Gainesville Regional Utilities
Deerhaven Generating Station

Coal Combustion Residual Units
Annual Inspection Report
(December 9, 2021 – December 6, 2022)

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Table of Contents

1 Introduction 3

2 CCR Surface Impoundment System 5

2.1 Review of Relevant Information 5

2.1.1 Overview 5

2.1.2 Review of Weekly and Monthly Inspection Worksheets 6

2.2 Field Inspection 8

2.2.1 Signs of Distress or Malfunction of CCR Unit or Appurtenant Structures 8

2.2.2 Hydraulic Structures 9

2.2.3 Geometrical Changes of CCR Unit 9

2.2.4 Instrumentation Locations and Maximum Readings 9

2.2.5 Elevation of CCR and Impounded Water 9

2.2.6 Storage Capacity and Volume of CCR and Impounded Water 10

2.2.7 Structural Weaknesses and Adverse Conditions 10

2.2.8 Other Changes Affecting Stability or Operation 11

3 CCR Landfill 11

3.1 Review of Relevant Information 11

3.2 Field Inspection 13

3.2.1 Signs of Distress or Malfunction 13

3.2.2 Geometrical Changes of CCR Landfill 16

3.2.3 Volume of CCR 16

3.2.4 Structural Weaknesses and Adverse Conditions 16

3.2.5 Other Changes Affecting Stability or Operation 16

3.2.6 Miscellaneous 16

4 Summary of Deficient Conditions and Recommendations 17

5 References 19

6 Professional Engineer Certification 22

List of Figures

Figure 1. Layout of the CCR Surface Impoundment System, Adjacent Pump Back Cells, and Piezometers. 3

Figure 2. Aerial Image of CCR Landfill Facing West 4

Figure 3. Liquid Elevations for Ash Cell #1 and Piezometers 8

Figure 4. Liquid Elevations for Ash Cell #2 and Piezometer 8

Figure 5. Ash Cell # 2 and Pump Back Cell #2 Embankment Erosion and Riprap Displacement 11

Figure 6. Sediment and Water Build-up Around Underdrain Outlets of (a) Cell 4, (b) Cell 3, (c) Cell 2, and (d) Cell 1 on December 6, 2022. 14

Figure 7. Condition of Underdrain Outlets of (a) Cell 4, (b) Cell 3, (c) Cell 2, and (d) Cell 1 on December 16, 2022. 15

Figure 8. Unvegetated Area Around LF-3 17

List of Tables

Table 1. Location, Type, and Maximum Recorded Readings of Existing Instrumentation 9

Table 2. Maximum, Minimum, and Present Depth and Elevation of CCR and Water 10

Table 3. Location Summary of Deficient Conditions Observed During the Annual Inspection 17

List of Appendices

Appendix A – Comparison Table of Surface Impoundment System Elevations from DSI (2015) and Elevations Observed by ITS on December 7, 2022

1 Introduction

The Deerhaven Generating Station (site) has two coal combustion residuals (CCR) units: a surface impoundment system and a landfill. The surface impoundment system is comprised of two ash ponds (i.e., Ash Cell #1, and Ash Cell #2) located within the same slurry wall containment system. These cells receive cooling tower blowdown and bottom ash (when generated) sluice water from the site's coal-fired combustion unit (i.e., Unit #2) through a piping network that allows discharge to either cell. Cooling tower blowdown represents the largest discharge stream routed to these cells, and sluiced ash constitutes a relatively small portion of the discharges received by these cells. As the water moves through the ash cells, bottom ash settles, and the decant water gravity drains to adjacent pump back ponds (i.e., Pump Back Cell #1, Pump Back Cell #2) through subsurface culverts, which run beneath the embankment separating each ash cell from its adjacent pump back cell. The culvert inlets are enclosed within stoplog structures (located inside the ash cells near the embankment separating each ash cell from the adjacent pump back pond) to minimize ash entering the culverts. The adjacent pump back cells are used exclusively to store the decant water before treatment and reuse in plant operations. The slurry wall containment system is located beneath the peripheral embankment, which encompasses the surface impoundment system, the pump back cells, and two front-end treatment (FET) lime sludge cells. The slurry wall is keyed into an existing, underlying clay layer. Figure 1 presents a layout view of the surface impoundment system and the two adjacent pump back cells at the site. The locations of several piezometers, which are used to qualitatively monitor for seepage through the exterior embankments, are also shown.

Figure 1. Layout of the CCR Surface Impoundment System, Adjacent Pump Back Cells, and Piezometers

GRU upgraded the Unit 2 boiler to primarily burn natural gas, and with the implementation of these upgrades, the provisions of the CCR rule do not apply to the process water streams generated at the

facility. Therefore, GRU decided to close the ash cells by removing in-place CCRs and decontaminating these cells. GRU plans to repurpose the ash cells for managing the facility-generated process water streams, which are not subject to the CCR rule. GRU submitted a closure permit application to the Florida Department of Environmental Protection in August 2022. The closure application is currently under review by the Florida Department of Environmental Protection.

The CCR landfill primarily accepts flue gas desulfurization byproducts from the Unit #2 scrubbing process. The landfill also accepts the bottom ash periodically excavated from the surface impoundment system and lime sludge that is periodically removed from front-end treatment sludge ponds. Occasionally, fly ash is also deposited in the landfill when it is not hauled offsite for beneficial use. The landfill is comprised of four cells (i.e., Cells 1-4) sequentially arranged from west to east. The bottom of each landfill cell is graded to drain contact water (i.e., water that contacts CCR) intercepted by the cell bottom. In addition, perforated PVC pipes were installed at the base of the cells. Specifically, these pipes are located in the middle of each cell and between each cell to intercept and gravity-drain the contact water to a drainage ditch located along the northern toe of the landfill (i.e., the Northern Drainage Ditch).

Similar to the surface impoundment system, a slurry wall containment system, which is keyed into an existing underlying clay layer, encompasses the landfill and the Northern Drainage Ditch. A series of stormwater ditches outside the slurry wall route stormwater to either a wetland area located just west of the landfill or to a stormwater pond located southeast of the landfill. Currently, Cells 1, 2, and 3 of the CCR landfill are actively receiving CCR and other non-CCR materials. Figure 2 presents an aerial layout of the CCR landfill at the site, facing west.

Figure 2. Aerial Image of CCR Landfill Facing West

GRU submitted an operations permit application for the CCR landfill to the Florida Department of Environmental Protection in September 2022. The application is currently under review by the Florida Department of Environmental Protection.

Title 40 Code of Federal Regulations (CFR) 257.83(b) and 257.84(b) requires that CCR units be annually inspected by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of each CCR unit are consistent with recognized and generally accepted good engineering standards. 40 CFR 257.53 defines a qualified professional engineer as "an individual who is licensed by a state as a Professional Engineer to practice one or more disciplines of engineering and who is qualified by education, technical knowledge, and experience to make the specific technical certifications required under this subpart. Professional engineers making these certifications must be currently licensed in the state where the CCR unit(s) is located". This report was prepared under the supervision of Pradeep Jain, who is a licensed professional engineer in the State of Florida (FL PE License No. 68657).

2 CCR Surface Impoundment System

2.1 Review of Relevant Information

2.1.1 Overview

The following documents have been reviewed by Innovative Waste Consulting Services LLC (IWCS), doing business as Innovative Technical Solutions (ITS), to understand the design and operation of the CCR surface impoundment system located at the site while preparing the previous annual inspection reports:

a) Construction drawings for the surface impoundment system certified as conforming to construction records (B&M 1981)
b) Bid documents for the site, including construction specifications for the surface impoundment system (B&M 1980)
c) A Site Certification Application for Unit 2 (RUB 1977)
d) A State of Florida Department of Environmental Regulation Electric Power Plant Site Certification Review FDER (1978)
e) Slope Stability and Liquefaction Potential Analysis, CCR Impoundment System, Deerhaven Generating Station (DGS) (UES 2015)
f) Slope Stability and Liquefaction Potential Analysis, CCR Impoundment System, Deerhaven Generating Station (DGS) (UES 2020a).
g) A topographic survey of the surface impoundment system (DSI 2015)
h) Coal Combustion Residuals (CCR) Surface Impoundment System Hazard Potential Classification (UES 2016a)
i) Coal Combustion Residuals (CCR) Abutment and Base Surface Impoundment System Evaluation (UES 2016b)
j) CCR Surface Impoundment System and Landfill Groundwater Monitoring Systems Design and Construction (UES 2017); UES completed the installation and development of the groundwater monitoring wells around each of the CCR units in March 2017.
k) Coal Combustion Residuals (CCR) Surface Impoundment System and Updated Landfill Groundwater Monitoring Systems Design and Construction UES (2020b)

l) Groundwater Sampling and Analysis Plan for the Coal Combustion Residuals Units (IWCS 2017c); the plan provides details on the methodology to be used for sampling and analyzing groundwater data collected from the monitoring well networks of each CCR unit.
m) IWCS (2021). Coal Combustion Residuals Surface Impoundment System Inflow Design Flood Control System Plan, prepared by Innovative Waste Consulting Services LLC for Gainesville Regional Utilities, September 2021.
n) UES (2021a). Coal Combustion Residuals (CCR) Surface Impoundment System Periodic Hazard Potential Classification, prepared by Universal Engineering Services for Gainesville Regional Utilities, September 2021.
o) UES (2021b). Coal Combustion Residuals (CCR) Abutment and Base Surface Impoundment System Periodic Structural Stability Evaluation, prepared by Universal Engineering Services for Gainesville Regional Utilities, September 2021.

Since the last inspection, no modification has been made to the design and operational procedures of the surface impoundment system. GRU ceased accepting CCRs and non-CCRs in Ash Cell 1 in October 2021 and started dewatering the cell for closure. GRU relocated bottom ash from Ash Cell 1 to the onsite CCR landfill and plans to repurpose the cell to only manage non-CCR waste streams after completing decontamination efforts. GRU had to resume Ash Cell #1 operation before removing all CCRs due to a storm event and other operating issues at the plant. GRU will resume the SIS closure upon receipt of the closure permit from the Florida Department of Environmental Protection. The following additional documents developed since the previous annual inspection were reviewed for this report preparation:

a) ITS (2022a). Coal Combustion Residuals Surface Impoundment System Closure Plan (Version 3.0), prepared by Innovative Waste Consulting Services LLC dba Innovative Technical Solutions for Gainesville Regional Utilities, May 2022.
b) ITS (2022b). Coal Combustion Residuals Surface Impoundment Closure Permit Application, prepared by Innovative Waste Consulting Services LLC dba Innovative Technical Solutions for Gainesville Regional Utilities, August 2022.
c) Fifty-two (52) weekly (7-day) inspection worksheets
d) Twelve (12) monthly (30-day) inspection worksheets

2.1.2 Review of Weekly and Monthly Inspection Worksheets

Weekly and monthly inspection worksheets for the CCR surface impoundment system have been completed and placed in the operating record since October 19, 2015. ITS reviewed the worksheets for all the weekly and monthly inspections conducted since the previous annual inspection. Documentation reporting that the deficiencies identified during the previous annual inspection have been addressed is available on GRU's publicly accessible internet site.

40 CFR 257.83(a)(1)(i) and (iii) respectively establish maximum time intervals for weekly (i.e., seven days) and monthly (i.e., 30 days) inspections of the surface impoundment system. There were three (two of these instances were around the Christmas holidays) and four instances where this maximum time interval was exceeded for weekly and monthly inspections, respectively.

The following unusual conditions were reported in weekly and monthly inspection worksheets covering the current annual inspection period:

a) Elevated Ash Cell Water Levels – The top of the peripheral berm surrounding each of the ash cells is at an elevation of 195 feet, referenced to the National Geodetic Vertical Datum of 1929 (NGVD29). The ash cells are operated with a normal maximum operating level of 193 feet (NGVD29) to provide 2 feet of freeboard in case of heavy rain/storm events and other contingency events (e.g., during the brine concentrator outage). Water levels higher than 193 ft NGVD29 were observed for three (3) and sixteen (16) weekly inspections for Ash Cell #1 and Ash Cell #2, respectively, during the time period covered by this report.

   For Ash Cell #1, the first occurrence of elevated water levels was reported on 9/6/2022 due to heavy rains. The water level in Ash Cell #1 was again observed to be higher than 193 feet for two consecutive weeks, 11/15/2022 and 11/22/2022, which was a result of a unit outage.

   For Ash Cell #2, the first incidence of elevated water levels was reported on 3/15/2022 due to storms. The water elevation in Ash Cell # 2 was reported to be intermittently above 193 feet (NGVD29) due to multiple factors, including heavy rains, maintenance of pumpback ponds, unit outages, and cleaning of Ash Cell #1. The operators closely monitored pond levels and adjusted process water and stormwater pumping to the ponds to expeditiously reduce the ash pond levels during these events.

b) Butterfly Valve Failure. The butterfly valve that is used to control the decant water flow from Ash Cell #2 to Pump Back Cell #2 has been reported to be inoperable since 5/5/2021. GRU plans to repair the valve after Ash Cell #2 is dewatered. Once Ash Cell #1 is repurposed to accept only non-CCR flows, Ash Cell #2 will be dewatered for closing and repurposing to manage only non-CCR waste streams; the malfunctioning butterfly valve will be repaired once the cell is dewatered.

c) Overgrown Vegetation (2 instances) – Vegetation on the side slopes of the Ash Cells 1 and 2 was observed to be taller than 6 inches on weekly inspections conducted on 9/27/22 and 10/4/22. Issues related to overgrown vegetation were resolved by 10/11/22.

d) Bare Patches (3 instances) – A bare patch was noted near Piezometer P-3 in Ash Cell 1 during three consecutive weekly inspections on 9/27/22, 10/4/22, and 10/11/22. The area was seeded before 10/11/22.

e) Shrubs or Trees on Armored Inner Slopes (2 instances) – Shrubs/trees were noted on the inner slopes of Ash Cells 1 and 2 during two consecutive weekly inspections on 9/27/22 and 10/4/22. These were removed before 10/11/22.

During each monthly inspection, depth-to-liquid readings in the piezometers located on the embankments of Ash Cell #1 and Ash Cell #2 were measured. The water levels measured in these piezometers are used to qualitatively assess potential embankment seepage areas; Piezometers P-2, P-3, and P-4 are used to monitor exterior embankments for Ash Cell #1, and P-1 is used to monitor the exterior embankment of Ash Cell #2 (Figure 1). The liquid elevation in the piezometers was compared to the liquid elevation in each adjacent ash pond. Figures 3 and 4 present a comparison of the measured liquid levels for Ash Cell #1 and corresponding piezometers and Ash Cell #2 and corresponding piezometer(s), respectively. The measurements taken by ITS engineers on the day of the annual inspection were within the range of the measurements recorded by GRU during the reporting period.

