality Assurance Plan (Plan/CQAP)* has been prepared on behalf of Northern States Power Company, a Wisconsin Corporation (NSP/NSPW) by Foth Infrastructure & Environment/Envirocon Joint Venture (FE JV) and has been developed for remedial action (RA) activities at the Ashland/NSP Lakefront Site in Ashland, Wisconsin (Site). This *Plan* addresses quality assurance (QA) for managing construction activities to meet the remedial action objectives (RAO) described in the *Phase I Remedial Design Work Plan (RD Work Plan)* (Burns & McDonnell, 2012). Specifically, this *Plan* addresses activities required to ensure compliance with the RAs described in the *Record of Decision (ROD)* (USEPA, 2010) for the Kreher Park, Upper Bluff/Filled Ravine, and Copper Falls Aquifer operating units.

Remediation will involve activities such as the following:

- ◆ Excavation of contaminated soil;
- ◆ Excavations associated with installation of the shoreline braced sheet pile wall and Kreher Park containment wall;
- ◆ Contaminated material transport to the thermal desorption system area;
- ◆ Contaminated material transport off-site;
- ◆ Wastewater collection and treatment;
- ◆ Contaminated material processing, including use of the medium temperature thermal desorption (MTTD) to treat contaminated materials; and
- ◆ Backfilling excavations.

## 1.1 Purpose

The purpose of the *Plan* is to outline the construction inspection and documentation procedures utilized before, during, and after construction activities. This *Plan* establishes the procedures to verify that the construction substantially meets the requirements specified in the remedial design (RD).

Construction activities at the Site include the following:

### 1.1.1 Remedial Action Preparation

- ◆ Conduct pre-demolition Site preparations, inspections, and surveys.
- ◆ Mobilization of demolition equipment and setup of site access controls.
- ◆ Conduct demolition and associated monitoring.
- ◆ Conduct post-demolition verification surveys and sampling.
- ◆ Construct haul truck access ramp from Upper Bluff/Filled Ravine to Kreher Park.
- ◆ Conduct ground improvements required for operational units.
- ◆ Delineate construction equipment operational areas. Conduct abandonment of artesian groundwater wells in Kreher Park.

Activity completed



### **1.1.1.1 Kreher Park**

- ◆ Mobilization of excavation equipment and setup of site access controls.
- ◆ Installation of surface and subsurface hydraulic barriers and storm water management systems.
- ◆ Installation of the material management working pad for the MTTD operations.
- ◆ Construction of the Allsite structure for containment of material handling and sorting operations for MTTD.
- ◆ Excavation, and stockpile for gravity drainage, of subsurface material from former tar dump area.
- ◆ On-site thermal treatment of excavated material or off-site disposal of debris that is not suitable for MTTD.
- ◆ Placement and compaction of post-treated material.
- ◆ Installation of vertical hydraulic containment wall at shoreline, east, west and south limits of Kreher Park.
- ◆ Installation of hydraulic collection and pre-treatment system for shallow groundwater along containment wall sections and within former tar dump area.
- ◆ Installation of pretreatment discharge controls to the Publicly Owned Treatment Works (POTW) or to the lake in accordance with applicable local, Wisconsin Department of Natural Resources (WDNR) and U.S. Environmental Protection Agency (USEPA) regulatory requirements.
- ◆ Site restoration/capping and demobilization.

### **1.1.1.2 Upper Bluff/Filled Ravine**

- ◆ Installation of groundwater dewatering and pretreatment system for perched groundwater.
- ◆ Installation of pretreatment discharge control to the POTW or to the lake in accordance with applicable local, WDNR and USEPA regulatory requirements.
- ◆ Installation of sheet pile for soil stability during excavation.
- ◆ Excavation of subsurface material from former Site operational features.
- ◆ Removal of former sub-surface gas manufacturing structures, as practicable.
- ◆ On-site MTTD of excavated material or off-site disposal of debris that is not suitable for MTTD.

- ◆ Placement and compaction of post-treated material.
- ◆ Site restoration and demobilization.

## **1.2 Scope**

The following four elements are part of this *Plan*:

1. Responsibility and authority
2. Inspections
3. Sampling
4. Documentation

This *Plan* is divided into five sections. Section 2 details the project team roles and responsibilities, Section 3 describes the project quality objectives, Section 4 summarizes the methods that will be used to document the quality of project work, and Section 5 sets forth the inspection procedures to ensure that the operating units are built in accordance with the RD.

This *Plan* is supported by the following plans included as part of the RD which provide additional detail for elements discussed in the sections below:

- ◆ *Remedial Action Quality Assurance Project Plan – Revision 1* (FE JV, 2014a)
- ◆ *Remedial Action Site Specific Health and Safety Plan (RA HASP)* (FE JV, 2014b)
- ◆ *Performance Standard Verification Plan* (FE JV, 2014c)
- ◆ *Air Management Plan* (FE JV, 2014d)
- ◆ *Noise Management Plan* (FE JV, 2014e)
- ◆ *Vibration Management Plan* (FE JV, 2014f)
- ◆ *Remedial Action Waste Management Plan (RA WMP)* (FE JV, 2014g)
- ◆ *Erosion Control and Storm Water Management Plan* (FE JV, 2014h)
- ◆ Design Drawings
- ◆ Design Specifications

## 2 Responsibility and Authority

The responsibility and authority for the development and implementation of the construction QA (CQA) program for the RA rests with the FE/JV. The FE/JV will perform the CQA and construction certification. CQA personnel are listed in Table 2-1. Additionally, a general project organization chart is provided in Figure 2-1.

**Table 2-1**  
**Project Construction Quality Assurance Personnel**

<b>Title</b>	<b>Name</b>	<b>Affiliation</b>	<b>Phone</b>
Owner	Richard Halet	Xcel Energy, Inc. (on behalf of NSPW)	(612) 330-7780
Project Manager	Michael Raimonde	Foth	(414) 336-7902
Project Engineer	Brian Symons	Foth	(913) 469-0686
CQA Inspection Engineer	Dave Gehring	Envirocon	(509) 531-4908
CQA Officer	TBD	Foth	TBD
Project Health & Safety Supervisor	Dan Allen	Envirocon	(720) 404-6325
Construction Manager	Brad Hay	Envirocon	(678) 822-3568
Independent CQA Officer, 3 <sup>rd</sup> Party	TBD	Independent Firm (TBD)	TBD

This *Plan* is being conducted in accordance with the Phase 1 RA design which followed from the *ROD*, under the authority of *Consent Decree (CD)* (USEPA, 2012). In the event that changes due to unforeseen Site conditions are necessary, these potential changes will be discussed with WDNR and USEPA prior to implementation.

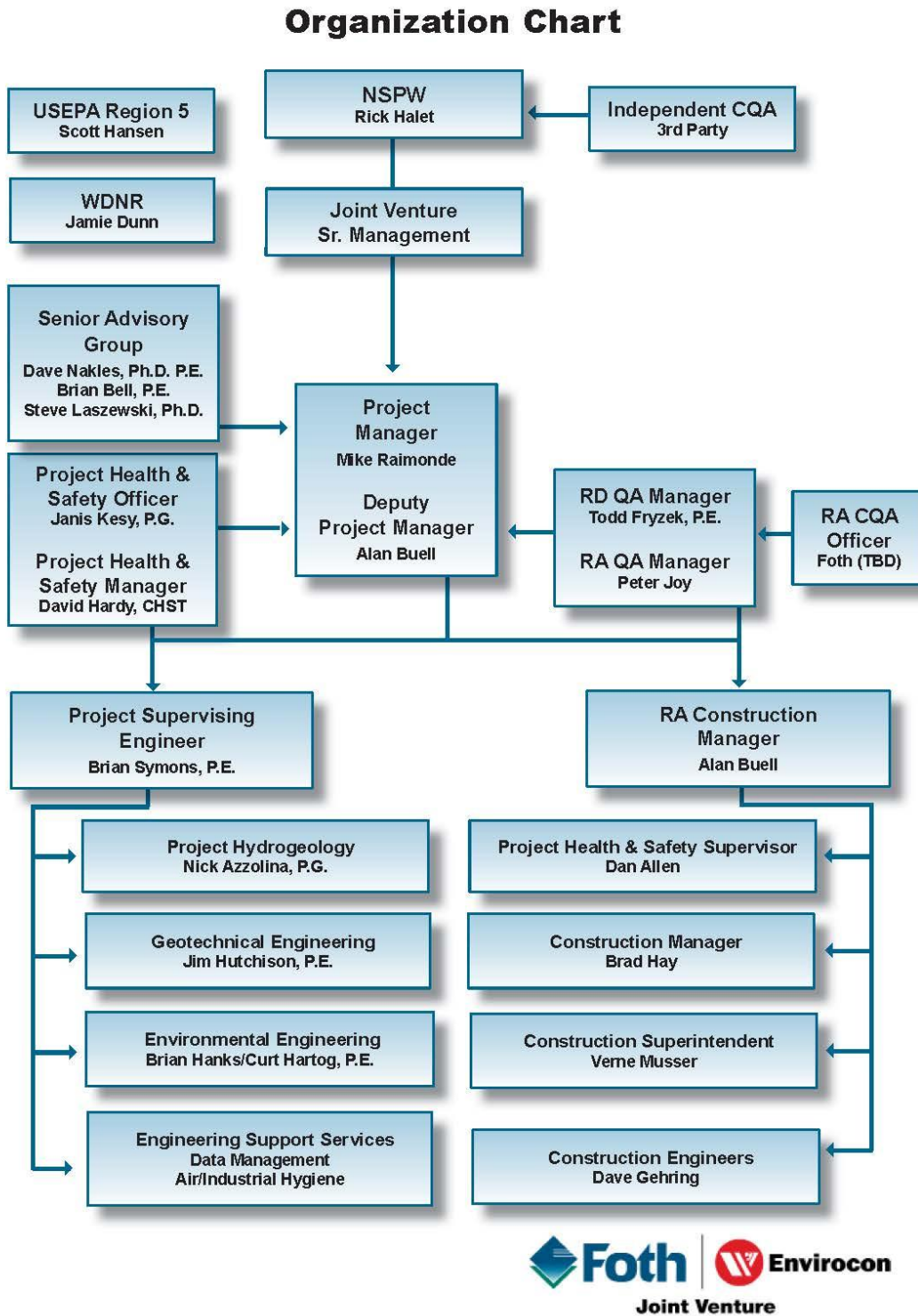
## 2.1 Organizations Involved with Construction

Contracts for construction activities will be administered by the FE/JV. The following organizations will be involved with the construction.

