



REPORT

**JH Campbell Generating Facility
Dry Ash Landfill
2021 Annual Landfill Inspection Report**
West Olive, Michigan

Pursuant to 40 CFR 257.84

Submitted to:

Consumers Energy Company

1945 W. Parnall Road
Jackson, Michigan, 49201

Submitted by:

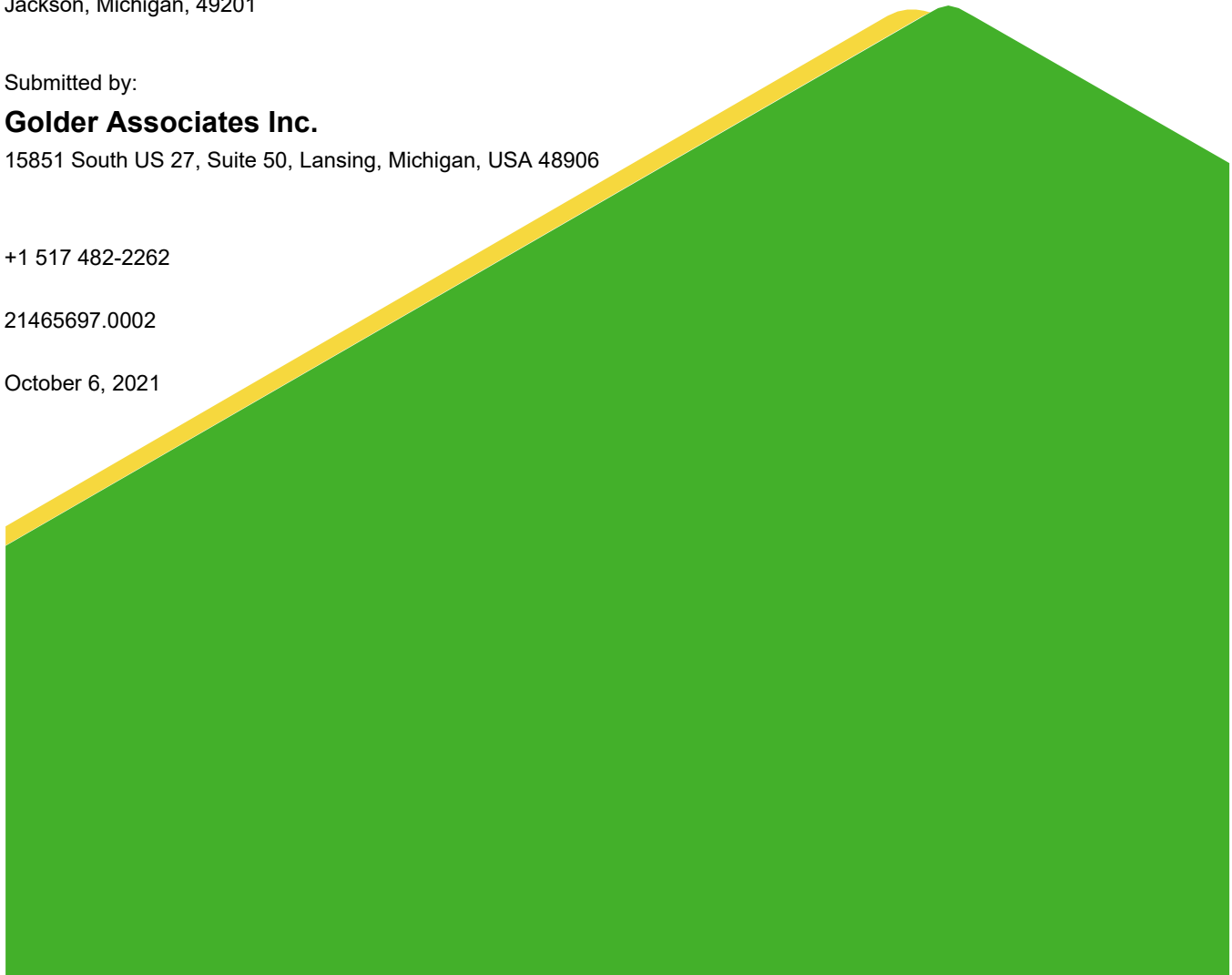
Golder Associates Inc.

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October 6, 2021



Certification

Professional Engineer Certification Statement [40 CFR 257.84]

I hereby certify that, having reviewed the attached documentation and being familiar with the provisions of Title 40 of the Code of Federal Regulations Section 257.84 (40 CFR Part 257.84), I attest that this Annual Inspection Report is accurate and has been prepared in accordance with good engineering practices, including the consideration of applicable industry standards, and with the requirements of 40 CFR Part 257.84.

Golder Associates Inc.



Signature

October 6, 2021

Date of Report Certification

Samuel F. Stafford, PE

Name

6201308939

Professional Engineer Certification Number

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1.0 INTRODUCTION

On April 17, 2015, the United States Environmental Protection Agency (EPA) issued the Coal Combustion Residual (CCR) Resource Conservation and Recovery Act (RCRA) Rule (40 CFR 257 Subpart D) (“CCR RCRA Rule”). The CCR RCRA Rule requires owners or operators of existing CCR landfills to have those units inspected on an annual basis by a qualified professional engineer (QPE) in accordance with 40 CFR 257.84(b). The annual QPE inspections are required to be completed and the results documented in inspection reports per CFR 257.84(b)(2) for landfills.

Golder Associates Inc. (Golder) was retained by Consumers Energy Company (CEC) to perform the QPE annual inspection of the Dry Ash Landfill at the J.H. Campbell Generating Facility (JH Campbell) to document, to the extent reasonable based on information provided by CEC and the limits of the visual inspection; that the design, construction, operation, and maintenance for the CCR unit is consistent with recognized and generally accepted good engineering standards. Golder reviewed available information regarding the status and condition of the CCR unit and performed an onsite visual inspection to identify signs of distress or malfunction of the CCR unit and visible leachate collection system features.

2.0 BACKGROUND AND DOCUMENT REVIEW SUMMARY

The Dry Ash Landfill serves as the facility’s primary disposal area for dry ash and currently consists of five dual lined landfill cells and two leachate storage ponds. Total permitted capacity of the landfill, per the most current Construction Permit Application (CPA) Number 0299 dated December 15, 1993, is 9,500,000 cubic yards (cys) with approximately 5,471,450 cys reported consumed as of March 25, 2021, per airspace evaluation completed by Golder (Golder, 2021). It should be noted that the total permitted volume capacity will be achieved once the remaining permitted cells have been constructed and filled.

At the time of the 2021 inspection; Cells 1, 2, 3, 4 and 5 had been constructed with active filling occurring in uncapped portions of Cell 4 and Cell 5. The initial stages of construction for Cell 6 were underway at the time of the inspection. A final cover system was in place on Cell 3, the eastern portion of Cell 4, the north and east slopes of Cell 2, and the north and west slope of Cell 1. Cell 5 is a newly constructed cell and was constructed in 2018. Phase 6 closure construction was completed in 2019 on portions of Cells 3 and 4. The Phase 6 closure project included designed improvements, repairs, and construction for the downchutes located within the capped areas of Cells 1, 2, and 3.

The applicable available information reviewed for this assessment is summarized in Table 1 below.

Table 1: Summary of Background Document Review

Document	Date	Author
Total Airspace Consumed Through March 2021 - Drawing	July 2021	Golder Associates Inc.
Weekly inspections performed by CEC	July 2020 – May 2021	Dry Ash Landfill Qualified Personnel
J.H. Campbell Dry Ash Landfill 2020 Annual RCRA CCR Landfill Inspection Report	October 2020	Golder Associates Inc.
Total Airspace Consumed Through April 2020 - Drawing	July 2020	Golder Associates Inc.
J.H. Campbell Dry Ash Landfill 2019 Annual RCRA CCR Landfill Inspection Report	October 2019	Golder Associates Inc.
Total Airspace Consumed Through May 2019 - Drawing	May 2019	Golder Associates Inc.
J.H. Campbell Dry Ash Landfill 2018 Annual RCRA CCR Landfill Inspection Report	October 2018	Golder Associates Inc.
Annual Airspace Evaluation	August 2018	Engineering & Environmental Solutions (EES) August 2018 Survey Compared to July 2017 Survey
J.H. Campbell Dry Ash Landfill Construction Permit Upgrade Request Cells 5 through 9	March 2018	Golder Associates Inc.
J.H. Campbell Dry Ash Landfill 2017 Annual RCRA CCR Landfill Inspection Report	October 2017	Golder Associates Inc.
J.H. Campbell Dry Ash Landfill 2016 Annual RCRA CCR Landfill Inspection Report	October 2016	Golder Associates Inc.
J.H. Campbell Dry Ash Landfill 2015 Initial Annual RCRA CCR Landfill Inspection Report	January 2016	Golder Associates Inc.
Surveillance Monitoring Programs (SMPs)	December 2010, Revised 2015	CEC
J.H. Campbell Ash Storage Facility Expansion	November, 1993	STS Consultants Ltd.

3.0 2021 VISUAL INSPECTION

Golder performed an onsite inspection of the Dry Ash Landfill on May 20, 2021. Golder inspectors Samuel Stafford, PE and Scott Fulmer, were accompanied by two CEC representatives, as follows:

- Mr. George McKenzie, PE, CEC System Engineering Department
- Mr. Caleb Batts, PE, CEC Generation CCR Operations Lead

The inspection checklist form is provided in Appendix A. The checklist includes observations and recommendations as a result of the visual inspection and also includes the following information as stipulated in 40 CFR 257.84(b):

- Any changes in geometry of the structure since the previous annual inspection.
 - None were observed or noted. At the time of inspection, the southern portion of the landfill (Cell 4 and Cell 5) was undergoing active filling.
- Approximate volume of CCR at the time of inspection.
 - The volume of airspace consumed within the Dry Ash Landfill at the time of inspection was approximately 5,471,450 cys. This volume includes 140,355 cys of leachate drainage layer placed during cell construction and 5,331,095 cys of CCR (Golder, 2021).
- Appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit and appurtenant structures.
 - None were observed or noted.
- Any other change(s) which may have affected the stability or operation of the CCR unit since the previous inspection.
 - None were observed or noted.

The checklist categorizes observed conditions of the impoundment or appurtenant structures as either acceptable, monitor/maintain, investigate, or repair, which are defined as follows:

- Acceptable: The condition was visually documented to be acceptable, requiring no action beyond periodic inspection in accordance with the SMP and typical maintenance.
- Monitor/Maintain: The condition was visually identified to exhibit the potential for or show existing degeneration that should either be monitored or maintained as detailed in the checklist.
 - Items identified in this category are not considered a deficiency or release as classified under 40 CFR 257.84(b)(5) requiring immediate action by CEC.
- Investigate: The limitations of the visual inspection did not allow for an opinion to be made on the condition of the item observed, and Golder recommends additional investigation to categorize the item.
- Repair: Golder recommends that items identified with a repair designation exhibited conditions that should initiate measures be taken to rectify the area of concern.
 - It should be noted that no items identified for repair were considered a deficiency or release as classified under 40 CFR 257.84(b)(5) requiring immediate action by CEC.

Based on a review of previous inspection reports listed in Table 1 compared to conditions noted during the inspection, the following changes were observed:

- Initial stages of construction for Cell 6, which is scheduled to be completed in 2021;

- Equipment damage to vegetative layer, localized areas of sparse vegetation, and some undesirable vegetation observed in final cover areas on the west, north and east sides of the Dry Ash Landfill;
- Small animal burrows and minor erosion noted along west, north and east side of the Dry Ash landfill along storm water berms and toe;
- Localized low areas observed in storm water bench ditches that could stage water prior to draining to the downchutes on the Dry Ash Landfill; and
- Minor erosion in localized areas on the Dry Ash Landfill and active measures to address historical erosion were observed.

4.0 LIMITATIONS OF ASSESSMENT

Golder has conducted the site inspection and prepared this report for the Dry Ash Landfill at J.H. Campbell. The factual data, assessment, interpretations, and recommendations provided herein are based on the results of field observations from site inspections performed by Golder and review of previous site inspection reports provided to Golder by CEC and pertain to the specific project as described in this report and are not applicable to any other project or site location.

Golder has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering and science professions currently practicing under similar conditions and has characterized the site conditions within the limitations of the scope of services as defined by CEC and subject to the time limits and physical constraints applicable to this report. No other warranty, expressed or implied, is made. Any change of site conditions, purpose, development plans, or operation may alter the validity of this report. Golder cannot be responsible for use of this report, or portions thereof, unless Golder is requested to review and, if necessary, revise the report.

5.0 CLOSING

This report has been prepared in general accordance with normally accepted civil engineering practices to fulfill the Resource Conservation and Recovery Act (RCRA) reporting requirements in accordance with 40 CFR 257.84(b)(2). Golder has reviewed the available information on the J.H. Campbell Dry Ash Landfill and performed an onsite visual inspection. Golder's assessment is limited to the information provided by CEC and to the aspects that could be inspected visually in a safe manner. Golder cannot attest to the condition of subsurface or submerged structures.

Signature Page

Golder Associates Inc.



Samuel F. Stafford, PE
Senior Engineer



Tiffany D. Johnson, PE
Senior Consultant

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APPENDIX A

Visual Inspection Checklist

CCR LANDFILL VISUAL INSPECTION CHECKLIST

Facility Name: J.H. Campbell Dry Ash Landfill

Owner: Consumers Energy Company (CEC)

Purpose of Facility: Dry Ash Disposal

County, State: Ottawa County, Michigan

Inspected By: Samuel Stafford and Scott Fulmer

Inspection Date: May 20, 2021

Weather: 70-degrees F, Cloudy

ITEM					REMARKS
	Acceptable	Monitor/Maintain	Investigate	Repair	
1. General Conditions					
a. Current volume of CCR					Total Airspace Consumed: 5,471,450 cys Volume of leachate drainage layer from Cells 1 through 5 construction: 140,355 cys Volume of CCR: 5,331,095 cys (as of March 25, 2021)
b. Alterations	X				
c. Grass cover	X				
d. Settlement / misalignment / cracks	X				None observed.
e. Leachate Collection	X				
2. Landfill Slope					
a. Erosion – liner exposed?	X				
b. Rodent burrows		X			Burrows observed on final cover benches, adjacent to downchutes, and near toe of slope, see note 3.
c. Vegetation	X				
d. Cracks/settlement	X				None observed.
e. Riprap/other erosion protection	X				

ITEM	Acceptable	Monitor/Maintain	Investigate	Repair	REMARKS
f. Slide, Slough, Scarp	X				None observed.
g. Benches		X			Areas of low spots inside the benches, water could stage prior to draining to the downchutes, see note 3.
h. Final Cover		X			Equipment damage to cover vegetation/soils noted on west, north, and east sides, see note 3.
i. Downchutes	X				
3. Crest					
a. Soil condition	X				
b. Comparable to design width or previous inspection	X				
c. Vegetation	X				NA
d. Rodent burrows	X				
e. Exposed to heavy traffic	X				
f. Damage from vehicles / machinery		X			Equipment damage noted to cover vegetation/soils, see note 3.
4. Toe					
a. Vegetation	X				
b. Rodent burrows		X			Small animal burrows observed near toe of slope, see note 3.
c. Settlement	X				None observed.
d. Drainage conditions	X				
e. Seepage	X				None observed.

Notes:

- 1) Leachate collection system inspection was limited by visual observation of surficial components of the system, i.e. condition of riser pipes.
- 2) Maintain erosion controls per the SMP. This is not a deficiency or release as classified under 40 CFR 257.84(b)(5).
- 3) Features observed and documented in this checklist were not considered a deficiency or release as classified under 40 CFR 257.84(b)(5) and required no immediate action beyond periodic inspection in accordance with the SMP and typical maintenance.



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