

40 CFR Parts 257

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

Sikeston BMU Sikeston Power Station Bottom Ash Surface Impoundment

Annual Inspection

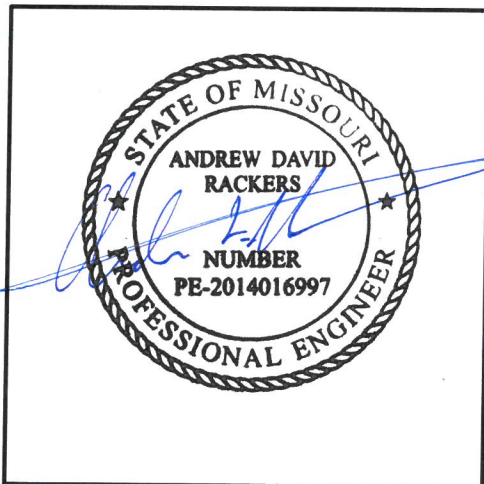
Requirements	Signs of actual or potential structural weakness (257.83(b)(v))	Disruptions or potential disruption to the operation and safety of the unit (257.83(b)(vi))
CCR Unit and appurtenant structures 257.83(b)(ii)	Potential seepage along northern embankment west of the Fly Ash Pond	None Observed
Hydraulic structures underlying the base of the CCR unit 257.83(b)(iii)	None Observed	Poorly graded grass lined channel, separated corrugated metal pipe seams, and partially sedimented stormwater culvert.

The 2016 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 further investigation and/or corrective action observed during the 2016 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



Andrew D. Rackers, P.E.
Missouri License: PE-2014016997
Date: January 18, 2017

SIKESTON POWER STATION
Bottom Ash Pond
Annual Inspection Check Sheet

Date	October 4-6, 2016
Inspector	Andrew Rackers, P.E.
Pool Level	Estimated el. 316.5
Temperature	80°s
Weather	Sunny, dry

Date of Previous Annual Inspection: October 6, 2015

Date of Previous Periodic Inspection: October 2, 2016.

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

None

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

None

Describe any modifications to the geometry of the impounding structure since the previous annual inspection:

None

Describe any modifications to the operation of the impounding structure since the previous annual inspection:

None (Scrubber sludge has not been placed in the Pond since 1998. The Water Recirculation Structure (NE corner) is no longer operational.) The emergency outfall is no operational. Impounded fly ash is blocking the outlet of the emergency outfall.

List the approximate remaining storage capacity (Cubic Yards) of the impounding structure:

Estimated available storage is 401,000 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: Estimated from inspection reports for 2016: Max. Elev. 319.5 (Depth 17.5'); Min. Elev. 316.0 (Depth 14.0'); Avg. Elev. 318.2 (Depth 16.2')

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 50 acres at an approx. Max. Elev. 338.8 (Depth 36.8'). Min. depth is estimated to be less than 5' or Elev. 307 located beneath the surface of the impounded water.

Approximate volume of impounded water and CCR at the time of the inspection:

Estimated Volume CCR 1,143,000 CY (230 MG). Estimated Volume of water 241,000 CY (48 MG).

Describe any changes to the downstream watershed since the last annual inspection:

No changes to the downstream watershed have occurred since the 2015 Annual Inspection.

SIKESTON POWER STATION – BOTTOM ASH POND
ANNUAL INSPECTION CHECK SHEET

Inlet and Outlet Works		
Item	Condition Code	Comments
Outlet Condition	GC	Concrete intake with stop logs, discharges into buried 10-inch carbon fiber pipe that runs north and then west to Process Waste Pond. (Water Recirculation Structure is not operated and the emergency overflow is blocked by impounded fly ash at the emergency overflow outlet.)
Gate Condition/ Operability	GC	Stop logs originally controlled water level but are not present at the structure and no longer used. A control valve north of the discharge is utilized for flow control.
Leakage	NE	No leakage observed.
Outfall Condition	GC	Discharge pipe is at Process Waster Pond. Approximately 1.5' of the discharge pipe is damaged along the east side of the pipe at the outfall, but does not compromise the operation of the discharge pipe.
Discharge (color and/or sediment)	NE	Flow was observed to be clear at the discharge in the Process Waste Pond.
Obstructions	NE	Flow to outlet structure appeared to be unobstructed.
Instrumentation	MM	Water level is measured by staff gage at the Recycle Water Recirculation Structure (inactive). Recommend staff gauge markings be painted. The maximum recorded reading of the staff gauge between January 3, 2016 and December 25, 2016 was 3.5 feet or elevation 319.5 feet. Six piezometers installed in August 2011 have either been dry or show very little water.
Inlet Piping Condition	GC	Inlet pipe for bottom ash (estimated 8 to 10-inch iron pipe) is in good condition. Pipe trench sump discharge pipe (4-inch PVC pipe) and plant operations wastewater inlet (12-inch iron pipe) were in good condition. Makeup water pipe (8-inch iron pipe) was in good condition.
Emergency Spillway	Not Operational	A buried 30-inch pipe was designed to convey excess water from the Bottom Ash Pond to the Fly Ash Pond as needed. This is reportedly not in use. The discharge in the Fly Ash Pond is blocked by CCR and vegetation. The discharge in the Fly Ash Pond was not located due to excessive CCR. Swing gate on Bottom Ash Pond inlet is closed.
Other: Buried Storm Water Box Culvert	MM	Dual buried box culvert conveys offsite stormwater from the east side of the Bottom Ash Pond (west end of Compress Road) to the west side of the Pond. The inlet appeared to be in good condition. The culverts discharge through corrugated metal culverts into an open channel on the west side. The inlet was dry, and there was no visible discharge at the outlet. There was also no evidence of loss of CCR above the culvert inside the Pond. Remote video inspection of the dual stormwater culverts was conducted. Both culverts have sediment build up extending approximately 940' from the discharge upstream. The continuously reinforced concrete box culverts were observed to be in good condition. The northern corrugated metal culvert appeared in good condition. The southern corrugated metal culvert has two separated seams. The bituminous lining in both culverts is degraded. The elevation of the open channel at the discharge is higher than the flow line of the stormwater culvert discharge, reducing flow velocity and is causing sediment build up in the culverts.

SIKESTON POWER STATION – BOTTOM ASH POND
ANNUAL INSPECTION CHECK SHEET

Earth Embankment		
Item	Condition Code	Comments
Vertical & Horizontal Alignment of Crest	GC	No visible evidence of deformation of embankment.
Seepage/Wetness / Ponding Areas	MM (Seepage) / MM (Ponding)	Water ponds occasionally in the perimeter flat bottom ditch. This does not appear to be seepage. This is only a problem with maintenance of the ditch (i.e. mowing). An area along the northern berm of the Bottom Ash Pond, west of the Fly Ash Pond was identified as an area of potential seepage from the Bottom Ash Pond. Further investigation of the wet area is recommended. If the wet area is confirmed to be from seepage, corrective measures should be taken to stabilize and/or repair the northern berm.
Erosion/Rutting	MM	Minor rutting along north exterior slope from mowers. Minor rutting in gravel road in NE corner and along NE ramp.
Fencing	NI	Fencing is not adjacent to the Bottom Ash Pond.
Vegetation	GC	Vegetation on exterior slopes is generally maintained at less than 6 inches.
Sloughs/Slides/ Cracks	NE	No evidence.
Animal Control	NE	No evidence of animal burrows or holes.
Other		

