



Gibbons Creek Environmental
Redevelopment Group, LLC

2023 GIBBONS CREEK ANNUAL CCR UNIT INSPECTION

Gibbons Creek Steam Electric Station

Anderson, Texas

February 10, 2023

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SUMMARY OF FINDINGS

An annual inspection of the Coal Combustion Residual units was completed at the Gibbons Creek Steam Electric Station in Grimes County, Texas, on January 23, 2023. The following is a summary list of Critical and Moderate Items observed during the inspection:

Site F Landfill

- Erosion gullies
- Animal burrows
- Trees and bushes growing on embankment

BACKGROUND

40 CFR Subpart D § 257.83(b) and 257.84(b) requires that coal combustion residual units (CCR Units) be inspected annually by a qualified professional engineer. The GCERG, a subsidiary of Charah Solutions, Inc., as the owner of the Gibbons Creek Steam Electric Station (GCSES), has retained HDR to inspect the CCR Units at their facility and prepare a written report.

The CCR units at the GCSES consist of the Scrubber Pond, Ash Ponds, and Site F Landfill. The CCR surface impoundments underwent the CCR closure by removal process in 2022 and are no longer required to be inspected per 40 CFR Subpart D § 257.104(a), They were certified closed on the following dates:

- Scrubber Pond certified closed on March 1, 2022
- Ash Pond A certified closed on April 18, 2022
- Ash Pond B certified closed on March 21, 2022
- Ash Pond C certified closed on May 16, 2022

The Site F Landfill was visually inspected on January 23, 2022 for features which could undermine the integrity of the containment system. Items which could potentially affect the integrity of the structure have been documented and recommendations are given for corrective action in this report.

The Texas Commission of Environmental Quality has published guidelines for the safe operation and maintenance of impoundments entitled “Guidelines for Operation and Maintenance of Dams in Texas”. The general guidance given in this manual was used as a basis for inspecting the impoundments and in the development of action items. The inspections observed and documented conditions of the upstream embankment, crest and downstream embankment of each impoundment as applicable.

This report provides action items to GCERG based on their relative priority for implementation and communicates that priority by assigning it either a “Critical Item”, “Moderate Item” or “Minor Item” classification to each action item identified.

“Critical Items” are items that are critical to the integrity of the impoundment and require immediate attention such as:

- An impoundment about to be overtopped or is overtopping
- An impoundment about to be breached (by progressive erosion, slope failure or other circumstance)

- An impoundment showing signs of piping or internal erosion indicated by cloudy seepage
- Evidence of excessive seepage such as a saturated embankment or seepage on the downstream face of the impoundment
- New embankment slides, structural cracking or sinkholes

“Moderate Items” are items that should be addressed at the earliest opportunity and before the next inspection. Moderate items include:

- Remove all underbrush and trees from the impoundment and establish good grass cover
- Fill animal burrows
- Restore and reseed eroded areas and gullies on impoundment
- Repair defective valves, pipes, walkways, structural foundations and other appurtenant features

“Minor Items” are items which will require continual maintenance by GCERG personnel on a routine basis or require additional inspections and monitoring throughout the year to determine if the item needs to be addressed before it becomes a more serious problem. “Minor Items” include:

- Transmission pipe seepage
- Minor erosion rills
- Mowing of grass/vegetation on embankments
- Moist soils at downstream toe of embankment during dry periods
- Vehicle rutting on crest

Inspections of the GCSES CCR Units occurred on January 23, 2023. The inspections were performed by:

- Stephen Dugger, GCERG Environmental Scientist
- Dave Vogt, P.E., HDR Engineering, Inc.

The last formal inspection of Gibbons Creek’s CCR Units occurred on January 19, 2022.

The Site F Landfill is the only remaining CCR Unit at Gibbons Creek. It contains liquids, sludges, slurries, and/or solid process and waste materials resulting from the combustion of coal. Its location is shown in Figure 1.



Figure 1: Gibbons Creek CCR Unit Locations

The last recorded rainfall event prior to this inspection occurred on January 19, 2023. The site received 0.37 inches of rainfall that day. On the date of inspection, the ground was moist and there were areas of standing water present.

SITE F LANDFILL

The Site F Landfill is located approximately 1.5 miles northeast of the GCSES administration buildings. The landfill area is approximately 95 acres and is registered with the TCEQ as Unit Number 1 with Solid Waste Registration Number 32271. The landfill was originally constructed with a 3-foot-thick compacted clay liner.

The Site F Landfill is currently undergoing closure operations. Its permanent landfill cap will consist of a compacted clay barrier overlain with a geomembrane and geocomposite. The cap liner will then be covered with an 18-inch-thick infiltration layer and 6-inch-thick erosion layer. Approximately 30 acres of the landfill has received its final cap. Approximately 15 acres of the landfill is open and currently receiving CCR material excavated and hauled from Ponds 1-4.

In general, the Site F Landfill appeared to be in good condition and well vegetated.

MODERATE ITEM: Animal burrows were found on the outside embankment of the landfill (Figure 2).



Figure 2: Typical Animal Burrow

Recommendation 1: Backfill burrows with compacted cohesive soil and reestablish vegetation. Lightly loosen uppermost soil during reseeding.

Recommendation 2: Continue to monitor restored areas for burrow damage or erosion.

MODERATE ITEM: A small tree and some bushes were found growing on the cap of the Site F Landfill. The root systems of these plants could undermine the integrity of the cover and clay cap (Figure 3).



Figure 3: Typical Tree/Bush on Embankment

Recommendation 1: Remove bushes and trees on cap and repair areas disturbed during removal.

