



Initial Closure Plan Slag Pond

Nelson Dewey Generating Station

Prepared for:

Wisconsin Power and Light Company

Nelson Dewey Generating Station
11999 County Highway VV
Cassville, Wisconsin 53806

Prepared by:

SCS ENGINEERS
2830 Dairy Drive
Madison, Wisconsin 53718-6751
(608) 224-2830

October 2016
File No. 25216054.00

Offices Nationwide
www.scsengineers.com

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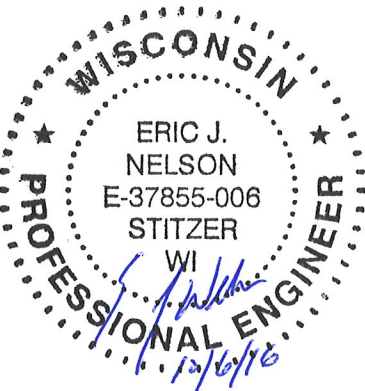
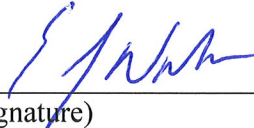
Appendices

- A Closure Schedule

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PE CERTIFICATION

	<p>I, Eric J. Nelson, hereby certify the following:</p> <ul style="list-style-type: none"> • This Initial Closure Plan meets the requirements of 40 CFR 257.102(b) • The final cover system described in this Initial Closure Plan meets the design requirements in 40 CFR 257.102(d)(3) <p>The Initial Closure Plan was prepared by me or under my direct supervision, and I am a duly licensed Professional Engineer under the laws of the State of Wisconsin.</p>
	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">  (signature) </div> <div style="text-align: center;"> 10/6/2014 (date) </div> </div>
	<p style="text-align: center;">ERIC J. NELSON (printed or typed name)</p> <p>License number <u>E-37855-6</u></p> <p>My license renewal date is <u>7/31/18</u></p> <p>Pages or sheets covered by this seal: <u>OCTOBER 2016 INITIAL CLOSURE PLAN -</u> <u>SLAG POND, WPL NELSON DEWEY</u></p>

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1.0 INTRODUCTION AND PROJECT SUMMARY

On behalf of Wisconsin Power and Light Company (WPL), SCS Engineers (SCS) has prepared this Initial Closure Plan for the Slag Pond at the Nelson Dewey Generating Station (NED) as required by 40 CFR 257.102(b).

The NED facility includes three CCR units:

- Slag Pond – The Slag Pond is an active, unlined coal combustion residual (CCR) surface impoundment. The Slag Pond is subject to the requirements of 40 CFR 257.102 and is the subject of this closure plan.
- Wisconsin Pollutant Discharge Elimination System (WPDES) Pond – The WPDES Pond is an inactive, unlined CCR surface impoundment. The WPDES Pond is not the subject of this plan and is not discussed further herein.
- Closed CCR landfill – The CCR landfill was closed prior to October 19, 2015, and is not subject to the rule requirements. The closure was approved by the Wisconsin Department of Natural Resources (WDNR).

The NED facility ceased electric generating operations at the end of 2015. A Notification of Intent to Close the Slag Pond was placed in the facility's Operating Record on July 19, 2016, and submitted to the WDNR on July 22, 2016, as required by 40 CFR 257.102(g) and 257.106(i)(7). While the generating station was operating, the Slag Pond primarily received slag, but also received slag transport water, non-chemical boiler wash water, air heater wash (fly ash), steam grade water production wastewaters, storm water runoff from the plant grounds and landfill, slag handling runoff, coal pile runoff, water from plant floor drains, boiler blowdown (steam/water), and WPDES Pond discharge.

40 CFR 257.102(b) *“Written closure plan—(1) Content of the plan. The owner or operator of a CCR unit must prepare a written closure plan that describes the steps necessary to close the CCR unit at any point during the active life of the CCR unit consistent with recognized and generally accepted good engineering practices. The written closure plan must include, at a minimum, the information specified in paragraphs (b)(1)(i) through (vi) of this section.”*

The subject of this Initial Closure Plan is the Slag Pond. **Figure 1** shows the site location, and **Figure 2** shows the site layout and location of the Slag Pond. WPL intends to close the Slag Pond by leaving CCR in place and capping the pond with a final cover system that will meet the requirements of 40 CFR 257.102, as well as state requirements. WPL is currently in the process of developing design plans and obtaining permits/approvals from the State of Wisconsin to allow the closure of the Slag Pond with CCR left in place. This Initial Closure Plan was developed to document that the closure of the Slag Pond will, at a minimum, meet the requirements of 40 CFR 257.102.

2.0 PROPOSED CLOSURE PLAN NARRATIVE

40 CFR 257.102(b)(1)(i) “A narrative description of how the CCR unit will be closed in accordance with this section.”

CCR will be consolidated within the Slag Pond and the area will be closed by covering the CCR with the final cover system described in **Section 3.0**.

3.0 FINAL COVER SYSTEM AND PERFORMANCE

40 CFR 257.102(b)(1)(iii). “If closure of the CCR unit will be accomplished by leaving CCR in place, a description of the final cover system, designed in accordance with paragraph (d) of this section, and the methods and procedures to be used to install the final cover. The closure plan must also discuss how the final cover system will achieve the performance standards specified in paragraph (d) of this section.”

“(d) Closure performance standard when leaving CCR in place.

(1) The owner or operator of a CCR unit must ensure that, at a minimum, the CCR unit is closed in a manner that will:

- (i) Control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere;”

The final cover system design will minimize or eliminate infiltration, as further described below.

- (ii) Preclude the probability of future impoundment of water, sediment, or slurry;

The final cover system will meet these criteria, as further described below.

- (iii) Include measures that provide for major slope stability to prevent the sloughing or movement of the final cover system during the closure and post-closure care period;

The final cover system will be designed to provide slope stability and to prevent sloughing or movement during the closure and post-closure care period. Stability of the final cover system will be assessed as part of the final cover design for state approvals once state requirements for the final cover system are determined.

- (iv) Minimize the need for further maintenance of the CCR unit; and

Maintenance of the final cover will be minimized by the establishment of vegetative cover and the erosion control systems, which are further described below.

- (v) Be completed in the shortest amount of time consistent with recognized and generally accepted good engineering practices.”

All closure activities for the CCR unit will be completed within 5 years, as stated in **Section 7.0** below.

“(2) Drainage and stabilization of CCR surface impoundments. The owner or operator of a CCR surface impoundment or any lateral expansion of a CCR surface impoundment must meet the requirements of paragraphs (d)(2)(i) and (ii) of this section prior to installing the final cover system required under paragraph (d)(3) of this section.”

- (i) *Free liquids must be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues.*

Free liquids will be dewatered from the pond and remaining waste will be mixed with dry CCR or otherwise adequately stabilized prior to final cover system placement.

- (ii) *Remaining wastes must be stabilized sufficient to support the final cover system.*

The remaining wastes will be stabilized prior to final cover system placement.

“(3) Final cover system”

The final cover system (see **Figure 3** for detail) for the Slag Pond will include the following, at a minimum, from the bottom up:

- Eighteen-inch thick soil infiltration layer (minimum permeability of 1×10^{-5})
- Six-inch thick vegetative soil layer

This final cover will meet the minimum requirements of 40 CFR 257.102(d)(3)(i)(A) through (D) as follows:

- Per 257.102(d)(3)(i)(A), the Slag Pond final cover system will include an 18-inch soil layer with a permeability of 1×10^{-5} centimeters per second (cm/sec) or less. The permeability of the proposed final cover system is less than the permeability of the natural subsoils under the pond identified during facility design as documented in the March 1978 “Final Design Engineering and Plan of Operation” prepared by Warzyn Engineering, Inc., for the NED ash disposal facility. There is no liner system present in the Slag Pond.
- Per 257.102(d)(3)(i)(B), the cover system will provide at least 18 inches of earthen material to minimize infiltration.
- Per 257.102(d)(3)(i)(C), erosion of the final cover system will be minimized with a vegetative soil layer with a minimum of 6-inches of un-compacted rooting zone material.

- Per 257.102(d)(3)(i)(D), the design of the final cover system will minimize disruptions to the final cover system. The stability of the final cover system will be assessed during final design once state requirements are determined.

The design of the final cover will accommodate settling and subsidence of the CCR fill below the cover. The CCR will be placed and compacted prior to final cover placement. The final cover system will be designed with minimum and maximum slopes that will accommodate settlement and minimize disruptions to the cover.

All final cover materials will be tested to confirm they meet the required specifications and construction will be overseen and documented by a licensed professional engineer. Final cover soil layers will be checked for thickness. All areas will be restored after final cover is placed. Vegetation will be monitored and maintained.