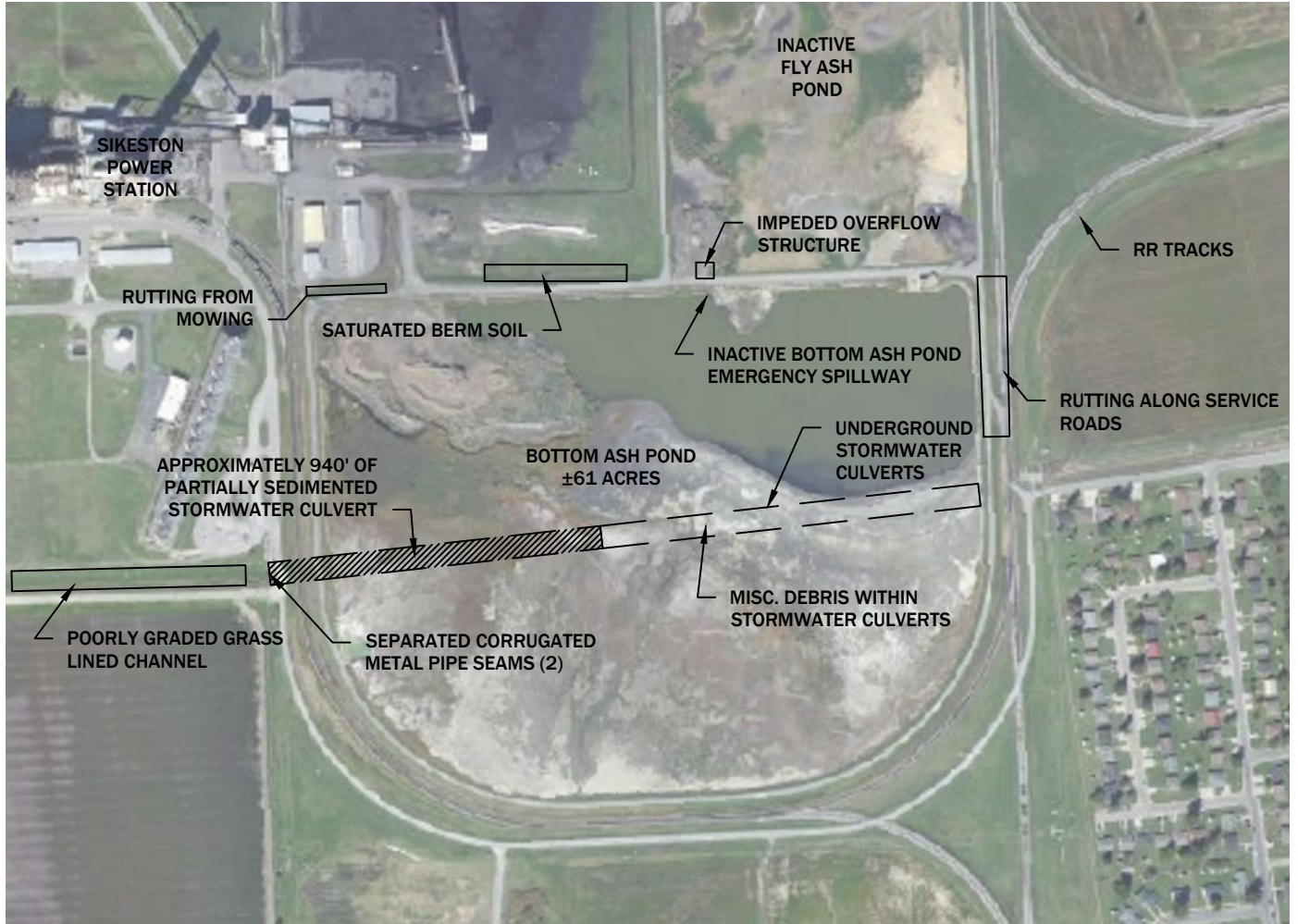
Condition Codes:

- 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.

Note location of observations on attached plan sheet.

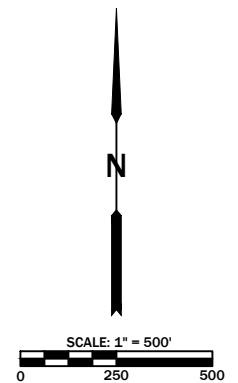
Additional Notes:

1. Post-inspection communications with Sikeston Power Station indicate the elevation of the grass-lined channel at the discharge of the dual stormwater culverts has been remedied. The grass-lined channel has been widened and the elevation of the channel has been reduced to facilitate the discharge of flow from the dual stormwater culverts.



NOTES

1. MINOR MAINTENANCE ITEMS INCLUDE RUTTING FROM MOWING AND RUTTING ALONG SERVICE ROADS
2. ITEMS REQUIRING FURTHER INVESTIGATION AND/OR CORRECTIVE ACTION INCLUDE:
 - a. SATURATED BERM SOIL ALONG NORTHERN BERM, WEST OF THE INACTIVE FLY ASH POND
 - b. PARTIALLY SEDIMENTED STORMWATER CULVERTS (2) PASSING BENEATH THE BOTTOM ASH POND FROM EAST TO WEST.
 - c. SEPARATED CORRUGATED METAL PIPE SEAMS AT THE DISCHARGE OF THE SOUTHERN STORMWATER CULVERT PASSING BENEATH THE BOTTOM ASH POND.
 - d. POORLY GRADED GRASS LINED CHANNEL AT THE DISCHARGE OF THE STORMWATER AT THE OUTLET OF THE STORMWATER CULVERTS PASSING BENEATH THE BOTTOM ASH POND FROM EAST TO WEST.
3. ITEMS IDENTIFIED DURING THE ANNUAL INSPECTION WHICH DO NOT REQUIRE MAINTENANCE INCLUDE MISCELLANEOUS DEBRIS WITHIN THE STORMWATER CULVERTS PASSING BENEATH THE BOTTOM ASH POND (E.G. TIRES AND RIP RAP) AND THE IMPEDED OVERFLOW STRUCTURE BETWEEN THE BOTTOM ASH POND AND THE INACTIVE FLY ASH POND.



**2016 ANNUAL PE INSPECTION
BOTTOM ASH POND
SIKESTON POWER STATION**

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

FIGURE 1

DATE 01/2017	SCALE AS NOTED	PROJECT NAME SIKESTON	REVISION
DRAWN AJK	APPROVED TG	FILE NAME 2016 PE INSPECTION	SHEET # 1 OF 1