MODERATE ITEM: Erosion areas were forming along the outer embankment (Figure 4).



Figure 4: Side Slope Erosion

Recommendation 1: Backfill bare erosion gullies with compacted cohesive soil and reestablish vegetation.

Recommendation 2: Place riprap or stone in areas of concentrated flow.

Recommendation 3: Continue to monitor areas after repairs for additional erosion.

Recommendation 4: If erosion continues to be a problem at these areas after repair, construct down chutes at these areas to convey water off the closed area.

MINOR ITEM: Vegetation and sediment on concrete drop structures (Figure 5).



Figure 5: Vegetation and Sediment on Concrete Revetment

Recommendation 1: Remove vegetation and sediment as part of routine maintenance.

MODERATE ITEM: Some erosion control BMPs need maintenance.



Figure 6: Settling Pond Cloudy

Recommendation 1: Dredge and remove sediment in pond to improve its efficiency.



Recommendation 1: Remove sediment buildup at silt fence.

MINOR ITEM: Some areas with ponded water on landfill.



Recommendation 1: Backfill low areas with compacted cohesive soil, grade to drian, and reestablish vegetation.

ASH PONDS

The Ash Ponds are three adjoining and connected CCR surface impoundments separated by earthen dikes and hydraulic gates. The three ponds (A, B, and C) are located approximately 3,000 feet southeast of the GCSES administration buildings. Each pond is approximately 1,820 feet long and 245 feet wide at the dike crest interior top of bank and approximately 20 feet deep. The total interior area of the three ponds combined is approximately 30.7 acres. The bottom of the Ash Ponds is at elevation 250.0 ft-msl and the crest is at elevation 270 ft msl.

The Gibbons Creek Steam Electric Station was retired and shut down in October 2019. At that time, the Ash Ponds were taken out of service and stopped receiving CCR material. Since the retirement of the

facility, site personnel continued to perform inspections and maintenance on this surface impoundment until they were closed.

The ponds underwent closure through the “closure by removal” process and are no longer required to be inspected per 40 CFR Subpart D § 257.104(a), They were certified closed on the following dates:

- Ash Pond A certified closed on April 18, 2022
- Ash Pond B certified closed on March 21, 2022
- Ash Pond C certified closed on May 16, 2022

Images of the closed ponds are shown in Figures 7-9 below.



Figure 7: Ash Pond A on January 23, 2023



Figure 8: Ash Pond B on January 23, 2023



Figure 9: Ash Pond C on January 23, 2023

SCRUBBER SLUDGE POND

The Scrubber Sludge Pond is located approximately 3,300 feet southeast of the GCSSES administration buildings. The pond is approximately 750 feet long and 380 feet wide at the north end and 470 feet wide at the south end of the at the dike crest interior top of bank. The pond is approximately 20 feet deep. The total interior area of the pond, as measured from the interior top of crest, is approximately 7.3 acres. The bottom of the Ash Ponds is at elevation 260.0 ft-msl and the crest is at elevation 279.0 ft-msl.


The Gibbons Creek Steam Electric Station was retired and shut down in October 2019. At that time, the Scrubber Sludge Pond was taken out of service and stopped receiving CCR material. Since the retirement of the facility, site personnel continued to perform inspections and maintenance on this surface impoundment until it was certified closed.

The pond underwent closure through the “closure by removal” process and is no longer required to be inspected per 40 CFR Subpart D § 257.104(a). The pond was certified closed on March 1, 2022.



Figure 10: Scrubber Sludge Pond on January 23, 2023

This inspection report was prepared by:


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ATTACHMENT 1 – INSPECTION CHECKLISTS

CCR UNIT INSPECTION CHECKLIST

CCR Unit: Site F Landfill			Inspection Date: 1/23/23	Weather: Overcast and misty									
Inspected By: Stephen Duggar and Dave Vogt			Last Inspection Date: 1/19/2022										
Element	Item	Component	Current Observations	Change From Last Inspection				Action					
				Similar	Improved	Deteriorated	Unknown	OK	Critical	Moderate	Minor	Monitor	
Crest	1	Surface Cracking		X					X				
	2	Animal Burrows		X					X				
	3	Crest Sinks		X					X				
	4	Horizontal Alignment		X					X				
	5	Ruts/Puddles		X					X				
	6	Vegetation		X					X				
	7	Trees		X					X				
	8	Piezometer Readings					X						
	9	Piezometer Condition					X						
Upstream Embankment and Cap Area	10	Cap Erosion		X					X				
	11	Cap Vegetation/Trees		X					X				
	12	Berm Slide, Slough		X					X				
	13	Slope Protection		X					X				
	14	Berm Sinks		X					X				
	15	Animal Burrows		X					X				
	16	Abutment Contact		X					X				
	17	Erosion		X					X				
	18	Vegetation		X					X				
	19	Trees		X					X				
	20	Drains		X					X				
21	Berm Bulges		X					X					
Downstream Embankment	22	Wet Areas/Seepage		X					X				
	23	Estimated Seepage Rate		X					X				
	24	Seepage Description		X					X				
	25	Toe Drain Status		X					X				
	26	Berm Slide/Slough		X					X				
	27	Abutment Contact		X					X				
	28	Animal Burrows		X							X		
	29	Erosion		X							X		
	30	Unusual Movement		X					X				
	31	Vegetation		X							X		
	32	Trees/Bushes		X					X				
	33	Piezometer Reading					X						
	34	Piezometer Condition					X						

Comments and Photo Information: