




Closure Plan for Existing CCR Surface Impoundments

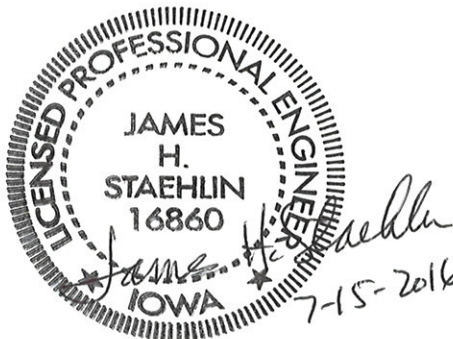
Prepared for Interstate Power and Light Company
Prairie Creek Generating Station
Cedar Rapids, IA

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1. INTRODUCTION

Interstate Power and Light Company (IPL) – a wholly owned subsidiary of Alliant Energy – operates the four-unit Prairie Creek Generating Station (PCS), located in Cedar Rapids, Iowa. This coal-burning facility operates a system of interconnected ponds that form its Coal Combustion Residual (CCR) treatment units. These ponds are currently in use, but will cease receiving (CCR) once a bottom ash conversion of Unit 3 and a natural gas conversion of Unit 4 are complete by January 1, 2018. The remaining two units (1 and 2) do not contribute CCR flows to the Station's pond system.

To comply with the requirements of the USEPA Final CCR Rule (40 CFR 257.50 thru 257.107) published on April 17, 2015 and amended on July 2, 2015, Alliant Energy, on behalf of its subsidiary IPL, submits the following Closure Plan detailing the steps to be undertaken to close the existing CCR surface impoundments, in accordance with §257.102(b) of the CCR Rule.

This document provides the following required information:

- Facility information
- Estimate of the maximum inventory of CCR on-site
- Proposed CCR surface impoundment closure procedure
- Description of the proposed final cover system over the CCR material
- Schedule for completing all closure activities

PCS currently operates 12 surface impoundments at the site, of which 8 are managed as existing CCR impoundments under the provisions of the CCR Rule. This Closure Plan applies to the following existing CCR surface impoundments:

- PCS Pond 1
- PCS Pond 2
- PCS Pond 3
- PCS Pond 4
- PCS Pond 5
- PCS Pond 6
- PCS Pond 7
- PCS Discharge Pond (Pond 8)

Additionally, an inactive hydrated fly ash stockpile is located on-site. The fly ash stockpile has not received CCR since October 19, 2015 and is therefore not a CCR Unit. There are also two bottom ash piles (CCR Piles) that are managed as CCR Landfills. The closure of these CCR Piles is addressed in a separate Closure Plan.

The overall layout of the facility is shown in Figure 1.

