



Gavin Bottom Ash Pond Closure Plan



Lightstone Generation, LLC

Coal Combustion Residual Rule Compliance

**Revision 3
December 7, 2022**



Gavin Bottom Ash Pond Closure Plan

Prepared for

**Lightstone Generation, LLC
Coal Combustion Residual Rule Compliance
Cheshire, Ohio**

**Revision 3
December 7, 2022**

Prepared by

**Burns & McDonnell Engineering Company, Inc.
Kansas City, Missouri**

INDEX AND CERTIFICATION

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Certification

I hereby certify, as a Professional Engineer in the State of Ohio, that the information in this document was assembled under my direct supervisory control. This report is not intended or represented to be suitable for reuse by the Lightstone Generation, LLC or others without specific verification or adaptation by the Engineer. I hereby certify that this Gavin Bottom Ash Closure Plan was prepared in accordance with standard engineering practices, and based on my knowledge, information, and belief, the content of this Gavin CCR Surface Impoundment Closure Plan when developed in December 2022 is true and meets the requirements of 40 CFR § 257.102.

Dallen Kroger, P.E. (OH #85535)

Date: December 7, 2022

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LIST OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Term/Phrase/Name</u>
Ash Pond	Gavin Ash Pond
BMcD	Burns & McDonnell
CCR	Coal Combustion Residual
CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
FGD	Flue Gas Desulfurization
GWPS	Groundwater Protection Standard
Lightstone	Lightstone Generation, LLC
ODNR	Ohio Department of Natural Resources
Owner	Lightstone Generation, LLC
RCRA	Resource Conservation and Recovery Act
Gavin	Gavin Power Station
U.S.C.	United States Code
WMB	Water Mass Balance

1.0 INTRODUCTION

Lightstone Generation, LLC (Lightstone, Owner) operates the General James M. Gavin Power Plant (Gavin) located in Cheshire, Ohio along the banks of the Ohio River. Gavin consists of two operating coal-fired units – Unit 1 and Unit 2. The units are rated for 1,300 megawatts (MW) each and were placed into service in 1974 and 1975.

On April 17, 2015, the Environmental Protection Agency (EPA) issued the final version of the federal Coal Combustion Residual Rule (CCR Rule) to regulate the disposal of coal combustion residual (CCR) materials generated at coal-fired units. The rule is administered under the Resource Conservation and Recovery Act (RCRA, 42 United States Code [U.S.C.] §6901 et seq.), using the Subtitle D approach.

Lightstone is subject to the CCR Rule and as such is required to develop a Closure Plan for existing CCR surface impoundments per 40 Code of Federal Regulations (CFR) §257.102. This document serves as Gavin's Closure Plan for the Gavin Bottom Ash Pond (Ohio Department of Natural Resources [ODNR] Dam File No. 8720-003) hereafter referred to as the Surface Impoundment, located near the town of Cheshire, Ohio in Gallia County. The Closure Plan is required to contain the following as required in §257.102(b)(1):

- A description of how the CCR unit will be closed.
 - For closure through removal of CCR:
 - A description of the procedures to remove the CCR and decontaminate the CCR unit in accordance with §257.102(c).
 - For in-place closure:
 - A description of the final cover system, methods for installing final cover system, and methods for achieving compliance with the standards outlined in §257.102(d).
- An estimate of the maximum inventory of CCR material ever stored in the CCR unit over its active life.
- An estimate of the largest area of the CCR unit ever requiring a final cover (for in-place closure only) as required by §257.102(d) at any time during the CCR unit's active life.
- A schedule for completing closure activities, including the anticipated year of closure and major milestones for permitting and construction activities.

The Surface Impoundment will not be subject to a Post-Closure Plan per §257.104(a)(2) as the impoundment will be closed pursuant to §257.102(c) (closure through removal).

2.0 CLOSURE PLAN

2.1 Surface Impoundment Description

The Surface Impoundment to be closed is located on the south side of the Gavin site and receives bottom ash, pyrites, cooling tower blowdown, coal pile runoff, and miscellaneous sump flows from the facility. An aerial view of the Surface Impoundment can be found in Appendix A.

