2021 USEPA CCR RULE PERIODIC OPERATING RECORD RUN-ON AND RUN-OFF CONTROL PLAN REVIEW REPORT

§257.81

CCR LANDFILL

Miami Fort Power Plant

North Bend, Ohio

Submitted to

Miami Fort Power Company, LLC

11080 Brower Road
North Bend, Ohio 45052

Submitted by

Geosyntec consultants

engineers | scientists | innovators

1 McBride and Son Center Drive, Suite 202
Chesterfield, Missouri 63005

October 11, 2021

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EXECUTIVE SUMMARY

This Periodic Operating Record Run-on and Run-off Control Plan Review Report (Report) for the Landfill (LF) at the Miami Fort Power Plant (MIA) (also known as Miami Fort Power Station) has been prepared in accordance with Rule 40, Code of Federal Regulations (CFR) §257 herein referred to as the "CCR Rule" [1]. The CCR Rule requires that initial run-on and run-off control system plans for existing CCR landfills, completed in 2016 [2]). be updated on a five-year basis. All reviews are to be posted on the Miami Fort Power Company, LLC (MFPC) CCR Website.

The review concluded that no significant updates to the existing run-on and run-off control plan are required. The initial run-on and run-off control system plan developed in 2016 [2] was independently reviewed by Geosyntec. Field observations, interviews with plant staff, and evaluations were performed to evaluate conditions in 2021 relative to the 2016 initial run-on and run-off control plan [2]. The current conditions do not indicate changes are necessary because there are no significant observed changes at the LF since development of the initial plan that would potentially affect the runoff control system plan. **Table 1** provides a summary of the initial 2016 run-on and run-off control plan [2] and conditions observed in 2021.

Table 1 – Periodic Run-on and Run-off Control System Plan Review

CCR Rule Reference	Requirement Summary	2016 Initial Certification		2021 Periodic Certification	
		Requirement Met?	Comments	Requirement Met?	Comments
§257.81 (a)(1)	Prevent flow onto the active portion of the CCR unit during peak discharge from a 24-hr, 25-yr storm.	Yes	Surface water run-on is prohibited from entering Area 1 (active) of the LF by perimeter berms, which allow flow to be directed around the unit and ultimately discharges to the Great Miami River. Surface water run-on is prohibited from entering Area 3 (inactive) by a diversion channel on the east perimeter of the unit. This diversion channel carries surface water to the north into a mitigated natural stream that discharges to the west, away from the Area 3 footprint. These structures are designed based on hydraulic calculations for at least the 25-yr, 24-hr storm event [2].	Yes	No changes were identified that may affect this requirement.
§257.81 (a)(1)	Collect and control run-off from the active portion of the CCR unit during the 24-hr, 25-yr storm.	Yes	Run-off from Area 1 (active) sheet flows to chimney drains within Area 1, then drains into a leachate collections system that discharges to the Leachate Treatment Building. Portions of Area 1 have received final cover that includes run-off ditches that convey clean run-off to roadside ditches or to the Sedimentation Pond. Run-off in Area 3 (inactive) sheet flows to chimney drains that then drain to the leachate collection system and discharge to the Leachate Treatment Building. Conveyance structures are designed based on hydraulic calculations to convey flow for at least the 25-yr, 24-hr storm event [2].	Yes	No changes were identified that may affect this requirement.
§257.81 (b)	Handle run-off from the active portion of the CCR Unit in accordance with surface water requirements under the Clean Water Act (40 CFR §257.3-3)	Yes	The run-off from the LF is treated at the Leachate Treatment Building prior to being pumped to the Leachate Treatment Pond. Effluent from the Leachate Treatment Pond is released to the Great Miami River in accordance with National Pollutant Discharge Elimination System (NPDES) Permit No. 1IN00125 [2].	Yes	No changes were identified that may affect this requirement.

SECTION 1

INTRODUCTION AND BACKGROUND

This Periodic Operating Record Run-on and Run-off Control Plan Review Report (Report) was prepared by Geosyntec Consultants (Geosyntec) for Miami Fort Power Company, LLC (MFPC). The review is required by the United States Environmental Protection Agency (USEPA) Coal Combustion Residual (CCR) Rule [1] to document compliance with the CCR Rule for the Landfill (LF) [2] at the Miami Fort Power Plant (MIA), located at 11021 Brower road, North Bend, Ohio 45052. The LF is located south of the intersection of Mount Nebo and Lawrenceburg roads in Colerain Township of Hamilton County, Ohio. The LF is about 4 miles from MIA. The location of MIA is illustrated in **Figure 1**, and a site plan showing the location of the LF, among other closed and open CCR and non-CCR surface impoundments, is provided in **Figure 2**.

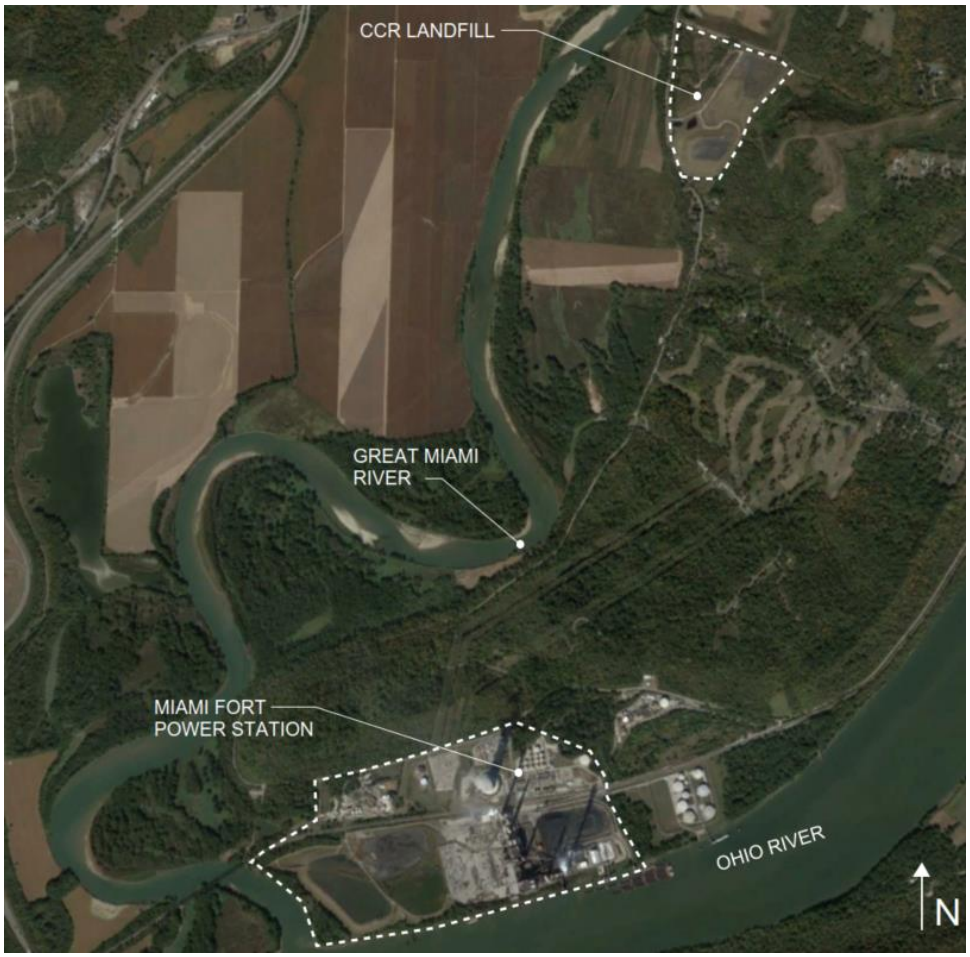

Figure 1 – Site Location Map (from Google Earth) [3]

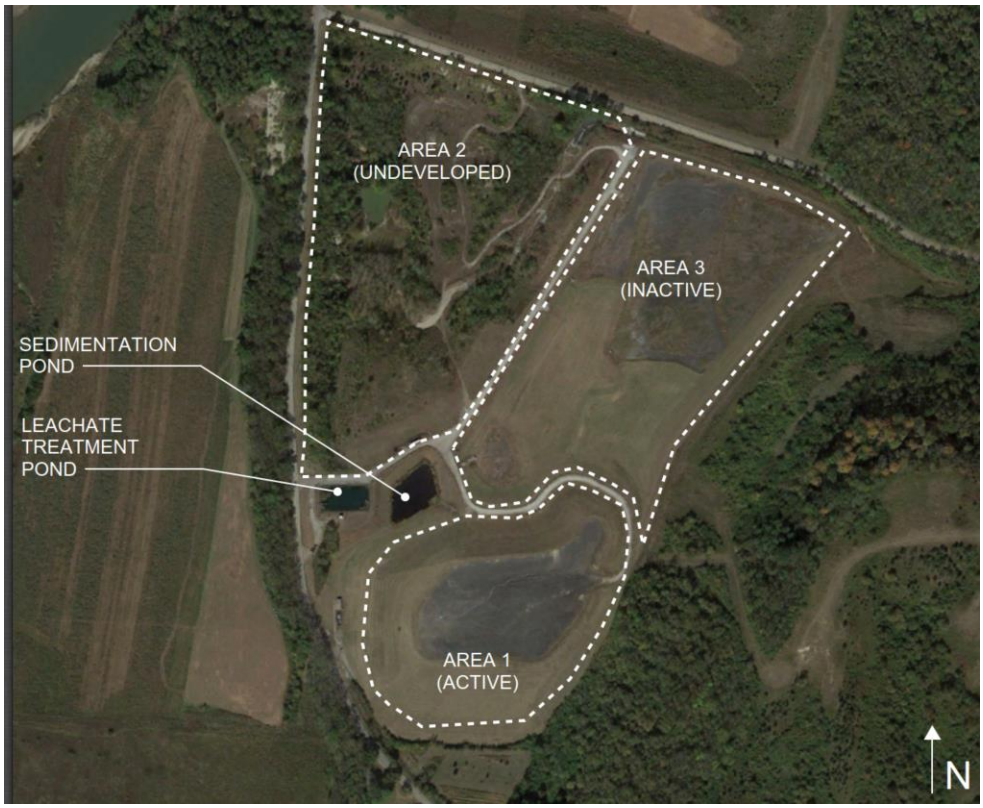

Figure 2 – Site Plan (from Google Earth) [3]

1.1 Landfill Description

The LF consists of two disposal areas identified as Area 1 (14 acres) and Area 3 (25 acres), totaling approximately 39 acres. Area 1 is active and receives CCR material. Area 3 is north of Area 1 and is not active. A layer of CCR material was placed over the surface of Area 3 to prevent erosion and provide protection to the bottom liner system. Area 2 was designed and included in the original Ohio EPA Permit to Install, but it has not been developed [2].

The initial run-on and run-off control system plan (§257.81) was completed by Hanson Professional Services, Inc. (Hanson) in 2016 and subsequently posted to MFPC's CCR Website [2].

1.2 Report Objectives

The objectives of this report are to:

- Compare site conditions from 2015/2016, when the initial run-on and run-off control system plan [2] was prepared, to current site conditions in 2020/2021, and evaluate if updates are required to the initial plan based on changes at the site.

- Independently review the initial run-on and run-off control plan [2] to determine if updates may be required based on technical considerations.

- Confirm that the LF meets all of the requirements associated with §257.81, or, if the LF does not meet any of the requirements, provide recommendations for compliance with that section of the CCR Rule [1].

If updates are required, they will be performed and documented within this Report.

SECTION 2

COMPARISION OF INITIAL AND PERIODIC SITE CONDITIONS

2.1 Overview

This section describes the comparison of conditions at the LF between the start of the initial CCR certification program in 2015 and 2016 (initial conditions) and subsequent collection of periodic certification site data in 2020 and 2021 (periodic conditions).

2.2 Review of Annual Inspection Reports

Annual onsite inspections of the LF were performed between 2015 and 2020 ([4], [5], [6], [7], [8], [9]) and were certified by a licensed professional engineer in accordance with §257.84(b). Each inspection report stated that the following information, relative to the previous inspection:

- No changes in geometry were present;
- The LF did not receive any new CCR since 2018 and received less than 3000 cy since 2015;
- No appearances of actual or potential structural weakness of the CCR were observed;
- No existing conditions were occurring that were or had the potential to disrupt the operation or safety of the LF; and
- No other changes were observed which may have affected the ability or operation of the LF.

In summary, the reports did not indicate any significant changes to the LF between 2015 and 2020.

2.3 Comparison of Initial to Periodic Aerial Photography

Initial aerial photographs of the LF were prepared from Google Earth [3] imagery dated October 2015 and were compared to periodic aerial photographs prepared from Google Earth [3] imagery dated October 2020 to visually evaluate if potential site changes (i.e., changes to the embankment, outlet structures, limits of CCR, other appurtenances) may have occurred. A comparison of these aerial photographs is provided in **Drawing 1**, and the basin appeared to be dry during the 2015 photograph and has since been flooded.

- Between 2015 and 2020, no material changes to the geometry were made to either Area 1, Area 2, or Area 3.
- It appears that approximately half of Area 3 received vegetative cover.

2.4 Periodic Site Visit

A periodic site visit was conducted by Geosyntec on June 03, 2021, with Panos Andonyadis conducting the site visit. The site visit was intended to evaluate potential changes at the site since development of the initial run-on and run-off control plan [2] (i.e., modifications to stormwater drainage system(s), modifications to adjacent structures that may route run-on towards the landfill), in addition to performing visual observations of the LF and surrounding area to evaluate if potential maintenance to existing run-on and run-off control systems were required. The site visit is documented in a photographic log provided in **Appendix A**. A summary of significant findings from the site visit is provided below:

- The vegetative cover for the partial closure appears to be in good condition with no signs of erosion.

2.5 Interview with Power Plant Staff

An interview with Trevor Tallent of the MIA power plant and Desiree Loveless of Vistra was conducted by Panos Andonyadis of Geosyntec on June 03, 2021. Mr. Tallent was employed at MIA between 2020 and 2021 and Ms. Loveless was employed by Vistra between 2015 and 2021, and were asked the following questions and provided the following answers regarding changes that may have occurred at the LF since development of the initial run-on and run-off control plan [2] in 2015. A summary of the interview is provided below.

- Were any construction projects completed for the LF since 2015, and, if so, are design drawings and/or details available?
    - A portion of Area 3 received temporary vegetative cover in 2017.
- Have there been any changes to operational and/or maintenance programs for the LF since 2015?
    - No.
- Have any other changes and the LF occurred since 2015 that may substantially affect the existing run-on and run-off control plan [2]?
    - No changes to the LF or adjacent to the LF that would impact the run-on and run-off control plan.
- Have there been any instances of uncontrolled stormwater run-on to the LF since 2015?
    - No there have not been any instance of uncontrolled stormwater run-on to the LF.
- Have there been any instances of uncontrolled stormwater run-off from the LF since 2015?

- In September of 2018 there was an unanticipated by-pass event. Because of major storms on August 29, 2018 the leachate control system was overwhelmed and failed. Following the storm, the system was evaluated and failed components were replaced. Approximately 500 gallons of landfill leachate was discharged into the Great Miami River.

SECTION 3

RUN-ON AND RUN-OFF CONTROL PLAN - §257.81

3.1 Overview of Initial RRCSP

The Initial Run-on and Run-off Control System Plan (Initial RRCSP) was prepared by Hanson in 2016 ([2], [10]), following the requirements of §257.81. The Initial RRCSP included the following information:

- A description of the run-on control features designed for a 25-year, 24-hour storm event;
- A description of the run-off control features designed for a 25-year, 24-hour storm event;
- Detailed discussions of the calculations supporting the design of the control features; and
- Operation and maintenance procedures to be followed.

The Initial RRCSP concluded that the LF met the requirements of §257.81, as the run-on control system was designed to prevent flow into the LF, the run-off control system was designed to control and collect water from within the LF, and discharge from the LF was routed to a NPDES-permitted outfall during the 25-year, 24-hour design storm event.

3.2 Review of Initial RRCSP

Geosyntec performed a review of the Initial RRCSP ([2], [10]), in terms of technical approach, input parameters, and assessment of the results. The review included the following tasks:

- Reviewing the rainfall depth and distribution for appropriateness;
- Performing a high-level review of the inputs to the hydrologic modeling;
- Performing a high-level review of the design approach to the hydrologic modeling;
- Reviewing the adequacy of stormwater control features versus the applicable requirements of the CCR Rule; and
- Performing a high-level review of the network of stormwater control features.

No significant technical issues were noted within the technical review, although a detailed review (e.g., check) of the calculations was not performed.

3.3 Summary of Site Changes Affecting Initial RRCSP

No changes between 2015 and 2021 were identified that would require updates to the Initial RRCSP. Updates to the Initial RRCSP are not recommended at this time.

SECTION 4

CONCLUSIONS

The MIA LF run-on and run-off controls system plan (§257.81) was evaluated relative to the USEPA CCR Rule periodic assessment requirements. Based on these evaluations, the referenced requirements are satisfied for run-on and run-off control system planning, and updates to the initial run-on and run-off control plan [2] are not required at this time.

SECTION 5

CERTIFICATION STATEMENT

CCR Unit: Miami Fort Power Company, LLC, Miami Fort Power Plant, Landfill

I, Panos Andonyadis, being a Registered Professional Engineer in good standing in the State of Ohio, do hereby certify, to the best of my knowledge, information, and belief that the information contained in this 2021 USEPA CCR Rule Periodic Certification Report, has been prepared in accordance with the accepted practice of engineering. I certify, for the above-referenced CCR Unit, that the periodic assessment of the run-on and run-off control system plan, dated October 2021, was conducted in accordance with the requirements of 40 CFR §257.81.

Panos Andonyadis

October 11, 2021
Date

Exp. 11/30/2021

SECTION 6

REFERENCES

[1] United States Environmental Protection Agency, 40 CFR Parts 257 and 261; Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule, 2015.

[2] Hanson Professional Services, Inc., "CCR Rule Report: Run-on and Run-off Control System Plan, Miami Fort Power Station CCR Landfill, Hamilton County, Ohio," October 2016.

[3] Google, LLC, "Google Earth Pro," 2020.

[4] D. B. Hoots, *Annual Inspection by a Qualified Professional Engineer, 40 CFR §257.84(b), CCR Landfill, Miami Fort Power Station,* January 14, 2016.

[5] D. B. Hoots, *Annual Inspection by a Qualified Professional Engineer, 40 CFR §257.84(b), CCR Landfill, Miami Fort Power Station,* December 14, 2017.

[6] J. D. Ross, *Annual Inspection by a Qualified Professional Engineer, 40 CFR §257.84(b), CCR Landfill, Miami Fort Power Station,* December 14, 2018.

[7] S. J. Loskota, *Annual Inspection by a Qualified Professional Engineer, 40 CFR §257.84(b), CCR Landfill, Miami Fort Power Station,* November 15, 2019.

[8] D. B. Hoots, *Annual Inspection by a Qualified Professional Engineer, 40 CFR §257.84(b), CCR Landfill, Miami Fort Power Station,* January 12, 2017.

[9] J. D. Ross, *Annual Inspection by a Qualified Professional Engineer, 40 CFR §257.84(b), CCR Landfill, Miami Fort Power Station,* November 24, 2020.

[10] Hanson, "Run-on and Run-off Control System Documentation, Miami Fort Power Station, CCR Landfill, Hamilton County, Ohio," October 2016.

DRAWINGS

INITIAL AERIAL
10-2015 IMAGERY

PERIODIC AERIAL
10-2020 IMAGERY

0 100
SCALE IN FEET

NOTES:

1. THE INITIAL IMAGERY WAS TAKEN FROM GOOGLE EARTH, IMAGE DATED OCTOBER 2015, DOWNLOADED 12 JULY 2020.
2. THE PERIODIC IMAGERY WAS TAKEN FROM GOOGLE EARTH, IMAGE DATED OCTOBER 2020, DOWNLOADED 12 JULY 2021.

INITIAL TO PERIODIC AERIAL
IMAGERY COMPARISON
CCR LANDFILL
MIAMI FORT POWER PLANT
NORTH BEND, OHIO

Geosyntec consultants

DRAWING
1

GLP8027.09 | AUGUST 2021

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ATTACHMENTS

Attachment A

LF Site Visit Photolog

GEOSYNTEC CONSULTANTS
Photographic Record

Site Owner: Miami Fort Power Company, LLC **Project Number:** GLP8027

CCR Unit: CCR Landfill **Site:** Miami Fort Power Plant

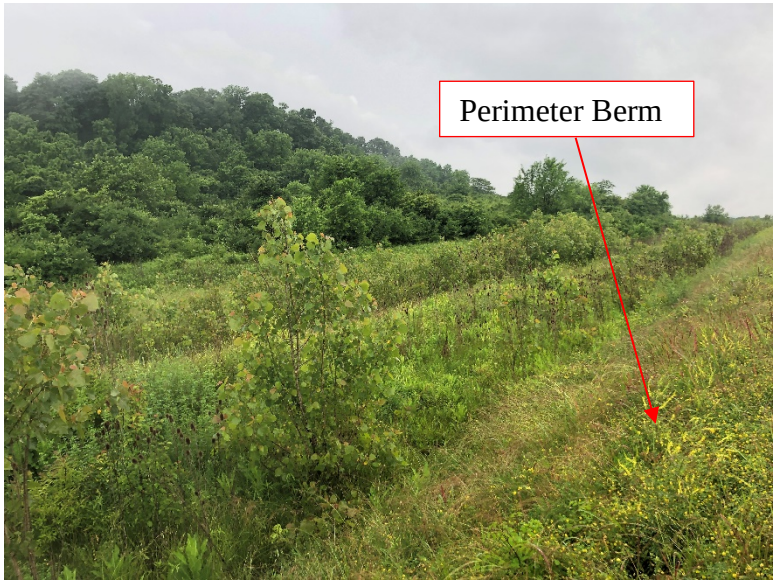
Photo: 01 **Date**: 06/03/2021 **Direction Facing:** S **Comments:** Photo of the diversion ditch along the western side of the landfill. Ditch has good vegetative cover and drains to the south, consistent with runon and runoff plan.	