Owner:	NSPW d.b.a Xcel Energy, Inc.
Engineer:	Foth Infrastructure & Environment/Envirocon Joint Venture
General Contractor:	Foth Infrastructure & Environment/Envirocon Joint Venture
Surveyor:	Cedar Corporation
Electrical Subcontractor:	To be determined
Materials Testing:	To be determined
CQA:	Foth Infrastructure & Environment/Envirocon Joint Venture
Independent CQA:	To be determined

Figure 2-1 illustrates an organization chart and clear lines of communication for FE JV, NSPW, and USEPA.

Figure 2-1



## **2.2 Construction Project Meetings**

Periodic meetings will be conducted by the CQA Officer or CQA Inspection Engineer for the purposes listed below:

- ◆ Preconstruction activities
- ◆ Weekly construction progress monitoring
- ◆ Special problems resolution

Each meeting type is described in more detail below. Unless otherwise noted, the CQA Inspection Engineer will be responsible for written documentation of project meeting minutes.

### **2.2.1 Preconstruction Activities**

The FE/JV, CQA Inspection Engineer, CQA inspection personnel, WDNR and/or USEPA and/or their representatives, and the construction contractor(s) will attend a preconstruction meeting.

The purpose of this meeting is:

- ◆ Discuss details of construction design documents including plans and specifications.
- ◆ Determine if any modifications to design specifications are necessary.
- ◆ Resolution of areas of confusion.
- ◆ Review the responsibilities of each organization.
- ◆ Review the lines of authority and communications.
- ◆ Provide each organization with all relevant CQA documents including the *CQAP*.
- ◆ Discuss the protocol and procedures for inspections, verification testing, and confirmation sampling.
- ◆ Discuss the laboratories contracted for various testing functions.
- ◆ Discuss the burden of failure/omission and protocol and procedures for re-testing, if necessary.
- ◆ Review documentation requirements.
- ◆ Review documentation distribution and storage.
- ◆ Review construction zones, work areas, site security, and site safety.
- ◆ Document Occupational Safety and Health Administration (OSHA) health and safety training qualifications for all contractors' personnel, and review their health and safety and emergency preparedness plans.

- ◆ Review the construction schedule, schedule of progress meetings and any special meetings needed during the project.
- ◆ Record and distribute results of the preconstruction meeting.

The meeting will be documented by the CQA Officer. Depending on the project schedule, more than one meeting may be held. A sample agenda, Specification 01 31 19, is provided in Appendix A.

### **2.2.2 Weekly Progress Meetings**

Weekly progress meetings will be held at the beginning of each week to review:

- ◆ Site activities and accomplishments from the previous week.
- ◆ Status of project schedule.
- ◆ Any construction deficiencies and resolution.
- ◆ Proposed activities for the upcoming week.
- ◆ Site health and safety.

WDNR and/or USEPA and/or their representatives will be invited to attend these meetings. Meetings will be brief and to the point, and any questions that arise will be addressed. The CQA Officer or the CQA Inspection Engineer will document meetings. Meeting minutes will be included in the documentation report. The meeting minutes will be made available to USEPA, WDNR, and other pertinent regulatory agencies in a timely manner. A sample agenda form is provided in Appendix A. In addition to weekly progress meetings, routine audits of quality control (QC) data collection and filing will be performed to ensure compliance with this *Plan*. The audits will be performed twice monthly and will be the responsibility of the Certifying Engineer.

### **2.2.3 Problem Resolution Meetings**

Meetings will be held when special conditions warrant. They will be attended by at least the contractor(s) involved, the Owner's construction representative, and the CQA Officer or CQA Inspection Engineer. USEPA and/or WDNR and/or their representatives will be invited to attend these meetings. These meetings will be conducted to define and discuss problems or concerns, review solutions, and implement a solution. The CQA Officer will directly notify the Project Manager of issues requiring resolution and will determine the notification process for USEPA and/or WDNR. It is the CQA Officer's responsibility to schedule the meeting and notify attendees. The CQA Officer or CQA Inspection Engineer will document the meetings. A project problem resolution form is provided in Appendix A.

## **2.3 Personnel Qualifications**

Several personnel may be involved in the construction management and CQA during Site construction. Personnel will have experience at similar sites and projects consistent with their roles. The following sections describe project and job designations.

### 2.3.1 Project Manager

The Project Manager will be responsible for:

- ◆ Interacting and coordinating regulatory concurrence of activities with WDNR and USEPA.
- ◆ Overseeing compliance to project schedules, budgets, reporting requirements, and performance standards set forth in the plans and specifications.
- ◆ Maintaining the project budget, construction performance standards (i.e., compliance with drawings and specifications), and schedule as related to field activities.
- ◆ Acting as the Owner's representative.
- ◆ Reviewing activities and deliverables.
- ◆ Review and approval of change orders internally, and
- ◆ Submittal of change orders to Owner.