The Surface Impoundment has been classified as an existing, unlined CCR surface impoundment per the Summary of Liner Construction document found in Lightstone's CCR Operating Record and on Lightstone's public CCR website¹. Lightstone submitted a complete demonstration for a site-specific alternative deadline to initiate closure under §257.103(f)(1), requesting the Surface Impoundment be allowed to continue receiving CCR and non-CCR wastestreams until the plant could install dry bottom ash handling systems on both units. This allows the bottom ash to be disposed of in Gavin's lined landfill and the pond could be partially closed in place and partially converted to a process water only pond. EPA proposed to deny the demonstration in part because Gavin's proposed partial closure-in-place did not include a liner. Lightstone has since modified its plans to perform closure by removal across the entire footprint of the Surface Impoundment rather than the hybrid closure approach described in the demonstration, as well as accelerating the schedule for converting Unit 2 to a dry ash handling unit and accelerating the overall schedule for converting the pond to a process-water-only settling pond.

2.1.1 CCR Inventory and Extent

The Surface Impoundment has an approximate surface area of 57.8 acres measured within the perimeter dikes. The original design capacity of the Surface Impoundment is estimated to be approximately 2,200,000² cubic yards of CCR material. Lightstone periodically dewateres, removes, and transports CCR material to the Gavin CCR Landfill. Recent investigations have indicated that the estimated maximum inventory of CCR material expected over the active life of the Surface Impoundment is the current estimated inventory of approximately 1,385,000 cubic yards of CCR material contained within the Surface Impoundment. There is an additional approximate 36,000 cubic yards of pond bottom interface material, which is estimated to account for total CCR material removal., for a total of approximately 1,421,000 cubic yards of material to be dewatered and excavated.

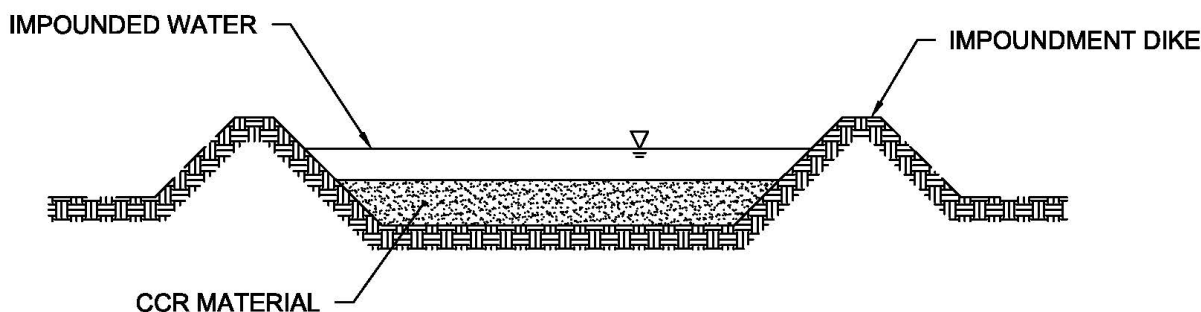
¹ Website Link: <http://gavinpowerccr.com>

² Gavin Power, LLC, 2021 Annual Inspection Report – Bottom Ash Pond, dated January 7, 2022, prepared by ERM Consulting & Engineering

2.2 Closure Method

The Surface Impoundment will be closed through removal of CCR. Procedures planned for closing the Surface Impoundment are described in more detail herein. A typical cross section of the Surface Impoundment prior to closure is shown in Figure 2-1.

Figure 2-1: Typical Surface Impoundment Cross Section (Prior to Closure)



Removal of CCR material from the Surface Impoundment will be performed by excavating, dewatering, loading, and hauling the material out of the Surface Impoundment. Dewatering will be conducted through a combination of gravity drain dewatering methods and may be supplemented with localized well point dewatering, cement stabilization, or other measures as needed to efficiently haul and place material. The dewatered CCR material will be loaded onto trucks and hauled to the Gavin CCR Landfill in compliance with Gavin's Final Air Pollution Permit-To-Install (Permit #P0131996).

Visual observations will be conducted to verify that the CCR material has been removed from the Surface Impoundment. Groundwater monitoring will be conducted as indicated in Section 2.4 to confirm closure has been completed pursuant to §257.102(c) of the CCR Rule.

2.2.1 Surface Impoundment Drainage and Post-Closure Conditions

Upon completion of CCR removal, the CCR impoundment will be converted into a process pond to continue receiving the non-CCR waste streams including cooling tower blowdown, pyrites, coal pile runoff and miscellaneous sump flows.

