

**ATTACHMENT A-11**  
**Closure and Postclosure Care Plans**

**FORM EQP 5111 ATTACHMENT TEMPLATE A11  
CLOSURE AND POSTCLOSURE CARE PLANS**

This document is an attachment to the Michigan Department of Environmental Quality's (DEQ) *Instructions for Completing Form EQP 5111, Operating License Application Form for Hazardous Waste Treatment, Storage, and Disposal Facilities*. See Form EQP 5111 for details on how to use this attachment.

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), R 299.9613 and Title 40 of the Code of Federal Regulations (CFR), Part 264, Subpart G, establishes requirements for the closure and, if necessary, postclosure care of 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 the proper closure and, if necessary, postclosure care of the hazardous waste management units and the hazardous waste management facility for the EQ Resource Recovery, Inc. (EQRR) in Romulus, Michigan. The information provided in this template was used to prepare the closure and postclosure care cost estimate provided in Template A12, "Closure and Postclosure Care Cost Estimates."

*Ensure that all samples collected for waste characterization and environmental monitoring during closure and postclosure care activities are collected, transported, analyzed, stored, and disposed by trained and qualified individuals in accordance with the QA/QC Plan. The QA/QC Plan should, at a minimum, include the written procedures outlined in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, Third Edition, Chapter 1 (November 1986), and its Updates.*

This template is organized as follows:

- A11.A CLOSURE PLAN
  - A11.A.1 Closure Performance Standard
  - A11.A.2 Unit-Specific Information
    - Table A11.A.1 Hazardous Waste Management Unit Information
  - A11.A.3 Schedule of Final Facility Closure
  - A11.A.4 Notification and Time Allowed for Closure
    - A11.A.4(a) Extensions for Closure Time
  - A11.A.5 Unit-Specific Closure Procedures
    - A11.A.5(a) Closure of Container Storage Areas
    - A11.A.5(b) Closure of Tank Systems
    - A11.5.A(c) Other Closure Activities
  - A11.A.6 Certification of Closure
  - A11.A.7 Postclosure Notices Filed
- A11.B POSTCLOSURE CARE PLAN
  - A11.B.1 Applicability
  - A11.B.2 Postclosure Care Objectives
  - A11.B.3 Postclosure Care Period Point of Contact
  - A11.B.4 Postclosure Care Activities
    - Table A11.B.1 Postclosure Monitoring and Maintenance
  - A11.B.5 Postclosure Care Plan Amendment
  - A11.B.6 Certification of Postclosure

## A11.A CLOSURE PLAN

### A11.A.1 Closure Performance Standard [R 299.9613 and 40 CFR §264.111]

This Closure Plan is designed to ensure that the facility will be closed in a manner that achieves the following:

- a. Minimizes the need for further maintenance; and
- b. Controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, postclosure escape of hazardous wastes, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition byproducts to the groundwater, surface water, or atmosphere; and, as applicable
- c. Complies with the unit-specific closure requirements for each of the following units:

(Check as appropriate)

- |   |                                       |
|---|---------------------------------------|
| <input checked="" type="checkbox"/> Use and management of containers                  | R 299.9614 and 40 CFR §264.178        |
| <input checked="" type="checkbox"/> Tank systems                                      | R 299.9615 and 40 CFR §264.197        |
| <input type="checkbox"/> Surface impoundments   | R 299.9616 and 40 CFR §264.228        |
| <input type="checkbox"/> Waste piles  | R 299.9617 and 40 CFR §264.258        |
| <input type="checkbox"/> Land treatment <sup>a</sup>                                  | R 299.9618 and 40 CFR §264.280        |
| <input type="checkbox"/> Landfill   | R 299.9619 and 40 CFR §264.310        |
| <input type="checkbox"/> Incinerators   | R 299.9620 and 40 CFR §264.351        |
| <input type="checkbox"/> Drip pads <sup>b</sup>                                       | R 299.9621 and 40 CFR §264.575        |
| <input type="checkbox"/> Miscellaneous units  | R 299.9623 and 40 CFR §§264.601-603   |
| <input type="checkbox"/> Hazardous waste munitions and explosive storage <sup>b</sup> | R 299.9637 and 40 CFR §264.1202       |
| <input type="checkbox"/> Boilers and industrial furnances                             | R 299.9808 and 40 CFR §266.102(e)(11) |

<sup>a</sup> Not included in the template

<sup>b</sup> Not yet included in 40 CFR §264.111; therefore not considered

Unit-specific closure procedures are discussed in Section A11.A.5 of this template for each unit type indicated above.

### A11.A.2 Unit-Specific Information [R 299.9613 and 40 CFR §§264.112(b)(3) and (6)]

**Table A11.A.1 Hazardous Waste Management Units Information**

The following table identifies each hazardous waste management unit at the EQ Resource Recovery, Inc. facility subject to the closure requirements of this hazardous waste management facility operating license. The table also includes: each unit's maximum licensed hazardous waste inventory, a list of the waste codes managed in the unit, the anticipated date of closure (if known), and the estimated duration of closure activities once closure begins. Unit-specific methods for closure and detailed schedules are discussed in Section 11A.5 of this template.

Unit Designation	Maximum Inventory (gallons)	Waste Codes of Hazardous Wastes Managed	Scheduled Closure Date	Estimated Duration of Closure (days)
Container Storage Area	35,200	See EQP 5111	None Established	240
Tank Systems	302,600	See EQP 5111	None Established	240
Containment Sytems and Conrete Aprons	None	See EQP 5111	None Established	240

**A11.A.3 Schedule of Final Facility Closure**  
 [R 299.9613 and 40 CFR §264.112(b)(6)]

The EQ Resource Recovery, Inc. facility:

(Check as appropriate)

- Anticipates completing final closure of the entire facility by [insert estimated date]
- Has not determined when the facility will close and does not anticipate completing final closure of the entire facility prior to expiration of the facility's hazardous waste operating license.

**Table A11.A.2 Closure Schedule**

Closure Activity	Time Completed
Pocess all recoverable material on-site	30 days

Ship all still and tank bottoms, hazardous waste derived fuel, unprocessed, and containerized waste to an off-site facility	45 days
Decontaminate tanks, equipment, and product lines. Clean/Decontaminate secondary containments, transfer areas, and other potential contact areas.	45 days
Dispose of wastes generated from cleaning/decontamination activities.	15 days
Remove tanks or equipment if required.	30 days
Final cleaning/decontamination of secondary containment and transfer areas.	15 days
Inspection, review, and preparation of Closure Certificates	60 days

**A11.A.4 Notification and Time Allowed for Closure**

[R 299.9613 and 40 CFR §§264.112(d)(2) and 264.113(a) and (b)]

Final closure activities will be initiated within 90 days of receipt of the final volume of hazardous wastes and completed within 180 days of receipt of the final volume of waste. The tasks and estimated time required for closure shall follow the schedule specified in Section 11A.3. The Director will be notified by EQ Resource Recover, Inc. facility 60 days before final closure begins. Final closure will be certified by both EQ Resource Recovery, Inc. facility and an independent, qualified, registered professional engineer of the state of Michigan.

**A11.A.4(a) Extensions for Closure Time**

[R 299.9613 and 40 CFR §264.113(a) and (b)]

*(Complete if applicable)*

In the event that an extension for closure for the facility or any unit is necessary, the EQ Resource Recovery, Inc. facility will request an extension in accordance with the requirements of 40 CFR §264.113(a).

**A11.A.5 Unit-Specific Closure Procedures**

Unit-specific closure procedures are provided for each unit identified in Section A11.A.2 of this template.

**A11.A.5(a) Closure of Container Storage Areas**

[R 299.9614 and 40 CFR §264.178]

This section describes the procedures for closure of the Container Storage Area. The general closure requirement and specific closure procedures are discussed below.

## A. General Closure Requirement

At closure, all hazardous waste and hazardous waste residues will be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues will be decontaminated or removed.

## B. Specific Closure Procedures

Specific procedures for inventory management, unit inspection, decontamination, sampling and analysis, and additional waste management are discussed below.

### 1. Inventory and Remedial Waste Management Procedures

All remaining containers will be shipped off-site for disposal at approved facilities. This will include containment sumps and materials collected from low point drains of pollution control devices. Waste materials will be manifested under existing approvals or if needed new approvals will be obtained through a process of sampling, analysis, and characterization at alternative TSD's.

### 2. Unit Inspection Procedures

During the closure process daily facility inspections will continue to be completed using facility forms as found in Attachment A5. Facility personnel will oversee any contractor activities that occur at the facility.

Once all waste containers are removed from the Container Management Building, the concrete floor and the containment berms will be inspected for unrepaired or uncoated cracks, gaps, or other deterioration significant enough to allow a likely migration pathway for hazardous wastes. Upon inspection, suspect areas will be marked and then identified on a facility layout for review by a structural engineer. If a determination is made confirming a migration pathway, a specific location in that area will be identified that represents the highest risk for sampling of adjacent soils. If the area is a perimeter location, samples will be collected outside the building in adjacent soils. If the area is in the floor of the facility, coring of the floor will occur to allow for the collection of subsurface soil samples for analysis. Additional detail can be found at section 4.0 Sampling and Analysis Procedures that follows. Any identified areas will be coated, sealed, or otherwise protected prior to the area decontamination to prevent the potential of additional hazardous material release.

### 3. Decontamination Procedures

Decontamination of the container storage area containment and concrete floors will be accomplished through high pressure triple washing with detergents or alternate cleaning compound designed for use in hydrocarbon applications. The power washed areas will be visually inspected for effectiveness. If visible residue is observed, the process will be repeated. Contaminated wash water used in this process will be transported off-site for treatment at an alternate TSDF. .

The final rinse waters from the cleaning of the container storage area will be analyzed for hazardous constituents. The analytical data collected from this activity will be provided as part of the closure/partial closure reporting and certification.

#### 4. Sampling and Analysis Procedures

To the extent possible existing approvals will be used for disposal of containers and containment wastes. Wastewaters generated from the final cleaning operations will be sampled and analyzed for anticipated solvent compounds. Data from these events will be used to determine appropriate disposal methods for these rinses.

Likely release pathways as identified and confirmed during the containment inspection will have impacted soils or debris sampled and submitted for analysis. Analysis will include Method 8260 and 8270 to identify VOC and/or SVOC organic compounds likely to be handled by the facility. If the affected area is part of the concrete floor of the facility a core of the concrete floor will be removed (typically by hand boring method) and the subsurface soils will be sampled for analysis.

#### 5. Additional Waste Management Procedures

It is not expected that a container or containment surface will not be able to be decontaminated. Should this condition arise, a disposal determination will be made on a case by case basis and in cooperation with a final TSDF.

#### **A11.A.5(b) Closure of Tank Systems** [R 299.9615 and 40 CFR §264.197]

This section describes the procedures for closure of the Tank Systems. The general closure requirement and specific closure procedures are discussed below.

##### A. General Closure Requirement

At closure of the tank system, the EQ Resource Recovery, Inc. facility will remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment contaminated with waste, and manage them as hazardous waste, unless 40 CFR §264.3(d) applies. If the EQ Resource Recovery, Inc. facility demonstrates that not all contaminated soils can be practicably removed or decontaminated, then the tank system will be managed in accordance with the closure and postclosure care requirements that apply to landfills.

##### B. Specific Closure Procedures

Specific procedures for inventory management, unit inspection, decontamination, sampling and analysis, and additional waste management are discussed below.

##### 1. Inventory and Remedial Waste Management Procedures

Process any recoverable materials into product for sale into the secondary solvent market. All remaining bulk hazardous waste will be transferred to tanker truck and sent off-site for disposal at approved facilities. This will include all tank bottoms, distillation bottoms, and low point drainage from tanks, process system appurtenances, and pollution control devices. Waste materials will be manifested under existing approvals or if needed new approvals will be obtained through a process of sampling, analysis, and characterization at alternative TSD's.

## 2. Unit Inspection Procedures

During the closure process daily facility inspections will continue to be completed using facility forms as found in Attachment A5. Facility personnel will oversee any contractor activities that occur at the facility.

Once all waste is removed from the above ground storage tanks, the concrete tank containment system floor and containment walls will be inspected for unrepaired or uncoated cracks, gaps, or other deterioration significant enough to allow a likely migration pathway for hazardous wastes. Upon inspection, suspect areas will be marked and then identified on a facility layout for review by a structural engineer. If a determination is made confirming a migration pathway, a specific location in that area will be identified that represents the highest risk for sampling of adjacent soils. If the area is a perimeter location (walls) soil samples will be collected at the soil surface adjacent to the location. If the location is in the floor of the tank containment coring of the floor will be completed to allow for the collection of subsurface soil samples for analysis. Additional detail can be found at section 4.0 Sampling and Analysis Procedures that follows. Any identified areas will be coated, sealed, or otherwise protected prior to the area decontamination to prevent the potential of additional hazardous material release.

## 3. Decontamination Procedures

Decontamination of the tanks, equipment and product lines will be initially accomplished by purging with compressed air and/or steam, which is available at the site. This will be followed by a flush with clean solvent. It should be noted that sludge or solid build-up in the tanks will be minimal because of the cone bottom configuration of the storage tanks which allow for complete draining. After purging and solvent flush operations are complete, the tanks and lines will be visually inspected for cleanliness. If visible solid residue is observed, the process will be repeated. Contaminated solvent and/or water used in this process will be transported off-site as a hazardous waste derived fuel; this is reflected in the cost analysis.

The storage tanks, process lines, processing equipment, or pollution control device will be thoroughly power washed using an approved cleaning compound design for the hydrocarbon applications. The final rinse waters from the cleaning of the hazardous waste above ground storage tanks will be analyzed for hazardous constituents. The analytical data collected from this activity will be provided as part of the closure/partial closure reporting and certification. Additionally, the final rinse waters from the cleaning of any attached process equipment and piping will be analyzed for hazardous constituents. The analytical data collected from this activity will be provided to DEQ as part of the closure/partial closure reporting and certification.

## 4. Sampling and Analysis Procedures

To the extent possible existing approvals will be used for disposal of tank and equipment wastes. Solvent washes and related wastes will be characterized based on knowledge of the tank's last known contents and the solvent utilized for cleaning. Wastewaters generated from the final cleaning operations will be sampled and analyzed for anticipated solvent compounds. Data from these events will be used to determine appropriate disposal methods.

Likely release pathways as identified and confirmed during the containment inspection will have impacted soils or debris sampled and submitted for analysis. Analysis will include Method 8260 and 8270 to identify VOC and/or SVOC organic compounds likely to be handled by the facility.

If the affected area is part of the concrete floor of the containment a core of the concrete floor will be removed (typically by hand boring method) and the subsurface soils will be sampled for analysis.

#### 5. Additional Waste Management Procedures

It is not expected that a tank or connected device will not be able to be decontaminated. Should this condition arise, a disposal determination will be made on a case by case basis and in cooperation with a final TSDf.

#### **A11.A.5(c) Other Closure Activities**

[R 299.9504(1)(c), R 299.9508(1)(b), and R 299.9613(1) and 40 CFR §§270.14(b)(13) and 264.112(b)(5)}

When all hazardous wastes and identified tanks and related equipment have been removed from the facility a final power washing of the concrete aprons and drives will be completed. Wash water from this process will be directed to the facility blind stormwater collection basins. The washing method should be from the peripheral areas moving towards the collection basin. Waters from this process will be sampled and analyzed for contaminants. It is likely that wash waters from this final wash down will be discharged to the POTW through the facility's wastewater treatment system. However, if analysis shows otherwise the sump contents will be collected and transported to an alternate TSDf for disposal.

