Landfill Extended Post Closure Care
Michigan Case Study

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Background

- Landfill accepted hazardous waste and solid waste from 1975 - 1983
- Certified closed in 1992 by MDEQ (now EGLE)
- Facility would like to end post closure care in 2022
- Renewed Post Closure Operating License on 9/28/2018 for 10 years
- License contains a requirement for the owner to submit a Evaluation of Post Closure Care Plan (EPCC) for review and approval
Background

• Single landfill unit – 61 acre cell on a 98 acre parcel
• Predates modern landfill design standards
  – No engineered liner or leachate collection system
  – Retrofitted passive leachate collection system installed as part of post closure
  – Natural clay
• Cap is compacted clay with not geo-membrane
• Landfill gas extraction wells
Background

• Groundwater and leachate monitoring programs
  – Groundwater detection monitoring program
  – To be evaluated for PFAS
• Surface water monitoring program
• Monitoring and maintenance programs
  – Leachate collection system
  – Landfill gas collection system
  – Final cover
**Strategy**

- Use “Guidelines for Evaluating the Post-Closure Care Period for Hazardous Waste Disposal Facilities under Subtitle C of RCRA”
  - December 15, 2015 from Barnes Johnson, Director ORCR
- Submit the Evaluation of Post Closure Care Plan (EPCC) for review and approval by EGLE.
  - Leachate Generation
  - Landfill Gas Migration and Emission
  - Landfill Gas Quality and Flow
  - Critical components monitoring and maintenance
    - Leachate collection system
    - Final cover
    - Landfill Gas
Strategy

• Use historic and new data to evaluate if changes to the monitoring and maintenance programs are warranted
  – Reduction or increase in:
    • environmental monitoring
    • Critical component maintenance
    • Financial assurance
  – Provide necessary information to evaluate termination or extension of post closure care period
• EPCC Plan is currently under review
MEMORANDUM

SUBJECT: Guidelines for Evaluating the Post-Closure Care Period for Hazardous Waste Disposal Facilities under Subtitle C of RCRA

FROM: Barnes Johnson, Director
Office of Resource Conservation and Recovery

TO: RCRA Division Directors, Regions 1-10
RCRA Enforcement Managers, Regions 1-10
Regional Counsels, Regions 1-10

Purpose

The purpose of this memorandum is to provide guidance to assist regulators in evaluating conditions at hazardous waste disposal facilities subject to Subtitle C of the Resource Conservation and Recovery Act (RCRA) that are approaching the end of the original 30-year post-closure care period, and in determining whether the post-closure care period should be adjusted or allowed to end. Any such determinations must ensure ongoing protection of human health and the environment. This guidance also provides information to assist facility owners and operators in preparing documentation to inform the regulators’ evaluations.

This guidance has the additional benefit of helping regulated entities understand what may be necessary to ensure protection of human health and the environment at units subject to post-closure care requirements. This enables waste generators and handlers to have a better understanding of the costs associated with land disposal so they can better evaluate long-term waste management strategies, including waste minimization.

Introduction and Need for Guidance

The RCRA Subtitle C hazardous waste management regulations establish a post-closure care period for certain hazardous waste treatment, storage and disposal facilities, and specify post-closure care activities. The post-closure care requirements apply to land disposal units (landfills, land treatment units,

1 Post-closure care can be generally described as the period of time after closure during which owners and operators conduct
J. **POSTCLOSURE**

The licensee shall comply with the postclosure monitoring requirements of R 299.9613 and monitor and maintain the facility in accordance with the Postclosure Inspection Schedule, Attachment 1 of this license. The licensee shall submit a certification of postclosure in accordance with R 299.9613(5). {R 299.9613 and 40 CFR §§ 264.116 through 264.119}

K. **FINANCIAL ASSURANCE FOR POSTCLOSURE**

1. On the effective date of this license, the facility postclosure cost estimate is $1,171,000.

2. The licensee shall continuously maintain financial assurance for the current postclosure cost estimate as required under R 299.9703.

L. **FINANCIAL ASSURANCE FOR CORRECTIVE ACTION**

1. On the effective date of this license, the cost of performing corrective action at the facility is as follows:

   Interim Measures $0
   Corrective Action Investigation $0
   Corrective Measures Study $0
   Corrective Measures Implementation $0
   Total $0

   The licensee shall keep this estimate current, as required under R 299.9712.

2. The licensee shall continuously maintain financial assurance for corrective action, as required under R 299.9713, for approved work plans required by Condition V of this license.
PART VI
SCHEDULE OF COMPLIANCE
Within 180 days of license issuance, the licensee shall submit a plan to the Division Director, for review and approval, that outlines an approach for performing an EPCC, including the components and duration. Specifically, the submitted EPCC plan will provide the foundation to evaluate the monitoring and maintenance data collected during the extended postclosure care period, and determine if the conclusions support modification or termination of postclosure activities during periodic review of the license requirements. The EPCC plan will be consistent with the United States Environmental Protection Agency Memorandum dated December 15, 2016, and titled, Guidelines for Evaluating the Post-Closure Care Period for Hazardous Waste Disposal Facilities under Subtitle C of RCRA, issued by the Office of Resource Conservation and Recovery.
Beyond 2020

- Identify
- 2020 Baseline Facilities
- CLEANUP
- Long-term Stewardship
- Additional Facilities for CA CLEANUP
## PROJECTED MULTI-YEAR POST-CLOSURE CAP INSPECTION SCHEDULE

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**Note:** The table provides a schedule for post-closure cap inspections at various sites over a multi-year period.
Example Post Closure Cap Inspection Report

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Inspection Conducted By:

Mr. Joseph Rogers, Geologist
Ms. Christine Mallock, Senior Environmental Engineer
Ms. Nicole Sanabria, Geologist
Mr. Leo Parks, Senior Environmental Employment Program On-Site Staff
August 2019 Cap Inspection
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Corrective Action Monitoring and Maintenance Inspection Report

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Inspection Conducted By:
- Mr. Joe Rogers, Geologist
- Mr. Peter Guackenbush, Project Engineer
- Ms. Virginia Hinich, Project Environmental Quality Specialist