### 2.3.2 CQA Officer

The CQA Officer will be present during construction activities and will be responsible for:

- ◆ Coordinating CQA and construction data management.
- ◆ Interacting directly with CQA Inspection Engineer.
- ◆ Review applicable plans, specifications and the *CQAP*.
- ◆ Review approved changes to the plans and specifications.
- ◆ Review and recommend approval and disapproval of site-specific documentations including contractor submittals, manufacturer's information, installer's information, and reference standards.
- ◆ Assign appropriate inspection personal to each major activity performed.
- ◆ Attend required meetings.
- ◆ Educate the CQA inspection personnel on the site-specific CQA requirements. Confirm calibrations of QA/QC testing equipment are correctly performed and recorded.
- ◆ Confirm that the QA/QC tests are properly performed, recorded and the results meet specified requirements.



- ◆ Review contractor personnel qualifications to verify conformance with the specifications.
- ◆ Review warranty submittals to verify they comply with the specified warranty requirements.
- ◆ Verify that the contractor is following the *CQAP*.
- ◆ Report any deviation from the *CQAP* plans and specifications.
- ◆ Prepare and maintain required reports, files and logs.
- ◆ Oversee collection, marking, packaging and shipping of conformance samples.
- ◆ Review as-built surveys and drawings.

### **2.3.3 CQA Inspection Engineer**

Responsibilities of the CQA Inspection Engineer include:

- ◆ Tracking the progress of each individual construction task.
- ◆ Attend safety meetings.
- ◆ Observing and documenting activities performed by subcontractors.
- ◆ Ensuring field data acquisition accuracy and completeness.
- ◆ Collecting each day's records, receipts, samples, etc., for contractor and subcontractor activities.
- ◆ Filing daily, monthly, and project progress reports as specified in the plans and specifications.
- ◆ Ensuring that the General Contractor and its subcontractors are meeting the requirements of the design.
- ◆ Ensuring that the General Contractor and its subcontractors are meeting the requirements of the project plans and specifications.
- ◆ Notifying the on-site Construction Manager of all incidents in non-conformance, discrepancies, problems, etc.
- ◆ Ensuring the proper peer QA/QC review of project construction data, reports, and designs.

- ◆ Supervising collection of construction confirmation samples.
- ◆ Ensuring proper chain of custody and documentation of construction confirmation samples.
- ◆ Implementation of the continuous improvement process.
- ◆ Coordination of change requests with Project Manager, Lead Engineer, and USEPA.

#### **2.3.4 Independent CQA Officer**

Responsibilities of the Independent CQA Officer include:

- ◆ Perform assessments of the design and construction team's adherence to the *CQAP*.
- ◆ Act as the Owner's independent oversight.
- ◆ Attend required meetings.
- ◆ Report results of assessments directly to the Owner.

#### **2.3.5 On-Site Health and Safety Supervisor**

The on-site Project Health & Safety Supervisor will be responsible for:

- ◆ Conducting daily health and safety meetings.
- ◆ Perform daily job safety hazard analysis.
- ◆ Ensuring that adequate health and safety protocols are practiced at the Site.
- ◆ Verifying that project personnel have adequate training and equipment to perform assigned tasks.
- ◆ Maintaining records of training for all on-site project personnel and subcontractors.
- ◆ Notification of the on-site construction manager of alert or alarm conditions related to on-site health and safety monitoring.
- ◆ Ensuring implementation of proper decontamination procedures.
- ◆ Providing copies of bill of lading, permits, manifests, site reports, incident reports, and health and safety reports to the Owner's construction representative.
- ◆ Ensuring all subcontract activities are performed per the *RA HASP*.

- ◆ Conduct accident investigation and reporting.

### **2.3.6 On-Site Construction Manager**

The on-site Construction Manager will be responsible for:

- ◆ Directing and supervising daily work and crew activities.
- ◆ Directing and supervising subcontract activities.
- ◆ Daily coordination with other site personnel to assure that project requirements are being met and the schedule maintained.
- ◆ Maintaining site security.
- ◆ Ensuring compliance with plans, specifications, and procedures applicable to the field activities.

### 3 Project Objectives

#### 3.1 Project Quality

The CQA Officer will review the site construction design drawings and specifications, which are available on site, with the various construction contractors to verify a common understanding of the project requirements. The quality of the construction activities at the Site will be measured within the following five categories:

- ◆ The degree to which the final product meets applicable local, state, and federal regulations (i.e., the ARARs specified in the *ROD*). Guiding documents include:
  - ▶ Table 4-1;
  - ▶ Table 3-1, *Final Design for Upper Bluff, Filled Ravine and Kreher Park (Final Design)* (FE-JV, 2014i); and
  - ▶ Tables 2-1, 2-2 and 2-3, *Performance Standard Verification Plan*.

The degree to which construction is completed in a safe manner consistent with the *RA HASP* with no reportable safety incidents.