4.0 MAXIMUM INVENTORY OF CCR

40 CFR 257.102(b)(1)(iv). *“An estimate of the maximum inventory of CCR ever on-site over the active life of the CCR unit.”*

The estimated maximum inventory of CCR ever on-site in the Slag Pond, over the active life of the Slag Pond, is approximately 75,000 cubic yards (cy). This estimate is based on the potential maximum volume of CCR that could accumulate in the pond if it were allowed to completely fill, or be filled, with CCR to the design top elevation, which is 620 feet. The estimate assumes that the bottom elevations in the Slag Pond generally follow the design contours depicted in the March 1978 “Final Design Engineering and Plan of Operation” prepared by Warzyn with the exception of the berm shown between the Coal Slag Basin and Settling/Infiltration Basin on the design plans is also CCR. The berm does not exist, so the volume of the berm is included as potential CCR volume.

5.0 LARGEST AREA OF CCR UNIT REQUIRING FINAL COVER

40 CFR 257.102(b)(1)(v). *“An estimate of the largest area of the CCR unit ever requiring a final cover as required by paragraph (d) of this section at any time during the CCR unit’s active life.”*

Based on the geometry of the Slag Pond described above, the estimated largest area of final cover required is approximately 4.8 acres, which is the area within the 620 foot contour shown on the Warzyn design plans.

6.0 SCHEDULE OF SEQUENTIAL CLOSURE ACTIVITIES

40 CFR 257.102(b)(1)(vi). *“A schedule for completing all activities necessary to satisfy the closure criteria in this section, including an estimate of the year in which all closure activities for the CCR unit will be completed.”*

The preliminary schedule for closure of the Slag Pond is provided in **Appendix A**.

7.0 COMPLETION OF CLOSURE ACTIVITIES

40 CFR 257.102(f)(1). *“Except as provided for in paragraph (f)(2) of this section, the owner or operator must complete closure of the CCR unit:*

- (i) *For existing and new CCR landfills and any lateral expansion of a CCR landfill, within six months of commencing closure activities.”*

This does not apply to the Slag Pond CCR unit.

- (ii) *“For existing and new CCR impoundments and any lateral expansion of a CCR surface impoundment, within five years of commencing closure activities.”*

Closure of the unit will be completed within 5 years of July 19, 2016, when the closure activities were commenced with the placement of the Notification of Intent to Close in the facility’s Operating Record.

40 CFR 257.102(f)(3). *“Upon completion, the owner or operator of the CCR unit must obtain a certification from a qualified professional engineer verifying that closure has been completed in accordance with the closure plan specified in paragraph (b) of this section and the requirements of this section.”*

A qualified professional engineer will oversee final cover construction. The engineer will verify final cover materials and methods, and oversee material testing. At the end of construction, the engineer will provide a report summarizing and documenting construction and will certify compliance with the requirements.

8.0 CERTIFICATION

40 CFR 257.102(b)(4) *“The owner or operator of the CCR unit must obtain a written certification from a qualified professional engineer that the initial and any amendment of the written closure plan meets the requirement of this section.”*

Eric Nelson, PE, a licensed professional engineer in the State of Wisconsin has overseen the preparation of this Initial Closure Plan. A certification statement is provided on **page iii** of this plan.

40 CFR 257.102(d)(3)(iii). *“The owner or operator of the CCR unit must obtain a written certification from a qualified professional engineer that the design of the final cover system meets the requirement of this section.”*

Eric Nelson, PE, a licensed professional engineer in the State of Wisconsin is of the opinion that the final cover system described in this written closure plan meets the requirements of 40 CFR 257.102(d)(3). A certification statement is provided on **page iii** of this plan.

9.0 RECORDKEEPING AND REPORTING

40 CFR 257.102(b)(vi)(2)(iii). *“The owner or operator has completed the written closure plan when the plan including the certification required by paragraph (b)(4) of this section, has been placed in the facility’s operating record as required by Section 257.105(i)(4).”*

The written closure plan will be placed in the facility’s operating record and on Alliant Energy’s CCR Rule Compliance Data and Information website.

Amendments to the written closure plan will be done when there is a change in the operation of the CCR unit that affects the plan or when unanticipated events warrant revision to the written closure plan, as required by 40 CFR 102(b)(3), and when the final design is approved by the WDNR.

