COAL COMBUSION RESIDUALS (CCR) POST-CLOSURE PLAN

CHOCTAW GENERATION LIMITED PARTNERSHIP, L.L.L.P.
RED HILLS OPERATION
2391 PENSACOLA ROAD
ACKERMAN, MS 39735
(662) 387-5758

ECS

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Record of Revisions

CCR Post-Closure Plan

Revision Date	Reason for Revision	Revised Pages, Tables, Figures, or Appendices	Revision Certification Signature
10/14/2016	Developed Post-Closure Plan to comply with CCR requirements	Entire document (initial development)	J. Bookout (ECS) B. Ketchum (ECS)

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1.0 INTRODUCTION AND CERTIFICATION

1.1 SITE DESCRIPTION AND REGULATORY APPLICABILITY

The Choctaw Generation Limited Partnership, L.L.L.P. – Red Hills Operations (Red Hills) is located near the City of Ackerman in Choctaw County, Mississippi. Red Hills is in north central Mississippi on a 170-acre site. Red Hills is bounded on the south by Pensacola Road and is about ½ mile west of US Highway 9. Figure 1 shows the location of the site. Red Hills operates a single unit electrical generation facility designed to generate electricity for dispatch to the Tennessee Valley Authority (TVA) electrical system. The primary boiler fuel is lignite coal. As a result of combusting lignite coal, ash is created and must be disposed or re-purposed. Red Hills owns and operates an existing Ash Management Unit (AMU) for the placement and disposal of ash. The AMU is considered a Coal Combustion Residuals (CCR) Unit in accordance with 40 CFR Part 257, Subpart D. The AMU is located in the northeastern portion of property and consists of three (3) cells encompassing a total of approximately 90 acres of the Red Hills site. Figure 2 shows an aerial view of the site, and Figure 3 shows a diagram of the AMU.

The ash generated at the site has been approved by the Mississippi Department of Environmental Quality (MDEQ) for beneficial use as a road construction stabilizer. The approval of the ash for beneficial use has reduced the amount of ash stored in the AMU annually and will extend the life of the AMU. The majority of the ash generated is transported to the adjacent North American Coal – Red Hills Mine to be used for road stabilization and construction.

This site is required to comply with the Coal Combustion Residue Rule (40 CFR Part 257, Subpart D). As an existing CCR Unit, Red Hills must be in compliance with the requirements to prepare a written Post-Closure Plan by October 17, 2016. The Post-Closure Plan must contain the following information regarding post-closure care:

- Monitoring and maintenance activities;
- Site contact information; and
- Planned uses of the property.

In addition to the 40 CFR Part 257, Subpart D post-closure requirements, §257.104, the site is also regulated by the MDEQ Solid Waste Regulations and operates under Solid Waste Permit No. SW0100040462. The post-closure requirements addressed within this plan are consistent to or more stringent than the post-closure requirements approved by MDEQ with the Solid Waste Permit and supporting application. The purpose of the Post-Closure Plan is to ensure the long-term care, stability, and responsibility of the CCR Unit.

1.2 PROFESSIONAL ENGINEER CERTIFICATION

After a review of the Post-Closure Plan, it is believed that the plan has been designed and developed to meet the requirements of 40 CFR 257, Subpart D (§257.104). I hereby certify that I am familiar with the provisions of the CCR regulatory requirements, and I also attest that I have reviewed the prepared Post-Closure Plan. The plan is consistent with recognized and generally accepted good engineering practices, and the contents of the plan, if implemented, will be effective in the long-term monitoring and maintenance of the CCR Unit to avoid potential releases of CCR.

Brian S. Ketchum, P.E.
Senior Engineer
Environmental Compliance & Safety, Inc.

10/14/16
Date

State of Mississippi
Registration No. 13372
(Seal) BSK

2.0 SITE POST-CLOSURE ACTIVITIES

2.1 SITE RESPONSIBLE CONTACT

As required by §257.104(d)(1)(ii), the name, address, telephone number, and email address of the person or office to contact about the site during the post-closure care period is as follows:

Jim Ward, PG or Site Manager
Choctaw Generation Limited Partnership, L.L.L.P.
Red Hills Operation
2391 Pensacola Road
Ackerman, MS 39735
(662) 387-5758
jmward@southernco.com

2.2 SITE MAINTENANCE

The purpose of the final closure and cover system is to encapsulate the underlying CCR landfill unit.

The site post-closure maintenance and monitoring activities to be conducted after closure and capping the CCR Unit is as follows:

Monitoring and Maintenance Activities	Frequency
Mow Vegetation	Semi-Annually (at least)
Routine Post-Closure Visual Inspection	Monthly (at least)
Annual Post-Closure Inspection and Report by Licensed Professional Engineer	Annually (at least)
Repair of Vegetative Cover	As necessary, following routine inspections
Repair of Final Cover System	As necessary, following routine or annual inspections
Inspection Groundwater Monitoring System	Monthly (at least)
Repair of Groundwater Monitoring System	As necessary, following routine or annual inspections
Conduct Groundwater Monitoring Event	Semi-Annually

The above activities will take place for the full duration of the 30-year post-closure care period. Based upon the facility inspection schedule, maintenance will be performed as required by §257.104(b) of the CCR Rule and in accordance with this Post-Closure Care Plan, including:

- ❑ Mowing the final vegetative cover on at least a semi-annual basis or as necessary based on the routine inspections to deter the growth of woody vegetation, deter rodent habitat, and to allow

access for adequate inspection;

- ❑ Covering areas determined to be deficient in vegetative cover by seeding, fertilizing and mulching, as needed to deter erosion;

- ❑ Performing maintenance of the Groundwater Monitoring System in accordance with the Groundwater Monitoring Plan and Routine and Annual Inspections, which may include repairing and/or replacing damaged materials or components, as needed;

- ❑ Maintaining the approved final contours and drainage system such that it minimizes precipitation run-off from adjacent property onto the CCR Unit (maintain diversion dikes and drainage-ways), minimizes erosion of cover material (add soil, topsoil, seed, sod, or erosion control matting as necessary), optimizes drainage of precipitation falling on the CCR Unit (regrade as necessary to prevent pooling), and provides a surface drainage system which is consistent with the surrounding property (inspect for and remove any blockages in the drainage system regularly). This will include making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, preventing run-on and run-off from eroding or otherwise damaging the final cover.

- ❑ Repairing areas that exhibit rill erosion of six inches (6") or deeper to maintain design grade/ specifications and reseed as per the CCR Closure Construction Specifications. Application of fertilizer, selective herbicides, rodent control measures, etc., will be implemented as necessary and repairs will be monitored until CCR Closure Construction Specifications are met;

- ❑ Examining areas that exhibit evidence of sliding or displacement due to settling to determine the cause of the movement. These areas will be backfilled with an appropriate material to maintain positive drainage, vegetation growth, and the integrity of the site. Backfilling will be performed in accordance with the Closure Plan and the construction quality assurance plan;

- ❑ Conducting maintenance to remove sediment and/or undesirable vegetation from channels once accumulated sediments reach a depth of fifty percent (50%) of the hydraulic capacity. Damage to linings and hydraulic structures will be repaired or replaced as necessary;

- ❑ Inspecting the Groundwater Monitoring System to ensure system and well integrity; and

- ❑ Performing groundwater monitoring in accordance with the CCR Groundwater Monitoring Plan on a semi-annual basis.

The lignite ash being placed in the AMU is benign in nature and behaves in a cementitious manner. The nature of the ash, unlike the waste in municipal landfills, does not lend itself to spoilage or other types of decay; therefore, methane gas is not generated nor will there be any odors from decaying wastes. Because of the cementitious nature of the ash, little or no infiltration and/or leachate is expected to be generated. The ash generated at the site has been approved by the MDEQ for beneficial use as a road construction stabilizer. In addition, final closure of the site will include grading, capping, and established vegetation that will minimize storm water run-off. Potential storm water run-on will be directed away from the CCR Unit, and run-off slowed and collected in the AMU Basin prior to discharge.

2.3 INSPECTIONS

The Owner/Operator of the closed CCR Unit will visually inspect the closed landfill on at least a monthly basis to identify any problem areas such as erosion, subsidence, settlement or other events concerning the cover system. The visual inspection will also include an inspection of the groundwater monitoring system to visually assess the condition of the groundwater monitoring wells, equipment, and access. If vegetation problems are observed with the cover system, actions will be taken to reseed the area and maintain the erosion protection provided by the vegetation. Furthermore, should the monthly inspection identify issues concerning the final cover system or the groundwater monitoring system, actions will be taken to make repairs in accordance with the original design. The inspections will be conducted on at least a monthly basis for the first two (2) years after CCR Unit closure. After the first two (2) years of monthly inspections, the inspections can be conducted on a quarterly basis, thereafter. An example inspection form for the routine monthly inspections is included in Appendix A.

On an annual basis, the Owner/Operator will conduct a visual inspection and subsequent report by certified professional engineer. The annual inspection will include a detailed inspection of the closed CCR Unit, including the surface (cover system) and side slopes to identify any problem areas such as erosion, subsidence, settlement, leaching, or other events.

2.4 GROUNDWATER MONITORING

Groundwater monitoring during the post-closure period will be performed in accordance with the procedures set forth in the **CCR Groundwater Monitoring Plan**, which is in accordance with the MDEQ Solid Waste Regulations and issued Solid Waste Permit and the requirements of §257.90-98. Groundwater monitoring will be performed on a semi-annual basis in accordance with 40 CFR 257.94(b).

The site will be covered with a cap to prevent infiltration and leachate generation. In addition, ash was the only material placed in the CCR Unit, which will not decompose to generate methane gas; therefore, monitoring will not be required for landfill gas generation. Landfill gas monitoring and leachate collection monitoring will not be required after closure activities are completed. Storm water and any potential leachate collected in the AMU basin will be visually assessed during the routine inspections.

2.5 POST-CLOSURE CARE PERIOD

In accordance with §257.104(c) of the CCR Rule, the post-closure care period is anticipated to extend for 30 years following the completion of the closure activities. If at the end of the post-closure care period the site is operating under Assessment Monitoring per §257.90 through 98, the site must continue to monitor and conduct post-closure care until the site returns to Detection Monitoring in accordance with §257.95.

As required by §257.104(e) of the CCR Rule, no less than 60 days after the completion of post-closure care, a notification will be prepared verifying that post-closure care has been completed. This notification must include the certification by a qualified professional engineer verifying that post-closure care has been completed in accordance with the Plan, and the notification is considered complete when placed in the site operating record.

2.6 PLANNED USE

Per the requirements of §257.104(d)(1)(iii) of the CCR Rule, the intended use of the closed CCR Unit is to remain undeveloped as a natural, undisturbed vegetated area so as not to disturb the integrity of the final cover system.

3.0 TRAINING

Personnel responsible for conducting post-closure activities, maintenance, inspections, monitoring, and notifications will be competent and qualified individuals trained to perform their assigned tasks. Employee and contractor experience and training will be assured prior to performing post-closure tasks.

4.0 RECORDKEEPING AND NOTIFICATIONS

4.1 RECORDKEEPING

The Post-Closure Plan must comply with the recordkeeping, notification, and website requirements described in §257.105(i), §257.106(i), and §257.107(i), respectively. The site must also maintain the Plan, Routine Inspections, Annual Inspections, Site Maintenance Records, Groundwater Monitoring Reports, Plan Amendments, and the Notification of Completeness in the site operating record.

In addition to the records and notifications required in this Plan, the Owner/Operator of the CCR Unit is required to **provide notifications to the MDEQ**. The site must maintain the most current Post-Closure Plan on their publicly accessible internet site.