- ◆ The degree to which construction is completed within the project budget and schedule. Guiding documents include:
  - ▶ Project internal budget; and
  - ▶ Appendix G Schedule, *Final Design*.
- ◆ Constructed and operable according to the design specifications. Guiding documents include:
  - ▶ Section 5; and
  - ▶ Appendix F Specifications, *Final Design*.
- ◆ Accessible for maintenance according to the *Long-Term Operations, Maintenance, and Monitoring Plan (Long-Term OM&M Plan)* (FE JV, 2014j). An operability review has been performed during the RD phase.

The design incorporates requirements from the state regulatory agency (WDNR). At the end of construction, the Site will meet applicable regulations by complying with the design and applicable permit conditions. Safety requirements and procedures are detailed in the *RA HASP*, which will be kept on site at all times.

#### 3.2 Quality Measurement

Project quality and the degree to which construction meets applicable requirements will be measured with specific physical field measurements and material certifications as described in Section 4. Documentation of project quality during the construction process will be evaluated using procedures detailed in Section 5.

## 4 Inspections

This section describes the parameters, methods and acceptance criteria that will be performed throughout construction to ensure that systems are constructed and installed according to the approved design. An overview of the parameters and acceptance criteria anticipated for various construction tasks are provided in Table 4-1. Site monitoring plans developed prior to initiating construction activities will provide additional sampling and analysis details for each parameter. The following plans are utilized for inspection parameters and appear as references in Table 4-1:

- ◆ *Remedial Action Quality Assurance Project Plan – Revision 1*
- ◆ *Performance Standard Verification Plan*
- ◆ *Air Management Plan*
- ◆ *Noise Management Plan*
- ◆ *Vibration Management Plan*
- ◆ *Remedial Action Waste Management Plan*
- ◆ *Erosion Control and Storm Water Management Plan*
- ◆ Design Drawings
- ◆ Design Specifications

**Table 4-1  
Construction Quality Assurance Plan Performance Metrics Detail Summary**

<b>Task</b>	<b>Description</b>	<b>Parameter</b>	<b>Test Method</b>	<b>Acceptance Criteria</b>	<b>Referenced Plan/Specification</b>
<b>Remedial Action Preparation</b>					
Pre-demolition Site preparations	Existing condition surveys and inspections including topographic and photographic documentation.	Visual	Documentation	Specified Method or Drawing	Design Specification 01 32 33
Mob/Setup of site access and decon controls	Demolition equipment, barricade, signage, wash-down	Visual	Documentation	Specified Method or Drawing	Design Drawings (A series), Design Specification 01 50 00
Layout of excavation areas	Staking and definition of areas and depths of excavation.	Survey Data	Documentation	Specified Method or Drawing	Design Drawings (A Series)
Protection of existing facilities	Ensure protection of utilities, structures, curbs, etc. are protected during construction.	Visual	Documentation	Specified Method or Drawing	Design Drawings (A series), Design Specification 01 32 33; 01 50 00
Ground improvements required for operational units	Access ramp, haul truck roads, material management working pad	Compaction	Specified Method	Specified Method or Drawing	Design Specifications 31 32 33; 32 12 16
Ground improvements required for operational units	Fencing and gate	Visual	Documentation	Specified Method or Drawing	Design Specification 32 31 00
Construction of Allsite structure	Assembly of temporary building for materials handling.	Visual	Documentation	Specified Method or Drawing	Design Specification 44 60 02
Delineate construction equipment operational areas	Functional and laydown areas	Visual	Documentation	Specified Method or Drawing	Design Drawings (A Series)
Demolition	Demolition of structures	Visual	Documentation	Specified Method or Drawing	Design Drawings (A Series)
Demolition associated monitoring	Air Management Plan	GC/RAM meter	PM10, VOC, SVOC	GC<0.5PPM, RAM<0.5 mg/m3(Alert Levels)	Air Management Plan Table 3-3 and Appendices B through E
Demolition associated monitoring	Noise assessment program	meter	Decibels ANSI S1.4-1983	<55dBA (residential); <60 dBA (commercial); <80 dBA (industrial)	Noise Management Plan Table 2-1
Demolition associated monitoring	Vibration Management Plan	meter	Hertz (Seismograph) Crack gauge	<120 Hz	Vibration Management Plan Table 2-1
Groundwater well abandonment	Monitoring wells in Kreher Park and Upper Bluff	Visual	Documentation	WDNR Rule: NR 812.26	Design Specification 02 41 13 and Design Drawing A-5
Post-demolition verification sampling	absence of building debris	Visual	Documentation	Specified Method or Drawing	Performance Standard Verification Plan
Restoration of unpaved areas	Replacement of soil and vegetation	Visual	Documentation	Specified Method or Drawing	Design Drawings and Design Specification 32 92 00 Specified Method or Drawing
<b>Kreher Park</b>					
Mob/Setup of site access and decon controls	Excavation equipment, barricade, signage, wash-down	Visual	Documentation	Specified Method or Drawing	Design Drawings
Hydraulic barriers	caps, vertical walls, trenches, swales, berms	CFR	Documentation	NR 504	Erosion Control and Storm Water Management Plan
Hydraulic barriers	Soil-bentonite cutoff wall	Permeability	ASTM D5084	10-7 cm/sec, mix per design specification	Design for Shoreline Bulkhead Wall, Sec. 4
Hydraulic barriers	Caps, vertical walls	Groundwater elevation	Documentation	Inward gradient	Long-Term OM&M Plan
Storm water management systems	caps, vertical walls, trenches, swales, berms	CFR	Documentation	NR 504	Erosion Control and Storm Water Management Plan; Design Specification 31 25 00
Excavation and stockpile for gravity drainage	5 ft below tar-impacted material in former tar dump area	Visual	Documentation	Specified Method or Drawing	Design Drawings
Construction associated monitoring	Air Management Plan	GC/RAM meter	PM10, VOC, SVOC	GC<0.5PPM, RAM<0.5 mg/m3(Alert Levels)	Air Management Plan, MTTD Air Permit
Construction associated monitoring	Noise assessment program	meter	Decibels	<55dBA (residential); <60 dBA (commercial); <80 dBA (industrial)	Noise Management Plan
Construction associated monitoring	Vibration Management Plan	meter	Hertz	<120	Vibration Management Plan