WPL will provide notification as follows:

- Intent to initiate closure (notification submitted July 22, 2016)
- Closure completion
- Availability of the written Closure Plan and any amendments

All notifications will be placed in the facility’s operating record and on the website (40 CFR 257.105(i), 257.106(i), 257.107 (i)).

10.0 REFERENCES

1. Final Design Engineering and Plan of Operation - Ash Disposal Facility, Wisconsin Power and Light Company Nelson Dewey Generating Station, Warzyn Engineering, Inc., March 29, 1978.
2. Notification of Intent to Close Coal Combustion Residual Surface Impoundment – Slag Pond, Wisconsin Power and Light Company Nelson Dewey Generating Station, July 19, 2016.

FIGURES

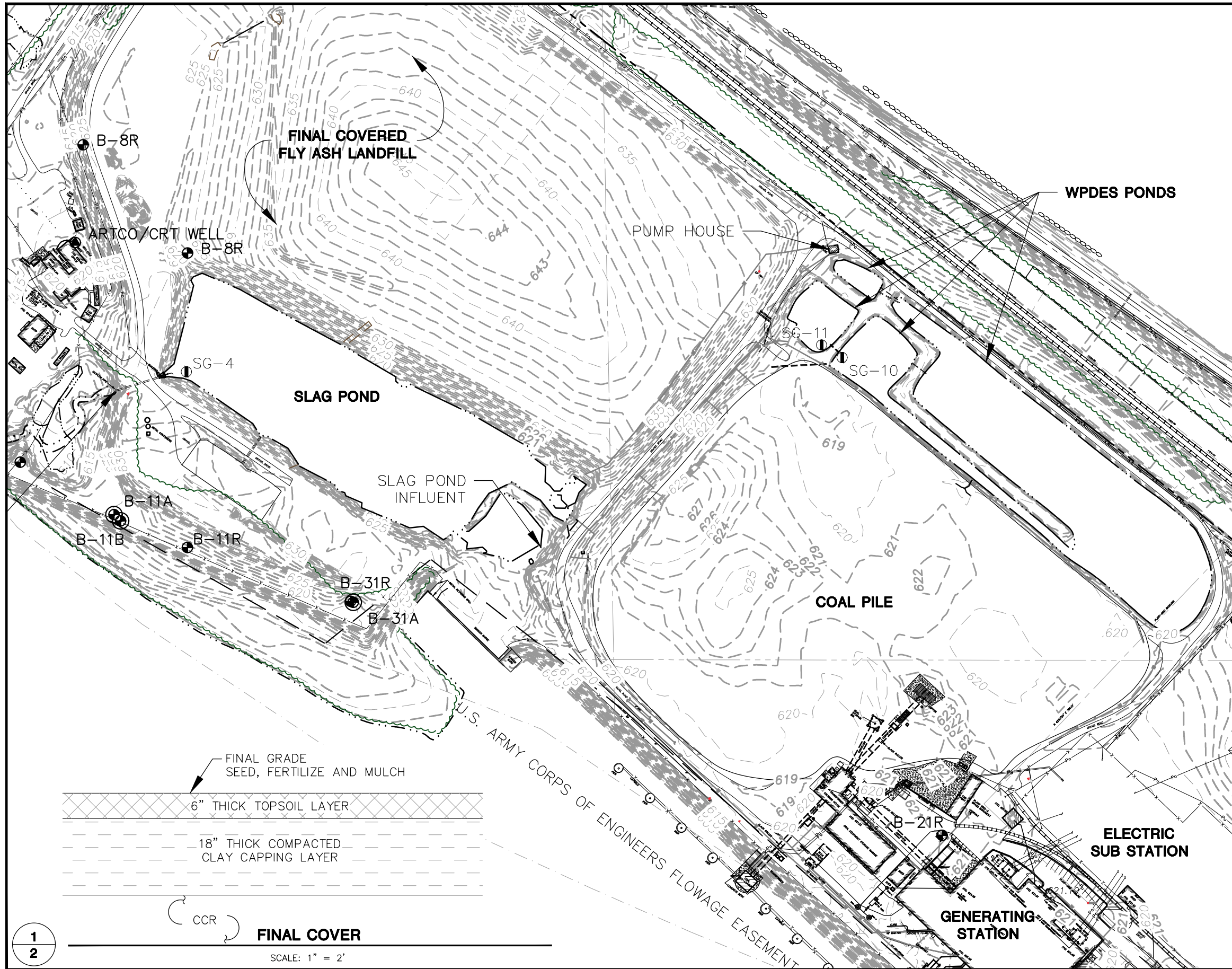
- 1 Site Location Map
- 2 Site Plan



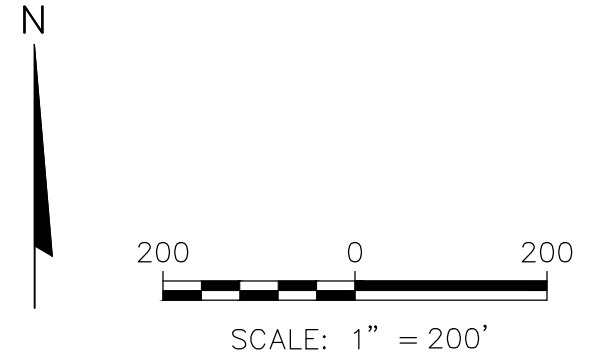
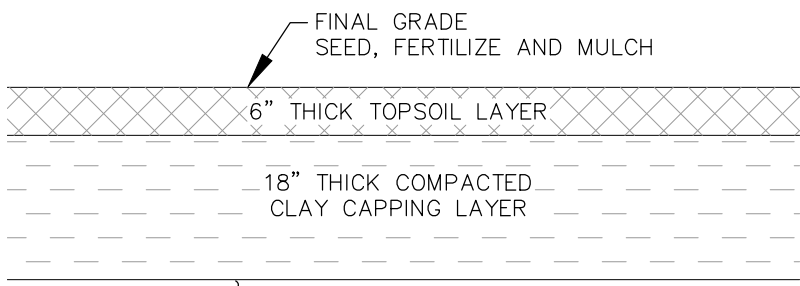
CASSVILLE AND TURKEY RIVER QUADRANGLES
 WISCONSIN-IOWA
 7.5 MINUTE SERIES (TOPOGRAPHIC)
 1978/1980
 SCALE: 1" = 2,000'



CLIENT	WISCONSIN POWER AND LIGHT CO. NELSON DEWEY GENERATING STATION 11999 COUNTY HIGHWAY VV CASSVILLE WI, 53806		SITE	INITIAL CLOSURE PLAN SLAG POND WISCONSIN POWER AND LIGHT NELSON DEWEY GENERATING STATION CASSVILLE, WISCONSIN		ENGINEER	SITE LOCATION MAP	