4.2 AMENDMENTS

The Plan can be amended at any time; however, in accordance with §257.104(d)(3), this Plan will be amended if there is a change in the operation of the CCR unit that would substantially affect the written post-closure plan in effect or if after post-closure activities have commenced, unanticipated events necessitate a revision of the written post-closure plan. The Owner/Operator must amend the Plan at least sixty (60) days prior to a planned changed in the operation for the CCR Unit, or no later than sixty (60) after an unanticipated event requires a revisions to the Plan.

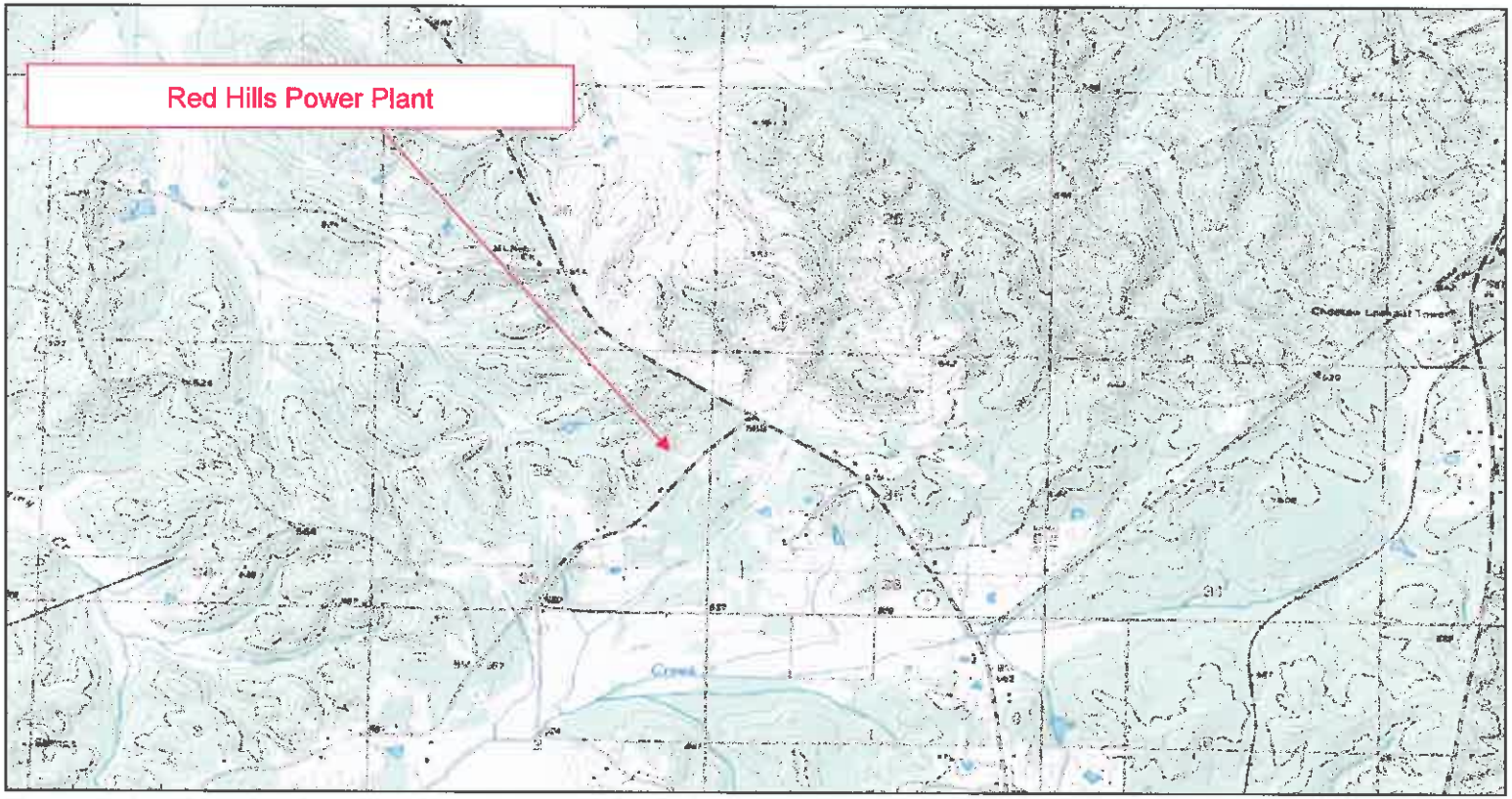
4.3 NOTIFICATIONS

No less than 60 days after the completion of post-closure care, a Notification of Completeness will be prepared verifying that post-closure care has been completed (§257.104(e)). This notification must include