<b>Task</b>	<b>Description</b>	<b>Parameter</b>	<b>Test Method</b>	<b>Acceptance Criteria</b>	<b>Referenced Plan/Specification</b>
MTTD of excavated material	Run soils through thermal unit	Temperature	Deg F	1,100-1,250°F	Design Specification 44 60 01
MTTD of excavated material	Run soils through thermal unit	Treatment Rate	Ton per hour	Average 22 tph, Maximum 25 tph	Design Specification 44 60 01
Off-site disposal of un-treated debris	Roll-off characterization	Composite Sample	VOC, SVOC	Subtitle D landfill	RA Waste Management Plan
Placement of post-treated material	Haul, dump, grade, compact	Visual	Documentation	Specified Method or Drawing	Design Specification 31 23 33
Placement of post-treated material	Haul, dump, grade, compact	Compaction	Specified method	Specified Method or Drawing	Design Specification 31 23 33
Collection of shallow groundwater within former dump	Sump pump	Pumping Rate	Flow Meter	KP Rate > 50 gpm; Total system Rate < 200 gpm	Design Specification 31 23 33, RA Waste Management Plan
Water treatment system for discharge to POTW	Influent, discharge	Influent Concentration	VOC, SVOC	Verify with pretreatment design influent concentration	Design Specification 44 41 13
Water treatment system for discharge to POTW	Influent, discharge	Pressure Drop Across Media	Gauge Pressure	Replace media< 10 psi< break through sampling	Design Drawings
Water treatment system for discharge to POTW	Influent, discharge	Effluent Concentration/ Breakthrough	VOC, SVOC	Concentration< Discharge Permit< replace media	Design Specification 44 41 13
Water treatment discharge controls to the POTW	Immediate shutdown control	Flow Rate	Flow Meter	200 GPM<=Discharge Permit< close valve	Design Specification 44 41 13
<b>Upper Bluff/ Filled Ravine</b>					
Dewatering of perched groundwater	Well point network, centrifugal pumps	Flow Rate	Flow Meter	Total flow< 200 gpm	Design Specification 31 23 33, RA Waste Management Plan
Mob/Setup of site access and decon controls	Excavation equipment, barricade, signage, wash-down	Visual	Documentation	On-file on FE JV Server/Agency SharePoint Site	Design Specification 01 50 00
Storm water management systems	Caps, vertical walls, trenches, swales, berms	CFR	Documentation	NR 504	Erosion Control and Storm Water Management Plan; Design Specification 31 25 00
Excavation of subsurface material	20-30 ft bgs from former Site operational features	Confirmation Sample	VOC, SVOC	CR< 10-6 (CCR <10-5), HI <1.0 for surface soils	Performance Standard Verification Plan
Construction associated monitoring	Air Management Plan	GC/RAM meter	PM10, VOC, SVOC	GC<0.5PPM, RAM<0.5 mg/m3(Alert Levels)	Air Management Plan, MTTD Air Permit
Construction associated monitoring	Noise assessment program	meter	Decibels	<55dBA (residential); <60 dBA (commercial); <80 dBA (industrial)	Noise Management Plan
Construction associated monitoring	Vibration Management Plan	meter	Hertz	<120	Vibration Management Plan
MTTD of excavated material	Run soils through thermal unit	Temperature	Deg C	250 Degree C	Design Specification 44 60 01
MTTD of excavated material	Run soils through thermal unit	Treatment Rate	Ton per hour	Average 22 tph, Maximum 25 tph	Design Specification 44 60 01
Off-site disposal of un-treated debris	Roll-off characterization	Composite Sample	VOC, SVOC	Subtitle D landfill	Performance Standard Verification Plan
Placement of post-treated material	Haul, dump, grade, compact	Visual	Documentation	Specified Method or Drawing	Design Drawings
Placement of post-treated material	Haul, dump, grade, compact	Compaction	Specified Method	Specified Method or Drawing	Design Specification 31 23 33
Water treatment system for discharge to POTW	Influent, pretreatment, discharge	Influent Concentration	VOC, SVOC	Verify with pretreatment design influent concentration	Performance Standard Verification Plan
Water treatment system for discharge to POTW	Influent, pretreatment, discharge	Pressure Drop Across Media	Gauge Pressure	Replace media< 10 psi< break through sampling	Design Specification 44 41 13
Water treatment system for discharge to POTW	Influent, pretreatment, discharge	Effluent Concentration/ Breakthrough	VOC, SVOC	Concentration< Discharge Permit< replace media	Performance Standard Verification Plan
Water treatment discharge controls to the POTW	Immediate shutdown control	Flow Rate	Flow Meter	200GPM<=Discharge Permit< close valve	Design Specification 44 41 13
<b>Shoreline Bulkhead Wall</b>					
Installation of steel sheet pile	Sheet pile wall sections	Length	Measuring Tape	Specified Method or Drawing	Design for Shoreline Bulkhead Wall, Sec. 4
Installation of steel sheet pile	Sheet pile wall sections	Thickness	Tape or Calipers	0.535 inches	Design for Shoreline Bulkhead Wall, App B
Installation of steel sheet pile	Sheet pile wall sections	Final Top Elevation	Survey	Specified Method or Drawing	Design for Shoreline Bulkhead Wall, Sec. 4
Installation of steel sheet pile	Sheet Pile Wall Section	Final Installation Depth	Survey	Specified Method or Drawing	Design for Shoreline Bulkhead Wall, Sec. 4

