

## Dow Michigan Operations – Start-up, Shutdown, Malfunction Plan

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### Scope

This plan is to be used during periods of start-up, shutdown or malfunctions within the Michigan Operation's 40 CFR Part 63 affected facilities. The applicable MACT Standards are as follows:

- Hazardous Organic NESHAP (HON), 40 CFR Part 63, Subparts F, G, & H
- Organic Liquid Distribution MACT, 40 CFR Part 63, Subpart EEEE
- Miscellaneous Organic NESHAP, 40 CFR Part 63, Subpart FFFF
- Site Remediation MACT, 40 CFR Subpart 63, Subpart GGGGG
- Reciprocating Internal Combustion Engines MACT, 40 CFR Part 63, