# FORM EQP 5111 ATTACHMENT TEMPLATE A7
# CONTINGENCY PLAN

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.*

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 299.9501, R 299.9508(1)(b), R 299.9504(1)(c), R 299.9521(3)(b), R 299.9607, and Title 40 of the Code of Federal Regulations (CFR) §§264.50 through 264.56, and 270.14(b)(7), establish requirements for contingency plans 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 a contingency plan at the hazardous waste management facility for the Dow Michigan Operations Midland Plant & Salzburg Landfill in Midland, Michigan. It is recommended that Dow Michigan Operations Midland Plant & Salzburg Landfill perform annual drill exercises with the local fire department and emergency responders using the contingency plan to make sure all staff are familiar with the plan and determine whether the plan needs any updating.

*(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:

## INTRODUCTION

## A7.A BACKGROUND INFORMATION

### A7.A.1 Purpose of the Contingency Plan

[R 299.9607 and 40 CFR §§264.51 and 264.53]

This Contingency Plan has been prepared in accordance with the requirements of 40 CFR, Part 264, Subpart D, and R 299.9607. It is designed to establish the necessary planned procedures to be followed in the event of an emergency situation at the Dow Michigan Operations Midland Plant & Salzburg Landfill facilities in Midland, Michigan, such as a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil, or water.

Copies of the Contingency Plan have been provided to emergency response agencies in order to familiarize them with the facility layout, the properties of the materials handled, locations of the working areas, access routes into and within the facilities, possible evacuation routes from the facilities, and types of injuries or illness that could result from releases of materials at the facilities. See Attachment A7.1, Documentation of Arrangements with Local Authorities, which includes documentation that each of these agencies has received a copy of the Contingency Plan. Whenever the Contingency Plan is modified, the facility will provide the agencies with a copy of the modified plan.

## A7.A.2 Description of Facility Operations

The intent of 40 CFR 264, Subpart D (Contingency Plan and Emergency Procedures) of the Resource Conservation and Recovery Act (RCRA) is to ensure that facilities that treat, store, or dispose of hazardous wastes have established the necessary planned procedures to follow in the event an emergency situation should arise. The purpose of the Emergency Action Plan (EAP), Attachment A7.5, is to reduce the risk of human life loss and injury and minimize property damage during an unusual or emergency event at The Dow Chemical's (Dow's) Tertiary Pond and No. 6 Brine Pond, Midland, MI. The Tertiary Pond (T-Pond) and the No. 6 Brine Pond (Brine Pond) are classified as Dams under Part 315, The Dam Safety Program, of Act 451, as amended.

This Contingency Plan is for the Michigan Operations Midland Plant and Salzburg Landfill RCRA Facilities. This includes the following areas:

| **Name of Area** | **RCRA** | **Waste Type Handled** |
|---|---|---|
| Waste Storage Area I (1143 Building) | Container Storage | Containerized liquid wastes (e.g., flammable/combustible, corrosive) |
| 33 Building | Tank Storage | Bulk solids (e.g., incinerator ash, contaminated soils, wastewater treatment plant solids) |
| 1163 Building | Tank Storage | Bulk solids (e.g., incinerator ash, contaminated soils, wastewater treatment plant solids) |
| Tertiary Pond[1] | Secondary Wastewater Effluent | Wastewater |
| Incineration Complex | 32 Rotary Kiln | Solids, liquids & gases |
| | 32 Building Container Storage | Packaged wastes (i.e., packs and drums of solid & liquid wastes) |
| | 830 Building Container Storage | Packaged wastes (i.e., packs and drums of solid & liquid wastes) |
| | Incinerator Tank Farm Storage | Liquid wastes (e.g., flammable/combustible, corrosive) |
| | Incinerator Unloading Spots | Containerized liquid wastes (e.g., flammable/combustible, corrosive) |
| Staging Pile/Corrective Action Management Unit (CAMU) | Remediation Waste Storage | Contaminated media (e.g., soil, water, sediment) and debris |
| Closed Units under Post-Closure Care | Sludge Dewatering Facility | N/A – closed unit |

| Name of Area | RCRA | Waste Type Handled |
|---|---|---|
| Waste Management Units under Corrective Action | LEL I, II, III | N/A – closed unit |
| | Poseyville Landfill | N/A – closed unit |
| | 1925 Landfill | N/A – closed unit |
| | Wastewater Conduits | N/A – closed unit |
| | Diversion Basin | N/A – closed unit |
| | Facility SWMU | Solids, liquids & gases |
| | No. 6 Brine Pond[2] | Water |
| Salzburg Landfill | Landfill Disposal | Incinerator ash, contaminated soils and debris, and process wastes |

[1] Part 315 Dam ID No. 2676
[2] Part 315 Dam ID No. 2675

This Plan includes transportation of waste from on-site generators to the Incineration Complex, Salzburg Landfill or licensed storage areas. See attached drawings B2-010-927122 & B2-106-1374 for the locations of all waste management units covered by this plan.

On-site generators that store hazardous waste for less than 90 days have separate Contingency Plans as required by 40 CFR 265 Subparts C and D.

The Treatment, Storage and Disposal Units are operated by the Environmental Operations Department under the supervision of the Production Leader of Environmental Operations, located in 34 Building. The Waste Management Units under Corrective Action and the Closed Units under Post-Closure Care are maintained by the Environmental Remediation and Restoration Department under the Remediation Leader located in 1790 Building.

### A7.A.3 Identification of Potential Situations

The provisions of this plan will be carried out whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents, (or in the cases of the Tertiary Pond or No. 6 Brine Pond, a dam/dike failure), that could threaten human health or the environment.

## A7.B EMERGENCY COORDINATORS
[R 299.9607 and 40 CFR §§264.52 and 264.55]

### A7.B.1 Identification of Primary and Alternate Emergency Coordinators
[R 299.9607 and 40 CFR §§264.52 and 264.55]

At all times there is at least one employee, either on the facility premises or on-call and within reasonable travel distance of the facilities, with the responsibility for coordinating all emergency response measures. The list of Environmental Operations employees designated as Facility Emergency Coordinator (FEC) is contained in Attachment A7.4. This list gives all Environmental Operations persons qualified to act as the FEC. The personnel on this list work on a rotation schedule that is subject to change.

If an incident occurs at either the Michigan Operations Midland Plant or Salzburg Landfill RCRA Facility, call the Head Operator who will contact the Environmental Operations Supervisor on-call. If the incident requires that the Contingency Plan be activated, the Supervisor on-call will serve as the FEC.

| Name | Address & Home Phone | Work Phone |
|---|---|---|
| Head Operator | See FEC List (Attachment A7.4) | 989-638-1928 |

### A7.B.1(a) Site Emergency Action Organization

The Site Emergency Action Organization is available on a 24 hour continuous basis to meet site emergencies. The Site Emergency Action Organization is activated by calling 1-2-3 on any plant telephone. The Site Emergency Action Organization consists of the following individuals and groups:

- Site Emergency Manager (SEM)
- Site Emergency Representative (SER)
- Emergency Services & Security (ES&S) Team
- Incident Commander
- Environment, Health & Safety (EH&S) On-Call (Reporting)
- EH&S On-Call (Response)
- ES&S Monitoring On-Call
- ES&S Site On-Call
- Distribution Emergency Response
- Reactive Chemical Role
- Public Affairs
- Dispatch Center
- Midland Area Health Services
- Site Responsible Care Leader (RCL)

The roles and capabilities of these individuals and groups are described in the Midland Site Emergency Plan.

### A7.B.2 Qualifications of the Emergency Coordinators
[R 299.9607 and 40 CFR §264.55]

RCRA requires facility personnel to successfully complete a program of classroom or computer-based instruction or on-the-job training that teaches them to perform their duties in a way that supports the facility's compliance with the requirements of hazardous waste management. Dow's training program is directed toward personnel working in areas that may generate hazardous wastes as a result of operations or who may have direct responsibility for managing hazardous wastes.

Dow's hazardous waste training is designed to provide employees with proper waste handling and emergency procedures to enable them to perform assigned duties and functions in a safe manner. The training program includes instruction which teaches facility personnel hazardous waste management procedures (including contingency plan implementation) relevant to the position(s) in which they are employed. The training program is designed to provide knowledge so that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems, including, where applicable:

- Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;
- Key parameters for automatic waste feed cut-off systems;
- Communications or alarm systems;
- Response to fires, explosions, or releases;
- Response to groundwater contamination incidents; and
- Shutdown of operations.

### A7.B.3 Authority to Commit Resources
[R 299.9607 and 40 CFR §264.55]

The FEC role may often be filled by the facility Immediate Response Leader (IRL), Environmental Operations Supervisor on-call, EH&S On-call or other trained individuals at Dow and has the authority to commit all the resources required to implement the Contingency Plan.

## A7.C IMPLEMENTATION OF THE CONTINGENCY PLAN
[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56]

The FEC must be contacted immediately in the occurrence of any situation that may result in potential or actual threats to human health or the environment. The FEC must implement this plan whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents, (or in the cases of the Tertiary Pond or No. 6 Brine Pond, a dam/dike failure), that could threaten human health or the environment.

The following situations are provided as guidance for the conditions or circumstances under which the plan must be implemented:

A. <u>Waste Storage Area I (1143 Building and Lot)</u>

1. A fire or explosion in the containerized waste storage area.
2. Spills that could reach the Tittabawassee River.
3. An explosion that damages or destroys the facility.

4. Vapor releases which are likely to harm human health or the environment outside the facility.
5. Spills that reach the ground and are not contained.

B. 1163 Building and 33 Building

1. Fire in the tank area.
2. An explosion that damages or destroys the facility.
3. Spills which could reach the Tittabawassee River.
4. Vapor releases which are likely to harm human health or the environment outside the facility.
5. Spills that reach the ground and are not contained.

C. Tertiary Pond

1. A spill from this facility which could reach the Tittabawassee River.
2. The impoundment leaks which would be characterized by a dam/dike wall failure, or a sudden unexplained level drop.

D. Incineration Complex (includes unloading spots, tank farm, 32 Building & 830 Building Container Storage)

1. A fire or explosion in the tank farm involving one or more of the waste liquid storage tank systems containing hazardous waste that may impact human health or the environment.
2. A fire or explosion in a containerized waste storage area involving hazardous waste that may impact human health or the environment (the containerized waste storage area does not include the pack conveyer air lock into the kiln).
3. A fire or explosion at the incinerator resulting in a significant release of hazardous waste or hazardous waste constituents.
4. Spills which could reach the Tittabawassee River.
5. Spills which may create a vapor explosion hazard beyond the immediate area of the spill or involving other facilities.
6. Spills that reach the ground and are not contained.
7. Vapor releases which may harm human health or the environment outside the facility.

E. Closed Units, Waste Management Units and Staging Pile/CAMU (located in closed Diversion Basin)

1. A fire or explosion in the facility area which could threaten human health or the environment.
2. A release of hazardous waste or hazardous constituents that occurs in a location at the facility where the release:
    a. cannot be collected or contained, or
    b. has the potential to reach the Tittabawassee River.
3. No. 6 Brine Pond impoundment leak which would be characterized by a dam/dike wall failure, or a sudden unexplained level drop.

F. Waste Transfer to the Incineration Complex, Salzburg Landfill or Licensed Storage

1. A fire or explosion in the facility area which could threaten human health or the environment.
2. Spills which could reach the Tittabawassee River.

3. Spills which may create a vapor explosion hazard beyond the immediate area of the spill or involving other operations.
4. Spills that reach the ground and are not contained.
5. Vapor releases which may harm human health or the environment outside the facility.

G. Salzburg Landfill

1. A fire in the undeveloped facility area which could threaten human health or the environment.
2. A fire or explosion in the landfill cells which could threaten human health or the environment.
3. A spill of hazardous waste that occurs outside an active landfill cell area and in a location at the facility where the spill cannot be collected or contained, or has the potential to contact the perimeter runoff ditch system.
4. Significant concentrations of indicator compounds are detected in either the liner failure detection system or groundwater monitoring wells.

In any of these cases, Incident Command will establish a command post at a suitable location based on the situation for oversight of the incident and implementation of the Contingency Plan.

The Contingency Plan may be halted at any point during its implementation if it is determined that the situation is under control and no threat to human health or the environment exists. A decision to cease implementation of the Contingency Plan does not alter or affect Dow's obligation to otherwise properly manage any released hazardous waste or hazardous waste constituents.

Examples of situations that will not require implementation of the Contingency Plan are listed below (not intended to be all-inclusive):

1. Fire or explosion which occurs as part of the incineration treatment process within the rotary kiln or secondary combustion chamber (SCC) of the incinerator, which causes no damage to the facility and results in no unlicensed/unpermitted releases to the environment.
2. Minor spills that are contained within secondary containment and/or have no potential impact to human health or the environment.
3. Spills or exposures of de minimus quantities from the following activities: loading or unloading stations, failure of transfer lines, leaking valves, pump seal failures, and other normal operation or maintenance activities.