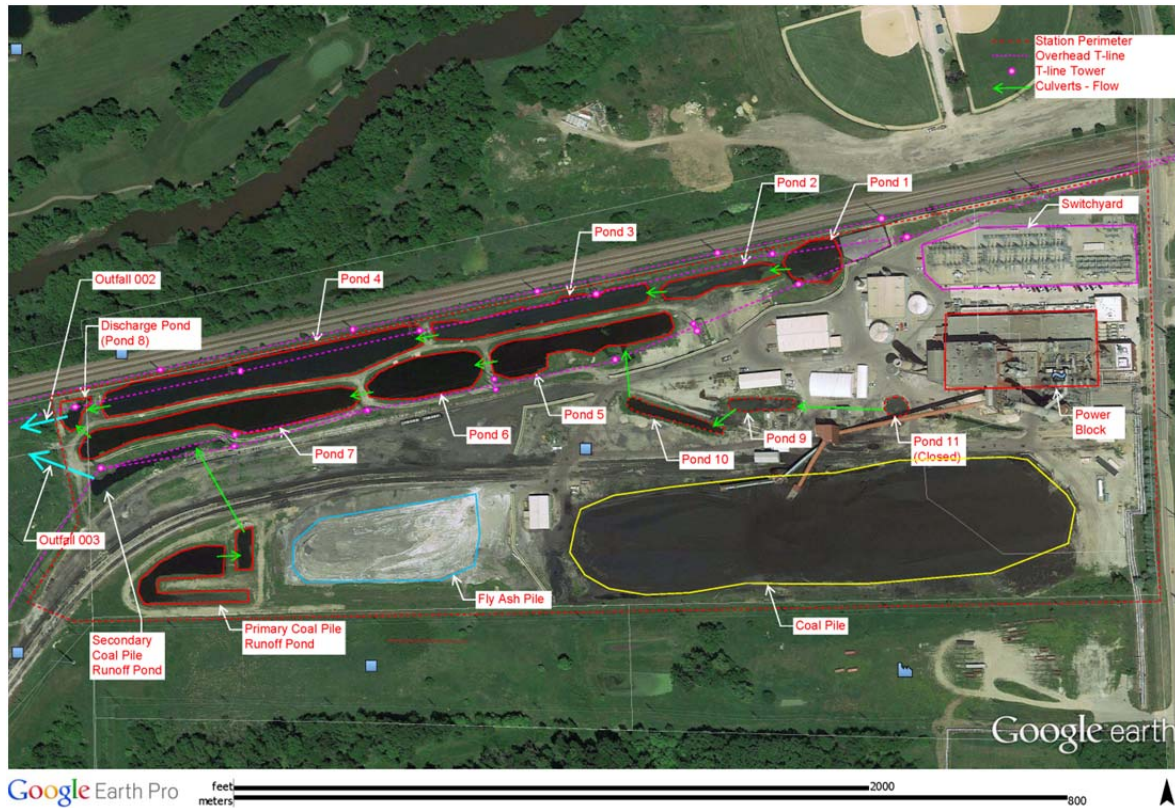


Figure 1: Current Layout of Impoundments at Prairie Creek Generating Station

The main ash settling area is located along the north perimeter of the Station property, covering an area of approximately 5 acres, and consists of Ponds #1 thru #8. These eight CCR surface impoundments are configured into two parallel lines of interconnected basins, with Ponds #1 thru #4 and the Discharge Pond (#8), and Ponds #5 thru #7 forming the north and south lines, respectively.

Ponds #9 thru #11 are located parallel to the rail spur that services the Station. Water flows from Pond #11 through ponds #9 & #10, then via an underground culvert where it rejoins the main pond system at Pond 5. These ponds serve as temporary detention for coal washdown water and do not contain CCR. They are therefore not in the scope of this Closure Plan.

The Station manages an inactive hydrated fly ash pile that contains approximately 70,000 tons of material. As described in this Plan, it is the intent to use this material as part of the closure of Ponds #1 thru #8. The fly ash pile occupies approximately 4.2 acres.

The Station maintains two coal pile runoff ponds: a Primary and a Secondary pond. They are not designed to treat, store, or dispose of CCR, and do not meet the definition of a CCR surface impoundment subject to the CCR Rule. They are therefore not in the scope of this Closure Plan.

2. PROPOSED CCR IMPOUNDMENT CLOSURE PROCEDURE

The proposed closure of the CCR impoundments at PCS will be done according to the following steps:

- Dewatering of Ponds #1 thru #8
- Divert non-CCR wash water to discharge point
- Consolidation of fly ash stockpile within Ponds #3 thru #8
- Closure by removal of CCR from Ponds #1 and #2 (*)
- Consolidation of CCR from Ponds #1 and #2 within Ponds #3 thru #8
- Grading of CCR material to final slopes for drainage
- Installation of cover system materials
- Installation of drainage control features
- Restoration of former fly ash stockpile area

Proposed final grades for the capped area over the former CCR impoundments will range from a minimum 3% to a maximum of 4H:1V, which will allow for adequate drainage of rainwater off the cover system described in Section 3.

A storm runoff drainage ditch is proposed around the South and North edges of the capped CCR impoundment, sloped at 0.5% minimum toward the western edge of the cap which directs runoff flows away from and off the cap.

Drainage ditches and outlets will be designed per the requirements of the Iowa Erosion Control Manual published by the Iowa Department of Natural Resources, latest edition.

