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

§257.81

LANDFILL 2

Newton Power Plant

Newton, Illinois

Submitted to

Illinois Power Generating Company

6725 North 500th Street
Newton, Illinois 62448

Submitted by

Geosyntec consultants

engineers | scientists | innovators

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October 11, 2021

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF DRAWINGS

LIST OF ATTACHMENTS

EXECUTIVE SUMMARY

This Periodic United States Environmental Protection Agency (USEPA) Coal Combustion Residuals (CCR) Rule [1] operating record run-on and run-off control plan review report (Report) for the Landfill (LF) at the Newton Power Plant (NEW) (also known as Newton 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 and subsequently posted on Illinois Power Generating Company (IPGC) CCR Website ([2]), be updated on a five-year basis.

The initial run-on and run-off control system plan developed in 2016 [2] was independently reviewed by Geosyntec. Additionally, field observations, interviews with power plant staff, and evaluations were performed to evaluate conditions in 2021 at the LF relative to the 2016 initial run-on and run-off control plan [2]. 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. **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 the active and unused areas of the LF by perimeter berms, which allow flow to be directed around those areas. The run-on control system is designed to prevent flow onto the active portion of the LF during the 25-year, 24-hour 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	Surface water run-off is managed with diversion berms, ditches, and ponding areas that separate contact and non-contact run-off. The run-off control system for the active portion of the LF is designed to collect and control the water volume resulting from a 25-year, 24-hour 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	Non-leachate stormwater discharges from the LF to Newton Lake under NPDES Permit No. IL0049191. Collected leachate and contact run-off is pumped to storage tanks for off-site disposal [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 Illinois Power Generating Company (IPGC). 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 Newton Power Plant (NEW).

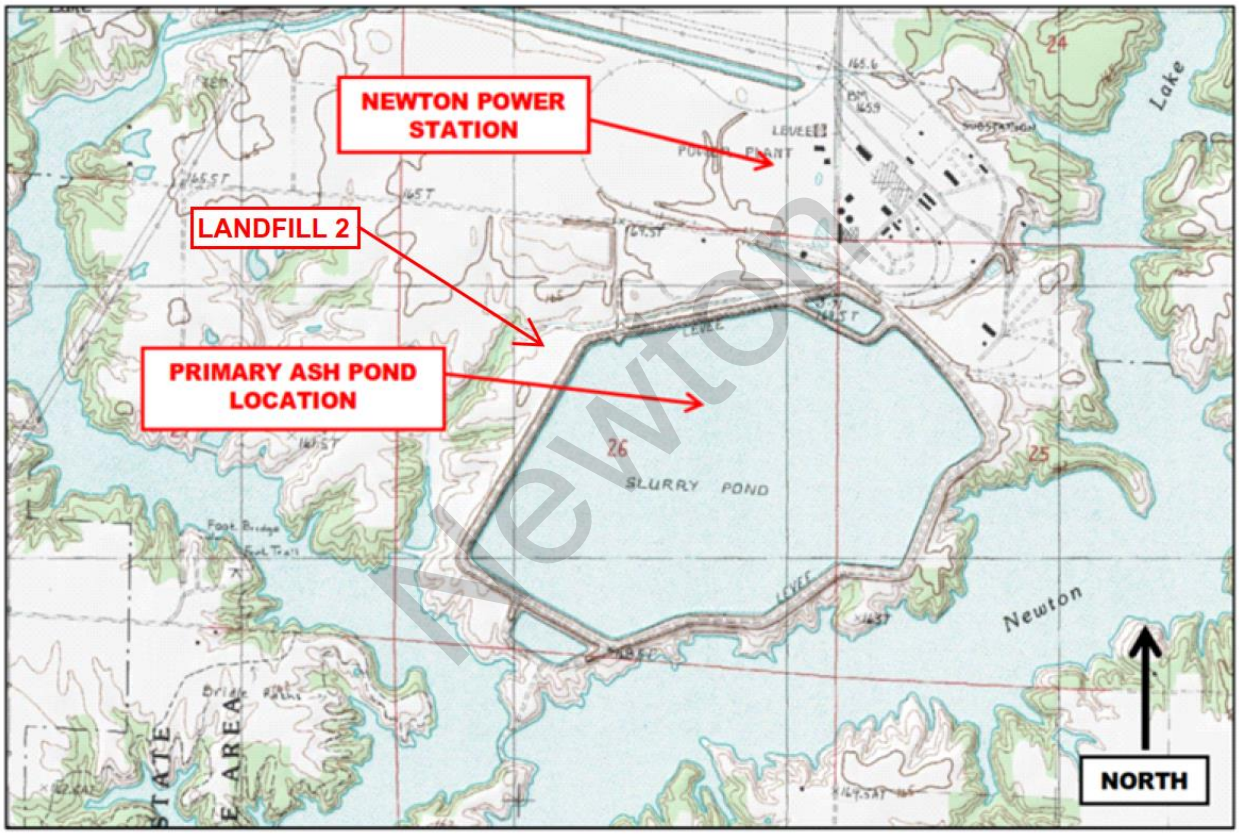


Figure 1 – Site Location Map (modified from AECOM, 2016)

