Closure Plan Former OGS Zero Liquid Discharge Pond Amendment No. 1

Ottumwa Generating Station 20775 Power Plant Road Ottumwa, Iowa 52501

Prepared for:

Interstate Power and Light Company 20775 Power Plant Road Ottumwa, Iowa 52501



25225176.00 | June 10, 2025

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	PE CERTIFICATION
	I, Eric J. Nelson, hereby certify the following:
	• This Closure Plan meets the requirements of 40 CFR 257.102(b).
PROFESSION AV	The 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 Iowa.
ERIC J. NELSON	6/10/2025
In IOWA	(signature) (date)
in manual second	Eric J. Nelson
	(printed or typed name)
	License number 23136
	My license renewal date is December 31, 2026.
	Pages or sheets covered by this seal:
	Closure Plan, Former OGS Zero Liquid Discharge Pond – Amendment No. 1 (all pages)

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1.0 INTRODUCTION

On behalf of Interstate Power and Light Company (IPL), SCS Engineers (SCS) has prepared Amendment No. 1 to the Closure Plan for the former Ottumwa Generating Station (OGS) Zero Liquid Discharge (ZLD) Pond, a coal combustion residual (CCR) surface impoundment at OGS, as required by 40 CFR 257.102(b) and 40 CFR 257.102(c)(2)(iv).

<u>40 CFR 257.102(b)</u> "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."

<u>40 CFR 257.102(c)(2)(iv)</u> "Amend the written closure plan required by paragraph (b) of this section and the written post-closure care plan required by § 257.104(d);"

The OGS facility includes two CCR surface impoundments (OGS ZLD Pond and OGS Main Ash Pond) that are subject to the requirements of 40 CFR 257.102. This amendment to the closure plan focuses on the closure of the OGS ZLD Pond by CCR removal and decontamination activities, including groundwater corrective action as a post-closure care requirement.

IPL removed the CCR from the OGS ZLD Pond in 2021 in accordance with 40 CFR 257.102(c). Prior to CCR excavation, the 23-acre OGS ZLD Pond contained approximately 97,300 cubic yards of CCR material, the estimated maximum amount of CCR stored in the unit during its active life.

An Initial Closure Plan for the CCR surface impoundments at OGS was issued in September 2016 by Sargent & Lundy. Burns & McDonnell (BMcD) issued Amendment No. 1 to the Initial Closure Plan in November 2020. The Initial Closure Plan and Amendment No. 1 were subsequently replaced by the Ottumwa Generating Station – Closure Plan for the Surface Impoundments, issued by BMcD in October 2022. The closure of the OGS Main Ash Pond was certified by a qualified Professional Engineer (PE) on July 19, 2023.

The purpose of this Amendment No. 1 to the current Closure Plan is to incorporate groundwater corrective actions that will occur during the post-closure care period into the written closure plan as required by 40 CFR 257.102(c)(2)(iv).

Figure 1 shows the site location. Figure 2 shows the site layout and location of the closure by CCR removal area for the OGS ZLD Pond.

2.0 CLOSURE PLAN

<u>40 CFR 257.102(b)(1)(i)</u> "A narrative description of how the CCR unit will be closed in accordance with this section."

Prior to closure, the OGS ZLD Pond qualified as an inactive CCR surface impoundment since CCR had not been placed in the pond on or after October 19, 2015. Excavation of the OGS ZLD Pond was completed in October 2021 in accordance with 40 CFR 257.102(c).

CCR material in the OGS ZLD Pond was dewatered prior to excavation. Wastewater from the dewatering effort was discharged in accordance with the Iowa Department of Natural Resources (IDNR) National Pollutant Discharge Elimination System (NPDES) permit active at the time

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of closure. The dewatered CCR material and an additional 1 foot of native soil were removed from the OGS ZLD Pond footprint, approximately 147,000 cubic yards of material in total. Under the direction of a qualified PE registered in the state of Iowa, the OGS ZLD Pond area was visually inspected to certify the removal of CCR in October 2021. The former OGS ZLD Pond area has since been restored as a lined non-CCR wastewater pond.

Groundwater samples from wells installed to monitor the OGS ZLD Pond contain cobalt at a statistically significant level (SSL) above the Groundwater Protection Standards (GPS) established in 40 CFR 257.95(h). Groundwater corrective action will be completed during the post-closure care period as specified in 40 CFR 257.104(g), described in more detail in **Section 4.0**.

3.0 CLOSURE BY REMOVAL

<u>40 CFR 257.102(b)(1)(ii).</u> "If closure of the CCR unit will be accomplished through removal of CCR from the CCR unit, a description of the procedures to remove the CCR and decontaminate the CCR unit in accordance with paragraph (c) of this section."