2.3 Closure Commencement

CCR removal from the Surface Impoundment will begin in August of 2022. CCR material currently stored above the normal water level will be removed and transported to the CCR landfill. The major outage to commence conversion of Unit 2 to dry ash handling will begin in October 2022. The Surface Impoundment will cease receiving CCR soon after the outage. However, the Surface Impoundment will

still receive non-CCR wastestreams (cooling tower blowdown, pyrites, coal pile runoff, and miscellaneous sump flows) until the temporary water treatment system is installed for these wastestreams and the Surface Impoundment dewatering process begins, which will occur on or before April 12, 2023, as mandated in the “Final Decision: Denial of Alternative Closure Deadline for General James M. Gavin Plant, Cheshire, Ohio,” issued by the U.S. EPA on November 22, 2022, and posted in the Federal Register on November 28, 2022. For purposes of this plan, and in accordance with the CCR Rule, closure of the Surface Impoundment will be deemed to have commenced when both of the following have occurred: (1) the Surface Impoundment has received the known final receipt of waste (CCR or non-CCR); and (2) Lightstone has completed any of the following actions or activities (at least one of which must be taken no later than 30 days after the date of final known receipt of waste, but may be taken earlier depending on the anticipated date of final known receipt of waste):

- Taken any steps necessary to implement the written Closure Plan.
- Submitted a completed application for any required state or agency permit or permit modification.
- Taken any steps necessary to comply with any state or other agency standards that are a prerequisite, or are otherwise applicable, to initiating or completing the closure of a CCR Unit.

No later than the date Lightstone initiates closure of the Surface Impoundment, a Notification of Intent to Close the Surface Impoundment will be prepared. The notification has been completed when it has been placed in the facility’s CCR Operating Record. The notification will then be placed on Lightstone’s CCR public website within 30 days.

The planned closure schedule for the Surface Impoundment is included within Appendix B of this plan.

2.4 Closure Completion

Closure for the Surface Impoundment is required to be completed within five years of commencing closure activities (as defined in Section 2.3) per §257.102(f)(1)(ii), except as provided for in 40 CFR 257.102(f)(2)(i) (extensions of closure timeframes). Within 30 days of completion of closure of the Surface Impoundment, a Notification of Closure of the Surface Impoundment will be prepared and placed in the facility’s CCR Operating Record and on Lightstone’s CCR public website. This notification will include a certification by a qualified professional engineer in the State of Ohio verifying that closure has been completed in accordance with this Closure Plan and the requirements of §257.102.

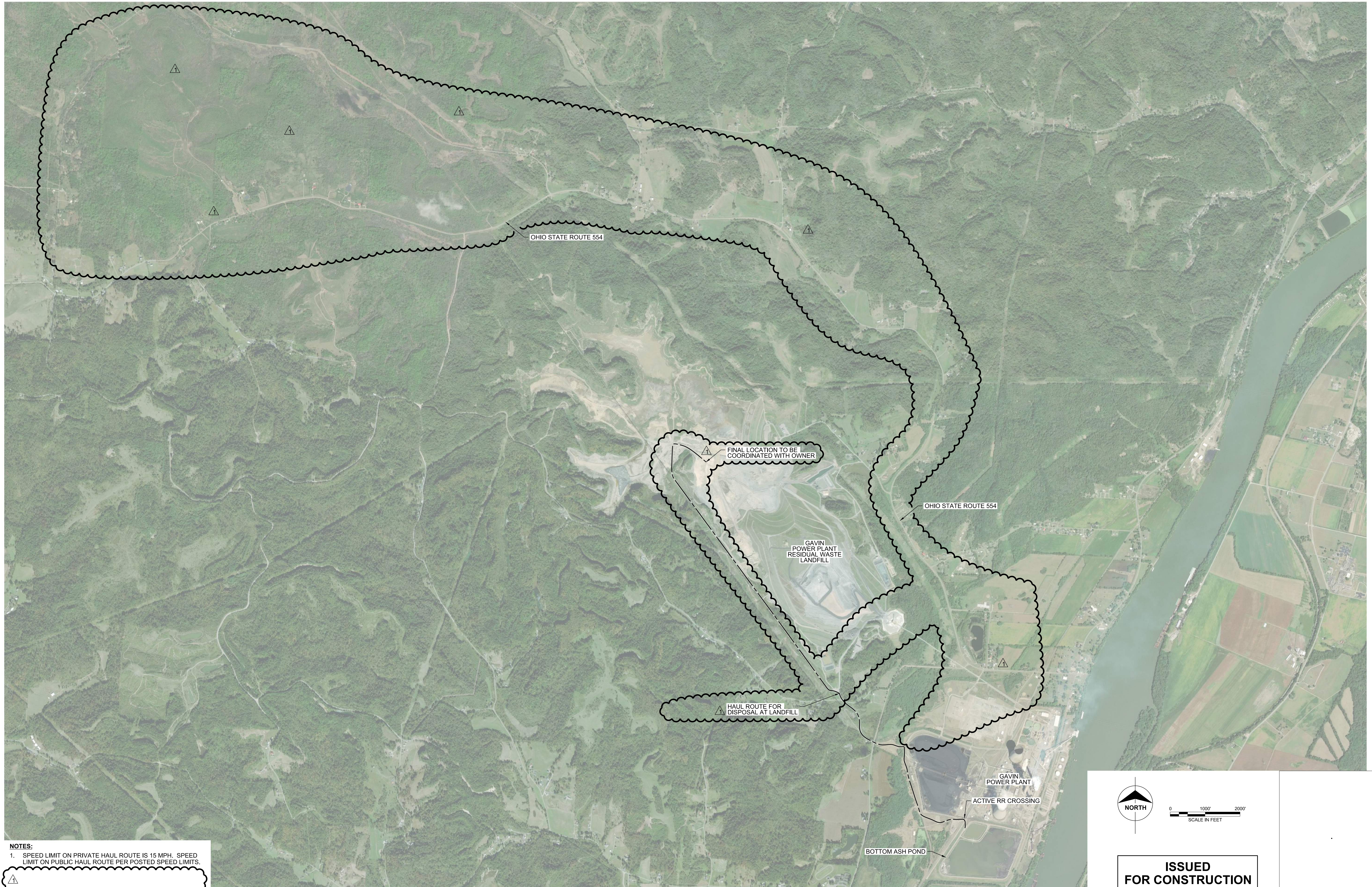
For the purposes of this Closure Plan, closure of the Surface Impoundment will be considered complete after CCR removal of the CCR unit has been completed and groundwater monitoring concentrations have been found not to exceed the Groundwater Protection Standards (GWPS). The closure activities outlined

in Section 2.2 of this Closure Plan are anticipated to be substantially complete by April 12, 2024 (assuming typical weather patterns). Should atypical weather (unusual rainy conditions, for example) delay the ash or pond dewatering activities, that estimated closure date may be extended. A finding of exceedances of GWPS could also delay closure. Gavin anticipates that closure will be completed no later than September 15, 2024, except in the event of exceedances of the GWPS. If necessary, once construction is underway and progress can be assessed, this schedule will be updated.

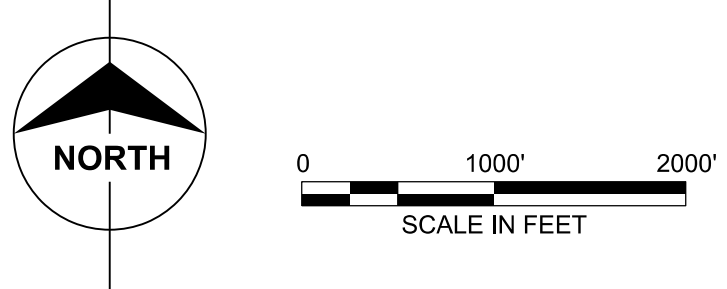
3.0 REVISIONS AND AMENDMENTS

The initial Closure Plan was certified by a qualified profession engineer in the State of Ohio meeting the requirements of 40 CFR 257.102 and was placed in the CCR Operating Record by October 16, 2016, and all subsequent amendments (as indicated in Section 4.0 below) have likewise been certified and placed in the Operating Record. The plan will be amended whenever there is a change in operation of the CCR unit that affects the current or planned closure operations. The Closure Plan will be amended 60 days prior to a planned change in operation, or within 60 days following an unplanned change in operation. If the written Closure Plan is revised after closure activities have commenced, the written Closure Plan will be amended no later than 30 days following the triggering event. Any future amendment will also be certified by a qualified professional engineer in the State of Ohio. All amendments and revisions will be placed on the CCR public website within 30 days following placement in the facility's CCR Operating Record. A record of revisions made to this document is included in Section 4.0 of this document.

