

**FORM EQP 5111  
ATTACHMENT XIV.A5  
INSPECTION REQUIREMENTS**

This document is an attachment to the Michigan Department of Environmental Quality's *Instructions for Completing Form EQP 5111, Operating License Application Form for Hazardous Waste Treatment, Storage, and Disposal Facilities*.

The administrative rules promulgated pursuant to Part 111, Hazardous Waste Management, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), being R 299.9504, R 299.9508, R 299.9605 and Title 40 of the Code of Federal Regulations (CFR) §§264.15 and 270.14(b)(5), establish requirements for inspections at hazardous waste management facilities. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003

This license application template addresses requirements for inspections at the following hazardous waste management facility: The Dow Chemical Company in Midland, Michigan.

(Check as appropriate)

Applicant for Operating License for Existing Facility

Applicant for Operating License for New, Altered, Enlarged, or Expanded Facility

This template is organized as follows:

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## **INTRODUCTION**

Inspections for the Dow Michigan Operations Midland Plant & Salzburg Landfill facilities in Midland, Michigan are conducted according to the inspection schedules contained in this section. Inspections are documented in the operating record, and retained for a period of three years. Current inspection log sheets are maintained at the facility and are available upon request.

Inspection records adhere to the same general format. Inspection records are formatted to include the following information:

1. Name of inspector
2. Date and time of inspection
3. Notation of observations made during inspection
4. Nature and date of any repairs or actions performed pursuant to the inspection

Note: Cracks in unlined secondary containment will be managed according to the MiOps RCRA Aggressive Crack Management Policy.

### **A5.A WRITTEN SCHEDULE**

[R 299.9605 and 40 CFR §264.15(b)(1)]

#### **A5.A.1 Types of Problems**

[R 299.9605 and 40 CFR §264.15(b)(3)]

General inspection schedules are shown in the following tables. Additional items may be inspected beyond those listed.

Waste Storage Area I (WSA I) Container Storage Area

Daily inspections are performed for the items listed in the table below.

Item Inspected	Observation
Secondary containment	<ul style="list-style-type: none"> <li>• No cracks, gaps, or deterioration (e.g., spalling), which would compromise integrity, has occurred</li> <li>• Seams, cracks, and gaps are properly caulked</li> <li>• Any caulk and/or coatings present are fully adhered to surface</li> </ul>
Condition of stored containers	<ul style="list-style-type: none"> <li>• All containers are properly labeled and labels are visible</li> <li>• All containers are closed</li> <li>• 24 inches of aisle space between rows</li> <li>• Material is not present on outside of containers</li> <li>• No signs of deterioration (e.g., severe rust), structural defects, or leaks</li> <li>• 30-gallon containers stacked no more than 3-high; 55-gallon containers, no more than 2-high</li> </ul>
Accumulated precipitation	<ul style="list-style-type: none"> <li>• Presence of accumulated precipitation/solids in secondary containment and sumps</li> <li>• Accumulated precipitation removed within a timely manner</li> </ul>

1163 Building Tank System

Daily inspections are performed for the items listed in the table below.

<b>Item Inspected</b>	<b>Observation</b>
Leak detection system	<ul style="list-style-type: none"> <li>• Level switch is powered and returning signal</li> <li>• Leak detection system alarm is not active</li> <li>• Level switch is in place in the field and free from any physical damage</li> </ul>
Secondary containment; accessible, external concrete portion surrounding building	<ul style="list-style-type: none"> <li>• No cracks, gaps, or deterioration (e.g., spalling), which would compromise integrity, has occurred</li> <li>• Seams, cracks, and gaps are properly caulked</li> <li>• Any caulk and/or coatings present are fully adhered to surface</li> <li>• No evidence of release from secondary containment around facility perimeter</li> </ul>
Facility entrance	<ul style="list-style-type: none"> <li>• No spillage/track-out of material</li> <li>• Door closed unless vehicle entering, exiting, loading or unloading</li> </ul>
Facility labeling	<ul style="list-style-type: none"> <li>• Danger signs in place</li> <li>• NFPA symbol in place</li> <li>• Hazardous Waste sign in place</li> </ul>
Waste inventory	<ul style="list-style-type: none"> <li>• Different waste types within 1163 Building are properly segregated</li> <li>• Total quantity of wastes within 1163 Building are within acceptable limits (below interior tank shell height)</li> </ul>
Interior tank shell <sup>1</sup>	<ul style="list-style-type: none"> <li>• No holes or cracks are evident in metal shell</li> <li>• No severe corrosion is evident in metal shell</li> <li>• Wall and ceiling panels free from damage</li> </ul>

<sup>1</sup>In addition to this daily inspection, integrity testing of the interior metal shell of 1163 is performed every two years.

**33 Building Tank System**

Daily inspections are performed for the items listed in the table below.

<b>Item Inspected</b>	<b>Observation</b>
Leak detection system	<ul style="list-style-type: none"> <li>• Level switch is powered and returning signal</li> <li>• Leak detection system alarm is not active</li> <li>• Level switch is in place in the field and free from any physical damage</li> </ul>
Secondary containment; accessible, external concrete portion surrounding building	<ul style="list-style-type: none"> <li>• No cracks, gaps, or deterioration (e.g., spalling), which would compromise integrity, has occurred</li> <li>• Seams, cracks, and gaps are properly caulked</li> <li>• Any caulk and/or coatings present are fully adhered to surface</li> <li>• No evidence of release from secondary containment around facility perimeter</li> </ul>
Facility entrance	<ul style="list-style-type: none"> <li>• No spillage/track-out of material</li> <li>• Door closed unless truck entering, exiting, loading or unloading.</li> </ul>
Facility labeling	<ul style="list-style-type: none"> <li>• Danger signs in place</li> <li>• NFPA symbol in place</li> <li>• Hazardous Waste sign in place</li> </ul>
Waste inventory	<ul style="list-style-type: none"> <li>• Different waste types within 33 Building are properly segregated</li> <li>• Total quantity of wastes within 33 Building is within acceptable limits (below interior tank shell height)</li> </ul>
Interior tank shell <sup>1</sup>	<ul style="list-style-type: none"> <li>• No holes or cracks in metal shell</li> <li>• No severe corrosion is in metal shell</li> <li>• Wall and ceiling panels free from damage</li> </ul>
Ash Conveyor	<ul style="list-style-type: none"> <li>• No leaks from conveyor up to 33 Building</li> </ul>

<sup>1</sup>In addition to this daily inspection, integrity testing of the interior metal shell of 33 is performed every two years.

**32 Building Incinerator Facility and ancillary equipment**

Daily inspections are performed for the items listed in the table below.

<b>Item Inspected</b>	<b>Observation</b>
Overall Process Area	<ul style="list-style-type: none"> <li>• No uncovered, unlabeled containers of hazardous waste are present.</li> <li>• No material on outside of container</li> <li>• Containers show no signs of structural defects, leakage, or deterioration (e.g., severe corrosion)</li> </ul>
Front Face	<ul style="list-style-type: none"> <li>• No leaks of liquid or vapor from piping or liquid injection points</li> <li>• No leaks or spills in area</li> </ul>
WWTP Solids Hopper and Conveyor	<ul style="list-style-type: none"> <li>• No leaks, breaks, spills in area</li> </ul>
Rotary Kiln, Front Seal, Rear Seal	<ul style="list-style-type: none"> <li>• No Audio/Visual/Olfactory (AVO) leaks from the kiln seals</li> </ul>
Secondary Combustion Chamber	<ul style="list-style-type: none"> <li>• No leaks of liquid or vapor from piping or liquid injection points</li> <li>• No leaks or spills in area</li> </ul>
Emergency Vent	<ul style="list-style-type: none"> <li>• No fugitive emissions from the emergency vent</li> </ul>
APC Equipment (Quench, Condensing Tower, Venturi, Demister, Primary I.D. Fan, I.W.S.'s, Secondary I.D. Fan)	<ul style="list-style-type: none"> <li>• No leaks or spills in area</li> </ul>
Stack	<ul style="list-style-type: none"> <li>• No leaks or spills in area</li> <li>• Stack drain installed and not leaking</li> </ul>
Bulk Solids Hopper	<ul style="list-style-type: none"> <li>• No leaks or spills from the hopper</li> <li>• No track-out</li> <li>• Door Closed unless truck entering, exiting or unloading</li> </ul>
Bulk Solids Conveyor	<ul style="list-style-type: none"> <li>• No leaks or spills in area</li> </ul>

**Offload Spots at the Incinerator, 703 Tank Farm Spots, and Rail Car Spots Container Storage Areas**

Daily inspections are performed for the items listed in the table below.

Item Inspected	Observation
Offload Spots at the Incinerator, Spots LS-2010, 2020, 2030, 2040, 2050, 2060, 2070, 2080, 2090, & 2100	<ul style="list-style-type: none"> <li>• No leaks of liquid or vapor from piping or equipment</li> <li>• No evidence of spilled material</li> <li>• No precipitation or material accumulated in secondary containment</li> <li>• Secondary containment free of cracks, gaps, or deterioration that could compromise integrity</li> <li>• Seams, cracks, and gaps are properly caulked</li> <li>• Any caulk and/or coatings present are fully adhered to surface</li> <li>• Accumulated precipitation removed within a timely manner</li> </ul>
703 Tank Farm Spots, Spots LS-1202/2E, 1203/3E, 101/4E, 1213 & 1214	<ul style="list-style-type: none"> <li>• No leaks of liquid or vapor from piping or equipment</li> <li>• No evidence of spilled material</li> <li>• No precipitation or material accumulated in secondary containment</li> <li>• Secondary containment free of cracks, gaps, or deterioration that could compromise integrity</li> <li>• Seams, cracks, and gaps are properly caulked</li> <li>• Any caulk and/or coatings present are fully adhered to surface</li> <li>• Accumulated precipitation removed within a timely manner</li> </ul>
Railcar Spots, Spots LS-1215 & 1216.	<ul style="list-style-type: none"> <li>• No leaks of liquid or vapor from piping or equipment</li> <li>• No evidence of spilled material</li> <li>• No precipitation or material accumulated in secondary containment</li> <li>• Secondary containment free of cracks, gaps, or deterioration that could compromise integrity</li> <li>• Seams, cracks, and gaps are properly caulked</li> <li>• Any caulk and/or coatings present are fully adhered to surface</li> <li>• No evidence of spills, leaks, or damaged vegetation outside Railcar Spots containment</li> <li>• Railcar Spots monitor gun is accessible</li> <li>• Accumulated precipitation removed within a timely manner</li> </ul>

Item Inspected	Observation
703 Tank Farm Spots, Spots SS-5E 6E, 7E, & 8E	<ul style="list-style-type: none"> <li>• No evidence of spilled material</li> <li>• No precipitation or material accumulated in secondary containment</li> <li>• Secondary containment free of cracks, gaps, or deterioration that could compromise integrity</li> <li>• Seams, cracks, and gaps are properly caulked</li> <li>• Any caulk and/or coatings present are fully adhered to surface</li> <li>• Accumulated precipitation removed within a timely manner</li> </ul>

32 Building Container Storage Area (32 Pack Room)

Daily inspections are performed for the items listed in the table below.

Item Inspected	Observation
Secondary containment	<ul style="list-style-type: none"> <li>• No cracks, gaps, or deterioration (e.g., spalling), which would compromise integrity, has occurred</li> <li>• Seams, cracks, and gaps are properly caulked</li> <li>• Any caulk and/or coatings present are fully adhered to surface</li> </ul>
Condition of stored containers	<ul style="list-style-type: none"> <li>• All containers are properly labeled and labels are visible</li> <li>• All containers are closed</li> <li>• 24 inches of aisle space between rows</li> <li>• Material is not present on outside of containers</li> <li>• No signs of deterioration (e.g., severe rust), structural defects, or leaks</li> <li>• 30-gallon containers stacked no more than 3-high; 55-gallon containers, no more than 2-high.</li> </ul>
Accumulated precipitation	<ul style="list-style-type: none"> <li>• Presence of accumulated precipitation/solids in secondary containment and sumps</li> <li>• Accumulated precipitation removed within a timely manner</li> </ul>
Pack Conveyor	<ul style="list-style-type: none"> <li>• No leaks or spills in area</li> </ul>

Tank Systems (V-301, V-302, V-303, V-401, V-402, V-403, V-404, V-101, V-601, and V-701)

Daily inspections are performed for the items listed in the table below.

<b>Item Inspected</b>	<b>Observation</b>
Tank level <sup>1</sup>	<ul style="list-style-type: none"> <li>• Log the level or weight in each tank to assure monitoring instrumentation is functional and a high level condition is not present</li> </ul>
Leak detection	<ul style="list-style-type: none"> <li>• No leaks or spills in area</li> </ul>
Facility labeling	<ul style="list-style-type: none"> <li>• NFPA symbols in place</li> <li>• Hazardous Waste signs in place</li> </ul>
Tank shells and ancillary equipment	<ul style="list-style-type: none"> <li>• No leaks or deterioration (e.g., severe corrosion)</li> </ul>
Secondary containment	<ul style="list-style-type: none"> <li>• No cracks, gaps, or deterioration (e.g., spalling), which would compromise integrity, has occurred</li> <li>• Seams, cracks, and gaps are properly caulked</li> <li>• Any caulk and/or coatings present are fully adhered to surface</li> </ul>
Accumulated precipitation	<ul style="list-style-type: none"> <li>• Presence of accumulated precipitation/solids in secondary containment and sumps</li> <li>• Accumulated precipitation removed within 24 hours</li> </ul>

<sup>1</sup>In addition, the tank overfill protection system is inspected and tested monthly. This is a process computer test to assure that the overfill prevention alarm system is working.

830 Building Container Storage Area (830 Building)

Weekly inspections are performed for the items listed in the table below.

<b>Item Inspected</b>	<b>Observation</b>
Secondary containment	<ul style="list-style-type: none"> <li>• No cracks, gaps, or deterioration (e.g., spalling), which would compromise integrity, has occurred</li> <li>• Seams, cracks, and gaps are properly caulked</li> <li>• Any caulk and/or coatings present are fully adhered to surface</li> </ul>
Condition of stored containers	<ul style="list-style-type: none"> <li>• All containers are properly labeled and labels are visible</li> <li>• All containers are closed</li> <li>• 24 inches of aisle space between rows</li> <li>• Material is not present on outside of containers</li> <li>• No signs of deterioration (e.g., severe rust), structural defects, or leaks</li> <li>• 30-gallon containers stacked no more than 3-high, 55-gallon containers, no more than 2-high.</li> </ul>
Accumulated precipitation	<ul style="list-style-type: none"> <li>• Presence of accumulated precipitation/solids in secondary containment and sumps</li> <li>• Accumulated precipitation removed within a timely manner</li> </ul>

**Tertiary Pond System (T-Pond) Surface Impoundment**

The T-Pond system is inspected weekly and after a significant storm event has occurred. Inspectors examine the items listed in the table below.

In order to establish consistent guidelines for the frequency of post-storm T-Pond system inspections, a significant storm event has been defined as two or more inches of rainfall in a twenty-four hour period. This value corresponds to the estimated maximum annual twenty-four hour rainfall event for the Midland Area (2.0 inches). Thus, an inspection following two or more inches of rainfall in a twenty-four hour period will assess the ability of the unit to accommodate a maximum annual storm.

<b>Item Inspected</b>	<b>Observation</b>
Level transmitter reading	<ul style="list-style-type: none"> <li>• Log the T-Pond level to assure monitoring instrumentation is functional</li> </ul>
System level	<ul style="list-style-type: none"> <li>• Check that sufficient freeboard (2 feet) is present (visual),</li> <li>• Check that instruments are in place in the field and are free from any physical damage</li> <li>• No unexplained level drop has occurred</li> </ul>
System dikes/dam	<ul style="list-style-type: none"> <li>• Assure no cracks, deterioration, or severe erosion are present</li> </ul>
Solids build-up	<ul style="list-style-type: none"> <li>• Determine whether solids are evident on the pond surface</li> </ul>
Facility labeling	<ul style="list-style-type: none"> <li>• Assure that Danger Signs are posted at access points.</li> </ul>

**Salzburg Landfill Daily Inspections**

Inspections are performed each operating day for the items listed in the table below.

<b>Item Inspected</b>	<b>Observation</b>
Leachate pumps, flow meters, level indicators and collection manholes	<ul style="list-style-type: none"> <li>• Equipped with alarms to indicate unusual levels</li> <li>• Proper pump and instrument operation</li> <li>• Check that instruments are in place in the field and are free from any physical damage</li> </ul>
Roads	<ul style="list-style-type: none"> <li>• Insure roads are clean and there is no track-out</li> </ul>
Daily Cover	<ul style="list-style-type: none"> <li>• Adequate daily cover applied</li> <li>• No run-on or run-off</li> </ul>
Unloading Area	<ul style="list-style-type: none"> <li>• Ensure loads of waste are being managed in the active area of the cell appropriately</li> </ul>

Salzburg Landfill Weekly Inspections

Weekly inspections are performed for the items listed in the table below.

These items will also be inspected after rainfall events of ½ inch rain within 24 hours.

Item Inspected	Observation
Cap	<ul style="list-style-type: none"> <li>• Cap deterioration (erosion), malfunction or improper operation of run-on and run-off control systems</li> </ul>
Wind Dispersal Control Systems	<ul style="list-style-type: none"> <li>• Functioning properly</li> </ul>
Lift Stations	<ul style="list-style-type: none"> <li>• Ensure lift stations are fully operational (is there power to the system?)</li> <li>• Ensure that flow and level meters are working.</li> <li>• Ensure pumps are powered and operational.</li> <li>• Ensure alarms are operable.</li> </ul>
Liner	<ul style="list-style-type: none"> <li>• Check that exposed liner is intact; no visible damage.</li> </ul>
Daily Cover	<ul style="list-style-type: none"> <li>• Is there sufficient daily cover applied at the end of the operational day?</li> <li>• No run-on/run-off occurring</li> </ul>
Security	<ul style="list-style-type: none"> <li>• Check power and card reader to Gate 90 to ensure proper operation.</li> <li>• Check fence for integrity. Repair if needed.</li> <li>• Check all gates to ensure they are locked and chained. (Gates 91G, 92G, 93G, 78G, 84G)</li> <li>• Assure warning signs are present and wording is visible at all landfill entrances.</li> </ul>

Salzburg Landfill Quarterly Inspections

Quarterly inspections are performed for the items listed in the table below.

Item Inspected	Observation
Run-on/Run-off	<ul style="list-style-type: none"> <li>• Ensure drain sumps are operational and unobstructed.</li> <li>• Ensure ditches allow unobstructed flow to facilitate run-off transport.</li> </ul>

Salzburg Landfill Post Closure Inspections

Quarterly inspections (unless noted otherwise) are performed for the items listed in the table below.

<b>Item Inspected</b>	<b>Observation</b>
Security	<ul style="list-style-type: none"> <li>• Check power and card reader to Gate 90 to ensure proper operation.</li> <li>• Check fence for integrity. Repair if needed.</li> <li>• Check all gates to ensure they are locked and chained. (Gates 91G, 92G, 93G, 78G, 84G)</li> <li>• Assure warning signs are present and wording is visible at all landfill entrances.</li> </ul>
Cap Inspections (Perform on closed cells)	<ul style="list-style-type: none"> <li>• Look for areas of erosion on side slopes of caps when ground is not frozen.</li> <li>• Evaluate if leachate seeps are present.</li> <li>• Burrowing animals should not be present.</li> <li>• Drain sumps are functional</li> <li>• Evaluate vegetative cover during Spring and Fall (void of deep rooted plant species; areas of sparse vegetation).</li> <li>• Settlement - Spring and Fall (low spots on cap should not be present).</li> <li>• Ponding - annually, after a rain event (prevent low spots on cap where ponding may occur due to settlement or poor drainage).</li> <li>• Gas vents - annually (should be free of obstructions such as birds nests, etc.).</li> </ul>
Run-on/Run-off	<ul style="list-style-type: none"> <li>• Ensure drain sumps are operational and unobstructed.</li> <li>• Ensure ditches allow unobstructed flow to facilitate run-off transport.</li> </ul>
Leachate Lift Stations/Liner Failure Detection System - Post Closure	<ul style="list-style-type: none"> <li>• Lift stations, pumps, visible piping, and instrumentation are operating properly (checked monthly).</li> </ul> <p>NOTE: If leachate generation rates decline to 10% of active operation flow rates, the inspection frequency will be reduced to twice per year.</p> <p style="padding-left: 40px;">* Refer to Section II.L of Salzburg Landfill Operating License Application for further details of the inspection schedule.</p>
Site Benchmarks	<ul style="list-style-type: none"> <li>• Ensure benchmarks are identified by permanent markers that are protected and maintained.</li> <li>• Do they need to be scheduled for resurveying (required every 3 years)?</li> </ul>

**Corrective Action Management Unit (CAMU)**

The CAMU will be inspected as described in the CAMU Design and Operation Plan specific to the individual unit.

Example Inspection Items	Observation
Containment structure perimeter	• Perimeter diking intact
	• No waste spillage outside of containment/dike
	• No liquid leakage outside of containment/dike
Facility entrance	• No spillage/track-out of material
Facility Labeling	• Hazardous Waste signs in place
Leachate collection Sump and piping	• Leachate level below top of sump
	• Pump is operational
	• No leakage from piping or ancillary equipment
Storm water, pump, and piping	• No standing water on liner with pump not operating
	• Pump is operational
	• No leakage from piping or ancillary equipment
Cover (if present)	• Cover is intact and free of damage
	• CAMU-eligible wastes are covered when operations are not being performed in area (e.g. material is not being loaded or unloaded)
Dust emissions	• Dust emissions are not evident from the stored materials

**Staging Pile**

The staging pile will be inspected as described in the Staging Pile Design and Operation Plan specific to the individual unit.

Example Inspection Items	Observation
Containment structure perimeter	• Perimeter diking intact
	• No waste spillage outside of containment/dike
	• No liquid leakage outside of containment/dike
Facility entrance	• No spillage/track-out of material
Facility Labeling	• Hazardous Waste signs in place
Leachate collection Sump and piping	• Leachate level below top of sump
	• Pump is operational
	• No leakage from piping or ancillary equipment
Stormwater, pump, and piping	• No standing water on liner with pump not operating
	• Pump is operational
	• No leakage from piping or ancillary equipment
Tarp	• Tarp is free of damage
	• Wastes are covered when operations not being performed in area (material is not being loaded or unloaded)
Dust emissions	• Dust emissions are not evident from the stored wastes

### Environmental Monitoring Programs

Environmental Monitoring Programs equipment (i.e., collection tile systems, monitoring wells, piezometers, purge wells, etc.) is inspected at various frequencies. The inspection frequencies and items inspected are listed in the SAP, Attachment XIV.B5, Table 6, of this operating license reapplication.

### Safety Equipment

See section XIV.A7, Contingency Plan, of this operating license reapplication for details regarding inspections of safety equipment.

#### **A5.A.2 Frequency of Inspection**

[R 299.9605 and 40 CFR §§264.15(b)(4), 264.174, 264.193, 264.195, 264.226, 264.254, 264.278, 264.303, 264.347, 264.602, 264.1033, 264.1052, 264.1053, 264.1058, and 264.1083 through 264.1089, where applicable]

The inspection frequencies are included in the descriptions in section A5.A1 of this attachment.

#### **A5.B REMEDY SCHEDULE**

[R 299.9605 and 40 CFR §264.15(c)]

Inspectors are to coordinate any required actions identified as necessary based on their inspection. The nature of each action performed is dependent on the type of deficiency identified through the inspection. Examples of typical actions may include replacement of missing or damaged signs and labels, repacking the contents of a deteriorated container, or arranging for maintenance personnel to address malfunctions of instrumentation or mechanical equipment. If a problem lies beyond the means of an inspector to address, they are instructed to promptly notify supervision of the nature of the deficiency for appropriate follow up.

#### **A5.C INSPECTION LOG OR SUMMARY**

[R 299.9605 and 40 CFR §264.15(d)]

Inspection records contain the inspector's name, the date and time of the inspection, a notation of inspector comments, and dates and nature of remedial repairs. These records are kept on file for at least three years from the date of inspection and are available upon request.

INSPECTION SCHEDULE - APPENDIX A5-I  
AGGRESSIVE CRACK MANAGEMENT PROGRAM

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## **POLICY - MIOPS EH&S Site RCRA Aggressive Crack Management**

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### **MIOPS RCRA Aggressive Crack Management Policy**

All facilities with unlined RCRA dikes shall comply with Michigan Operations Site (MIOPS) RCRA (Resource Conservation and Recovery Act) Aggressive Crack Management Work Process.

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### **Scope/Purpose**

This document details the requirements for MIOPS for managing cracks in unlined RCRA dikes. MIOPS has received written authorization to use unlined concrete under an aggressive crack management program in lieu of liners, for secondary containment of materials that are compatible with concrete and are not concrete-aggressive.

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### **Facility Responsibility**

The Facility is responsible for implementing:

- *Ensure facility personnel are being trained every three years.*

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### **Regulations**

Michigan rules require secondary containment for both containers (containing free liquids) and tanks storing hazardous waste. The requirements for Michigan generator storage areas are the same as the Federal requirements for a treatment, storage and disposal facility because the Michigan Department of Environmental Quality (MDEQ) adopted the federal rules by reference.

R 299.9615 Tank systems.

Rule 615. (1) Owners or operators who use tank systems to treat or store hazardous waste shall comply with all of the requirements of 40 C.F.R. Part 264, subpart J.

According to 40 CFR 264 Subpart J, a tank containment system must be

- free of cracks or gaps (40 CFR 265.193(e)(1)(iii))
- constructed with chemical-resistant water stops in place at all joints (if any) (40 CFR 265.193(e)(2)(iii))
- provided with an impermeable interior coating or lining that is compatible with the stored waste and that will prevent migration of waste into the concrete (40 CFR 265.193(e)(2)(iv))

If the containment system is not a lined vault, then approval is needed by a regulatory agency

- An equivalent device as approved by the Regional Administrator (40 CFR 265.193(d)(4))
- The “MDEQ” has approved an “equivalent device” for Michigan Operations so that the MiOps hazardous waste storage areas do not need to be lined or coated, so long as the materials in the tanks are compatible with concrete and are not concrete-aggressive. The equivalent device consists of “aggressive crack management.” Therefore, aggressive crack management is mandatory at MiOps.

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## **POLICY - MIOPS EH&S Site RCRA Aggressive Crack Management, Continued**

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### **Regulations, continued**

R 299.9614 Use and management of containers.

Rule 614. (1) Owners or operators of all hazardous waste facilities that store containers of hazardous waste shall do both of the following:

(a) Comply with all requirements of 40 C.F.R. part 264, subpart I.

40 CFR 264.175(a) Container storage areas must have a containment system that is designed and operated in accordance with paragraph (b) of this section, except as otherwise provided by paragraph (c) of this section.

(b) A containment system must be designed and operated as follows:

(1) A base must underlie the containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed

It is from these regulations that the requirements are derived that RCRA hazardous waste containment in MiOps be:

- Free from cracks in the concrete
  - Free from gaps at water-stops, or caulking is used to repair previously discovered cracks
  - Free from attack to the concrete aggregate
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## POLICY - MIOPS EH&S Site RCRA Aggressive Crack Management, Continued

### Definitions

Word	Definition
Minor Crack/Gap (Hairline Crack)	<p>A minor crack or opening (often referred to as a hairline crack) with minimal width (e.g. the width of a hair to less than a width of a dime*) which, upon exposure to a spill, if cleaned up immediately, would pose minimal to no risk to the environment. This includes cracks in the concrete, cracks between water stops and concrete, gaps between concrete and caulking, etc.</p> <p>* If dime can fit into the crack, it is not a minor crack.</p>
Major Crack/Gap (other than hairline)	Any crack or opening that is not a minor crack.
Exposed Aggregate	Aggregate is the stone mix under the skim layer of concrete. Exposed aggregate in a RCRA dike must be managed similar to a crack under the Aggressive Crack Management Work Process.
Minor Exposed Aggregate	Minor damage or degradation of a RCRA dike where small areas of aggregate are exposed with areas of only a few square inches and which, upon exposure to a spill, if cleaned up immediately, would pose minimal to no risk to the environment.
Major Exposed Aggregate	Any exposed aggregate that is not minor exposed aggregate.
Compatible with Concrete	<p>A material is considered compatible with concrete if it does not react aggressively with concrete and does not degrade concrete at a rapid rate.</p> <p><b>Example:</b> Spilled material in contact with concrete bubbles or froths in a vigorous manner, or if short-term contact (between the onset of a spill and completion of cleanup) would produce substantial areas of exposed aggregate, the material is not compatible with concrete.</p>

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## **POLICY - MIOPS EH&S Site RCRA Aggressive Crack Management, Continued**

### **Aggressive Crack Management**

On September 23, 1994, MIOPS received approval from the MDEQ (Michigan Department of Environmental Quality) to use unlined concrete in lieu of dike linings as an alternative as long as the stored material is compatible with concrete and is not concrete-aggressive, and as long as cracks were aggressively managed. As part of this program if unlined concrete dike are used by generators at the site, the following items must be maintained:

- Documentation showing compatibility of concrete with the material stored
- Training with respect to aggressive crack management
- Aggressive maintenance of cracks within concrete dikes.

Although the word “aggressive” was used within the approval letter from the MDEQ, it was never defined. The table below further defines MIOPS aggressive management policy. The table below delineates the difference between minor and major cracks with respect to the difficulty in managing maintenance during the cold weather months. This is because many of the crack sealants used must be maintained above certain temperatures to properly cure.

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## **POLICY - MIOPS EH&S Site RCRA Aggressive Crack Management, Continued**

<b>IF</b>	<b>THEN</b>	<b>Comments</b>
Any crack or exposed aggregate (regardless of whether classified as minor or major) is found during months when repair is easily accomplished during good weather (typically May through September)	Fix crack/aggregate as soon as possible	<ul style="list-style-type: none"> <li>• A work order should be entered immediately with the correct priority to ensure the repair happens during good weather</li> </ul>
Minor crack (hairline crack)/aggregate attack is found during months when repair is NOT easily accomplished during good weather	Fix crack/aggregate attack as soon as weather allows	<ul style="list-style-type: none"> <li>• A work order should be entered immediately</li> <li>• Repair can wait until warm weather but needs to be done as soon as weather allows</li> </ul>
Major crack/aggregate attack is found during months when repair is NOT easily accomplished during good weather	Timing for fixing the defect depends on the severity	<ul style="list-style-type: none"> <li>• A work order should be entered immediately with the correct priority</li> <li>• Severity of the defect needs to be assessed and reviewed with Leveraged Delivery to determine if repair needs to be accomplished (or tank taken out of service) in winter</li> </ul>

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## **POLICY - MIOPS EH&S Site RCRA Aggressive Crack Management, Continued**

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### **Leader Responsibilities**

Leader is responsible for ensuring cracks within RCRA dikes are aggressively managed.

The Leader is responsible for ensuring documentation is on file for compatibility of the dike materials (i.e. unlined concrete) with respect to the materials stored within the dike.

Leadership in conjunction with the training network is responsible for providing training on Aggressive Crack Management to employees involved with the inspection of RCRA dikes. Training is required for this topic every three years.

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### **Individual Responsibilities**

Individuals who participate in the inspection of RCRA dikes are responsible for knowing how to identify cracks as well as notifying appropriate leadership on the existence of a crack. Training is required for this topic every three years. Employees must complete this training prior to inspecting RCRA dikes or be under the supervision of an individual trained on aggressive crack management.

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