## A7.D EMERGENCY PROCEDURES

[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56]

The following general procedures have been established for implementation by facility personnel and the FEC in order to efficiently respond to the release of hazardous waste or hazardous waste constituents that could threaten human health or the environment.

A. General

Upon discovering an emergency or an imminent emergency, personnel will notify all operations and service people in the area using the area alert sirens, the intercom system, or radio communication in the event the alert sirens are disabled. The Supervisor on-call will be notified

that the emergency exists. The Dow ES&S Department will be notified that an emergency exists and resources will be dispatched to the site as necessary at the discretion of ES&S or the FEC.

Dow ES&S and the Dow Fire Department are located directly across the street from the Environmental Operations Department making the storage location of sufficient and adequate emergency equipment immediately available. The equipment available is listed in detail in Attachment A7.3 of this Contingency Plan. Given the long list of equipment, all of the testing and maintenance procedures are not listed. The procedures are available for inspection upon request.

The FEC will implement the Contingency Plan by notifying the Dow ES&S Department to call the emergency contacts and request assistance and by initiating appropriate calls to governmental agencies.

The FEC will determine that all personnel in the area are accounted for and that emergency aid is available. The FEC will then determine the identity, source, and amount of material involved and the area affected by the emergency. The FEC will then assess the impact to human health and to the environment, and direct actions to be taken as necessary to minimize the effects of the emergency and bring the situation under control as quickly as possible.

When the situation is under control, the FEC will direct containment and cleanup efforts to bring the situation to a safe conclusion.

B. Action Steps to Be Performed During Contingency Plan Implementation

The specific steps involved when implementing the Contingency Plan are:

1. Alarm or report by the person discovering an emergency to Dow ES&S and the Supervisor at the facility or on-call. *It should be noted that merely sounding the alarm does not mean that the Contingency Plan has been activated. This decision is consciously made by the FEC. The person discovering the emergency may communicate the emergency by activating a siren, or by calling on the phone or radio. Sirens are activated by using switches located throughout the facility. Phones are also located throughout the facility. Areas may have flashing lights that may be activated to keep personnel from entering the area.*
2. Dow ES&S activates internal alert system inside the site if necessary. The internal alert system can consist of blue warning lights at selected high traffic areas or site-wide communications through the alert system.
3. FEC decides if Contingency Plan implementation is necessary and directs ES&S to call contacts for assistance as needed. Contacts are listed in this plan, and include the appropriate governmental officials.
4. Further additional waste treatment, storage, or disposal activities in or at the affected area are halted until normal operations are restored.
5. If the emergency has or could impact human health or the environment outside the facility, the appropriate local government authorities and/or the designated governmental on-scene coordinator are notified.
6. FEC directs response procedures to contain the emergency.
7. If cleanup operations are necessary, FEC ensures that material is recovered, if possible, and packaged for treatment and/or disposal. If necessary, the FEC will request outside cleanup assistance from HAZWOPER-trained contract companies.

8. The FEC ensures that the emergency equipment used has been readied for re-use and that no waste that may be incompatible with the released material is treated, stored or disposed of until cleanup procedures are complete.
9. Note in the operating record, the date, time and details of the incident which required implementation of the Contingency Plan.
10. Provide written follow-up within 15 days after the incident to the Chief of the MDEQ Office of Waste Management and Radiological Protection. The report must include those items listed in 40 CFR 264.56(i).

Contingency Plan Action Steps

1. Alarm or report by person discovering emergency
2. Notify Dow ES&S by two-way radio or by dialing 636-4400 or by dialing 1-2-3 on a Dow phone
3. Notify Facility Emergency Coordinator (FEC)
4. Notify as needed:
    a) Dow Fire Department
    b) Site Emergency Manager
    c) Site Emergency Representative
    d) Dow Medical
    e) EH&S On-call
    f) Site Responsible Care Leader
    g) Remediation Leader
    h) Dow Utilities Distribution
    i) Dow Industrial Hygiene
    j) City Police & Sheriff
    k) City Fire Department
    l) MidMichigan Medical Center
    m) County Health Department
    n) City Water Department
    o) Consumers Energy
    p) County Emergency Services (Local Emergency Planning Committee (LEPC))
    q) Dam Safety Program (517) 284-5567 8am to 5 pm, other hrs PEAS (800) 292-4706 for Tertiary or No. 6 Brine Pond Dam/Dike failures
5. Determine need to implement Contingency Plan (contact the RCRA Subject Matter Expert, if needed)
6. Initiate contact with governmental agencies. Immediate notification is required for fire or explosion at the kiln or greater than de minimus spills, whether or not the Contingency Plan is implemented (during normal business hours to MDEQ-OWMRP Chief, otherwise PEAS)
7. Manage any steps to eliminate the emergency
8. Manage cleanup of the area and equipment
9. Note date, time and details in Operating Record
10. Provide written follow-up within 15 days to MDEQ.

C. Tertiary Pond or No. 6 Brine Pond Impoundment Leakage (40 CFR 264.227)

The impoundment will be removed from service should the level suddenly drop unexpectedly or when a leak in the dike occurs which could adversely affect human health and the environment, which cannot be repaired while the impoundment is still in service. In this case, the following procedures will be implemented:

1. Inflow to the impoundment will be stopped immediately and the treated wastewater will be discharged in accordance with the provisions of the NPDES Discharge Permit MI #0000868.
2. Leakage will be collected by implementing one or more of the following:
    a. Spreading a suitable absorbent on the leakage.
    b. Constructing a temporary dike from appropriate material upstream or downstream of the direction of flow.
    c. Constructing an intercept trench downstream of the direction of flow and installing a pump for transferring the leakage.
    d. Constructing a plastic lined pit to intercept and temporarily collect the leakage.

    Any leakage collected during the above operations will either be placed into tanks or containers for further treatment or disposal, or will be returned into the impoundment.
3. Once the leak is under control, additional measures will be taken as necessary to repair the dike or impoundment. One or more of the following will be implemented:
    a. Install additional clay and/or plastic film over the suspect area (this may be possible without completely removing the impoundment from service).
    b. Install a grout curtain into the suspect area by using well or access borings.
    c. Construct a temporary dike inside or outside of the impoundment in the trouble area.
    d. Construct a cofferdam using an earthen dam approach or by driving sheet piling inside the impoundment around the trouble area to allow repairs to be made on the dike itself.
    e. Other repair solution(s) approved by the Dam Safety department of the MDEQ's Water Resources Division.
4. If a leak cannot be stopped by any other means, the impoundment will be emptied as needed.

    The MDEQ will be notified of the leak within seven days.
5. In the event that the impoundment has been removed from service because of actual or imminent dike failure, the repaired portion will be re-certified by a qualified engineer as meeting the approved specifications in the facility permit. This re-certification will be performed internally by a qualified Dow engineer or through an outside service that would provide a qualified engineer.
    a. In the event that a sudden unexplained drop in the Tertiary Pond Impoundment liquid level has occurred and it has been necessary to remove the facility from service, procedures will be undertaken to install a liner in accordance with 40 CFR 264.221(a) or 264.222.
6. In addition, prior to resuming operations in the affected area(s), Dow will ensure that the proper cleanup procedures have been implemented and all emergency equipment has been cleaned and is fit for re-use.
7. The specific procedures for leaks or breaches of the dams/dikes are contained in Attachment A7.5 – Part 315 Dam Safety Emergency Action Plan.

**A7.D.1 Immediate Notification Procedures for Facility Personnel and State and Local Agencies with Designated Response Roles**
[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56]

1. Internal Contacts

The FEC or his/her designee calls Dow ES&S, 636-4400, to initiate contact with any of the following applicable departments, as necessary. Dow EH&S On-call person is responsible to contact the people filling the following roles as needed. Dow ES&S has the current contact numbers for these people. In some cases, a group pager is activated which contacts multiple people with one call.

- Dow Fire Department, if applicable
- EH&S On-Call person, if applicable
- Site Emergency Manager, if applicable
- Utilities Distribution, if applicable
- Site Responsible Care Leader, if applicable
- Remediation Leader, if applicable
- Dow Medical Department, if applicable
- Delivery Leader/Specialist, if applicable

2. External Contacts

The EH&S On-Call person, or his/her designee (FEC), may contact the following, as needed:

- Michigan Department of Environmental Quality (PEAS) - 800-292-4706
- EPA National Response Center (NRC) - 800-424-8802
- U.S. Coast Guard, Detroit - 313-568-9470
- U.S. Environmental Protection Agency - 313-676-6500
- MDEQ-OWMRP, Chief, Lansing – 517-284-6551
- MDEQ-OWMRP, District Office – 989-894-6200
- MDEQ Dam Safety Program 8am to 5pm 517-284-5567, after hours call PEAS

When notifying state, local, and if necessary, federal authorities, the following information will be provided:

- Caller's name and telephone number
- Name and address of facility
- Facility EPA Identification Number
- Time and type of incident (e.g., release, fire)
- Name and quantity of material(s) involved, to extent known
- The extent of injuries, if any
- The possible hazards to human health, or the environment, outside the facility.
- Weather conditions (wind direction and speed), if a vapor is involved
- The approximate area of affected location

Dow ES&S may call the following, if appropriate:

- Midland City Police Department - 911
- Midland County Sheriff Department - 911
- Michigan State Police, Tri-City Post No. 31 - 989-495-5555
- Mid-Michigan Medical Center - 989-839-3100 (Emergency Dept)
- Midland City Utilities Department (Water Emergencies) - 989-837-3515
- Midland City Utilities Department (Sewer Emergencies) – 989-837-3500

- Midland County Emergency Services (LEPC) - 989-832-6750
- Midland City Fire Department - 911
- Midland County Health Department - 989-832-6380
- Consumers Energy - 800-477-5050

### A7.D.2 Procedures to Be Used for Identification of Releases

[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56]

The FEC will identify the character, source, amount and extent of any released hazardous waste or hazardous waste constituents. The amount may be estimated based on the capacity of the particular source and the last inventory for that source. Unit inventories, receipts (i.e., bill of lading or uniform hazardous waste manifest), the waste characterization on file, operating logs, engineering drawings, or the waste generator may be used to identify the hazardous waste or hazardous waste constituents involved.

### A7.D.3 Procedures to Be Used to Assess Potential Hazards to Human Health and the Environment

[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56]

The emergency coordinator will assess possible hazards, both direct and indirect, to human health or the environment that may result from a release, fire, or explosion.

The FEC may use the waste characterization information, information on health effects of the chemical(s) involved, information on environmental impacts of the chemical(s) involved, input from Expertise Centers (e.g., Reactive Chemicals, Industrial Hygiene, EH&S On-call, etc.), the expected duration of the emergency, and meteorological information to assess the impact of the emergency. Action will be taken, based on this assessment, to contain and mitigate the potential impact of the emergency. Additional action may be taken, as deemed necessary, to evacuate downwind areas or notify outside agencies of such other actions as may be necessary to protect human health and the environment.

The assessment will consider the effects of any gases that may be generated, surface runoff from water or chemical reagents used to control fires, and any chemical or physical reactions with equipment or structures.

### A7.D.4 Procedures to Determine if Evacuation Is Necessary and Immediate Notification of Michigan Pollution Emergency Alerting System and the National Response Center

[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56]

If the FEC's assessment indicates that evacuation of facility areas may be advisable, he will implement the evacuation plan for the facility. The facilities employ a siren system that rises and falls in pitch continuously to initiate evacuation. In addition to the alarm, a two-way radio system is used to notify key plant personnel of the nature of the emergency and recommended plan of action. If the FEC determines that the event could also impact areas outside the facility they will make the appropriate notifications as described in Section A7.F, Procedures for Assessing Offsite Risk During and After a Fire/Explosion Incident or Significant Release, below.

The facility's evacuation plan is included in this Contingency Plan as Attachment A7.2.

## A7.D.5 Procedures to Be Used to Ensure that Fires, Explosions, and Releases Do Not Occur, Reoccur, or Spread During the Emergency

[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56(e), 264.227, and 264.200]

Whenever there is an imminent or actual emergency situation where the potential or actual release of hazardous waste or hazardous waste constituents may threaten human health or the environment, the facility will implement the following procedures:

1. Fire/Explosions

In the event of a fire or explosion, the fire will first be contained to prevent spreading and then extinguished. Initial response will be conducted by facility personnel only if safe to do so. Any additional response will be conducted by ES&S. Containment of the fire will be accomplished by identifying the potential spread pathways such as connecting pipelines or electrical traceways. Any valving in pipes or conduits containing potentially ignitable wastes or materials will be closed and isolated if possible. In addition, these areas, the electrical traceways and the areas downwind, may be blanketed with fire fighting foam or other fire suppression materials to deprive the ignition source of oxygen and to keep any potentially ignitable materials at temperatures well below the auto-ignition temperatures.

Also, should it appear that neighboring containers or tanks containing potentially ignitable materials could be impacted, and if considered to be an appropriate, safe action in the opinion of the Dow Fire Chief, the containers or the contents of the containers or tanks may be temporarily moved to an alternate location.