APPENDIX A – SITE AERIAL



NOTES:
 1. SPEED LIMIT ON PRIVATE HAUL ROUTE IS 15 MPH. SPEED LIMIT ON PUBLIC HAUL ROUTE PER POSTED SPEED LIMITS.



ISSUED FOR CONSTRUCTION

no.	date	by	ckd	description
1	06/03/22	KJE	DGK	ISSUED FOR CONSTRUCTION
0	12/17/21	KJE	DGK	ISSUED FOR BID

no.	date	by	ckd	description

BURNS & MCDONNELL
 9400 WARD PARKWAY
 KANSAS CITY, MO 64114
 816-333-9400
 Burns & McDonnell Engineering Co., Inc.
 CERTIFICATE OF AUTHORITY NO. 01557

designed: K. ENGHOLM
 detailed: L. RAINEY

LIGHTSTONE GENERATION

BOTTOM ASH POND CLOSURE
 GAVIN POWER PLANT
 GALLIA COUNTY, OHIO

BOTTOM ASH POND CLOSURE	
CONSTRUCTION FACILITIES PLAN	
project 122400	contract 5.8120
drawing	rev.
GVP_12_R313003 - 1	
sheet	of sheets
file GVP_12_R313003.DGN	

APPENDIX B – CLOSURE SCHEDULE

ID	Task Mode	Task Name	Duration	Start	2020				2021				2022				2023				2024				
					Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	
1	🚀	Engineering and Design	740 days	Tue 10/1/19	[Timeline bar from Q4 2020 to Q3 2022]																				
2	🚀	Site-Specific Cease Receipt of CCR Waste in Surface Impoundment	0 days	Sat 10/1/22	[Timeline bar with milestone diamond at 10/1]																				
3	🚀	Cease Receipt of CCR from Unit 1	0 days	Sat 3/26/22	[Timeline bar with milestone diamond at 3/26]																				
4	🚀	Cease Receipt of CCR from Unit 2	0 days	Sat 10/1/22	[Timeline bar with milestone diamond at 10/1]																				
5	🚀?																								
6	🚀	Total Duration of Field Work	103 days	Mon 8/1/22																					
7	🚀	Mobilization/Site Preparation/Early Start Work	103 days	Mon 8/1/22																					
8	🚀	Mobilize/Set-Up Temporary Facilities	17 days	Mon 8/1/22	[Timeline bar]																				
9	🚀	Remove CCR Above Water Level	88 days	Wed 8/24/22	[Timeline bar]																				
10	👉	Total Duration of Field Work	373 days	Wed 4/12/23	[Timeline bar]																				
11	👉	Bottom Ash Pond Water Management	257 days	Wed 4/12/23	[Timeline bar]																				
12	🚀	Water Treatment by Owner Operational	0 days	Wed 4/12/23	[Timeline bar with milestone diamond at 4/12]																				
13	🚀	Cease Routing Non-CCR Wastestreams to Surface Impoundment	0 days	Wed 4/12/23	[Timeline bar with milestone diamond at 4/12]																				
14	🚀	Demolition and Dewatering	59 days	Wed 4/12/23	[Timeline bar]																				
15	🚀	Continued Dewatering	195 days	Fri 7/7/23	[Timeline bar]																				
16	🚀	Bottom Ash Pond Work	245 days	Thu 4/27/23	[Timeline bar]																				
17	🚀	Excavate/Load/Haul Pond Sediment to Landfill	236 days	Thu 4/27/23	[Timeline bar]																				
18	🚀	Site Restoration and Demobilization	7 days	Fri 4/5/24	[Timeline bar]																				
19	🚀	Site Restoration and Completion	6 days	Fri 4/5/24	[Timeline bar]																				
20	🚀	Contract Substantial Completion Date	0 days	Sun 9/15/24	[Timeline bar with milestone diamond at 9/15/24]																				

Project: Gavin Ash Pond Closur
Date: Wed 12/7/22

Task		Project Summary		Manual Task		Start-only		Deadline	
Split		Inactive Task		Duration-only		Finish-only		Progress	
Milestone		Inactive Milestone		Manual Summary Rollup		External Tasks		Manual Progress	
Summary		Inactive Summary		Manual Summary		External Milestone			



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