The procedure used to remove the CCR and decontaminate the OGS ZLD Pond included dewatering, CCR excavation, and CCR-impacted soil excavation. Decontamination will continue during post-closure care as described below.

- Dewatering Legacy wastewater was removed from the OGS ZLD Pond prior to CCR removal. The closure contractor continued to dewater the OGS ZLD Pond during CCR removal activities as precipitation generated additional CCR contact water. Legacy wastewater removal and ongoing dewatering during excavation of CCR material consisted of pumping water from low spots in the pond with trailer-mounted centrifugal and PTO-driven lagoon pumps.
- CCR Excavation CCR removal was accomplished using typical earthmoving equipment. CCR was excavated using standard and long-reach excavators, and the material was hauled away for disposal with off-road dump trucks. At times, bulldozers were used to push CCR to the excavators while cleaning and grading the bottom of the excavation. The excavation was visually inspected to verify the removal of CCR as described in Section 2.0. Once CCR material was removed and visually verified, the elevation of the completed excavation surface was surveyed.
- CCR-Impacted/Native Soil Excavation One foot of native soil was removed below the bottom of the CCR using the same methods as CCR removal.

IPL has elected to close the OGS ZLD Pond by removal of CCR, and will follow the procedures in 40 CFR 257.102(c)(2) to complete the closure of the CCR unit.

40 CFR 257.102(c). "(c) *Closure by removal of CCR*. An owner or operator that elects to close a CCR unit by removal of CCR must follow the procedures specified in either paragraph (c)(1) or (2) of this section. Closure by removal is complete when CCR has been removed; any areas affected by releases from the CCR unit have been removed or decontaminated; and groundwater monitoring concentrations of the constituents listed in appendix IV to this part do not exceed groundwater protection standards established pursuant to 257.95(h).

(2) *Complete removal and decontamination activities during the active life and post-closure care period of the CCR unit.* The owner or operator may close a CCR unit by completing all removal and

decontamination activities, except for groundwater corrective action, during the active life of the CCR unit and by completing groundwater corrective action during the post-closure care period pursuant to the following procedures:

(i) Within the timeframes specified in <u>paragraph (f)</u> of this section, document that CCR has been removed from the unit and any areas affected by releases from the CCR unit have been removed or decontaminated;"

As described in **Section 2.0**, the impoundment was dewatered, and the CCR excavated and placed in a closure area consistent with 40 CFR 257.102(d) outside the OGS ZLD Pond footprint.

The excavation limits of CCR and underlying CCR-impacted soil were based on field observations and site conditions mutually reviewed and agreed upon by IPL, the closure contractor, and the qualified PE responsible for verifying the CCR removal, or their representatives. CCR has been removed and groundwater corrective action will be completed during the post-closure care period as described in **Section 4.0**.

CCR removal was completed in October 2021 as described in the memorandum issued by SCS on November 8, 2021, and provided to Alliant Energy, regarding CCR removal from the ZLD Pond (SCS, 2021) and the April 14, 2022, Construction Documentation Report, ZLD Pond Closure and Low Volume Wastewater Treatment Pond (LVWTP) Construction prepared by SCS Engineers and provided to Alliant Energy (SCS, 2022).

"(ii) Within the timeframes specified in <u>paragraph (f)</u> of this section, begin implementation of the remedy selected in accordance with § 257.97 such that all components of the remedy are constructed, or otherwise in place, and operating as intended unless the owner or operator documents both that:

(A) All applicable requirements in <u>§§ 257.96</u> through <u>257.98</u> have been met; and"

IPL will document that the applicable requirements in §§ 257.96 through 257.98 have been met prior to closure of the OGS ZLD Pond.

"(B) The active life of the unit could not be extended until implementation of the remedy consistent with $\frac{257.102(f)}{5}$;"

IPL will document that the active life of the OGS ZLD Pond could not be extended prior to closure of the OGS ZLD Pond.

"(iii) Complete groundwater corrective action as a post-closure care requirement as specified in $\frac{9257.104(g)}{3}$;"

IPL will complete groundwater corrective action as a post-closure care requirement.

"(iv) Amend the written closure plan required by <u>paragraph (b)</u> of this section and the written post-closure care plan required by $\S 257.104(d)$;"

IPL will amend the written closure plan for the OGS ZLD Pond and prepare a written-post closure care plan for the OGS ZLD Pond prior to closure.

"(v) Within the timeframes specified in <u>paragraph (f)</u> of this section, obtain the completion of closure certification or approval required by <u>paragraph (f)(3)</u> of this section; and"

IPL will obtain a completion of closure certification within the applicable timeframes specified in 40 CFR 257.102(f).

"(vi) Within the timeframes specified in <u>paragraph (f)</u> of this section, record the notation on the deed to the property required by <u>paragraph (i)</u> of this section.

IPL will record the required deed notation within the applicable timeframes specified in 40 CFR 257.102(f).

4.0 GROUNDWATER CORRECTIVE ACTION

Groundwater samples from wells installed to monitor the OGS ZLD Pond contain cobalt at a SSL above the GPS established in 40 CFR 257.95(h). The groundwater remedy has been selected and implementation, including final design and construction, is currently underway. A Selection of Remedy Report (SCS, 2025a) was prepared to fulfill the requirements of the final report identified in 40 CFR 257.97(a) and identify the remedy selected to address the cobalt GPS exceedances at OGS. The report was issued on March 13, 2025. The selected remedy for groundwater corrective action associated with the OGS ZLD Pond includes removing CCR, consolidating and capping CCR within the CCR units at OGS, and groundwater pump and treatment for cobalt impacts to groundwater. A Corrective Action Groundwater Monitoring Plan has been established in accordance with 40 CFR 257.98(a)(1) (SCS, 2025b).

Groundwater corrective action will be completed as a post-closure care requirement as specified in 40 CFR 257.102(c)(2)(iii) and 40 CFR 257.104(g).

5.0 MAXIMUM INVENTORY OF CCR

<u>40 CFR 257.102(b)(1)(iv).</u> "An estimate of the maximum inventory of CCR ever on-site over the active life of the CCR unit."

The estimated maximum amount of CCR ever present in the OGS ZLD Pond was approximately 97,300 cubic yards (BMcD, 2022).

6.0 LARGEST AREA OF CCR UNIT REQUIRING FINAL COVER

<u>40 CFR 257.102(b)(1)(v).</u> "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."

The largest potential area ever requiring final cover at the OGS ZLD Pond is approximately 23 acres, based on the surface area of the OGS ZLD Pond described in the 2022 Closure Plan by BMcD. No final cover is needed nor was constructed in the former OGS ZLD Pond area since all CCR was removed for closure.

7.0 SCHEDULE OF CLOSURE ACTIVITIES

<u>40 CFR 257.102(b)(1)(vi).</u> "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 schedule for closure of the OGS ZLD Pond is provided in Appendix A.

8.0 COMPLETION OF CLOSURE ACTIVITIES

<u>40 CFR 257.102(f)(1).</u> "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 surface impoundments at OGS.

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

The OGS ZLD Pond is an inactive CCR impoundment, as no CCR was placed in the area on or after October 19, 2015. Pursuant to 40 CFR 257.100(a)(1), the closure timeframe required by 40 CFR 257.102(f)(1)(ii) applies to an inactive CCR impoundment. IPL issued a Notification of Intent to Close the OGS ZLD Pond in November 2020 (Alliant, 2020) and initiated closure activities, making the closure deadline November 2025. CCR removal from the OGS ZLD Pond was completed in October 2021; however, groundwater corrective action is anticipated to extend beyond the maximum allowable 2-year time extension for the closure deadline as prescribed in 40 CFR 257.102(f)(2)(ii)(A) for CCR surface impoundments that are 40 acres or smaller. IPL will complete groundwater corrective action as a post-closure care requirement per 40 CFR 257.102(c)(2).

<u>40 CFR 257.102(f)(3).</u> "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 PE oversaw and verified the CCR removal at the OGS ZLD Pond. The April 14, 2022, construction documentation report prepared by SCS summarizes and documents construction and certifies compliance with code requirements. A qualified PE's certification of closure for the OGS ZLD Pond will be obtained once IPL addresses the requirements in 40 CFR 257.102(c)(2), allowing groundwater corrective action to be completed as a post-closure care requirement.

9.0 **REFERENCES**

40 CFR Part 257, Subtitle D – Environmental Protection Agency Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities.

Alliant Energy (Alliant), Interstate Power and Light Company (Alliant), 2020, Notification of Intent to Close, Coal Combustion Residuals Surface Impoundment, Ottumwa Generating Station – Zero Liquid Discharge Pond, November 24, 2020.

Burns & McDonnell (BMcD), 2022, Ottumwa Generating Station – Closure Plan for the Surface Impoundments, Interstate Power and Light Company, October 31, 2022.

SCS Engineers (SCS), 2021, Memorandum, Coal Combustion Residuals (CCR) Removal from Zero Liquid Discharge (ZLD) Pond, November 8, 2021.