In the event of an explosion with secondary fires, the fires will be contained and extinguished, and the area contaminated by debris from the explosion will be barricaded and traffic restricted until the debris is collected and the area decontaminated.

If the Dow Fire Chief determines that additional firefighting resources are needed they will contact the City of Midland Fire Department as described in Attachment A7.1: Documentation of Arrangements with Local Authorities.

2. Spills/Material Releases

These emergencies that require implementation of the Contingency Plan will be controlled by erecting barricades, then intercepting and collecting the spilled material to minimize the affected area.

A spill from a tank, portable container or pack will be contained by spreading appropriate material to contain the spill and prevent spreading. The appropriate absorbent for the waste may be determined by consulting the waste characterization for that material. The liquid portion of the spilled material will then be collected into tanks or available containers. The solid portion will be collected in containers.

In the event of a release of material which creates a vapor explosion hazard or which is likely to cause odor complaints from outside the facility, the spill will be contained and blanketed with foam or liquid, or otherwise managed, to minimize the evolution of flammable vapors or odors.

3. Large Rain Events

Stormwater-related emergencies that require implementation of the Contingency Plan will be controlled by monitoring of the facility rain gauges, the proactive staging and use of portable pumps for storm water/leachate management, and having employees or on-call contractors available to respond in a timely manner to mitigate the event.

An imminent release of storm water/leachate from an active landfill cell will be contained by plugging any affected outfalls to contain the release and prevent spreading. The liquid portion of the released storm water/leachate will then be collected into tanks or available containers or pumped into the Michigan Operations Salzburg Landfill sewer system and treated in the Midland Plant's NPDES-permitted wastewater treatment facilities. The solid portion will be collected in containers and appropriately managed.

During an emergency, the FEC must take all reasonable measures necessary to ensure that fires, explosions, or releases do not recur or spread to other areas of the facility, or off site. Actions that may be employed are described above. Where applicable, these procedures include stopping processes and operations.

Before normal operational activities are resumed under these circumstances, the FEC, in consultation with any other appropriate facility supervision, fire, safety or loss prevention personnel, will inspect the area to assure that the potential of the incident recurring has been minimized.

Attachment A7.3 is a detailed description of the type, amount, and location of all emergency equipment at the Michigan Operations Midland Plant and Salzburg Landfill facilities.

### A7.D.6 Procedures to Be Used to Monitor Equipment Should Facility Operations Cease

[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56(f)]

Dow will monitor for leaks, pressure buildup, gas generation or ruptures using handheld and/or computer-based monitoring if operations at the facility are stopped in response to a fire, release or explosion. Any monitoring will only be performed if it is appropriate and can be done safely.

### A7.D.7 Procedures to Provide Proper Treatment, Storage, and Disposal for Any Released Materials

[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56(g)]

The liquid portion of any spill will be collected into tanks or containers. The solid portion will be collected in containers. If a spill is from a pack, an overpack container may be used and the overpack container will be handled appropriately depending on the waste (e.g., incineration, etc.). Any collected spill materials will be properly managed in accordance with operating license requirements.

### A7.D.8 Procedures for Cleanup and Decontamination

[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56(h)]

Liquid wastes falling within contained areas will be collected using vacuum trucks or by pumping into tanks or containers and managed appropriately. Water runoff from fire fighting or spill

situations which are relatively clean and which would normally be allowed to be diverted away from the facility will be allowed to flow into the Michigan Operations Midland Plant's sewer system and treated in the plant's NPDES-permitted wastewater treatment facilities.

Spills, leaks, or water run-off from fire fighting activities containing significant amounts of organic liquids and which cannot be positively controlled using existing structures (such as diking systems) or other equipment, will be controlled and cleaned up. Cleanup materials from any release, fire or explosion shall be characterized, stored and treated within the facility following the normal procedures for these activities.

Solid waste material is evaluated under Land Disposal Restrictions and either put into the Salzburg Landfill or placed into containers for further treatment and/or disposal. Metal resulting from demolition required as a result of emergency situation will be cleaned and recycled as scrap metal.

Water used to wash emergency equipment will be collected in the Michigan Operations Midland Plant's sewer system and treated in the plant's NPDES – permitted wastewater treatment facilities.

## A7.E NOTIFICATION AND RECORD KEEPING REQUIREMENTS
[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56(i)

The following subsections identify procedures that must be followed to meet the notification and record keeping requirements.

### A7.E.1 Procedures to Be Used Prior to Resuming Operations
[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56]

Prior to resuming operations in the affected area(s), Dow will ensure that the proper cleanup procedures have been implemented and all emergency equipment has been cleaned and is fit for re-use.

### A7.E.2 Record Keeping Requirements
[R 299.9607 and 40 CFR §§264.51, 264.52, and 264.56(i)]

### A7.E.2(a) Operating Record

In the event of an emergency situation that requires implementation of the Contingency Plan, the FEC or their designee will record in the operating record the time, date, and description of the event. The operating record is maintained by Environmental Operations and can be found at the following location: Dow Chemical, Michigan Operations, 34 Building, Midland, Michigan 48667.

### A7.E(2)(b) Written Incident Report

As required by 40 CFR 264.56(i), any emergency event that requires implementing the plan is reported, in writing, within fifteen (15) days to the Chief of the DEQ-OWMRP. The report will include:

- Name, address and telephone number of owner/operator;
- Name, address, telephone number and site identification number of facility;
- Date, time and type of incident;

- Name and quantities of material(s) involved;
- Extent of injuries, if any;
- An assessment of actual or potential hazards to human health or the environment, where applicable; and
- Estimated quantity and disposition of recovered material that resulted from the incident.

Reports will be sent to:

- Chief, MDEQ-OWMRP, P.O. Box 30241 Lansing, MI 48909

In addition, if a Dam is involved:

- Dam Safety Engineer, Water Resources Division
  Michigan Department of Environmental Quality
  2100 West M-32
  Gaylord, MI 49735

## A7.F PROCEDURE FOR ASSESSING OFFSITE RISK DURING AND AFTER A FIRE/EXPLOSION INCIDENT OR SIGNIFICANT RELEASE

[R 299.9521(3)(b) and R 299.9607 and 40 CFR §264.56(d)]

If at any time during or after a release, fire, or explosion, the FEC determines that the situation could threaten human health or the environment outside the facility, they will report the findings as follows:

- If the FEC's assessment indicates that evacuation of local areas may be advisable, they will immediately notify the appropriate local authorities. The FEC will be available to help local officials decide if evacuation is necessary, and
- The FEC will immediately notify either the government official designated as the on-scene coordinator for this geographical area or the National Response Center (800-424-8802) and the following information will be provided:
    1. The name and telephone number of the person who is reporting the incident.
    2. The name, address, telephone number, and site identification number of the facility.
    3. The name, address, and telephone number of the owner or operator.
    4. The date, time, and type of incident.
    5. The name and quantity of the material or materials involved and released.
    6. The extent of injuries, if any.
    7. The estimated quantity and disposition of recovered material that resulted from the incident, if any.
    8. An assessment of actual or potential hazards to human health or the environment.
    9. The immediate response action taken.

In addition, Dow will cooperate with DEQ staff in addressing the requirements of Office of Waste Management and Radiological Protection Policy and Procedure Number OWMRP-111-25 on Off-Site Corrective Action Procedures During and After Fire and/or Explosion Incidents at Hazardous Waste Management Facilities Licensed under Part 111 of the NREPA in the event that a significant Contingency Plan event resulting in the need for off-site corrective action procedures should occur.

## A7.G PROCEDURES FOR REVIEWING AND AMENDING THE CONTINGENCY PLAN
[R 299.9607 and 40 CFR §264.54]

The plan is reviewed and amended, if necessary, whenever:

1. The facility operating license is revised;
2. The plan fails in an emergency;
3. The facility changes in its design, construction, operation, maintenance or other circumstances in a way that materially increases the potential for fires, explosions or releases of hazardous waste or hazardous waste constituents;
4. Changes in response are necessary for an emergency situation;
5. The list of emergency coordinators changes; or
6. The list of emergency equipment changes.

**Attachment A7.1**: Documentation of Arrangements with Local Authorities

Copies of the Contingency Plan are issued via certified mail to:

Director of Emergency Services
Midland County Department of
Emergency Services
220 W. Ellsworth Street
Midland, MI 48640

Chief of Fire Department
City of Midland
816 E. Haley Street
Midland, MI 48640

MDEQ-OWMRP
Saginaw Bay District Office
401 Ketchum Street, Suite B
Bay City, MI 48708

Medical Director
Midland County Health Department
220 W. Ellsworth Street
Midland, MI 48640

Chief
MDEQ-OWMRP
Constitution Hall
525 West Allegan Street
P.O. Box 30473
Lansing, MI 48909

Dam Safety Engineer
Water Resources Division
Michigan Department of Environmental
Quality
2100 West M-32
Gaylord, MI 49735

Copies of certified-letter receipts from the local emergency support agencies are available upon request indicating receipt and acceptance of Dow's Contingency Plan.

B. Police Support

In an emergency involving this facility, Dow could request the support of local, county, or state police in the event that:

1. The emergency has the potential to impact the local community and evacuation of such potentially affected areas was necessary.

2. Numerous people gather at critical locations on the perimeter of Dow's facility and could be potentially in danger or pose a danger by restricting access to the facility for crucial response equipment, supplies, or personnel.

3. Specialized equipment materials or supplies are needed onsite and special route clearances or traffic control are required to expedite delivery of such materials, equipment, or supplies. In this case, police and sheriff departments will provide off site evacuation of affected portions of the community, barricading, traffic control, and/or possible escort for emergency activities.

C. Medical Support

Dow Chemical Michigan Operations has a full time medical staff including full time physicians, Emergency Medical Technicians (EMTs), and a trained nursing staff. Nurses, EMTs, and physicians are onsite or available on-call for emergencies 24 hours per day, 7 days per week.

In general, the Dow Medical Department will evaluate all injuries to personnel and visitors in Michigan Operations. Acute chemical exposures and minor (non-fractures or vital organ penetrating) cases can be treated in-house. Severe injuries or occupational illnesses that require

hospitalization or treatment by specialists are treated and transported to the MidMichigan Medical Center (MMMC).

Dow staff physicians are also full-time members of the Midland Hospital staff and have admitting privileges to the MMMC. In addition, the Dow Medical Department participates in training Dow EMTs, the Midland County Paramedics, and the Family Practice Residents in the MMMC.

Also, during practice emergency exercises, the Dow Medical staff coordinates closely with the MMMC to monitor and treat injuries or exposures.

Finally, should evacuation of the Dow Medical Facility be necessary, the staff would regroup and continue to coordinate medical support activities from the MMMC.

D. Medical Emergency Vehicles

The Michigan Operations, Midland location has two ambulances for transporting injured people to the Dow Medical Department or the MMMC. In addition, Midland County has paramedics and the MMMC has ambulances on call as needed.

E. Outside Fire Fighting Support

The Dow Fire Department is equipped and trained to handle all types of fires related to the operations including the facilities covered by this plan. Outside fire support, such as the Midland Fire Department, would be called upon only under circumstances where the Dow Fire Chief feels further fire fighting support is necessary and such outside fire departments are appropriately trained and equipped. Such situations could include fires that have or could spread to additional facilities within Michigan Operations, or fires that have or could spread to areas outside Dow property. In all cases, the decision by the Dow Fire Chief to call in outside fire fighting support would depend upon the nature of the fire and the Dow Fire Chief's knowledge of the capabilities and limitations of such other fire departments.

During practice emergency exercises, the Dow Fire Department works closely with the City of Midland Fire Department to monitor and evaluate fire fighting resources and responses to the practice emergency.

F. Procedures to Familiarize Local Outside Agencies with Contingency Plan

Any time the plan has been revised, Dow will re-issue a copy of the Contingency Plan to all local authorities listed in Item A, above.

Due to the complexity of the Michigan Operations site, local authorities are always escorted while on site. The escort provides information on a case-by-case basis. This information includes facility layout and chemical properties of involved materials (including hazardous waste properties). The escort determines a safe route to the involved site and escorts authorities along evacuation routes, if necessary.

**Attachment A7.2**: Evacuation Plan and Routes

## Evacuation Plans

A. General Procedures

In the event of a major emergency, it may be necessary to evacuate a portion of the surrounding facility area. The FEC, or Dow ES&S in his/her absence, is responsible for determining when an evacuation is necessary.

In the event a facility evacuation is called for, the following actions will be taken:

- The signal for facility evacuation will be activated.
- The guards will immediately open the gates. No further entry of visitors, contractors, or vehicles will be permitted unless they are involved in emergency response.
- All non-essential personnel, visitors, and contractors will immediately leave through the nearest exit gate that is not downwind of a release.
- No persons shall remain at or re-enter the location unless serving as the emergency response team. This will normally include only Fire Department personnel, Dow ES&S, emergency teams, and the FEC.
- All persons will be accounted for by their facility supervisors. Supervisors pre-designate gates as the safest exits for employees and also alternate exits if the first choice is inaccessible.
- Any attempts to locate persons not accounted for could involve endangering lives of others by re-entry into emergency areas unless the hazards are known and proper protective equipment is worn. Therefore, re-entry will generally only be performed by trained Emergency Response personnel.
- Re-entry into the evacuated area will be made only after clearance is given by the FEC. At his/her direction, a signal or other notification (i.e., all clear) will be given for re-entry into the facility.

Drills are held to practice all of these procedures.

B. Waste Storage Area I (1143 Building)

Persons present in the storage unit have two-way radios that may be used to initiate an emergency response. Persons at the facility may use the nearby incinerator siren system that rises and falls in pitch continuously to initiate evacuation of all facility areas. In addition to the alarm, the internal telephone system is used to notify key plant personnel as to the nature of the emergency and recommended plan of action. Facility evacuations may be initiated by a FEC or Dow ES&S using Michigan Operations' alert system.

C. 1163 Building and 33 Building

These units employ a two-way radio system to initiate evacuation of the area. The radio may be used to notify key plant personnel as to the nature of the emergency and recommended plan of action. Facility evacuations may be initiated by a FEC or Dow ES&S using Michigan Operations' alert system.

D. Tertiary Pond

A two-way radio system is used to initiate evacuation of the area. The radio may be used to notify key plant personnel as to the nature of the emergency and recommended plan of action. Facility evacuations may be initiated by a FEC or Dow ES&S using Michigan Operations' alert system.

E. 34 Building, 1078 Building and 1561 Trailer

These buildings employ a siren system that rises and falls in pitch continuously to initiate evacuation of all areas. In addition to the alarm, the internal telephone system and two-way radio system is used to notify key personnel as to the nature of the emergency and recommended plan of action. Facility evacuations may be initiated by a FEC or Dow ES&S using Michigan Operations' alert system.

F. Incineration Complex (including 830 Building Container Storage and Unloading Spots)

The unit employs a siren system that rises and falls in pitch continuously to initiate evacuation of all plant areas. In addition to the alarm, the internal telephone system is used to notify key plant personnel as to the nature of the emergency and recommended plan of action. Facility evacuations may be initiated by a FEC or Dow ES&S using Michigan Operations' alert system.

G. Closed Units, Waste Management Units and Staging Pile/CAMU (located on closed Diversion Basin)

A two-way radio system is used to initiate evacuation of the area. The radio may be used to notify key plant personnel as to the nature of the emergency and recommended plan of action. Facility evacuations may be initiated by a FEC or Dow ES&S.

H. Salzburg Landfill

The unit employs a siren system that rises and falls in pitch continuously to initiate evacuation of all areas. In addition to the alarm, the internal telephone system and two-way radio system is used to notify key personnel as to the nature of the emergency and recommended plan of action. Facility evacuations may be initiated by a FEC or Dow ES&S using Michigan Operations' alert system.

**Evacuation Routes** (See Michigan Operations Map below)

1. Waste Storage Area I

| Evacuate | Assemble |
|---|---|
| To 1078 Bldg. or 34 Bldg. | 1078 or 34 Bldg. Control Room |
| Through 23 (Contractor) Gate[1] * | 123 Bldg.** |
| Through Washington Street Gate or Buttles Street Gate * | Outside gate** |
| Through 53 Gate * | South side of T-Pond** |
| Through 20 Gate * | 1108 Bldg. at south end of bridge** |

2. 1163 Building and 33 Building

| Evacuate | Assemble |
|---|---|
| To 1078 Bldg. or 34 Bldg. | 1078 or 34 Bldg. Control Room |
| Through 23 (Contractor) Gate[1] * | 123 Bldg** |
| Through Washington Street Gate or Buttles Street Gate * | Outside gate** |
| Through 53 Gate * | South side of T-Pond** |
| Through 20 Gate * | 1108 Bldg at south end of bridge** |

3. Tertiary Pond

| Evacuate | Assemble |
|---|---|
| To 1108 Building | South Side of Bridge |
| To 1078 Bldg. or 34 Bldg. | 1078 or 34 Bldg. Control Room |
| Through Washington Street Gate or Buttles Street Gate * | Outside the gate ** |
| Through 53 Gate if appropriate * | Outside the gate ** |

4. Incineration Complex

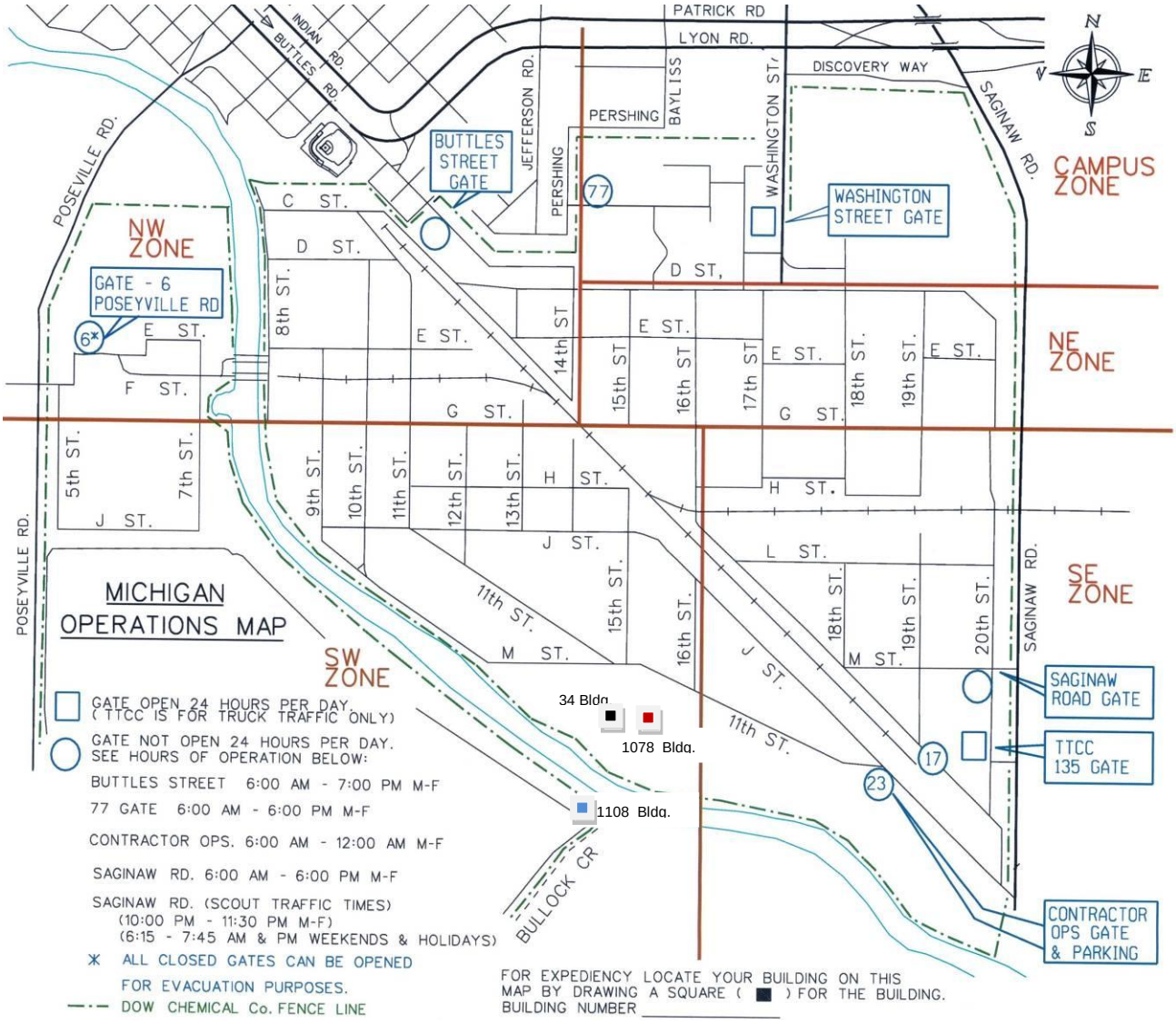
| Evacuate | Assemble |
|---|---|
| To 1078 Bldg. or 34 Bldg. | 1078 or 34 Bldg. Control Room |
| Through 23 (Contractor) Gate[1] * | 123 Bldg. |
| Through Washington Street Gate or Buttles Street Gate * | Outside gate** |
| Through 20 Gate * | 1108 Bldg. at south end of bridge |

5. 34, 1078 and 1561 Buildings

| Evacuate | Assemble |
|---|---|
| Through 23 (Contractor) Gate[1] | 123 Bldg. |
| Through Washington Street Gate or Buttles Street Gate | Outside gate** |
| Through 53 Gate | Outside gate** |
| Through 20 Gate | 1108 Bldg. at south end of bridge** |

6. Closed Units, Waste Management Units and Staging Pile/CAMU

| Evacuate | Assemble |
|---|---|
| To 1078 Bldg. or 34 Bldg. | 1078 or 34 Bldg. Control Room |
| Through 23 (Contractor) Gate[1] * | 123 Bldg** |
| Through Washington Street Gate or Buttles Street Gate * | Outside gate** |
| Through 53 Gate * | South side of T-Pond** |
| Through 20 Gate * | 1108 Bldg at south end of bridge** |


PATRICK RD
LYON RD.
INDIAN RD.
BUTTLES RD.
POSEVILLE RD.
JEFFERSON RD.
PERSHING
BAYLISS
DISCOVERY WAY
WASHINGTON ST.
SAGINAW RD.
BUTTLES STREET GATE
WASHINGTON STREET GATE
CAMPUS ZONE
NW ZONE
NE ZONE
SE ZONE
SW ZONE
GATE - 6 POSEYVILLE RD
C ST.
D ST.
E ST.
F ST.
G ST.
H ST.
J ST.
L ST.
M ST.
8th ST.
9th ST.
10th ST.
11th ST.
12th ST.
13th ST.
14th ST
15th ST
16th ST
17th ST
18th ST.
19th ST.
20th ST.
5th ST.
7th ST.
MICHIGAN OPERATIONS MAP
GATE OPEN 24 HOURS PER DAY. ( TTCC IS FOR TRUCK TRAFFIC ONLY)
GATE NOT OPEN 24 HOURS PER DAY. SEE HOURS OF OPERATION BELOW:
BUTTLES STREET 6:00 AM - 7:00 PM M-F
77 GATE 6:00 AM - 6:00 PM M-F
CONTRACTOR OPS. 6:00 AM - 12:00 AM M-F
SAGINAW RD. 6:00 AM - 6:00 PM M-F
SAGINAW RD. (SCOUT TRAFFIC TIMES)
(10:00 PM - 11:30 PM M-F)
(6:15 - 7:45 AM & PM WEEKENDS & HOLIDAYS)
ALL CLOSED GATES CAN BE OPENED FOR EVACUATION PURPOSES.
DOW CHEMICAL Co. FENCE LINE
34 Bldg.
1078 Bldg.
1108 Bldg.
BULLOCK CR
SAGINAW ROAD GATE
TTCC 135 GATE
CONTRACTOR OPS GATE & PARKING
FOR EXPEDIENCY LOCATE YOUR BUILDING ON THIS MAP BY DRAWING A SQUARE ( ■ ) FOR THE BUILDING.
BUILDING NUMBER _____
N
E
S
W
77
6
17
23

7. Salzburg Landfill (See attached drawing B2-106-1374)

| Evacuate | Assemble |
|---|---|
| Through #90 Gate<br>1. Main entrance to facility (Salzburg Rd North of 3600 bldg.) | Primary - Across Salzburg Rd, North of #90 Gate**<br><br>Alternate – Corner of Salzburg Rd & Waldo Ave.** |
| Through #91 Gate<br>2. East of #90 Gate on Salzburg Rd. (NNE of 3600 bldg.) | |
| Through #92 Gate<br>3. Corner of Salzburg Rd. & Waldo Ave. (ENE of 3600 bldg.) | |
| Through #93 Gate<br>4. On Waldo Ave, South of #92 Gate and West of #96 Gate (ESE of 3600 bldg.) | |
| Through #96 Gate<br>5. On Waldo Ave., South of #92 Gate and Eat of #93 Gate (ESE of 3600 bldg.) | |
| Through #78 Gate<br>6. On CSX railroad tracks West of #96 Gate (SE of 3600 bldg.) | |
| Through #84 Gate<br>7. On CSX railroad tracks Southwest of #90 Gate (SE of 3600 bldg.) | |
| Bulldozer or other vehicle through the perimeter fence<br>8. This is an alternate exit from the site | |

* If evacuation to 1078 or 34 Building is not possible
** Contact supervision or Immediate Response Leader via radio for accountability.
[1] Gate can be remotely opened by contacting Security using two way radios or by phone (636-4400).

**Attachment A7.3**: Emergency Equipment Description

**Attachment A7.3**: Emergency Equipment Description

A. Emergency Equipment

This Attachment describes the emergency equipment available for use for an environmental emergency in Michigan Operations and Salzburg Landfill RCRA facilities.

B. Post Emergency Equipment Maintenance Program

1. Fire Department Emergency Equipment

   Equipment listed in this Attachment, which is located at the Dow Fire Department, or is described as being part of the Emergency Equipment Truck equipment, is maintained, inspected, and cleaned by the Dow Fire Department. In accordance with requirements and exemptions specifically provided for fire departments, documented post-emergency equipment maintenance logs are not required.

   Such equipment is maintained in operating condition at all times in order to provide immediate emergency support to the facilities covered under this plan and other operating areas within Michigan Operations.

2. Road and Yard Service

   Any equipment used for emergency response at this facility, which is obtained from either Road and Yard Service or Michigan Operations' Stock Department, is equipment which may also be used for other work in Michigan Operations or Salzburg Landfill. Prior to returning such equipment the facility supervisor will insure that:

   a. All rolling equipment is visibly clean of any residue resulting from the emergency.
   b. All hand-tools, pumps, hoses, and other small equipment have been rinsed clean with a suitable solvent or other cleanser (e.g. soil washed off with general detergent, etc).
   c. All monitoring equipment is wiped clean.
   d. All personal protective equipment which can be re-used is washed and sanitized (where appropriate) with a sterile solution. Where self-contained breathing apparatus has been used during the emergency, the facility supervisor will be responsible to insure that spent air bottles are refilled. The facility supervisor will be responsible for arranging for the repair or replacement of any equipment that has been damaged during the emergency.
   e. Supplies and materials obtained from the Road and Yard Services Department and which is used up during the emergency will be restocked by the department who maintains this inventory.

3. Environmental Operations Emergency Equipment

   Equipment located in Environmental Operations areas will be replaced or washed until visibly cleaned after use and returned to the appropriate storage location designated in this Attachment.

4. Local Contractor Equipment and Personnel Support

   Local heavy civil contractors can provide heavy construction equipment and materials for emergency repairs for the T-Pond and the No. 6 Brine Pond as required. The contractor's 24-hr contact phone numbers are maintained by Dow ES&S.

# Salzburg Landfill – On-Site Equipment

| ITEM | LOCATION | DESCRIPTION AND USE |
|---|---|---|
| Fire extinguishers | 3600 Bldg, 3601 Bldg, 1563 Trailer, 3602 Building, 3606 Building | Extinguish incidental fires by trained and authorized personnel |
| Spill kits | 3606 Building | Contain small liquid spills |
| Bulldozers | Active cells | Contain and manage volumes of solids and diking materials |
| Front end loader | Active cells | Contain and manage volumes of solids and diking materials |
| Sand pile | Landfill facility | Diking material |
| Personnel shower | 3600 Building | Decontamination |
| Truck wash | Facility entrance | Decontamination |
| Emergency telephones | 3600 Building, 3602 Building | Communication |
| Two-way radios | 3600 Building, on the bulldozer | Communication |
| Alarms – audible | 3600 Building, 34 Control Room | Emergency alarms |
| Alarms – pull stations | 3600 Building, 3602 Building | Emergency alarms |

# Earthwork, Demolition and Excavation Equipment

| ITEM | LOCATION | DESCRIPTION AND USE |
|---|---|---|
| Komatsu | Site Services<br>921 Building | Four wheeled all terrain vehicle with ½ cubic yard (cu. yd.) bucket for digging trenches and general excavation |
| Bulldozer | Site Services<br>921 Building | Dual tracked vehicle with front blade for grading soil and fill. D-6 in Salzburg LF. |
| Front end loaders | Site Services<br>921 Building<br>Utilities Dept.<br>593 Building | Four wheeled vehicle with 1.75-4 cu. yd. overhead loaders bucket for filling trucks and short-distance hauling of material. |
| Road grader | Site Services<br>921 Building | Four-wheel all-terrain vehicle with scraping blade for grading soil and fill. |

# Fire Fighting Equipment

| ITEM | LOCATION | DESCRIPTION AND USE |
|---|---|---|
| Unit 416 2007 Rosenbauer International | Dow Fire Department 1100 Building | Fire-fighting truck with a foam fire suppression system for fires involving organic liquid or polar solvents. It is equipped with a 1,250 gallon per minute Hale fire pump with a 500 gallon water tank. |
| Foam 1 2012 International with a 1,500 gallon per minute Hale fire pump. | Dow Fire Department 1100 Building | Fire fighting truck with a foam fire suppression system for organic liquid or polar solvent fires. This vehicle has a Foam Pro Servo-Command foam system with a 1,000 gallon foam tank filled with Universal Gold Foam. |
| 20 pound dry chemical fire extinguisher (and other various sizes) | Emergency Equipment Truck 1100 Building | For small Type B and C fires |
| 500 gal. of AFFF-Universal Foam | 1097 Building | Fire fighting foam for organic liquids and polar solvent fires |
| Fireman's ax | Emergency Equipment Truck 1100 Building | For use in emergency entrance to blocked areas in a building |

## Solid and Liquid Transportation Equipment

| ITEM | LOCATION | DESCRIPTION AND USE |
|---|---|---|
| Water tanker | Site Services 922 Building | 3000 gal. truck for hauling mildly corrosive brines and water |
| Dump trucks | Site Services 921 Building | 10 and 15 cu. yd. capacity trucks for transporting solid materials |
| Pumper truck (IME) | Site Services 921 Building | Vacuum truck for liquids |

Contractors may also provide a variety of solid and liquid hauling trucks, and other construction equipment, as needed.

## Portable Power Sources and Lighting

| ITEM | LOCATION | DESCRIPTION AND USE |
|---|---|---|
| Air compressors | Environmental Operations 1159 Buildings | These two units are portable and can provide equipment air supply, but not breathing air. |
| Emergency generator | Electrical Distribution Maintenance 1256 Building | Small generator is available on site, larger generators available through emergency contract service. (Coleman Electric 989-465-6115) |
| Emergency generator and lighting system permanently fixed to emergency equipment truck | Emergency Equipment Truck 1100 Building | 5000 watt diesel generator with four 500 watt quartz floodlights |
| Emergency light plant | Electrical Distribution Maintenance 1018 Building | This unit will provide light for normal electrical hazard use. |
| Flash light | Emergency Equipment Truck 1100 Building | Standard use type |
| Portable gasoline-driven pumps | Environmental Operations 1159 Building | These pumps are for use with normal liquids |

# Hand Tools

| ITEM | LOCATION | DESCRIPTION AND USE |
|---|---|---|
| Box of miscellaneous tools | Emergency Equipment Truck 1100 Building | Wrenches, pliers, sockets, and other tools for general use |
| Bung wrench | Emergency Equipment Truck 1100 Building | Opening drums |
| 100 foot steel tape | Emergency Equipment Truck 1100 Building | Measuring |
| Levered pry bar | Emergency Equipment Truck 1100 Building | Prying open equipment |
| Pick ax | Emergency Equipment Truck 1100 Building | Digging demolition |
| Rubber mallet | Emergency Equipment Truck 1100 Building | Sealing drums, driving stakes |
| Set of sockets | Emergency Equipment Truck 1100 Building | General use |
| Shovels | Emergency Equipment Truck 1100 Building | Digging, placing absorbent |
| Sledge hammer | Emergency Equipment Truck 1100 Building | Small-size demolition |
| 36" pipe wrench, aluminum | Emergency Equipment Truck 1100 Building | Plumbing work |
| 36" pry bar, aluminum | Emergency Equipment Truck 1100 Building | Levering |
| 24" pipe wrench, aluminum | Emergency Equipment Truck 1100 Building | Plumbing work |

# Miscellaneous Equipment

| ITEM | LOCATION | DESCRIPTION AND USE |
|---|---|---|
| Boat, motor and trailer | Environmental Operations 1012 Building | For deployment of boom unit |
| Bomb tube | Emergency Equipment Truck 1100 Building | Safe movement of small, potentially explosive compounds |
| 400-foot boom | Environmental Operations 1012 Building | Containing spills of liquids |
| Ropes / Ratchet Straps | Emergency Equipment Truck 1100 Building | For securing items for block and tackle or hauling |
| Hydraulic jacks | Emergency Equipment Truck 1100 Building | Power lifting short distances such as lifting a vehicle for tire change |
| Jumper cables | Emergency Equipment Truck 1100 Building | Emergency starts of 12-volt batteries |
| Miscellaneous mechanical tools and equipment | MI Operations Stock Department 492 Building | General demolition, construction and fabrication |
| Smoke ejector | Emergency Equipment Truck 1100 Building | High capacity air blower to remove smoky air |
| Various pumps | MI Operations Stock Department 492 Building | Submersibles and frame mounted centrifugal and positive displace-ment pumps for a variety of pumping needs |
| Trailer for boom equipment | Environmental Operations 1012 Building | Trailer equipped with boom and floats for containing floating spills |

# Miscellaneous Supplies

| ITEM | LOCATION | DESCRIPTION AND USE |
|---|---|---|
| Assorted wooden blocks | Emergency Equipment Truck 1100 Building | Wedging and support |
| Bag of absorbent bead pads | Emergency Equipment Truck 1100 Building | Absorbing various small organic liquid spills, (not for oxidizers) |
| Box of rubber stoppers | Emergency Equipment Truck 1100 Building | General use |
| Box of sprinkler heads | Emergency Equipment Truck 1100 Building | Replace existing, used sprinkler heads |
| Absorbent spill kits | Environmental Operations 1012 Building | Absorb spilled material |
| Floats for boom | Environmental Operations 1012 Building | See boom above |
| Hazardous materials manual | Emergency Equipment Truck 1100 Building | Reference on chemical hazard properties and safety information |
| Nylon ropes | Emergency Equipment Truck 1100 Building | General use |
| Rolls of barricade tape | Emergency Equipment Truck 1100 Building | Barricading work area |
| Rope | Environmental Operations 1012 Building | General use protective gear |
| Wooden plugs | Emergency Equipment Truck 1100 Building | Stopping small leaks |
| Rain gear, boots and gloves | Environmental Operations 34 Building | General use |
| Zorb-All absorbent | Emergency Trailer 1100 Building | A pallet of 50 pound bags for general absorbing of spills |
| Sand | 702, 779, and 1212 Buildings | Absorbent use |

# Personal Protective Equipment

| ITEM | LOCATION | DESCRIPTION AND USE |
|---|---|---|
| Bunker coats (Personal protective equipment (PPE) | Assigned to each responder 1100 Building | Worn when handling potentially explosive materials |
| Face shields | Emergency Equipment Truck 1100 Building | Worn to protect face from projectiles and splashing |
| Fully encapsulating Suits | Emergency Equipment Truck 1100 Building | Entry into corrosive environment |
| Hard hats | Emergency Equipment Truck 1100 Building | Head protection - worn during most construction, demolition or clean-up activities |
| Life jackets | Emergency Equipment Truck 1100 Building | Worn when in boat or around open water |
| Mono goggles | Emergency Equipment Truck 1100 Building | Vented goggles to protect eyes from direct splashes |
| Nitrile gloves | Environmental Operations 34 Building PPE Room | Hand protection from specific chemicals |
| Boots (Personal use PPE) | Emergency Equipment Truck 1100 Building | Foot protection |

## Personal Protective Equipment, continued

| ITEM | LOCATION | DESCRIPTION AND USE |
|---|---|---|
| Respirators | Emergency Equipment Truck<br>1100 Building | Variety of types of respirators |
| Rubber gloves | Emergency Equipment Truck<br>1100 Building | General hand protection |
| Saranex suits | Environmental Operations<br>34 Building PPE Room | Worn for protection from specific chemicals |
| Scott air bottles<br>2216 psi | Emergency Equipment Truck<br>1100 Building | Spare for 2500 psi Scott air pack |
| Scott air packs<br>2216 psi | Emergency Equipment Truck<br>1100 Building | SCBA for entry to certain hazardous breathing environments |
| Vessel entry mask | Emergency Equipment Truck<br>1100 Building | For self-contained breathing from central air supply |

## Monitoring and Communication Equipment

| ITEM | LOCATION | DESCRIPTION AND USE |
|---|---|---|
| Explosimeter | Emergency Equipment Truck<br>1100 Building | Meter to detect presence and level of explosive vapors; measures in percent of lower explosive limit and % of $O_2$ in area |
| Portable radio | Emergency Equipment Truck<br>1100 Building | Monitor radio communications and broadcasts |
| Radiation detector | Senior Tech's office<br>1100 Building | Meter to detect presence or absence of radiation |
| Radiation meter | Emergency equipment Truck<br>1100 Building | Meter to measure levels of radiation |

## Life Support and First Aid Equipment

| ITEM | LOCATION | DESCRIPTION AND USE |
|---|---|---|
| Bag valve mask | Both Ambulances | Powered resuscitation equipment |
| Ambulances (2) | Dow Fire Department<br>1100 Building | Licensed and equipped Basic Ambulance per State of Michigan |

**Attachment A7.4**: Facility Emergency Coordinator List

The Facility Emergency Coordinator (FEC) role may often be filled by the facility Immediate Response Leader (IRL), Environmental Operations Supervisor On-call, EH&S On-call or other trained individuals at Dow and has the authority to commit all the resources required to implement the Contingency Plan.

