

40 CFR Parts 257

Checklist for P.E. Annual Inspection for CCR Surface Impoundments, § 257.83(b)

Sikeston BMU Sikeston Power Station Fly Ash Surface Impoundment

Annual Inspection

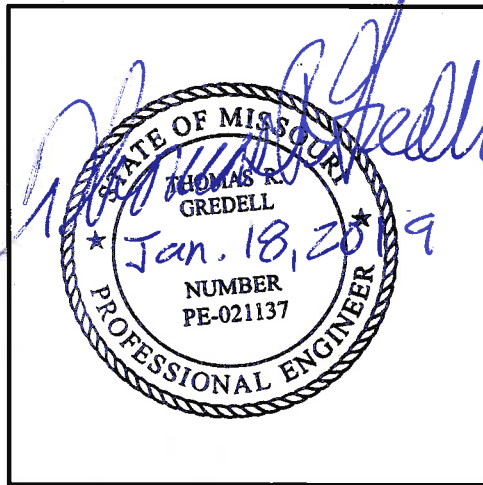
Requirements	Signs of actual or potential structural weakness (257.83(b)(v))	Disruptions or potential disruption to the operation and safety of the unit (257.83(b)(vi))
CCR Unit and appurtenant structures 257.83(b)(ii)	Potential seepage along southeastern embankment of the Fly Ash Pond.	None Observed. Continue to monitor.

The 2018 Annual Inspection included a review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record in general accordance with 257.83(b)(i).

Minor maintenance items associated with routine upkeep and items that require continued observation, further investigation and/or corrective action observed during the 2018 Annual Inspection presently do not impact the structural integrity of the embankment. SBMU plans to address these items in a timely manner through normal maintenance.

GREDELL Engineering Resources, Inc.

Engineer's Seal



Thomas R. Gredell, P.E.
Missouri License: PE-021137
Date: January 18, 2019

SIKESTON POWER STATION
Fly Ash Pond
Annual Inspection Check Sheet

Date	August 23, 2018
Inspector	Mikel C. Carlson, R.G.
Pool Level	Estimated el. 318
Temperature	Mid 80°s
Weather	Sunny, dry

Date of Previous Annual Inspection: Initial Annual Inspection – September 1, 2017

Date of Previous Periodic Inspection: The date of most recent weekly inspection report reviewed for this Annual Inspection was November 4, 2018.

Description of Emergency (EC) or Immediate Maintenance (IM) conditions observed since the last annual inspection:

IM conditions were identified for vegetation height on a weekly inspection report dated 10-14-18. However, it is noted that vegetation height is not currently regulated by the federal CCR rules.

Describe any action taken to restore or improve safety and integrity of impounding structure:

In response to the observation of potential berm seepage, a field investigation and office evaluation was completed in mid-2018 by Reitz & Jens, Inc. as a subconsultant to Gredell Engineering. The conclusion of that evaluation is that the possible seepage did not have a negative impact on the stability of the embankments.

Describe any modifications to the geometry of the impounding structure since the previous annual inspection:
NONE since the Initial Annual Inspection.

Describe any modifications to the operation of the impounding structure since the previous annual inspection:
The ongoing sluicing of dry fly ash into the Fly Ash Pond via wetting heads has been moved further away from the western perimeter berm to decrease the potential for discharge of CCRs outside of the impoundment.

List the approximate remaining storage capacity (Cubic Yards) of the impounding structure:
Estimated available storage is > 50,000 CY below el. 320 (allowing 2 feet of freeboard)

List the approximate maximum, minimum and present depth and elevation of the impounded water since the previous annual inspection: The weekly inspection reports do not indicate an elevation of impounded water due to the lack of a staff gauge at the Fly Ash Pond outlet structure. Only direct precipitation enters the Fly Ash Pond. The depth of water at the outlet structure is estimated to be elevation 318 or less. The primary quantities of ponded water are in the interior of the Fly Ash Pond in the approximate center.

List the approximate maximum, minimum and present depth and elevation of the impounded CCR since the previous annual inspection: Estimated from 2016 aerial survey: CCR occupies approximately 30 acres at an approx. Max. Elev. 320 (Depth 18'). Min. depth is estimated to be 13' or less (approx. Elev. 315 located beneath the surface of the impounded water).