<b>Task</b>	<b>Description</b>	<b>Parameter</b>	<b>Test Method</b>	<b>Acceptance Criteria</b>	<b>Referenced Plan/Specification</b>
Installation of steel sheet pile	Anchor bars	Length	Measuring Tape	Specified Method or Drawing	Design for Shoreline Bulkhead Wall, Sec. 4
Installation of steel sheet pile	Anchor bars	Diameter	Tape or Caliper	Specified Method or Drawing	Design for Shoreline Bulkhead Wall, Sec. 4
Installation of steel sheet pile	Walers	Length and Width	Measuring Tape	Specified Method or Drawing	Design for Shoreline Bulkhead Wall, Sec. 4
Installation of steel sheet pile	Walers	Thickness	Tape or Calipers	Specified Method or Drawing	Design for Shoreline Bulkhead Wall, Sec. 4
Installation of steel sheet pile	Welded joints	Visual	Documentation	Conformance with AWS D1.1	Design Specification 31 62 16.13
Installation of steel sheet pile	Joint sealant	Visual	Documentation	ADEKA Ultraseal® sealant P-201	Design for Shoreline Bulkhead Wall, Sec. 4

Documentation of Acceptance for all tasks will be stored On-line on the FE JV Server/Agency SharePoint Site

Prepared by: BMS2

Checked by: BDS1



Materials and/or equipment furnished and/or work done by contractors under construction specifications shall be subject to inspections and testing. Materials and/or equipment will be tested to verify that it is capable of meeting the design criteria. Work performed in the absence of prescribed inspections and testing may be required to be removed and replaced at the discretion of the CQA Inspection Engineer or CQA Officer. The scope and frequency of inspections will be provided in final construction design drawings and specifications. In order to document inspections, an example CQA inspection form is provided in Appendix A.

#### **4.1 Corrective Action**

The following corrective action procedures will be implemented by the CQA Inspection Engineer, at the direction of the Owner and/or Owner's Representative upon failure of construction performance metrics, tests, or measurements:

1. **Failure.** If the test reveals a quality or quantity that is below that required by the design, it is a failure. Such items shall be reworked by the Contractor and retested until satisfactory results are obtained. The CQA Inspection Engineer shall promptly inform the CQA Officer of all failing tests.
2. **Omissions.** Any omissions to the Contractor's scope of work for equipment or materials will be noted by the CQA Inspection Engineer, and corrected by the Contractor as soon as possible unless otherwise approved by the CQA Officer.

The CQA Officer will notify the Project Manager of failures or omissions in daily reports. The Project Manager is responsible for notifying USEPA or WDNR of issues and related corrective actions.

## **5 Documentation**

### **5.1 Daily and Inspection Record Keeping**

Daily record keeping will be performed by the CQA Inspection Engineer. Appendix A contains typical daily report forms to be used by CQA personnel. Forms and records will be reviewed by the CQA Officer. The report shall include the following:

- ◆ Description, location, and quantity of work.
- ◆ Results and locations of tests, surveys, and samples.
- ◆ Locations and types of samples secured for laboratory testing.
- ◆ Soil and groundwater chain of custody forms.
- ◆ Waste disposal manifests.
- ◆ Weight tickets for material trucked off-site.
- ◆ Observed discrepancies or deviation from the specifications.
- ◆ Record of pertinent verbal communications with the client, subcontractor, or other personnel.
- ◆ Weather and site conditions.
- ◆ Listing of official visitors (regulatory agencies, etc.).
- ◆ Photo log of major activities.

Inspection data sheets shall be used for testing performed in the field. Data sheets shall be signed by the person performing the inspections.