This list gives all Environmental Operations Supervisor On-call persons qualified to act as the Facility Emergency Coordinator. The personnel on this list work on a rotation schedule that is subject to change. Please contact the facility Head Operator so the Environmental Operations Supervisor on-call person may be contacted.

| **Facility Emergency Coordinator** | |
|---|---|
| **Name** | **Work Phone** |
| Head Operator<br>(a.k.a. Immediate Response Leader) | 989-638-1928 |

Note: The Environmental Operations Supervisor On-call list has been provided to the DEQ-OWMRP and is on file with the original Contingency Plan, but is Dow Confidential Information.

**Attachment A7.5**: Part 315 Dam Safety Emergency Action Plan

**Attachment A7.5**: Part 315 Dam Safety Emergency Action Plan

# THE DOW CHEMICAL COMPANY

# MICHIGAN OPERATIONS

## Tertiary Pond AND No. 6 Brine Pond

# Part 315 Dam Safety Emergency Action Plan

# 1.0 General Description of Dams

## 1.1 Purpose

The purpose of this Emergency Action Plan (EAP) is to reduce the risk of human life loss and injury and minimize property damage during an unusual or emergency event at The Dow Chemical's (Dow's) Tertiary Pond and No. 6 Brine Pond, Midland, MI.

## 1.2 Dam Descriptions

The Tertiary Pond (T-Pond) and the No. 6 Brine Pond (Brine Pond) are classified as Dams under Part 315, The Dam Safety Program, of Act 451, as amended. The T-Pond State of Michigan's Dam ID No. is 2676 and the No. 6 Brine Pond Dam ID No. is 2675. The T-Pond is a RCRA regulated hazardous waste surface impoundment and the No. 6 Brine Pond is a Waste Management Unit. The T-Pond has approximately 200 acres of water surface area and the Brine Pond has approximately 135 acres of water surface area. The T-pond has 14,000 lineal feet and the Brine pond has 16,000 lineal feet of dikes that could impact the environment and local property. The Ponds are located on the west side of the Tittabawassee River to the east of Poseyville Road and north of Bullock Creek; **See Figure 1 in Attachment A - T-Pond Inundation Maps and Figure 1, in Attachment B - No. 6 Brine Pond Inundation Maps.**

# 2.0 Emergency Detection, Evaluation, and Classifications

## 2.1 General

The T-Pond and the Brine Pond are inspected annually as part of Dow's Dam Inspection Program and periodically by Dow employees or contractors. Upon identification of a seep, an under seepage (boil), or a potential imminent breach, provisions of this Emergency Action Plan may be implemented.

If an incident occurs at the T-Pond or the Brine Pond, the individual who detects the event will contact the Environmental Operations Head Operator who will contact the Environmental Operations Supervisor on-call and Dow ES&S. If the incident requires that the Emergency Action Plan be activated, the Supervisor on-call will serve as the Facility Emergency Coordinator (FEC). This roll may often be filled by the facility Immediate Response Leader (IRL), Environmental Operations Supervisor on-call, EH&S On-call or other trained individuals at Dow and has the authority to commit all the resources required to implement the Emergency Action Plan.

| Facility Emergency Coordinator (FEC) | | |
|---|---|---|
| **Name** | **Home Address** | **Work Phone** |
| Head Operator (a.k.a. Immediate Response Leader) | See on-call list (Attachment A7.4) | 989-638-1928 |

The Site Emergency Action Organization is available on a 24-hour continuous basis to meet site emergencies. **The Site Emergency Action Organization is activated by calling 1-2-3 on any plant telephone.** The Site Emergency Action Organization consists of the following individuals and groups:

- Site Emergency Manager (SEM)
- Site Emergency Representative (SER)
- Emergency Services & Security Team
- Incident Commander
- EH&S On-Call (Reporting)
- EH&S On-Call (Response)
- ES&S Monitoring On-Call
- •ES&S Site On-Call
- Distribution Emergency Response
- Reactive Chemical Role
- Public Affairs
- Dispatch Center
- Midland Area Health Services
- ECC Emergency Coordinator
- Site Responsible Care Leader (RCL)

The roles and capabilities of these individuals and groups are described in the Midland Site Emergency Plan.

## 2.2 Evaluation and Classification of Emergency

The Classification of Emergencies for the T-Pond and No. 6 Brine pond are as follows:

**A. Category Level 1—Non-emergency, unusual event, slowly developing:**
Minor seeps that are confined within plant boundaries the small leaks (seepage rates less than 10 gallons per minute (gpm) of clear water) should be closely monitored. This situation is not normal but has not yet threatened the operation or structural

integrity of the dam, but possibly could if it continues to develop.

Major seeps consist of multiple minor seeps or a seepage with a flow much greater than 10 gpm but no soils are being carried by the water (water is clear). The monitoring should be increased for major seepages since they have the potential to quickly become more serious Category Level 2 boils.

**B. Category Level 2—Potential dam failure situation, rapidly developing:** Underseepage (boils) at or near the toe of the dike embankments that have the potential to affect the community outside of the Michigan Operations fence line. This situation, if not addressed, may eventually lead to dam failure and flash flooding downstream, but there is not an immediate threat of dam failure.

**C. Category Level 3 – Urgent; dam failure appears imminent or is in progress:** Imminent Dike Breach – immediate potential to affect the community outside of the Michigan Operations fence line. Examples are overtopping of the dikes and boils breaking out in other areas near an original boil or a slope failure associated with a major seepage or boil.

This is an urgent situation when a dam failure is occurring or is about to occur and unlikely to be prevented. Flash flooding will occur downstream of the dam.

Table 1 below provides a list of possible events and their potential Emergency Level.

**Table 1 Guidance for Determining the Emergency Level**

| Event | Situation | Emergency Level* |
|---|---|---|
| Embankment Overtopping | Reservoir level is 1 foot below the top of the dam | 2 |
| | Water from the reservoir is flowing over the top of the dam | 3 |
| Seepage | New seepage areas in or near the dam | 1 |
| | New seepage areas with cloudy discharge or increasing flow rate | 2 |
| | Seepage with discharge greater than 10 gallons per minute (boils) | 2 |
| Embankment Overtopping | Reservoir level is 1 foot below the top of the dam | 2 |
| | Water from the reservoir is flowing over the top of the dam | 3 |
| Seepage | New or existing seepage areas in or near the dam; clear water, stable flow rate | 1 |
| | New or existing seepage areas with cloudy discharge or increasing flow rate | 2 |
| | Boil or boils: seepage water is transporting soil and exiting at or near the toe. | 3 |
| Sinkholes | Observation of new sinkhole in reservoir area or on embankment | 2 |
| | Rapidly enlarging sinkhole | 3 |
| Embankment Cracking | New cracks in the embankment greater than ¼-inch wide without seepage | 1 |
| | Cracks in the embankment with seepage | 2 |
| Embankment Movement | Visual movement/slippage of the embankment slope | 1 |
| | Sudden or rapidly proceeding slides of the embankment slopes | 3 |
| Earthquake | Measurable earthquake felt or reported on or within 50 miles of the dam | 1 |
| | Earthquake resulting in visible damage to the dam or appurtenances | 2 |
| | Earthquake resulting in uncontrolled release of water from the dam | 3 |
| Security Threat | Verified bomb threat that, if carried out, could result in damage to the dam | 2 |
| | Detonated bomb that has resulted in damage to the dam or appurtenances | 3 |
| Sabotage/ Vandalism | Damage to dam or appurtenance with no impacts to the functioning of the dam | 1 |
| | Modification to the dam or appurtenances that could adversely impact the functioning of the dam | 1 |
| | Damage to dam or appurtenances that has resulted in seepage flow | 2 |
| | Damage to dam or appurtenances that has resulted in uncontrolled water release | 3 |

* Emergency Level 1: Non-emergency unusual event, slowly developing
* Emergency Level 2: Potential dam failure situation, rapidly developing
* Emergency Level 3: Urgent; dam failure appears imminent or is in progress

## 2.3 Emergency Actions

### 2.3.1 Emergency Level 1 – Non-emergency, unusual event, slowly developing:

A. The FEC and/or their designee will inspect the dam. At a minimum, the full length of the upstream slopes, crest, downstream toes, and downstream slopes will be inspected. Also the reservoir area, upland abutments (west side of both ponds), and drainage channels and Bullock Creek will be checked for signs of changing conditions. If increased seepage, erosion, cracking, or settlement are observed, implement the provisions of this EAP using Table 1 - Guidance for Determining the Emergency Level to determine the appropriate event level for the new condition and recommended actions.

B. Record all information, observations, calls and actions taken. Note the time of changing conditions. Document the situation with photographs and video, if possible.

C. The FEC will contact and request technical staff to investigate the situation and recommend corrective actions.

### 2.3.2 Emergency Level 2—Potential dam failure situation; rapidly developing:

A. The FEC will initiate the procedures in this Emergency Action Plan (EAP). They will also contact the EH&S On-call person to report the situation and, if time permits, request technical staff to investigate the situation and recommend corrective actions.

B. The FEC/EH&S On-call will contact the Director of Emergency Services, Midland County Department of Emergency to inform him/her that the EAP has been activated and if current conditions get worse, an emergency situation may require evacuation. A failure of the west dike of the Brine Pond is the only failure scenarios that would involve evacuations. There are no immediate buildings, residences, etc. downstream of the T-Pond that would be impacted by a failure of the T-pond dikes. Preparations should be made for possible road closures and evacuations.

C. The FEC will provide updates to emergency personnel to assist them in making timely decisions concerning the need for warnings, road closures, and evacuations.

D. If time permits, the FEC or their designee will inspect the dam. At a minimum the full length of the upstream slopes, crest, downstream toes, and downstream slopes

will be inspected. Also the reservoir area, upland abutments (west side of both ponds), and drainage channels and Bullock Creek will be checked for signs of changing conditions. If piping, increased seepage, erosion, cracking, or settlement are observed, immediately implement the provisions of this EAP using Table 1 - Guidance for Determining the Emergency Level to determine the appropriate event level for the new condition and recommended actions.

E. Notify MDEQ-WRD Dam Safety Program

(517) 284-5567 8am to 5pm Monday to Friday or PEAS (800) 292-4706.

Notify MDEQ-OWMRP

(517) 335-2690 8am to 5pm Monday to Friday or PEAS (800) 292-4706.

F. Record all information, observations, calls and actions taken. Note the time of changing conditions. Document the situation with photographs and video, if possible.

G. If time permits, the following emergency remedial actions should be taken as appropriate.

### 2.3.3 Level 2 Emergency remedial actions

If time permits, the following emergency remedial actions can be considered for Emergency Level 2 conditions. Implementation of these remedial actions may delay, moderate, or prevent the failure of the dikes. Several of the listed adverse or unusual conditions may be apparent at the dam at the same time, requiring implementation of several modes of remedial actions. Close monitoring of the dam must be maintained to confirm the success of any remedial action taken at the dam. Time permitting, any remedial action should be developed through consultation with available technical resources.

**Embankment overtopping**

A. If the water level in the reservoir is no longer rising, place sandbags along the low areas of the top of the dam to control wave action, reduce the likelihood of flow concentrating in one location during minor overtopping, and to safely direct more water through the outlet.

B. Open the outlet valve fully and cease or reduce inflow to the pond until the overtopping emergency has been resolved.

C. Cover the weak areas of the top of the dam and downstream slopes with riprap, sandbags, plastic sheets, or other materials to provide erosion-resistant protection.

**Seepage and sinkholes**

A. Open the outlet on the T-Pond to maximum flow rate and operate the discharge pump on the Brine Pond at maximum flow rate to lower the reservoir level as rapidly as possible to a level that stops or decreases the seepage to a non-erosive velocity.

B. If the entrance to the seepage origination point is observed in the reservoir (possible whirlpool or surface currents) and is accessible, attempt to reduce the flow by plugging the entrance with readily available materials such as hay bales, bentonite, soil or rockfill, or plastic sheeting.

C. Cover the seepage exit area(s) with a geotextile. Then cover the geotextile with several feet of sand/gravel to hold fine-grained embankment or foundation materials in place and prevent hydraulic piping. Additionally, construct sandbag or other types of ring dikes around seepage exit areas to retain a pool of water, providing a counter-balancing head of water and reducing the erosive nature of the seepage.

D. Prevent vehicles and equipment from driving between the seepage exit points and the embankment to avoid potential loss from the collapse of an underground void.

E. In the event that the impoundment is removed from service because of actual or potential dike failure, the repaired portion will be re-certified by a qualified registered professional engineer as meeting approved specifications. This re-certification will be performed internally by a qualified Dow registered professional engineer or through an outside service that would provide a qualified engineer.

**Embankment movement**

A. Open outlet(s) and lower the reservoir to a safe level at a rate commensurate with the urgency and severity of the condition of the slide or slump.

B. Repair settlement of the crest by placing sandbags or earth and rockfill materials in the damaged area to restore freeboard.