#### **A11.A.6 Certification of Closure**

[R 299.9613]

Within 60 days of completion of closure EQ Resource Recovery, Inc. will submit to the Director, by registered mail, a certification that the hazardous waste management unit or facility, as applicable, has been closed in accordance with the specifications in the approved closure plan. The certification will be signed by an EQ Resource Recovery, Inc. representative and by an independent registered professional engineer. Documentation supporting the independent registered engineer's certification will be furnished to the Director in accordance with R 299.9613(3), including:

1. The results of all sampling and analysis;
2. Sampling and analysis procedures;
3. A map showing the location where samples were obtained;
4. Any statistical evaluations of sampling data;
5. A summary of waste types and quantities removed from the site and the destination of these wastes; and
6. If soil has been excavated, the final depth and elevation of the excavation and a description of the fill material used.

The certificate of closure must also include the following paragraph to be located near the signature blocks for both final signatures.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to be the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

The EQ Resource Recovery, Inc. facility will maintain financial assurance for closure until the Director releases the EQ Resource Recovery, Inc. facility from the financial assurance requirements for closure under R 299.9703.

**A11.A.7 Postclosure Notices Filed**

[R 299.9504(1)(c) and R 299.9508(1)(b) and 40 CFR §270.14(b)(14)]

The applicant must provide documentation that the postclosure notices required under 40 CFR §264.119 have been filed for hazardous waste disposal units that have been closed at the facility.

**A11.B POSTCLOSURE PLAN**

[R 299.9613 and 40 CFR §264.118]

**A11.B.1 Applicability**

*(Check as appropriate)*

**Not applicable:** Hazardous waste will not be left behind at closure. A survey plat, postclosure care, postclosure certifications, and other notices are not required.

**Applicable:**

- Contingent plan  
 Landfill unit

**A11.B.2 Postclosure Care Objectives**

The EQ Resource Recovery, Inc. facility will complete the activities listed in Table A.11.B.1 in order to achieve the following:

1. Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events;
2. Operate the leachate collection and removal system until leachate is no longer detected;
3. Maintain and monitor the leak detection system in accordance with R 299.9613 and 40 CFR §§264.301(c)(3)(iv) and (4) and 264.303(c), and comply with all other applicable leak detection system requirements of this part;
4. Maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of R 299.9612 and 40 CFR, Part 264, Subpart F;
5. Prevent run-on and run-off from eroding or otherwise damaging the final cover; and

6. Protect and maintain surveyed benchmarks used in complying with R 299.9613 and 40 CFR §264.309.

**A11.B.3 Postclosure Care Period Point of Contact**

The planned monitoring and maintenance activities and the associated frequencies are designed to ensure the integrity of the cap and final cover system and the proper functioning of the monitoring system for each unit listed in Table 11.B.1. The point of contact for ensuring the performance of these activities is listed below.

Name and/or Title \_\_\_\_\_  
 Address \_\_\_\_\_  
 Telephone \_\_\_\_\_

**A11.B.4 Postclosure Care Activities**

**Table A11.B.1 Postclosure Monitoring and maintenance**

The following table identifies, for each unit requiring postclosure care, planned monitoring and maintenance activities and the frequency at which these activities will be performed.

Unit	Planned Monitoring Activities	Frequency	Planned Maintenance Activities	Frequency

**A11.B.5 Postclosure Care Plan Amendment**  
 [R 299.9613 and 40 CFR §264.118(d)]

The Postclosure Care Plan will be amended whenever:

1. Changes in the operations or facility design will affect closure and postclosure care; or
2. There is a change in the expected year of closure, if applicable; or

3. Unexpected events during closure require a modification to the plan.

**A11.B.6 Certification of Postclosure**  
[R 299.9613]

Within 60 days of completion of postclosure care EQ Resource Recovery, Inc. will submit to the Director, by registered mail, a certification that postclosure care for the hazardous waste management unit or facility, as applicable, has been completed in accordance with the specifications in the approved postclosure plan. The certification will be signed by the owner/operator of EQ Resource Recovery, Inc. and by an independent registered professional engineer. Documentation supporting the independent registered engineer's certification will be furnished to the Director in accordance with R 299.9613(5). The EQ Resource Recovery, Inc. facility will maintain financial assurance for postclosure until the Director releases the EQ Resource Recovery, Inc. facility from the financial assurance requirements for postclosure under R 299.9703 and 40 CFR §264.143(i).

The certificate of Postclosure must include the following paragraph to be located near the signature blocks for both final signatures.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to be the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."