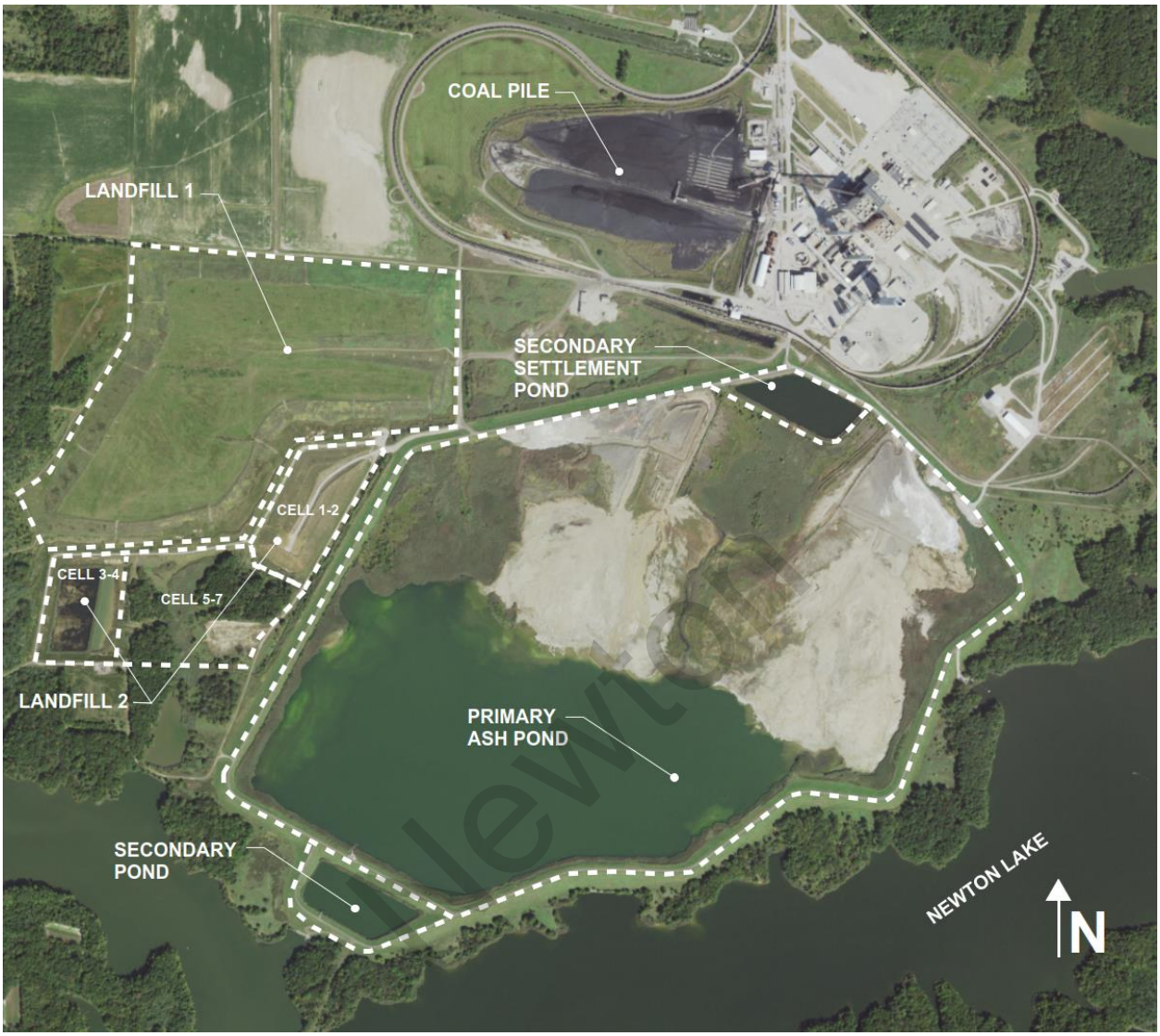


Figure 2 – Site Plan

1.1 Landfill Description

The LF design consists of approximately 40 acres. At the present time, only 19 acres of the CCR Landfill have been constructed, including active Cells 1 and 2 consisting of 12 acres, and inactive Cells 3 and 4 consist of 7 acres. The remaining 21 acres (Cells 5 through 7) have not yet been developed as a CCR landfill. The CCR landfill is permitted as a nonhazardous, special waste landfill with Illinois Environmental Protection Agency (IEPA), Bureau of Land, Division of Land Pollution Control. The facility is designed, constructed and operated in compliance with all applicable requirements of 35 Ill. Adm. Code 811, 812 and 815 [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 DMG's CCR Website [2].

1.2 Report Objectives

The objectives of this report are:

- Comparing 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 reviewing the initial run-on and run-off control plan [2] to determine if updates are required based on technical considerations.

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

SECTION 2

COMPARISON 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 ([3], [4], [5], [6], [7], [8]) 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 received less than 150 cy of new CCR since 2017 and approximately 13,000 cy between 2015 and 2017;
- Final and temporary cover was placed around the landfill between 2016 and 2017;
- 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 with the exception that final and temporary cover was placed in 2016 over sections of the landfill.

2.3 Comparison of Initial and Periodic Surveys

The initial survey of the LF, conducted at the site by Weaver Consultants (Weaver) in 2015 [9], was compared to the periodic survey of the LF, conducted by IngenAE, LLC (IngenAE) in 2020 [10], using AutoCAD Civil3D 2021 software. This comparison was intended to quantify changes in the volume of CCR placed within the LF, evaluate potential changes in surface stormwater drainage around the LF, and evaluate if CCR may have been placed outside of the grades of the LF used for the existing run-on, run-off control plan [2]. This comparison is presented in side-by-side views of each survey in **Drawing 1**, and a plan view isopach map denoting changes in ground

surface elevation in **Drawing 2**. A summary of the changes in CCR volumes is provided in **Table 2**.

Table 2 – Initial to Periodic Survey Comparison

Total Change in CCR Volume (CY)	41,700[1]
Were there significant changes in exterior stormwater drainage?	Yes
Was CCR placed outside of the design grades of the LF?	No

The comparison indicated that approximately 41,700 CY of CCR was placed in the LF between 2015 to 2021. The estimated quantity of fill is consistent with the change in CCR quantities reported in the annual onsite inspections ([3], [4], [5], [6], [7], [8]) and considering that the LF was regraded and partially capped and closed.

2.4 Comparison of Initial to Periodic Aerial Photography

Initial aerial photographs of the LF collected by Weaver Consultants in 2015 [9] were compared to periodic aerial photographs collected by IngenAE, LLC in 2020 [10] to visually evaluate if potential site changes (i.e., construction of new ditches, changes in site operations, or changes to other appurtenances) may have occurred between 2015 and 2020. A comparison of these aerial photographs is provided in **Drawing 3**, and the following changes were identified:

- Between 2015 and 2020, the LF Cells 1 and 2 were partially capped and closed.
- Cells 3 and 4 are complete and remain unused.

2.5 Periodic Site Visit

A periodic site visit was conducted by Geosyntec on May 21, 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 field observation form and photographic log provided in **Attachment A**. No significant findings or changes in the site conditions from the site visit were identified.

2.6 Interview with Power Plant Staff

An interview with Kent Schafer of the NEW power plant was conducted by Panos Andonyadis of Geosyntec on May 21, 2021. Kent Schafer was employed at NEW between 2015 and 2021 and was asked the following questions and provided the following answers regarding changes that that

[1] Positive values indicate net fill, negative values indicate net cut.

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?
    - LF was partially closed between August 2017 and November 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]?
    - Only Cells 1 and 2 of the LF is active. Partial closure of Cells 1 and 2 of the LF was completed. It is recommended that the Run-on and Run-off Control System Plan be updated accordingly.
- Have there been any instances of uncontrolled stormwater run-on to the LF since 2015?
    - No.
- Have there been any instances of uncontrolled stormwater run-off from the LF since 2015?
    - No.

SECTION 3

RUN-ON AND RUN-OFF CONTROL SYSTEM 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], [11]), 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;
- Operation and maintenance procedures to be followed; and
- National Pollutant Discharge Elimination System (NPDES) permit information.

Per the Initial RRCSP report, stormwater control features were designed to manage run-on and run-off. Run-on control is provided with perimeter berms that direct flow around the LF. The non-contact stormwater is directed to either NPDES permitted outfall 006 or 012 ([2] [11]).

Run-off control is provided with perimeter berms constructed around active construction/open landfill cell areas. A separation berm constructed along the south phase line of the LF area 1and 2 cell forms an Interior Ponding Area that intercepts clean stormwater run-off from the intermediate or final cover areas. The clean stormwater run-off is then pumped to perimeter ditches. A secondary Ponding Area was established outside of the LF also along the south phase line. This pond receives non-contact stormwater pumped from the perimeter ditches and from undeveloped phase of the LF. The non-contact stormwater is then directed to NPDES permitted Outfall 006 ([2] [11]).

As the landfill receives cover, diversion ditches are installed, allowing the water to gravity flow from the cover to the perimeter ditches and then to either NPDES permitted Outfall 006 or Outfall 012. Run-off from the south and east of the LF flows to Outfall 006 and run-off from the north and west of the LF flows to Outfall 012. Culverts carry water underneath haul roads ([2] [11]).

Contact water in the CCR Landfill is managed as leachate and pumped to storage tanks for off-site disposal ([2] [11]).

3.2 Review of Initial RRCSP

Geosyntec performed a review of the Initial RRCSP ([2], [11]), 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 hydrological modeling;
- Performing a high-level review of the design approach to the hydrological modeling;
- Reviewing the adequacy of stormwater control features versus the applicable requirements of the CCR Rule; and
- Perform a high-level review of the network of stormwater control features.

A number of review comments and corresponding recommended technical updates were identified during review of the Initial RRCSP. Each comment and the recommended updates to the RRCSP ([2], [11]), are described below:

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 LF at NEW was evaluated relative to the USPEPA CCR Rule periodic assessment requirements the run-on and run-off controls system plan (§257.81). 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

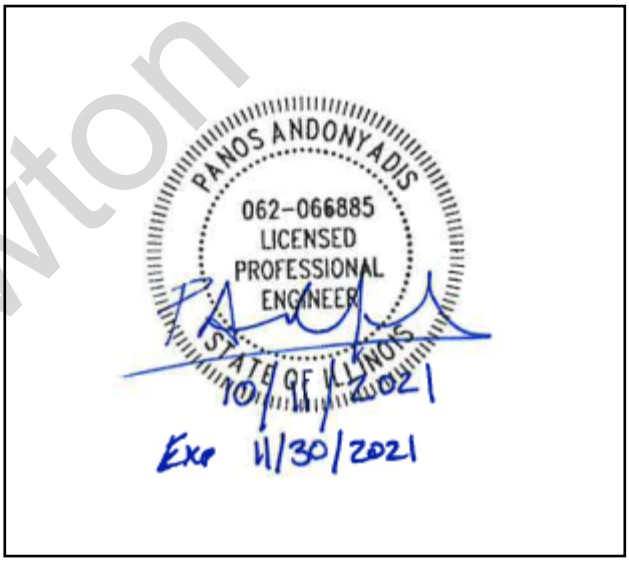
CCR Unit: Illinois Power Generating Company, Newton Power Plant, Landfill 2

I, Panos Andonyadis, being a Registered Professional Engineer in good standing in the State of Illinois, 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

10/11/2021

Date



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, Newton Power Station CCR Landfill, Jasper County, Illinois," October 2016.

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

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

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

[6] D. B. Hoots, *Annual Inspection by a Qualified Professional Engineer, 40 CFR §257.84(b), CCR Landfill, Newton Power Station,* December 10, 2018.

[7] D. B. Hoots, *Annual Inspection by a Qualified Professional Engineer, 40 CFR §257.84(b), CCR Landfill, Newton Power Station,* October 18, 2019.

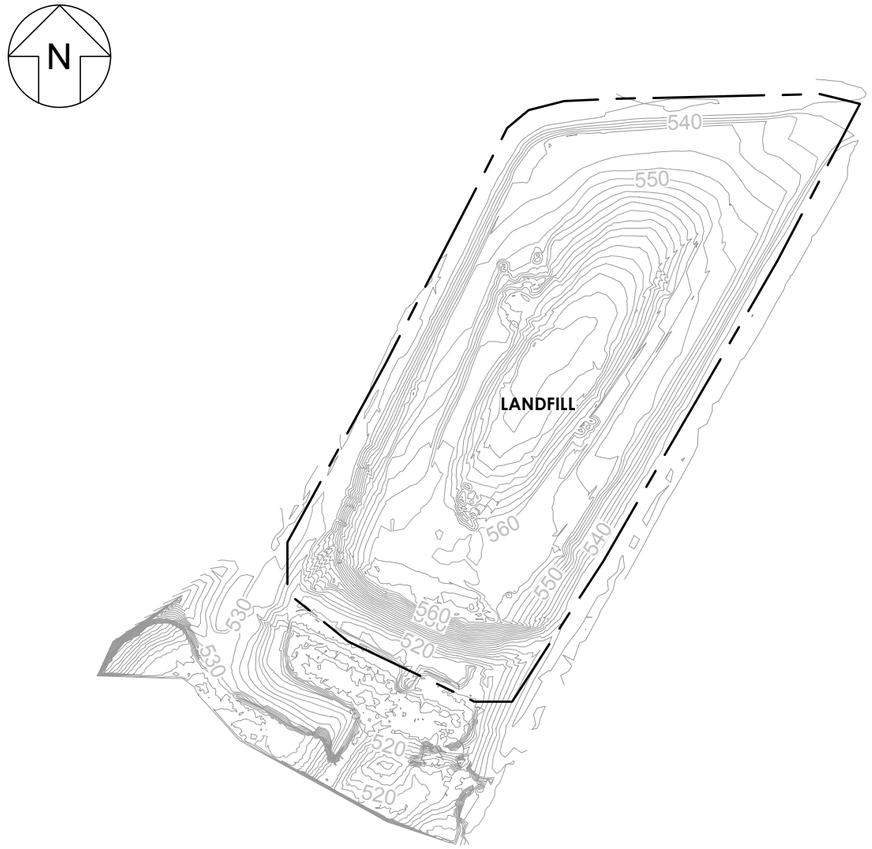
[8] D. B. Hoots, *Annual Inspection by a Qualified Professional Engineer, 40 CFR §257.84(b), CCR Landfill, Newton Power Station,* October 18, 2020.

[9] Weaver Consultants Group, "Dynegy, Collinsville, IL, 2015 - Newton Topography," Collinsville, IL, December 2015.

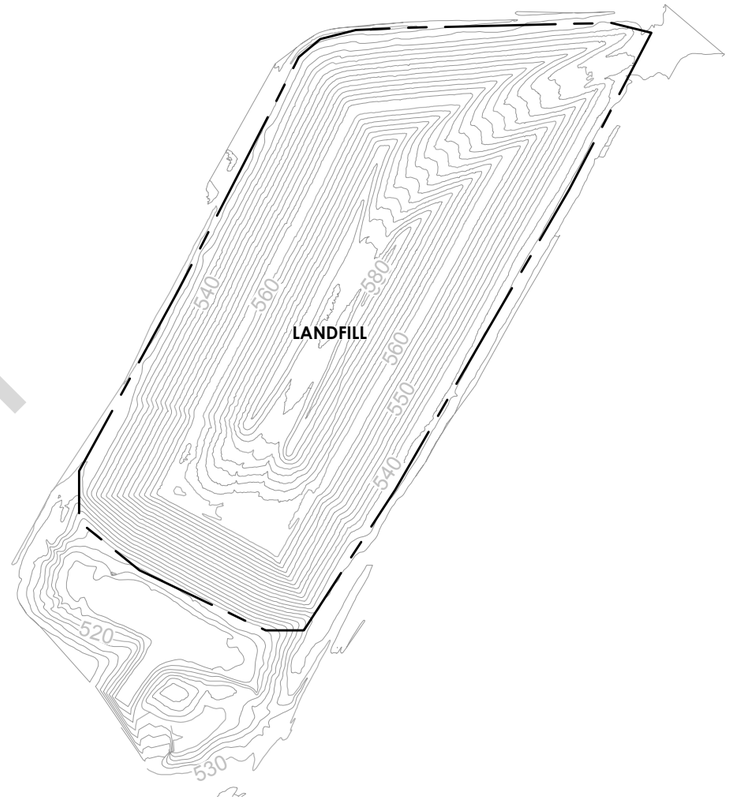
[10] IngenAE, "Luminant, Dynegy Midwest Generation, LLC, Newton Power Station, December 2020 Topography," Earth City, Missouri, March 12, 2021.

[11] Hanson Professional Services, Inc., "Run-on and Run-off Control System Documentation, Newton Power Station, CCR Landfill 2, Jasper County, Illinois," October 2016.

DRAWINGS



INITIAL SURVEY
12-01-2015 TOPOGRAPHY



PERIODIC SURVEY
02-26-2021 TOPOGRAPHY

0 250
SCALE IN FEET

NOTES:

1. THE INITIAL SURVEY WAS TAKEN FROM THE DRAWING PACKAGE TITLED “DYNEGY, COLLINSVILLE, ILLINOIS, 2015 - NEWTON TOPOGRAPHY”, PREPARED BY WEAVER CONSULTANTS GROUP, DATED DECEMBER 1, 2015.
2. THE PERIODIC SURVEY WAS TAKEN FROM THE DRAWING PACKAGE TITLED “LUMINANT, ILLINOIS POWER GENERATING COMPANY, NEWTON POWER STATION, DECEMBER 2020 TOPOGRAPHY”, PREPARED BY INGENAE, DATED FEBRUARY 26, 2021.
3. ALL SURVEY DATA WAS COLLECTED IN THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AND NORTH AMERICAN DATUM OF 1983 (NAD83) FOR VERTICAL AND HORIZONTAL COORDINATES, RESPECTIVELY.

INITIAL TO PERIODIC SURVEY COMPARISON
LANDFILL
NEWTON POWER STATION
NEWTON, ILLINOIS

Geosyntec consultants

DRAWING 1

GLP8027.08 | JUNE 2021

ISOPACH CONTOUR KEY		
COLOR	MIN ELEV	MAX ELEV
	-19	-10
	-10	-8
	-8	-6
	-6	-4
	-4	-2
	-2	0
	0	2
	2	4
	4	6
	6	8
	8	10
	10	22

INITIAL TO PERIODIC SURVEY COMPARISON SUMMARY			
CCR UNIT	CUT	FILL	NET (CU. YD.)
LANDFILL	13,200	54,900	41,700 (FILL)

NOTES:

1. THE INITIAL SURVEY WAS TAKEN FROM THE DRAWING PACKAGE TITLED “DYNEGY, COLLINSVILLE, ILLINOIS, 2015 - NEWTON TOPOGRAPHY”, PREPARED BY WEAVER CONSULTANTS GROUP, DATED DECEMBER 1, 2015.
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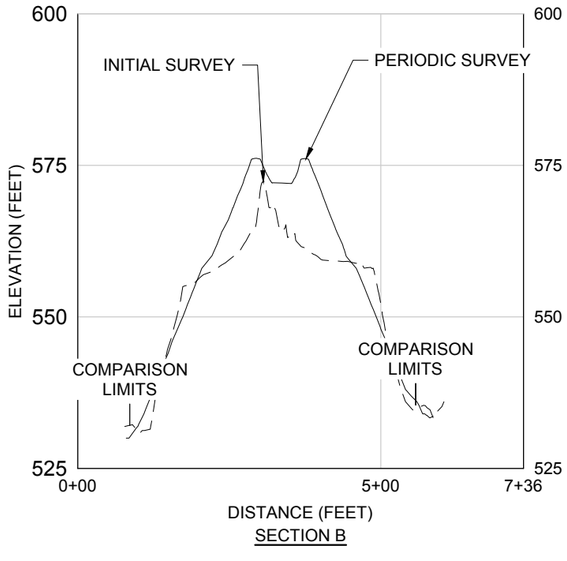

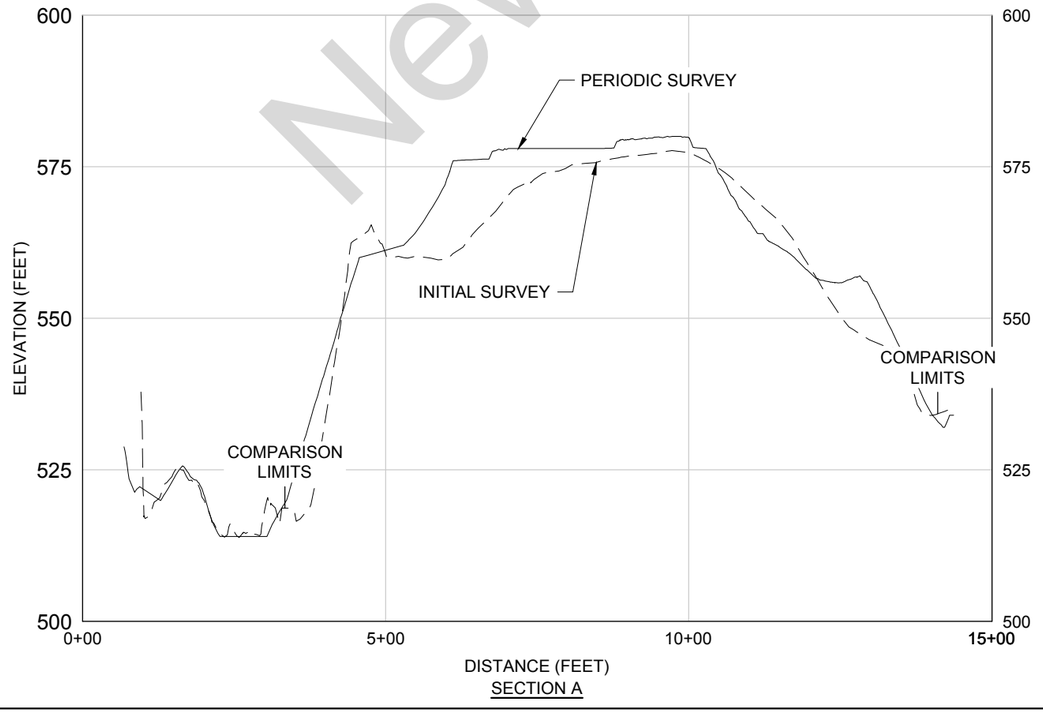

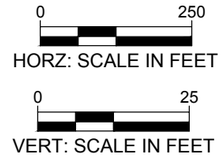

SURVEY COMPARISON ISOPACH
NEWTON POWER STATION
NEWTON, ILLINOIS

Geosyntec consultants

DRAWING 2

GLP8027.08 | JUNE 2021

INITIAL AERIAL
12-01-2015 IMAGERY

PERIODIC AERIAL
02-26-2021 IMAGERY

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SCALE IN FEET

NOTES:

1. THE INITIAL IMAGERY WAS TAKEN FROM THE DRAWING PACKAGE TITLED “DYNEGY, COLLINSVILLE, ILLINOIS, 2015 - NEWTON TOPOGRAPHY”, PREPARED BY WEAVER CONSULTANTS GROUP, DATED DECEMBER 1, 2015.
2. THE PERIODIC IMAGERY WAS TAKEN FROM THE DRAWING PACKAGE TITLED “LUMINANT, ILLINOIS POWER GENERATING COMPANY, NEWTON POWER STATION, DECEMBER 2020 TOPOGRAPHY”, PREPARED BY INGENAE, DATED FEBRUARY 26, 2021.

INITIAL TO PERIODIC AERIAL IMAGERY
COMPARISON
LANDFILL
NEWTON POWER STATION
NEWTON, ILLINOIS

Geosyntec consultants

DRAWING 3

GLP8027.08 | JUNE 2021

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ATTACHMENTS

Attachment A

LF Site Visit Photolog

GEOSYNTEC CONSULTANTS
Photographic Record

Site Owner: Dynegy Midwest Generation, LLC **Project Number:** GLP8027

CCR Unit: Landfill 2 **Site:** Newton Power Plant

Photo: 01 **Date:** 5/21/2021 **Direction Facing:** W **Comments:** Sediment and grass growth within stone drainage ditches. Geosyntec recommended cleaning the sediment as part of regular maintenance.	
Photo: 02 **Date:** 5/21/2021 **Direction Facing:** S **Comments:** Poor vegetation along ridgeline of the landfill. Geosyntec recommended reseeding as part of regular maintenance.	

GEOSYNTEC CONSULTANTS
Photographic Record

Geosyntec consultants

Site Owner: Dynegy Midwest Generation, LLC **Project Number:** GLP8027

CCR Unit: Landfill 2 **Site:** Newton Power Plant

Photo: 03 **Date:** 5/21/2021 **Direction Facing:** S **Comments:** Good vegetative cover over the closed section of the landfill.	
Photo: 04 **Date:** 5/21/2021 **Direction Facing:** NE **Comments:** Perimeter toe drainage ditch.	

GEOSYNTEC CONSULTANTS
Photographic Record

Site Owner: Dynegy Midwest Generation, LLC **Project Number:** GLP8027

CCR Unit: Landfill 2 **Site:** Newton Power Plant

Photo: 05 **Date:** 5/21/2021 **Direction Facing:** S **Comments:** Interior ponding area at the bottom of the slope. .	
Photo: 06 **Date:** 5/21/2021 **Direction Facing:** NE **Comments:** Complete vegetative cover with no signs of instability or evidence of erosion.