SCS Engineers (SCS), 2022, Construction Documentation Report – Zero Liquids Discharge Pond (ZLDP) Closure and Low Volume Wastewater Treatment Pond (LVWTP) Construction, Interstate Power and Light Company, April 14, 2022.

SCS Engineers (SCS), 2025a, Selection of Remedy Report – Ottumwa Generating Station, Interstate Power and Light Company, March 13, 2025.

SCS Engineers (SCS), 2025b, Corrective Action Groundwater Monitoring Plan – Ottumwa Generating Station, Interstate Power and Light Company, June 9, 2025.

Figures

- 1 Site Location Map
- 2 Site Plan and Closure by CCR Removal Area





	LEGEND
•	CCR ZLDP MONITORING WELL
•	CCR ASH POND MONITORING WELL
•	CCR BACKGROUND MONITORING WELL
Ð	WATER LEVEL WELL (NOT PART OF CCR RULE MONITORING SYSTEM)
Ф	SURFACE WATER ELEVATION MEASUREMENT LOCATION
	CCR REMOVAL AREA



- 1. THE BACKGROUND MONITORING WELL FOR THE OGS ASH POND IS MW-301.
- BACKGROUND AERIAL IMAGE IS A COMPOSITE OF A PHOTOGRAPH FROM ESRI DATED 2014 AND DRONE PHOTO BY RYAN INCORPORATED CENTRAL INC. DATED JUNE 19, 2023.
- MONITORING WELL LOCATIONS REFLECT EXISTING CONDITIONS AS OF MAY 2025. LOCATION OF MW-318 IS APPROXIMATE.



CCR REMOVAL AREA

Appendix A

Closure Schedule

		Estimated Pond Closure Schedule - ZLD Pond Ottumwa Generating Station Interstate Power and Light Company																		
ID	Task Name	2021	م الم مرا بي ال		2022		2023	البير استابيه فيم قار	unkanlonthanlo	2024	بما سالينا المساح	20	125	مبايسا يتناه ساجمهاد	2026	معمامية مبايينا بينام		2027	بايسا يبتاه ببعاجمها	2
1	Estimated Closure Schedule	Declanfed		II Augsep Octivov Dec	CJanfeolmanApriviayJ			mapriviayuni Jury	ugsepoctivovo	eqianrebiviarAp	nwayun jur Augs		repiviarApriv	ayjun jui Augsept		viaiApriviayJuni JuliA	ugseplocinovbec	JanreuviaiAprivia	youn our Augsep	OCUNOVDECJa
2	OGS Zero Liquid Discharge Pond Closure		•							_										
3	Closure Construction - OGS ZLD Pond		•	1																
4	Unwatering and Dewatering of the ZLD Pond (Completed)																			
5	CCR Removal and One Foot Over Excavation (Completed)		_																	
6	Complete Closure Construction ZLD Pond (Completed)			10/31	1															
7	Complete Construction Completion Documentation ZLD Pond (Completed)																			
8	Remedy Documentation													-						
9	Written Closure Plan Amendment with Groundwater Corrective Action																			
10	Post-Closure Plan with Groundwater Corrective Action												•							
11	Deed Notification																			
12	Complete Closure of OGS ZLD Pond (Certification Issued)													♦ 6/18						
13	Remedy Design								1											
14	Groundwater Collection System								r											
15	Extraction System Design								r						1					
53	Treatment System Design																			
54	Facilities, Process and Control Design														-	+				
55	Remedy Implementation															*		η		
56	Remedy O&M (only Year 1 represented)																	*		
57	Ending Corrective Action per 40 CFR 257.98(c)																			× ×
58	OGS Bottom Ash Pond Closure			I				1												
59	Closure Construction - OGS Bottom Ash Pond							1												
71	Complete Construction Completion Documentation OGS Bottom Ash Pond																			
72	Complete Closure Construction OGS Bottom Ash Pond (Certification Issued)							٠	7/19											

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Appendix B

Amendment Log

Amendment Log – Written Closure Plan

Amendment Number	Description of Amendment	lssue Date
	Initial Closure Plan by Sargent & Lundy Issuance	September 8, 2016
1	Amendment No. 1 by Burns & McDonnell	November 16, 2020
**	OGS Closure Plan for Surface Impoundments by Burns & McDonnell	October 31, 2022
1	Update narrative to demonstrate compliance with the closure performance standards and incorporate groundwater corrective action as post-closure care requirement.	June 10, 2025

** = This amendment wholly replaced the initial written closure plan issued in September 2016 and the previous Amendment No. 1 issued in November 2020.