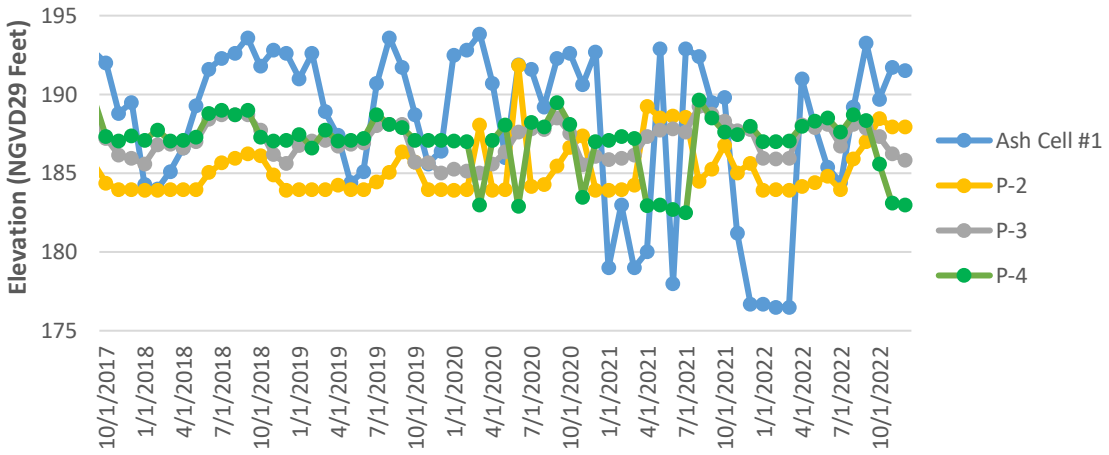


Figure 3. Liquid Elevations for Ash Cell #1 and Piezometers

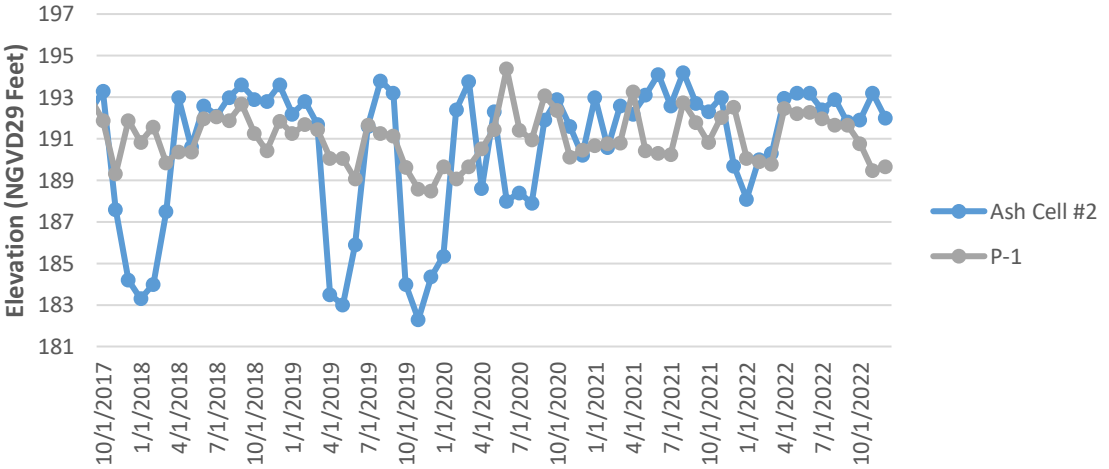


Figure 4. Liquid Elevations for Ash Cell #2 and Piezometer

2.2 Field Inspection

ITS inspected the CCR surface impoundment system on December 6-7, 2022. The following section describes the observations made during the inspection.

2.2.1 Signs of Distress or Malfunction of CCR Unit or Appurtenant Structures

No sign of distress or malfunction was observed for the visible sections of the ash ponds or the stoplog structures. The condition of the submerged interior slopes and the stoplogs could not be visually inspected in Ash Cells #1 and #2.

GRU reported that the butterfly valve in Ash Cell #2 was malfunctioning at the time of the inspection. As a result, GRU is using a portable pump to move water from Ash Cell #2 to Pump Back Pond #2. GRU plans to fix this issue when Ash Cell #2 is dewatered for cleaning next year.

2.2.2 Hydraulic Structures

ITS could not inspect the subsurface culverts connecting each ash cell to its adjacent pump back pond as these were submerged below the water levels in the ash ponds and pump back ponds. Therefore, ITS recommends that GRU conduct a dry/semi-dry inspection of the culverts to assess their structural integrity.

2.2.3 Geometrical Changes of CCR Unit

ITS conducted a topographic survey of select features of the surface impoundment system on December 7, 2022. A comparison of the topographic conditions collected during this survey to those observed in the survey conducted by DSI (2015) does not suggest any significant deviations in geometry from those observed during the previous annual inspection. Appendix A includes a comparison between the elevations of the features during this inspection to those presented by DSI (2015). Please note that the survey equipment used by ITS has a manufacturer-listed maximum accuracy of 4 inches. The surveyed elevations should be considered rough approximations as the survey was not performed by a licensed surveyor.

2.2.4 Instrumentation Locations and Maximum Readings

Apart from a groundwater monitoring system (separately discussed in detail in annual groundwater monitoring and corrective action reports), the piezometers adjacent to each of the two ash ponds are the only instruments used to monitor the surface impoundment system. Table 1 presents the location of the piezometers, along with their maximum recorded readings over the last annual inspection period. Please note that the easting and northing coordinates are referenced to US State Plane 1983 Florida North 0903. The maximum reading liquid elevations are referenced to NGVD29. As a point of comparison, the top of the peripheral berm surrounding each of the ash cells is at an elevation of 195 feet NGVD29. The maximum elevations observed during the reporting period for all the piezometers were within the range of those observed during the previous reporting period (182.5-192.3 ft NGVD29).

Table 1. Location, Type, and Maximum Recorded Readings of Existing Instrumentation

Piezometer	Easting	Northing	Max Elevation (NGVD29)
P-1	2636972.5	284823.8	192.5
P-2	2636725.5	284571.1	188.5
P-3	2636691.7	284443.8	188.1
P-4	2636873.5	284259.3	188.7

2.2.5 Elevation of CCR and Impounded Water

Table 2 presents a comparison of the water levels observed on the day of inspection with the maximum and minimum levels recorded by GRU staff during weekly and monthly inspections; the water levels in the ponds are tracked with a staff gauge painted on one of the concrete walls of the stoplog structure in each

ash pond. It should be noted that all liquid depths in each pond were calculated assuming the bottom of the ash ponds is located at 179 feet NGVD29, as indicated in the B&M (1981) drawing set. The surface of the settled bottom ash is not evenly distributed – the elevations presented in Table 2 correspond to the water elevation of the ponds.

Table 2. Maximum, Minimum, and Present Depth and Elevation of CCR and Water

Location	Media	Parameter	Unit	12/7/22	Minimum of the Weekly and Monthly Measurements	Maximum of the Weekly and Monthly Measurements
Ash Cell #1	Water	Elevation	feet (NGVD29)	191.0	176.4	193.3
		Depth	feet	12.0	0	14.3
Ash Cell #2	Water	Elevation	feet (NGVD29)	192.0	182.4	193.8
		Depth	feet	13.0	3.4	14.8

2.2.6 Storage Capacity and Volume of CCR and Impounded Water

A large portion of the CCR surface in Ash Cell #2 was inundated at the time of this inspection (as shown in Figure 1 aerial image); the current CCR storage capacity of the surface impoundment systems could not be estimated. However, based on construction records, it is estimated that the CCR surface impoundment system has a total volumetric capacity of 17.3 million gallons (or approximately 85,400 cubic yards), not including the capacity associated with the 2 feet of freeboard.

A topographic survey of the current CCR surface could not be performed to assess its elevation and in-place volume. Based on the present (i.e., December 7, 2022) water elevation in Ash Cell #1 and #2, the total in-place volume of water and CCR is estimated to be approximately 7.1 and 7.8 million gallons, respectively (or approximately 35,000 and 38,800 cubic yards, respectively).

2.2.7 Structural Weaknesses and Adverse Conditions

ITS visually inspected the external side slopes of the surface impoundment system to identify any potential indicators of structural weakness or any other adverse condition, including signs of erosion; bulging; depressions; cracks; animal forage holes; boils; or excessive, turbid, or sediment-laden seepage. No signs of structural weakness or adverse conditions were observed during the annual inspection of the surface impoundment system. Erosion on the embankment between Ash Cell #2 and Pump Back Cell #2 was observed. The erosion and riprap displacement in this area appears to be the result of the pumping of water from Ash Cell #2 to the Pump Back Cell #2 using a diesel pump due to the malfunctioning of the butterfly valve that is used to control the flow of decant water from Ash Cell #2 to Pump Back Cell #2.

Figure 5. Ash Cell # 2 and Pump Back Cell #2 Embankment Erosion and Riprap Displacement

2.2.8 Other Changes Affecting Stability or Operation

The height of grass on the southern and western slopes of the surface impoundment system on December 6, 2022 was found to be less than the maximum 6-inch requirement (§257.74(d)(iv)). Apart from the observations discussed in the previous sections, no other changes or circumstances, which may impact the stability or operation of the surface impoundment system, were noted during the inspection.

3 CCR Landfill

3.1 Review of Relevant Information

The following additional documents (i.e., beyond those reviewed for previous annual inspections) were reviewed by ITS to understand the design and operation of the CCR landfill located at the site while preparing this annual inspection report:

a. ITS (2022c). Coal Combustion Residuals Landfill Operations Permit Application, prepared by Innovative Waste Consulting Services LLC dba Innovative Technical Solutions for Gainesville Regional Utilities, August 2022.
b. A total of 52 weekly CCR landfill inspection worksheets were reviewed; these worksheets covered the period from December 6, 2021 through December 5, 2022. 40 CFR 257.84(a)(1)(i) establishes a maximum time interval of 7 days for weekly inspections of the CCR landfill. All 52 weekly CCR landfill inspections were performed without exceeding the maximum time interval.

The worksheets allow the inspector to categorize observations as *Acceptable*, *Area of Concern*, or *Needs Attention*. The *area of Concern* is defined in the worksheet as "may develop into a *Needs Attention* area if not addressed. Monitor the situation and reevaluate during the next inspection. Address as necessary." It should be noted that an *Area of Concern* is not indicative of a problem but is used to proactively identify and monitor circumstances that have an elevated chance of developing into a problem. *Needs Attention*

is defined in the worksheet as "currently or imminently presents a human-health, operation or environmental hazard/problem. Address as soon as possible."

Thirty-one (31) *Needs Attention* observations were reported in the weekly inspection worksheets reviewed for this report. The majority of these observations appear to be because of the high-water level in the Northern Drainage Ditch, which was above the underdrains (19 instances) or downcomers (2 instances, both occurring when the water level was high in the Northern Drainage Ditch and the underdrains were underwater) and the presence of loose ash piles that were not spread and compacted (5 occasions). Based on supervisor notes included in the inspection worksheets, it appears that these issues were addressed expeditiously and were resolved as soon as feasible.

The *Needs Attention* observations corresponded to the following nine categories:

1) **Water Level Above Underdrain Outlets (19 instances)** – four underdrain pipes collect and transport CCR contact water to the Northern Drainage Ditch. Multiple events under this category are directly related to heavy rainfall. The high water level in the northern drainage ditch was a frequently occurring issue during the reporting period. On all occasions, the Northern Drainage Ditch was pumped down as soon as feasible following these observations.
2) **Loose Piles of CCR (5 instances)** – loose piles of CCR accumulated on the landfill surface were observed – these piles have the potential to contribute to dust emissions. Three of these observations were reported to be due to equipment maintenance.
3) **Downcomer pipes clogged or damaged (2 instances)** – two downcomer pipes drain contact water from the top of the landfill into the Northern Drainage Ditch. On two occasions, the downcomer outlets were observed to be inundated due to the elevated water elevation in the Northern Drainage Ditch. This condition would not impact the performance of the downcomers.
4) **Water Level in Stormwater Pond (2 instances)** – The water level in the stormwater pond was reported to be high. This resulted in the ponding of water in the south ditch until the issue was resolved.
5) **Overgrown Vegetation (2 instances)** – Vegetation on the side slopes of the CCR landfill was observed to be taller than 6 inches. Issues related to overgrown vegetation were resolved within a week.
6) **Visible Damage (1 instance)** – The concrete pad around LF-1 was found to be damaged. The concrete pad was fixed within two weeks of being noted.

Thirty-six (36) "Areas of Concern" were noted. These are listed as follows:

1. **Grass and other vegetation height on external slopes (13 instances).** The vegetation on external side slopes was reported as an area of concern in 13 instances. One of the instances was reported to be due to equipment maintenance.
2. **Water Level in Stormwater Pond (5 instances)** – The water level in the stormwater pond was reported to be high. High water levels in the stormwater pond impede the water flow from the south ditch.

3. **Access roads and ramps navigable, erosion, rutting, and ponding (3 instances)**. The access road was reported to be damaged on three occasions. These issues were resolved within 1-2 weeks of reporting.
4. **Erosion of active surface area (2 instances)**. Erosion was observed in Cell 3, and small cracks were observed in the CCR. The areas were repaired within one week of reporting.
5. **Ponding (2 instances)**. Ponding of water was observed in Cell 1 and Cell 2. The issues were resolved within one week of reporting.
6. **Culverts clogged (1 instance)** – Overgrown vegetation was reported to cover the stormwater culverts inlets and outlets. The issue was resolved within one week of reporting.
7. **Hay bales condition (1 instance)**. The hay bales were found to be deteriorating and were replaced to address the issue.
8. **Downcomer clogged (1 instance)** – The outlets of the downcomers that drain into the northern drainage ditch were reported to be inundated by water. This instance was reported to be the result of a storm.
9. **Ash canal – Sediment accumulation & Bank erosion (8 instances)** – Sediment accumulation in the ash canal was reported four times, and erosion on the banks was reported four times.

Based on supervisor notes included in the inspection worksheets, it appears that these issues were addressed expeditiously and were generally resolved within a week of the observation. No issues were observed in two consecutive inspections, with the exceptions of the observations pertaining to vegetation height, the water level in the stormwater pond, sediment accumulation in ash canals, and damage to access roads.

3.2 Field Inspection

ITS inspected the CCR landfill on December 6-7, 2022. The following section describes observations made during the inspection event.

3.2.1 Signs of Distress or Malfunction

Cells 2-4 underdrains were partially under water, and Cell 1 underdrain was completely submerged due to a high liquid level in the Northern Drainage Ditch (Figure 6).

(a)

(b)

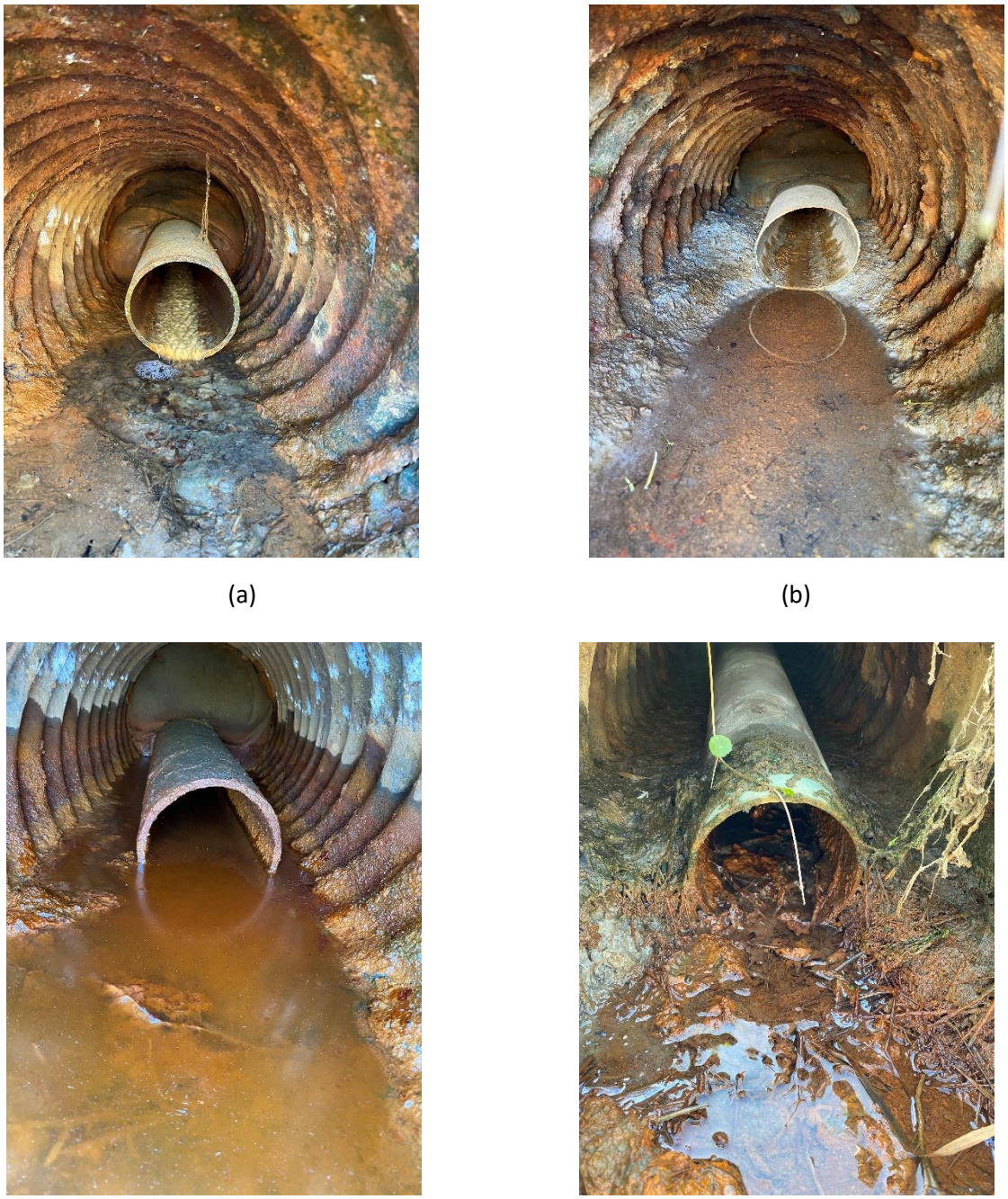
(c)

(d)

Figure 6. Sediment and Water Build-up Around Underdrain Outlets of (a) Cell 4, (b) Cell 3, (c) Cell 2, and (d) Cell 1 on December 6, 2022.

ITS conducted a follow-up walkthrough of the site with GRU personnel on December 16, 2022 and found only the Cell 2 underdrain to be partially underwater (Figure 7). The Cell 2 underdrain had some sediment

buildup at the outlet that was impeding water from draining into the Northern Drainage Ditch. Dead vegetation and sediment built-up in and around the Cell 1 underdrain outlet were observed.



(a) (b)

(c) (d)

Figure 7. Condition of Underdrain Outlets of (a) Cell 4, (b) Cell 3, (c) Cell 2, and (d) Cell 1 on December 16, 2022.

3.2.2 Geometrical Changes of CCR Landfill

In accordance with the landfill filling plan, the interior of Cell 1 and Cell 2 and the peripheral berm on the external side slopes of Cell 1 and Cell 2 is progressively raised by approximately 4 feet for each lift of deposited CCR. No changes in the geometry of the landfill indicative of structural instability or weakness were noted. Since the last inspection, no modification has been made to the design and operational procedures of the landfill.

3.2.3 Volume of CCR

ITS conducted a topographic survey of the landfill on November 28, 2022 and used AutoCAD Civil 3D 2013 cut-and-fill procedures to estimate the in-place CCR volume; the landfill bottom elevation was assumed to be 184 feet NGVD29 (as approximately shown in B&M 1981). Approximately 528,600 cubic yards of CCR and other materials (i.e., cover soil, FET lime sludge) have been deposited in the landfill to date. The topographic survey and the estimated in-place volume should be considered as a rough approximation as the survey was not performed by a licensed surveyor.

3.2.4 Structural Weaknesses and Adverse Conditions

ITS performed a visual inspection of all exterior slopes of the CCR landfill for any appearance of actual or potential structural weakness, including signs of erosion, bulging, depressions, cracks; animal forage holes; boils, or excessive, turbid, or sediment-laden seepage. No signs of structural weakness or adverse conditions were observed.

3.2.5 Other Changes Affecting Stability or Operation

Apart from those discussed above, no other changes or circumstances, which may impact the stability or operation of the landfill, were noted during the inspection.

3.2.6 Miscellaneous

This section summarizes other miscellaneous observations for GRU's consideration. These observations do not significantly impact the landfill's performance or stability.

a) Unvegetated area around LF-3 (Figure 8)

Figure 8. Unvegetated Area Around LF-3

4 Summary of Deficient Conditions and Recommendations

Table 3 summarizes the locations of each deficient condition observed during the annual inspection.

Table 3. Location Summary of Deficient Conditions Observed During the Annual Inspection

CCR Unit	Location	Condition
Surface Impoundment System	Ash Cell #2	Butterfly valve malfunctioning
	Ash Cell #2	Erosion of embankment (between Ash Cell#2 and Pump Back Cell#2) and riprap displacement
CCR Landfill	All four underdrains	Underwater. Sediment built-up in and around Cells 1 and 2 underdrains was observed.
	Area around LF-3	Unvegetated area

All deficiencies identified for the CCR units were brought to the attention of GRU on December 15, 2022 via email and in person on December 16, 2022. Per §257.83(b)(5) and §257.84(b)(5), GRU is required to address these identified deficiencies as soon as feasible and document the corrective measures taken.

40 CFR 257.83(a)(1)(i) and (iii) respectively establish maximum time intervals for weekly (i.e., seven days) and monthly (i.e., 30 days) inspections of the surface impoundment system. There were three (two of these instances were around the Christmas holidays) and four instances where this maximum time interval was exceeded for weekly and monthly inspections, respectively. Similarly, 40 CFR 257.84(a)(1)(i) establishes a maximum time interval of 7 days for weekly inspections of the CCR landfill. All the weekly inspections were performed within this maximum time interval of 7 days. GRU is recommended to perform the weekly and monthly inspections within these maximum intervals.

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6 Professional Engineer Certification

This plan was prepared under the supervision, direction, and control of the undersigned registered professional engineer (PE). The undersigned PE is familiar with the requirements of 40 CFR 257.83(b) and 84(b). The undersigned PE certifies that this CCR unit annual inspection report meets the requirements of 40 CFR 257.83(b) and 84(b).

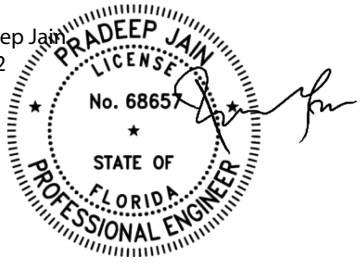
Name of Professional Engineer: Pradeep Jain

Company: Innovative Waste Consulting Services, LLC

PE Registration State: Florida

Florida PE License No.: 68657

Pradeep Jain Digitally signed by Pradeep Jain
Date: 2023.01.05 12:44:22 -05'00'



This item has been digitally signed and sealed by Pradeep Jain, PE, on the date adjacent to the seal.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Appendix A

Comparison Table of Surface Impoundment System Elevations from DSI (2015) and Elevations Observed by ITS on December 7, 2022

Surface Impoundment System Feature	December 7, 2022 Elevation (feet NGVD29)	DSI (2015) Survey Elevation (feet NGVD29)
Top of Embankment - Ash Cell 1	194.6 - 195.3	194.9 - 195.9
Top of Embankment - Ash Cell 2	194.8 - 195.9	194.7 - 195.6
Top of Embankment - Pump Back Cell 1	187.8 - 188.2	187.6 - 188.7
Top of Embankment - Pump Back Cell 2	188.3 - 188.6	188.1 - 188.8
Stoplog Structure - Ash Cell 1	195.1 - 195.4	195.3
Stoplog Structure - Ash Cell 2	194.9	195.2
Stoplog Bridge Abutment - Ash Cell 1	195.1	194.8 - 194.9
Stoplog Bridge Abutment - Ash Cell 2	194.5	194.8 - 194.9
Top of North Splash Block Ash Cell 1	194.9	194.7
Top of South Splash Block Ash Cell 1	194.8	194.7
Top of North Splash Block Ash Cell 2	194.5 - 194.7	194.7
Top of South Splash Block Ash Cell 2	194.5 - 194.7	194.6 - 194.7
Electrical Equipment Building Retaining Walls	188.4 - 188.6	188.1 - 188.4
Ash Pipe Drain Pit	179.6 - 180.0	179.6 - 180.3
Ash Cell 1 Outer Embankment Toe	182.4 - 182.8	182.6 - 182.7
Ash Cell 2 Outer Embankment Toe	181.9 - 182.7	182.1 - 182.7