()Closure by removal of CCR from Ponds #1 and #2:*

As part of the consolidation of CCR material within the confines of Ponds #3 thru #8, Ponds #1 and #2 will undergo removal of all CCR material. The clean closure of these two surface impoundments will be done according to the following steps:

- Removal of CCR from Ponds #1 and #2 for consolidation into Ponds #3 thru #8,
- Stripping of in-situ soil at the bottom of the CCR ponds that may be intermixed with the CCR above, with resulting material consolidated into Ponds #3 thru #8,
- Visual examination of area formerly occupied by the surface impoundments to ensure proper cleanup,
- Restoration of area formerly occupied by Ponds #1 and #2, and
- Sampling of groundwater after CCR removal for Appendix IV constituents.

Section 257.102(c) of the Rule considers closure by removal of CCR to be complete when constituent concentrations throughout the CCR unit and any areas affected by releases from the unit have been removed and groundwater monitoring concentrations do not exceed the groundwater protection standards established pursuant to §257.95(h) for constituents listed in Appendix IV to the CCR Rule.

3. PROPOSED COVER SYSTEM

The final cover will meet the minimum requirements of 40 CFR 257.102(d)(3)(i)(A) thru (D). It will consist, from bottom to top, of a compacted 18" thick "infiltration layer" of appropriate low-permeability material having a hydraulic conductivity of no more than 10^{-5} cm/s, followed by a 6" thick "erosion layer" of soil capable of sustaining a vegetative cover, with a suitable seed mixture.

The materials of the cover system will be placed and compacted as required to minimize infiltration, limit erosion and future maintenance, and maintain positive drainage. Soil properties, compaction, permeability, and thickness testing will be performed to confirm compliance with the CCR Rule. Regular maintenance of the seeding will take place until the vegetative cover is established and self-sustaining, in order to prevent premature erosion of the topmost layer.

All other areas that are disturbed during the surface impoundment closure activities will be restored, either by providing a vegetative cover or an aggregate surface.

4. ESTIMATED MAXIMUM INVENTORY OF CCR

Based on existing information provided to S&L in the preparation of this Plan including original plant construction drawings and recent survey data, it is estimated that approximately 138,500 cubic yards of CCR are currently present on-site. This quantity includes the inactive hydrated fly ash stockpile and material that has settled in Ponds #1 thru #8. No additional accumulation of CCR is anticipated because bottom ash is removed from the surface impoundment and sold for beneficial reuse. After bottom ash handling conversion, the CCR will be hauled directly off site. Table 1 gives the estimated breakdown of CCR quantities for each CCR unit.

TABLE 1: ESTIMATED CCR IN ALL UNITS

CCR Unit	Area (acres)	Estimated CCR Quantity (cu. yd)
Pond #1	0.35	4,140
Pond #2	0.50	5,910
Pond #3	1.0	11,830
Pond #4	1.63	19,280
Pond #5	1.0	11,800
Pond #6	0.76	8,980
Pond #7	1.40	16,560
Pond #8	0.17	2,000
Inactive fly ash stockpile	4.20	58,000
TOTAL		138,500

In the above table, the total amount of estimated CCR was determined by comparing the original contours of the ash disposal area to contours from 2010 survey (latest information available). CCR in each unit is approximate and based on area of each impoundment relative to total area. Changes to the accumulated CCR quantities since the survey date are not known at this time. A bathymetric survey is being planned at this time. Results of the new survey will be incorporated into the next revision of this document.

5. ESTIMATED MAXIMUM AREA OF COVER

Per the aerial view of the Station, it is estimated that the total area of the 6 surface impoundments requiring a cover system is approximately 6 acres . Note that the area formerly occupied by Ponds #1 and #2 will no longer contain CCR, since this material will be consolidated into the other CCR units during closure operations. The area formerly occupied by the hydrated fly ash pile does not receive a cover system, but instead may be restored once CCR is removed to the dewatered surface impoundment area, either by seeding on natural soil, or providing an aggregate surface.

6. SCHEDULE

Closure of the existing CCR surface impoundments is anticipated to require one year to complete. The schedule provided in Table 2 estimates a closure initiation date of January 31, 2018. Alliant Energy will obtain certification from an Iowa licensed professional engineer that the CCR surface impoundments were closed in compliance with the Closure Plan. The certification will be placed in the Station's operating record within 60 days of completing closure.

TABLE 2: PLANNING LEVEL SCHEDULE FOR CLOSURE OF CCR SURFACE IMPOUNDMENTS

Task Description	Anticipated Start Date	Anticipated Completion Date
Pre-Design Activities		
Preparation of <i>Closure Plan</i> for compliance with Federal CCR Rule	04/16/2016	10/16/2016
Post <i>Closure Plan</i> in the Station's Operating Record	10/16/2016	10/16/2016
Send a Notification of the availability of the Closure plan to the Relevant State Director and publish <i>Closure Plan</i> to the Station's Internet Website	10/16/2016	11/15/2016
Place <i>Post-Closure Plan</i> in the Station's Operating Record	10/16/2016	10/16/2016
Send Notification of availability of <i>Post-Closure Plan</i> to the State Director and place <i>Post-Closure Plan</i> to the Station's Internet Website	10/16/2016	11/15/2016
Design / Bidding / Permitting		
Site Survey & Bathymetric Survey	07/01/2016	08/31/2016
Engineering / Preparation of Bid docs	05/15/2017	07/31/2017
Issue Request for Bids	08/01/2017	08/01/2017
Bids due	08/31/2017	08/31/2017



Task Description	Anticipated Start Date	Anticipated Completion Date
Bid Evaluation Period	09/01/2017	10/31/2017
Issue Award and Notice to Proceed	11/01/2017	12/31/2017
Construction		
Place a <i>Notification of Intent to Close</i> the Surface Impoundment in the Station's Operating Record	01/31/2018	01/31/2018
Send <i>Notification of Intent to Close</i> to State Director and post Notification to the Station's Internet Website	02/01/2018	02/28/2018
Initiation of Close-In-Place Activities	03/01/2018	03/01/2018
Contractor Mobilization	03/01/2018	03/10/2018
Rerouting non-CCR Contact water from Pond 10 to Outfall 002	03/01/2018	03/15/2018
Dewatering of CCR Impoundment	03/10/2018	05/01/2018
Relocation of Fill Material (Fly Ash Pile)	05/01/2018	07/31/2018
Restoration of Fly Ash Pile Area	07/31/2018	08/30/2018
Regrading of Fill to final slopes	09/01/2018	09/30/2018
Placement of Final Cover / Veg. Cover	10/01/2018	10/31/2018
Post-Construction Administration		
Certification verifying the completion of closure in accordance with the closure plan	11/15/2018	11/30/2018
Place a Notification of CCR Surface Impoundment Closure Completion in the Station's Operating Record	12/01/2018	12/15/2018
Send Notification of availability of Closure Completion to Relevant State Director / place Closure Completion to the Station's Internet Website	12/15/2018	12/15/2018
Record a Notation of the CCR Impoundment Closure on the Deed of the Property	12/01/2018	12/15/2018
Place a Notification of the Deed Notation in the Station's Operating Record	12/15/2018	12/15/2018
Send Notification of availability of Deed Notation to Relevant State Director / place Deed Notation to the Station's Internet Website	12/15/2018	12/15/2018
Place a Notification of Completion of the Post-Closure Care in the Station's Operating Record	12/15/2048	12/15/2048
Send a Notification of the availability of the Post-Closure Care to the Relevant State Director and place Post-Closure Care to the Station's Internet Website	12/15/2048	12/15/2048

7. COMPLETION OF CLOSURE ACTIVITIES

To confirm completion of the CCR surface impoundment closures, IPL will retain a qualified engineer licensed in the State of Iowa to verify that the existing CCR surface impoundments have been closed in accordance with this closure plan and the requirements of 40 CFR 257.102(d). The qualified engineer will provide IPL with a written certification stating compliance as required in 40 CFR 257.102(f)(3). The Post-Closure Plan is presented in a separate document.

8. CERTIFICATIONS

It is S&L's opinion that this written closure plan meets the requirements of 40 CFR 257.102(b).

It is also S&L's opinion that the proposed final cover system as described herein meets the design requirements of 40 CFR 257.102(d)(3)(i).

9. REFERENCES

1. 40 CFR Part 257, Subtitle D, – Environmental Protection Agency Hazardous and Solid Waste management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule, Federal Register, Vol. 80, No. 74, Friday April 17, 2015, as amended by the Technical Amendments published in the Federal Register on July 2, 2015.