	PROJECT NO.	25216054.00		DRAWN BY:	KP		SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	FIGURE
DRAWN:	02/26/16	CHECKED BY:	RG	APPROVED BY:	EN 10/06/16			
REVISED:	09/02/16							



LEGEND	
	PROPERTY LINE
	PLATTED LINE
	RIGHT-OF-WAY LINE
	SECTION LINE
	EASEMENT LINE
	EXISTING PAVED ROAD
	EXISTING UNPAVED ROAD
	RAILROAD TRACKS
	EDGE OF WATER
	OVERHEAD ELECTRIC
	BURIED ELECTRIC
	WATER
	TELEPHONE
	STORM CULVERT
	EXISTING GRADE (5' CONTOUR)
	EXISTING GRADE (1' CONTOUR)
	FENCE LINE
	TREELINE/TREE
	WETLAND
	B-38 ABANDONED MONITORING WELL
	B-35 MONITORING WELL
	B-35A PIEZOMETER
	SG-6 STAFF GAUGE
	BL-2 BASIN LYSIMETER (ABANDONED AUGUST 11, 2014)
	PW WATER SUPPLY WELL
	BND-68 SOIL BORING



1
2

FINAL COVER
SCALE: 1" = 2'

PROJECT NO. 25216054.00	DRAWN BY: AHB	 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	CLIENT WISCONSIN POWER AND LIGHT CO. NELSON DEWEY GENERATING STATION 11999 COUNTY HIGHWAY VV CASSVILLE, WI 53806	SITE INITIAL CLOSURE PLAN SLAG POND WISCONSIN POWER AND LIGHT NELSON DEWEY GENERATING STATION CASSVILLE, WISCONSIN	FIGURE 2
DRAWN: 09/02/16	CHECKED BY: RG				
REVISD: 09/23/16	APPROVED BY: EN 10/06/16				

I:\25216054.00\Drawings\Initial Closure Plan_Slag Pond\Plan Sheet 2_Existing Conditions.dwg, 10/6/2016 1:44:15 PM

Appendix A

Closure Schedule