C. Stabilize slides by placing a soil or rockfill buttress against the toe of the slide. Strip away topsoil and organic material, then placing a 12 to 18-inch thick layer of fine aggregate over the area. Add a layer of geotextile and then place soil or rock fill for the buttress. Cut shallow trenches to drain seepage water and/or runoff away from the dike. Dimensions of the buttress should be proportional to the slide, and should be evaluated by a qualified engineer. As a rule of thumb, a 20-foot wide, 5-foot tall buttress, with length extending parallel to the dike at least 10 feet beyond both ends of the slide, will improve stability until proper engineering assessments can be made.

**Earthquake**

A. Immediately conduct a general overall visual inspection of the dam.

B. Perform a field survey to determine if there has been any settlement and movement of the dam embankment, spillway, and low-level outlet works.

C. Drain the reservoir, if required.

### 2.3.4 Emergency Level 3—Urgent; dam failure appears imminent or is in progress:

A. The FEC/EH&S On-call will contact Dow ES&S and the Director of Emergency Services, Midland County Department of Emergency to inform them of the potential failure. All provisions of this EAP shall be immediately implemented.

B. The FEC/EH&S On-call maintain ongoing communication and provide the Director of Emergency Services, Midland County Department of Emergency with updates of the situation to assist him/her in making timely decisions concerning warnings and evacuations.

C. ***Notify MDEQ-WRD Dam Safety Program**

(517) 284-5567 8am to 5 pm Monday to Friday or PEAS (800) 292-4706.

***Notify MDEQ-OWMRP**

(517) 335-2690 8am to 5 pm Monday to Friday or PEAS (800) 292-4706.

D. Record all information, observations, calls and actions taken. Note the time of changing conditions. Document the situation with photographs and video, if possible.

E. Advise people monitoring the dam to follow safe procedures. Everyone should stay away from any failing structures or slopes and out of the potential breach inundation areas.

## 3.0 Inundation Maps

**Attachment A** contains the inundation maps for the Sunny Day and Probable Maximum Flood events for the T-Pond and **Attachment B** contains the inundation maps for the No. 6 Brine Pond. The Sunny Day dam failure simulates the flooding that would result from dike failure during ordinary operating conditions in good weather. The Probable Maximum Flood dam failure simulates flooding that would result from dike failure during a very large flood.

Special engineering software was used with topographic mapping to predict flooding from simulated dike failures. This software package was also used to determine the limits of flooding based on the results of the embankment failure models. Embankment failures were modeled in various directions around the reservoir where breaching could occur.

A breach of the T-Pond dike system would not flood any nearby or downstream facilities, buildings, or residences. A breach of the western dike of the No. 6 Brine Pond would increase the 100 year flooding depth by approximately 1.5 feet to approximately 7 feet on the west side of Poseyville Road as shown on Figure 2A in **Attachment A**.

# 4.0 Maintenance—EAP Review and Revision

## 4.1 EAP annual review

Dow will review and, if needed, update the EAP at least once each year.

## 4.2 Revisions

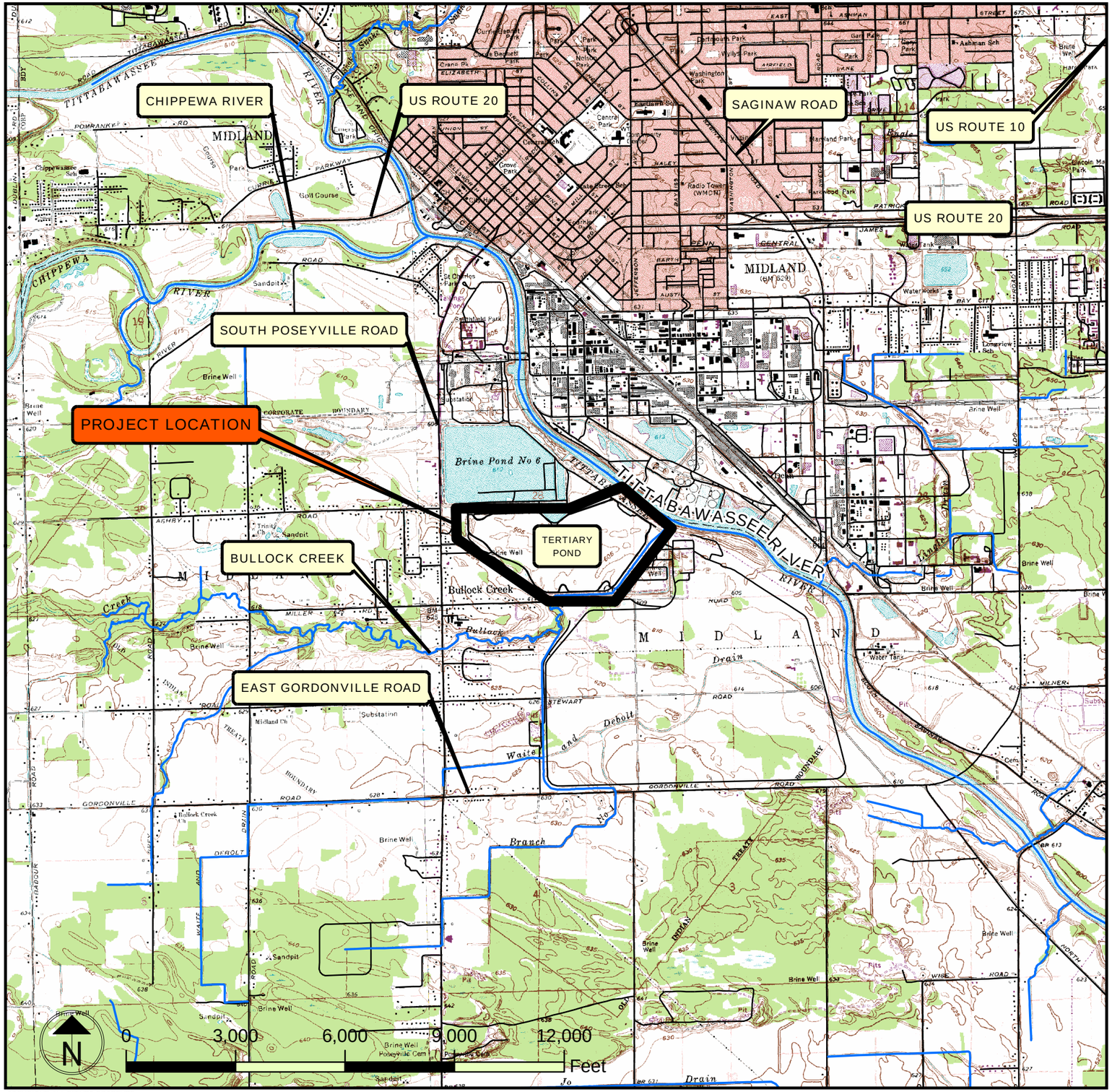
Dow is responsible for updating the EAP document. The EAP document held by Dow is the master document. When revisions occur, Dow will provide the revised pages and a revised revision summary page to all the EAP document holders. The document holders are responsible for revising outdated copy of the respective document(s) whenever revisions are received. Outdated pages shall be immediately discarded to avoid any confusion with the revisions.

# ATTACHMENT A

# INUNDATION MAPS

# For The

# T-POND



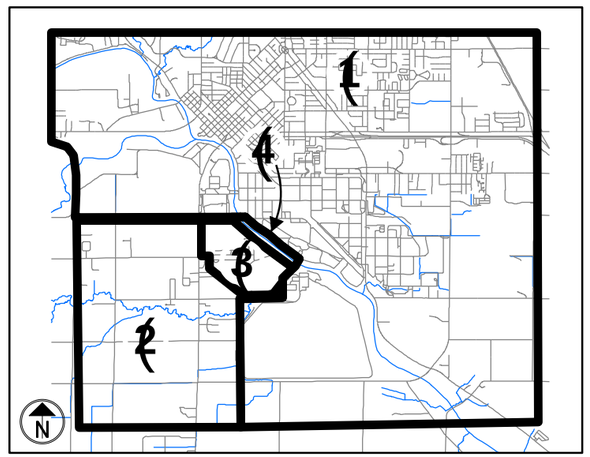



P:\D\Dow\41567994\DWG\GIS\Maps\TERTIARY PONDS - VICINITY Map_colorFIGURE2.mxd

## SURVEY REFERENCES:

1. 2 FT TOPO PROVIDED BY THE CITY OF MIDLAND.
2. STATE OF MICHIGAN GIS SITE (WWW.MCGI.STATE.MI.US/MGDL/) 2 FT TOPO DEVELOPED FROM MIDLAND COUNTY RASTER IMAGE (MIDLAND_DEM 24K_30M)
3. WADE TRIM SURVEYORS, FIELD SURVEY-GROUND SHOT VERIFICATION.
4. DOW REACH D RIVER SURVEY. 2 FT CONTOURS PROVIDED BY DOW.

## SURVEY REFERENCE KEY MAP

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RECORD DRAWINGS — DATE — BY

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|---|---|---|---|
| DRAWN: | JSC | DATE: | 1/21/2008 |
| CHECKED: | RTM | JOB #: | 41567994 |
| SCALE: | 1" = 3000' | | |

**DAM BREAK INUNDATION MAPPING**

DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN

TERTIARY POND

VICINITY MAP

**FIGURE 1**

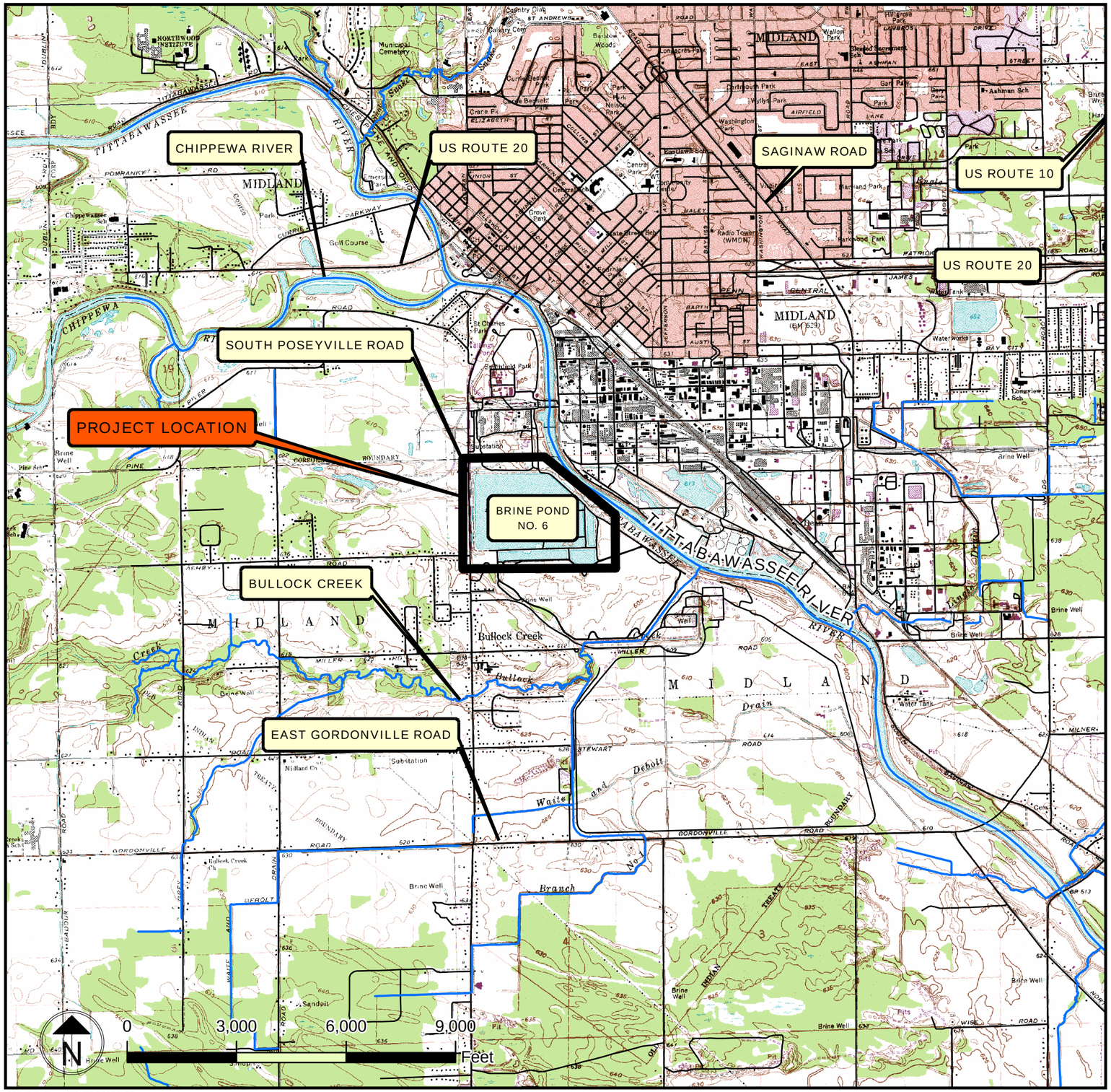
URS

# ATTACHMENT B

# INUNDATION MAPS

# For The

# No. 6 BRINE POND



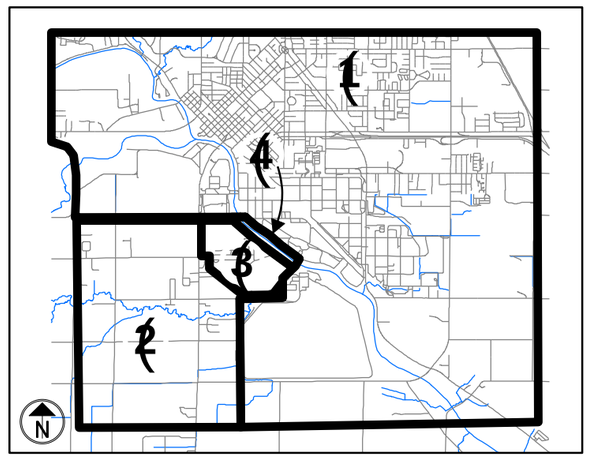



P:\DIDow\41567994\DWG\GISMaps\BRINE PONDS - VICINITY Map colorFIGURE1.mxd

## SURVEY REFERENCES:

1. 2 FT TOPO PROVIDED BY THE CITY OF MIDLAND.
2. STATE OF MICHIGAN GIS SITE (WWW.MCGI.STATE.MI.US/MGDL/) 2 FT TOPO DEVELOPED FROM MIDLAND COUNTY RASTER IMAGE (MIDLAND_DEM 24K_30M)
3. WADE TRIM SURVEYORS, FIELD SURVEY-GROUND SHOT VERIFICATION.
4. DOW REACH D RIVER SURVEY. 2 FT CONTOURS PROVIDED BY DOW.