Photo: 02 **Date:** 06/03/2021 **Direction Facing:** W **Comments:** Stormwater collection point on the western slope of the landfill, consistent with the runon and runoff plan (drainage north to south). Geosyntec recommended sedimentation be cleared from rock lined sections as part of regular maintenance.	

GEOSYNTEC CONSULTANTS
Photographic Record

Site Owner: Miami Fort Power Company, LLC **Project Number:** GLP8027

CCR Unit: CCR Landfill **Site:** Miami Fort Power Plant

Photo: 03 **Date:** 06/03/2021 **Direction Facing:** SW **Comments:** Photo taken from the eastern side of the Area 3 cell of the landfill. Perimeter berm covered in vegetative overgrowth. Geosyntec recommend area be mowed as part of regular mainteance.	
Photo: 04 **Date:** 06/03/2021 **Direction Facing:** SE **Comments:** Example of check dams set in the perimeter ditch of the western side of Area 3.	

GEOSYNTEC CONSULTANTS
Photographic Record

Site Owner: Miami Fort Power Company, LLC **Project Number:** GLP8027

CCR Unit: CCR Landfill **Site:** Miami Fort Power Plant

Photo: 05

Date: 06/03/2021

Direction Facing: N

Comments: Photo of the perimeter berm and construction ditch along the western side of Area 2.

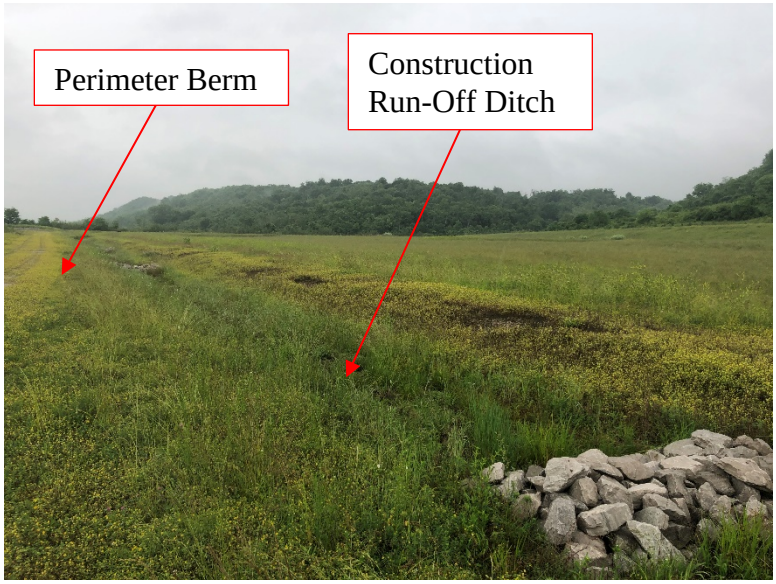


Photo: 06

Date: 06/03/2021

Direction Facing: W

Comments: Active landfill area. No signs of erosion or runoff. Water drains to a chimney drain near the center of the open cell.

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Site Owner: Miami Fort Power Company, LLC **Project Number:** GLP8027

CCR Unit: CCR Landfill **Site:** Miami Fort Power Plant

Photo: 05 **Date:** 06/03/2021 **Direction Facing:** N **Comments:** Photo of the low area in Area 3. Stormwater collects in a chimney drain and then drains to the Leachate Treatment Building. Photo also show good vegetative cover along the northern side of the Area 1 permanent cover.	
Photo: 06 **Date:** 06/03/2021 **Direction Facing:** N **Comments:** Photo of the mitigated natural stream in Area 2.