### **5.2 Acceptance of Completed Components**

Initial acceptance of completed components will rest with the CQA Inspection Engineer or CQA Officer and documented on the daily progress reports. All relevant requirements of this *Plan* and the *Performance Standard Verification Plan* will be demonstrated to have been met at this time. The final acceptance of construction will be done by USEPA and WDNR via pre-final and final inspections on-site. Acceptance and certification of the final construction inspection will be determined by the CQA Officer and documented as outlined in the following section of this *Plan*. These items include daily inspection reports, inspection data sheets and problem identification and corrective measures reports. The CQA Officer will review and analyze the reports for consistency with the standard of care in engineering practice for this type of work.

### **5.3 Final Documentation**

A final report and record drawings will be submitted by NSPW to USEPA and WDNR for the final design construction. Record drawings will be as-built drawings based on surveys of the site. As-built drawings will include surveyed cross-sections of all excavations, soil removal areas and installed structures and treatment systems. The documentation report will include copies of all CQA activities, including results of testing and visual observations. The final report and record drawings will be certified by the CQA Officer.

#### **5.4 Storage of Records**

During construction activities, the CQA Inspection Engineer and CQA Officer will be responsible for documentation. Final copies of CQA records and redlines of record drawings will be maintained by NSPW. Duplicate records will be maintained at the FE JV Kansas City office. Records will be stored for a minimum of ten years following project completion.

## 6 References

- ASTM International. ASTM D698, *12 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort* (12 400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>)).
- Burns & McDonnell, 2012. *Phase 1 Remedial Design Work Plan – Ashland NSP Lakefront Site*. June 2012.
- Foth Infrastructure & Environment/Envirocon Joint Venture, 2013. *Phase 1 Pre-Design Study Work Plan – Revision 1 – Ashland/NSP Lakefront Site*. September 2013.
- Foth Infrastructure & Environment/Envirocon Joint Venture, 2014a. *Remedial Action Quality Assurance Project Plan – Revision 1 – Ashland/NSP Lakefront Site*. April 2014.
- Foth Infrastructure & Environment/Envirocon Joint Venture, 2014b. *Remedial Action Site Specific Health and Safety Plan – Ashland/NSP Lakefront Site*. April 2014.
- Foth Infrastructure & Environment/Envirocon Joint Venture, 2014c. *Performance Standard Verification Plan – Ashland/NSP Lakefront Site*. April 2014.
- Foth Infrastructure & Environment/Envirocon Joint Venture, 2014d. *Air Management Plan – Ashland/NSP Lakefront Site*. April 2014.
- Foth Infrastructure & Environment/Envirocon Joint Venture, 2014e. *Noise Management Plan – Ashland/NSP Lakefront Site*. April 2014.
- Foth Infrastructure & Environment/Envirocon Joint Venture, 2014f. *Vibration Management Plan – Ashland/NSP Lakefront Site*. April 2014.
- Foth Infrastructure & Environment/Envirocon Joint Venture, 2014g. *Remedial Action Waste Management Plan – Ashland/NSP Lakefront Site*. April 2014.
- Foth Infrastructure & Environment/Envirocon Joint Venture, 2014h. *Erosion Control and Storm Water Management Plan – Ashland/NSP Lakefront Site*. April 2014.
- Foth Infrastructure & Environment/Envirocon Joint Venture, 2014i. *Final Design for Upper Bluff, Filled Ravine and Kreher Park – Ashland/NSP Lakefront Site*. April 2014.
- Foth Infrastructure & Environment/Envirocon Joint Venture, 2014j. *Long-Term Operations, Maintenance, and Monitoring Plan – Ashland/NSP Lakefront Site*. March 2014.
- U.S. Environmental Protection Agency, 2010. *Record of Decision*. September 2010.
- U.S. Environmental Protection Agency, 2012. *Consent Decree between the United States, Wisconsin, Northern States Power Company, and the Bad River and Red Cliff Bands of The Lake Superior Tribe of Chippewa Indians*. June 2012.

**Appendix A**  
**QA Inspection Forms**

## Problem Resolution

Dated \_\_\_\_\_

Owner:	Owner's Contract No.:
Project:	Engineer's Project No.:
Contractor:	
Bidder's Address:	

You are hereby notified according to the specifications that a defect in construction was recorded. This Notice of Defect is being sent in accordance with Remedial Action *Construction Quality Assurance Plan*.

### Problem

**The defect identified was:**

### Resolution

**The Engineer has recommended:**

The Owner hereby accepts the Engineer's recommendation.

\_\_\_\_\_  
Owner  
By: \_\_\_\_\_  
Authorized Signature  
\_\_\_\_\_  
Title

Copy to:

Contractor:  
FE JV

## QA Inspection Form

**Project Name:** \_\_\_\_\_

**Project No.:** \_\_\_\_\_

**Inspection:**

Equipment

Visual

Compaction Test

Pressure Test

Field Survey

Other: \_\_\_\_\_

**Specification/Drawing: (List requirements and references)**

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**Inspection Results:**

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**Action Items:**

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**QA Officer Signature** \_\_\_\_\_

**Date** \_\_\_\_\_

**Subcontractor Signature** \_\_\_\_\_

**Date** \_\_\_\_\_

CC: Photo Copy to Subcontractor