Approximate volume of impounded water and CCR at the time of the inspection:
Estimated Volume CCR 790,000 CY (159 Million Gallons). Estimated Volume of water 24,000 CY (4.8 Million Gallons).

Describe any changes to the downstream watershed since the last annual inspection:
NONE since the Initial Annual Inspection.

SIKESTON POWER STATION – FLY ASH POND
ANNUAL INSPECTION CHECK SHEET

Inlet and Outlet Works		
Item	Condition Code	Comments
Outlet Condition	NE	The outlet structure has a concrete intake with stop logs. No stop logs were in place. The outlet structure discharges into one of two buried 10-inch pipes (est. diameter): one pipe discharges north and offsite the property; and one pipe discharges west and then follows an open channel swale to Process Waste Pond.
Gate Condition/ Operability	NE	Stop logs originally controlled water level, but were present next to the structure, but are not in place and no longer used. Two gate valves originally provide flow control. Both discharges are reported to be permanently sealed. Gredell Engineering has recommended that the gate valve that discharges to the west (toward the Process Waste Pond) be repaired and returned to operable condition.
Leakage	NE	No leakage from the outlet structure was observed.
Outfall Condition	GC	The pond system outfall structure discharge pipes are currently reported to be permanently sealed. Gredell Engineering has recommended that the gate valve that discharges to the west and discharges into an open channel swale toward the Process Waste Pond be returned to operable condition.
Discharge (color and/or sediment)	NE	No discharge was occurring from the Fly Ash Pond.
Obstructions	NE	The Surface Impoundment is nearing full capacity with CCR solids. Influent water consists solely of precipitation. Water stored within the Fly Ash Pond has no direct drainage path to the outlet structure. The pond system outfall structure discharge pipes are currently reported to be permanently sealed.
Instrumentation	MM	<p>No instrumentation exists at the outlet of the Fly Ash Pond to track the elevation of water at the outlet structure. It is recommended that a staff gauge be installed at the outlet structure to be read during the weekly inspections or following heavy rainfall events.</p> <p>There are four (4) piezometers (installed ~ 2011) constructed within the Fly Ash Pond perimeter berms that serve to monitor water or saturation within the pond berms. These are identified as P-3, P-4, P-5 and P-9. Total depths are approximately 25 feet, 25 feet, 14.5 feet and 25 feet, respectively. P-3, P-4 and P-9 had no reportable water levels in 2018. P-5 water levels ranged from fluctuated between 5.32 and 12.0 feet below casing in 2018.</p>
Inlet Piping Condition	Not Operational	Fly ash is no longer directly sluiced into the Fly Ash Pond. A buried 30-inch pipe exists that was designed to convey excess water from the Bottom Ash Pond to the Fly Ash Pond as an emergency spillway. This is no longer in use because sedimented CCR blocks the influent side of the pipe into the Fly Ash Pond. The condition of the discharge in the Fly Ash Pond was not determined because it is covered with CCR. The swing gate on the Bottom Ash Pond side (the inlet) is closed. Limited inflow water negates the significance of the emergency discharge structure from the Bottom Ash Pond.

SIKESTON POWER STATION – FLY ASH POND
ANNUAL INSPECTION CHECK SHEET

Inlet and Outlet Works		
Item	Condition Code	Comments
Emergency Spillway	NI	There is no operational emergency spillway in the Fly Ash Pond at this time. Inflow to the Fly Ash Pond is limited to only from rainfall. Process water is no longer discharged into the Fly Ash Pond. As a result of the required <i>Inflow Design Flood Control System Plan</i> completed by Gredell Engineering in April 2018, it was determined to be advantageous to SBMU to construct an emergency spillway. Upon request from SBMU, Gredell Engineering designed an emergency spillway consisting of a shallow, broad-crested weir to be constructed along the western berm of the Fly Ash Pond. SBMU is scheduling the emergency spillway construction for the future.
Other:		NONE

Earth Embankment		
Item	Condition Code	Comments
Vertical & Horizontal Alignment of Crest	GC	No visible evidence of deformation of embankment has been observed.
Seepage/Wetness / Ponding Areas	OB (Seepage)	An area along the exterior of the southeastern berm of the Fly Ash Pond was identified as an area of potential seepage from the Fly Ash Pond. The wet area was identified as an area of potential seepage based on the presence of a small number of cattails a few feet up the slope from the perimeter stormwater ditch inside of the railroad loop. No visual signs of erosion of the outer berm soils were observed. The area was able to be maintained (the vegetation had been recently cut). In mid-2018, Gredell Engineering subcontracted to Reitz & Jens, Inc. (St. Louis) to complete an evaluation of a small localized area of the southeast embankment of the Fly Ash Pond. The report stated that the possible seepage did not have a negative impact on the stability of the embankments. Therefore, it is recommended that this area continue to be visually monitored to note any change in conditions. Future remediation of the wet area may be appropriate at a future date based on regulatory or other considerations.
Erosion/Rutting	NE	No evidence of erosion or rutting on the outside slopes of the berms were observed in 2018. However, weekly inspections note that rutting and potholes periodically existed in the road surfaces located on top of the Fly Ash Pond berms. The rutting appears to be caused by heavy truck traffic during periods of wet weather. While these ruts do not have the same significance as rutting and erosion on the outside slopes of the berms, they should be corrected to maintain a consistent vertical height of the perimeter berms. SBMU staff periodically remediated the conditions noted by grading the road surfaces.
Fencing	GC	Fencing is only adjacent to the Fly Ash Surface Impoundment on the north perimeter. The fencing is a not located on the toe of the berms. The fencing is in very good condition.

SIKESTON POWER STATION – FLY ASH POND
ANNUAL INSPECTION CHECK SHEET

Earth Embankment		
Item	Condition Code	Comments
Vegetation	GC	Vegetation on exterior slopes was routinely cut and maintained during 2018 as evidenced by Gredell Engineering's inspection and weekly inspection reports by plant personnel. However, the portion of the rule that requires vegetation to be kept at 6 inches or less has been remanded.
Sloughs/Slides/ Cracks	NE	No evidence was observed in 2018.
Animal Control	NE	No evidence of animal burrows or holes were observed in 2018.
Other	NONE	

Condition Codes:

- EC Emergency Condition – a serious safety condition exists that requires immediate action.
- IM Immediate Maintenance – an item that requires maintenance within about 30 days to ensure safety or operation.
- MM Minor Maintenance – item needing minor maintenance or repair within 6 months.
- OB Observation – condition requires regular observation to ensure that the condition does not become worse.
- GC Good Condition.
- NE No Evidence of a problem.
- NI Not Inspected. State reason in comments.

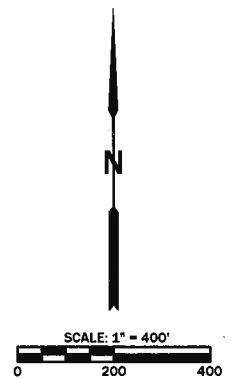
Additional Notes:

1. The location of observations on attached plan sheet (Figure 1).



NOTES

1. MINOR MAINTENANCE ITEMS INCLUDE:
 - a. CLEAN SEDIMENT AND VEGETATION FROM DISCHARGE STRUCTURE.
 - b. ADD INSTRUMENTATION (STAFF GAUGE).
 - c. REPAIR INOPERABLE GATE VALVE TO THE PROCESS WATER POND.
 - d. EXCAVATE STORMWATER CHANNEL 2 FEET DEEP ALONG POND PERIMETER (WHERE REQUIRED)
2. REQUIRING FURTHER OBSERVATION INCLUDE:
 - a. SATURATED BERM SOIL ALONG SOUTHEAST BERM.
3. ITEMS IDENTIFIED DURING THE INITIAL INSPECTION WHICH DO NOT REQUIRE MAINTENANCE INCLUDE:
 - a. THE IMPEDED OVERFLOW STRUCTURE BETWEEN THE BOTTOM ASH POND AND THE INACTIVE FLY ASH POND.



**2018 INITIAL ANNUAL P.E. INSPECTION
FLY ASH POND
SIKESTON POWER STATION**

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MO CORP. ENGINEERING LICENSE NO. E-2001001669-D

FIGURE 1

DATE 01/2019	SCALE AS NOTED	PROJECT NAME SIKESTON	REVISION
DRAWN AJK	APPROVED TG	FILE NAME 2018 PE INSPECTION	SHEET # 1 OF 1