## SURVEY REFERENCE KEY MAP

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|---|---|---|---|
| DRAWN: | JSC | DATE: | 1/21/2008 |
| CHECKED: | RTM | JOB #: | 41567994 |
| SCALE: | 1" = 3000' | | |

**DAM BREAK INUNDATION MAPPING**

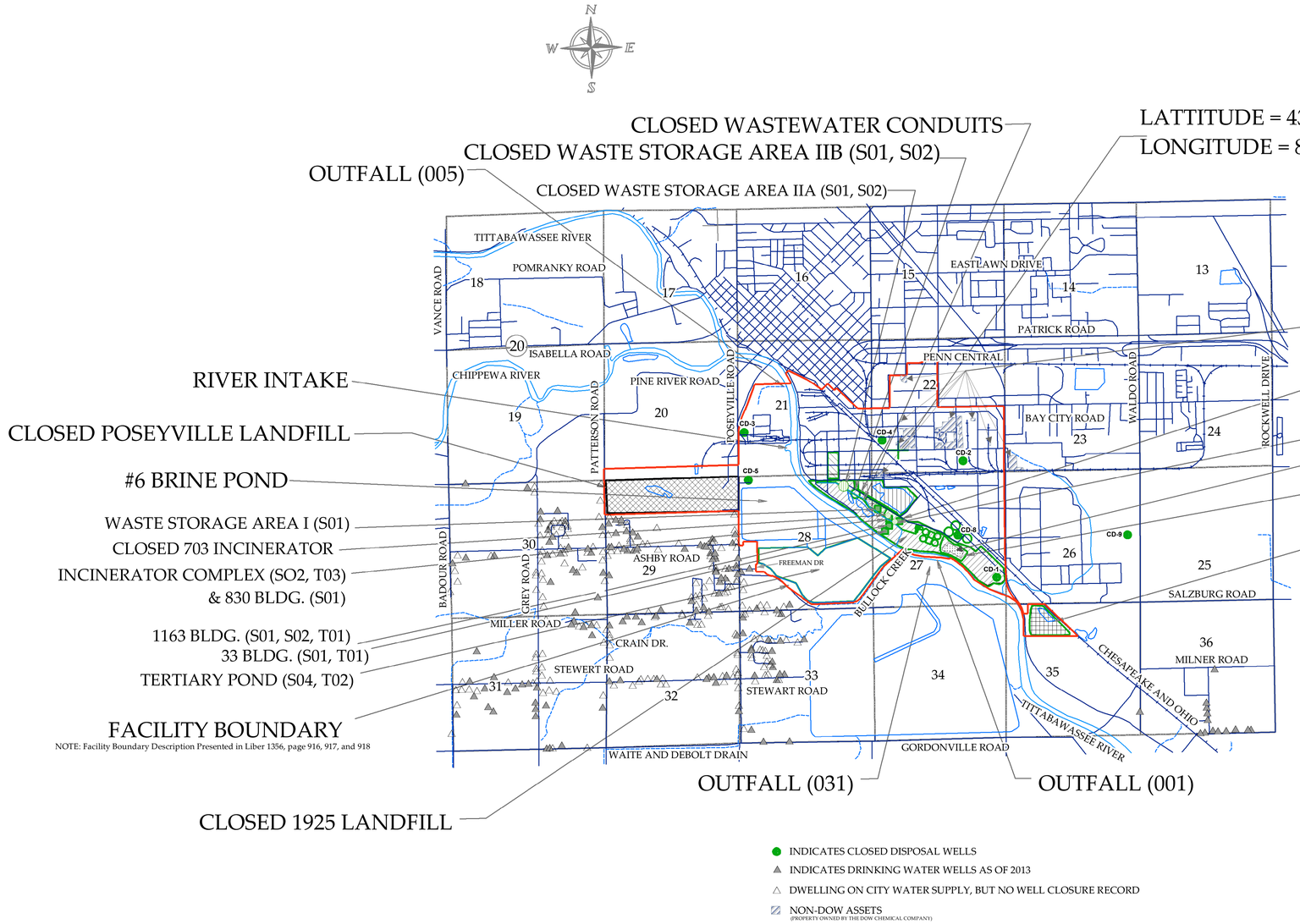
DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN

BRINE POND NO. 6

VICINITY MAP

**FIGURE 1**

URS




- INDICATES CLOSED DISPOSAL WELLS
- INDICATES DRINKING WATER WELLS AS OF 2013
- DWELLING ON CITY WATER SUPPLY, BUT NO WELL CLOSURE RECORD
- NON-DOW ASSETS (PROPERTY OWNED BY THE DOW CHEMICAL COMPANY)

THE DOW CHEMICAL CO.
MIDLAND MI. - FACILITY #MID 000724724

0 2,500 5,000 10,000
Feet

CLOSED HAZARDOUS WASTE MANAGEMENT UNITS

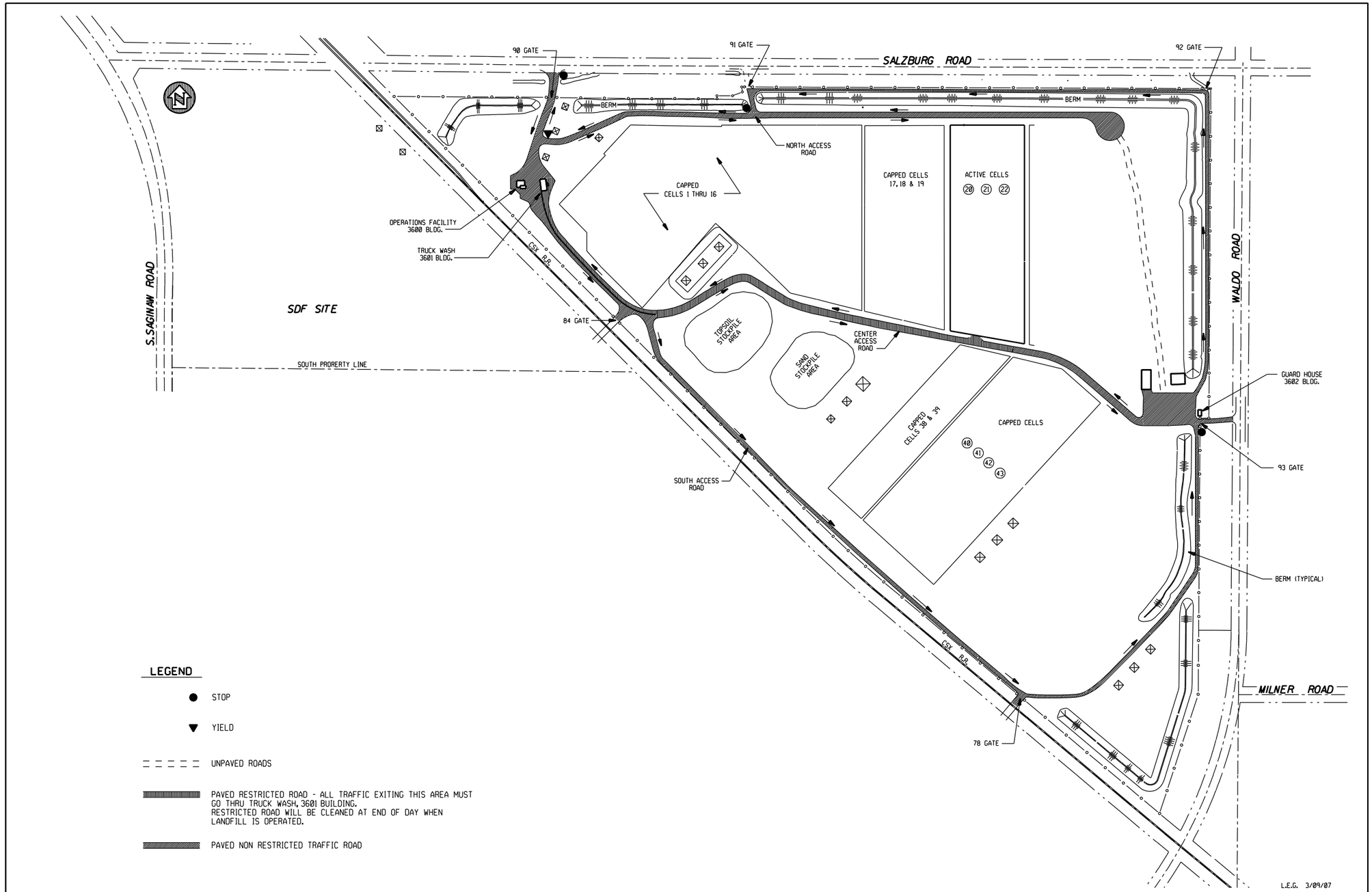
- SLUDGE DEWATERING FACILITY
- DIVERSION BASIN
- WASTEWATER CONDUITS
- 703 INCINERATOR
- 830 INCINERATOR
- WASTE STORAGE AREA IIA

CLOSED WASTE MANAGEMENT UNITS

- 1925 LANDFILL
- POSEYVILLE LANDFILL
- LEL I
- LEL II
- LEL III

DRAWING B2-010-927122
RCRA PART A FACILITY MAP
PART 111 OPERATING LICENSE RE-APPLICATION
FACILITY ID NUMBER MID000724724
(Revised March 2013)

FILE: License/CAMU MOD.MXD




**LEGEND**

- STOP
- YIELD
- UNPAVED ROADS
- PAVED RESTRICTED ROAD - ALL TRAFFIC EXITING THIS AREA MUST GO THRU TRUCK WASH, 3601 BUILDING. RESTRICTED ROAD WILL BE CLEANED AT END OF DAY WHEN LANDFILL IS OPERATED.
- PAVED NON RESTRICTED TRAFFIC ROAD

| REV. MARK | REVISION | BY | CHK | APP | DATE |
|---|---|---|---|---|---|
| | | | | | |

| REV. MARK | REVISION | BY | CHK | APP | DATE |
|---|---|---|---|---|---|
| | | | | | |

DRAWING ISSUE RECORD

| ISSUE NO. | REV | MATERIAL OR JOB SPEC | BID | FAB | CONST | REF |
|---|---|---|---|---|---|---|
| | | | | | | |

DATE ISSUED FOR

| | | |
|---|---|---|
| DESIGNED | J.J. ALLEN | 3/9/07 |
| DRAWN | L.E. GIRARDIN | 3/9/07 |
| CHECKED | J.J.A. | 3/9/07 |
| APPROVED | J.J.A. | 3/9/07 |
| PROJ. ENGR. | J.J. ALLEN | 3/9/07 |
| MFG. REP. | STEVE LUCAS | 3/9/07 |

STATUS | PLANT NO.

P.E. SEAL

**THE DOW CHEMICAL COMPANY**

MICHIGAN DIVISION — MIDLAND, MICHIGAN

SALZBURG LANDFILL — 3600 BLDG.

# TRAFFIC AND ACCESS CONTROL MAP

| EJN NUMBER | SCALE | | REV. |
|---|---|---|---|
| 114291 | 1" = 200'-0" | B2-106-1374 | 2 |

PRINTED | VER. | PLN

$DATE $TIME $FILENAME $INSTRUCTIONS