the certification by a qualified professional engineer verifying that post-closure care has been completed in accordance with the Plan, and the notification is considered complete when placed in the site operating record.

FIGURES

FIGURE 1

SITE LOCATION MAP



Legend:

Source:
Digital-Topo-maps.com

Drawn By: JTB	Checked By: BSK
Date: 9/16/2016	Scale: 1:24,000
Project No.:	Drawing No: N/A

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2391 Pensacola Road
Ackerman, Mississippi

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Figure 1: Site Location Map

FIGURE 2

AERIAL SITE MAP

Legend:

N
W E
S

Source:
Google Earth (2016)

Drawn By: JTB	Checked By: BSK
Date: 9/16/2016	Scale: 1:24,000
Project No.:	Drawing No: N/A

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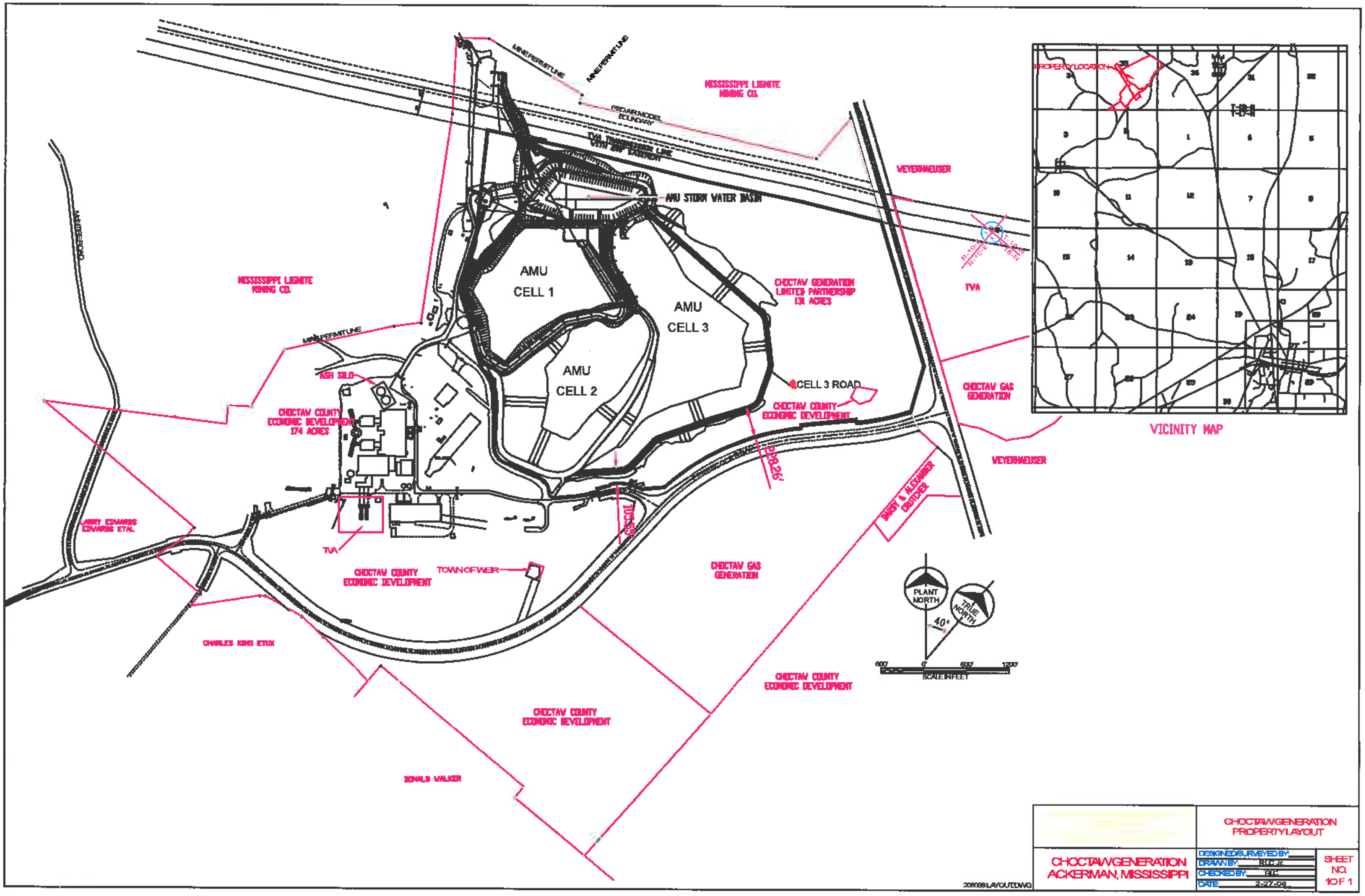
Figure 2: Aerial Site Map

FIGURE 3

FACILITY DIAGRAM

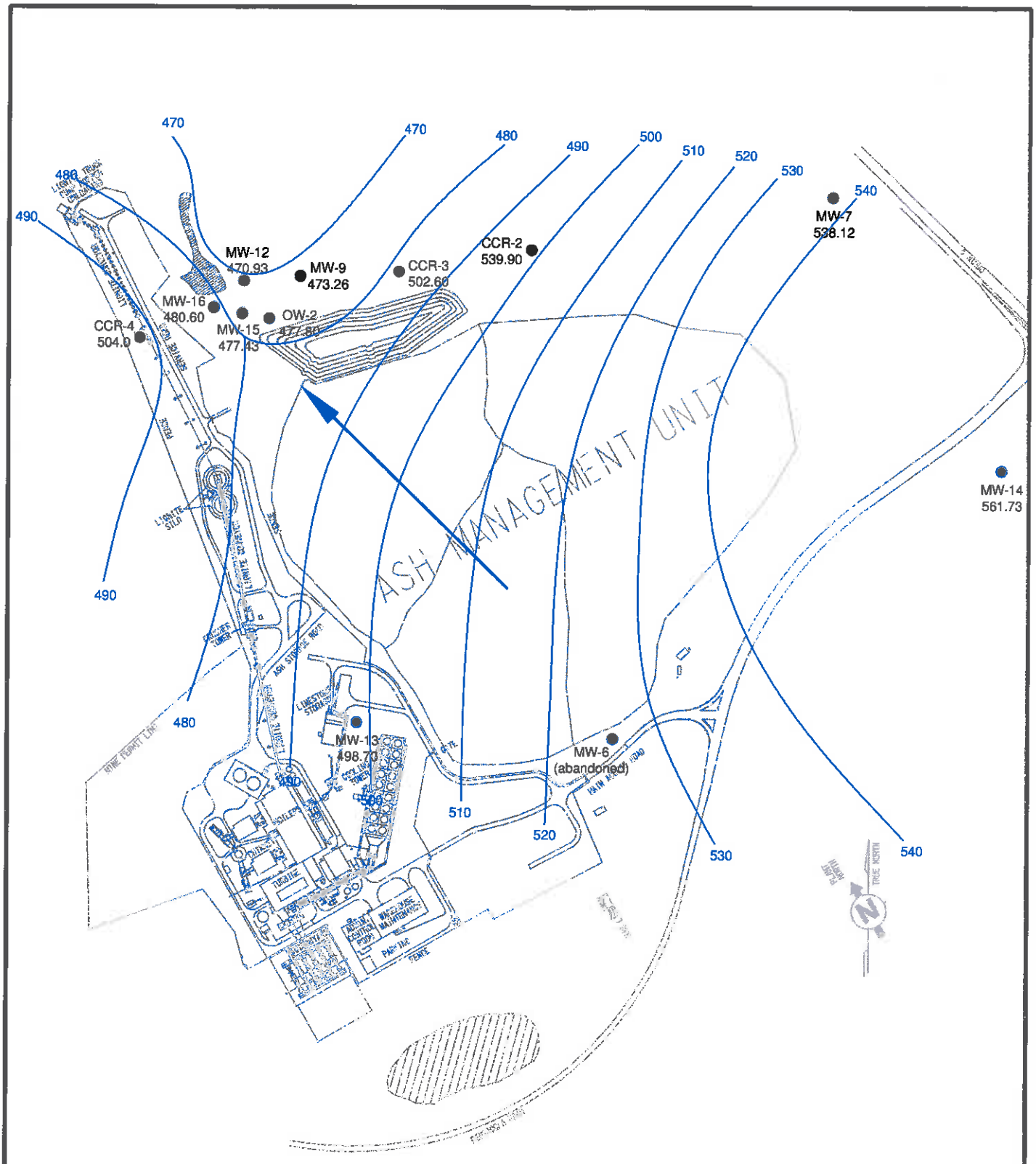


CHOCTAW GENERATION ACKERMAN, MISSISSIPPI	CHOCTAW GENERATION PROPERTY LAYOUT	SHEET NO. 1 OF 1
	DESIGNED/SURVEYED BY: DRAWN BY: RLC Jr. CHECKED BY: RLC DATE: 2-27-08	

206088 LAYOUT.DWG

FIGURE 4

GROUNDWATER MONITORING WELL LOCATIONS



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Groundwater Monitoring Well Locations

Figure 4 | Project No.:

Legend:
Monitoring Well Designation and Groundwater Elevation — MW-7 538.12
Groundwater Elevation Contours (ft) — 500

Scale: NTS
Drawn By: GJL (modified by JTB)
Date: 08/11/16

APPENDICES

APPENDIX A

POST-CLOSURE ROUTINE INSPECTION FORM

POST-CLOSURE CARE INSPECTION CHECKLIST

Site Name:		Weather Condition:		
Inspection Date:		Temperature:		°F
Inspected By:		Last Rain Event and Amount:	/ /	"

SITE AND CLOSURE AREA					
Conditions Present	Comments	Monitor	Investigate	Repair	Escalate
Animal Burrows					
Bare Spots/Erosion					
Horizontal Alignment					
Sinkhole/Depression					
Seeps, Standing Water					
Slide, Slough, Bulges					
Vegetation – High					
Vegetation – Stressed					
Condition of Sign/Fences/ Gates					
Roadways/Parking Areas					
Channel Lining Condition					
CHANNELS AND OUTLET STRUCTURES					
Channel Lining Condition					
Sediment or Deposition in Channels					
Channels Undercutting					
Standing Water/Ponding					
Erosion Adjacent to Channels					
Slide, Slough, Bulges					
Scour at Downstream of Spillway/Discharge Structure					

GROUNDWATER MONITORING SYSTEM					
Well/System Condition					
Protective Casing and Seal					
Locking Cap and Lock					
Concrete Pad and Protective Posts					
Erosion around Wells					

Previous Conditions for Repair or Escalation have been mitigated and the condition has returned to monitor status? If no, provide date for completion in Comments box below.	Yes	No

DEFINITIONS	
Monitor	Observation indicates a safe condition protective of the environment.
Investigate	Observation indicates a condition that has changed from a monitor condition and requires investigation to determine whether condition is unsafe or not protective of the environment.
Repair	Observation indicates a condition that requires a near term repair to ensure that condition does not worsen and become a serious concern.
Escalate	Observation indicates a condition that must be addressed immediately to ensure the safety of the site, public, or protection of the environment.

COMMENTS

INSPECTION SIGNATURE	DATE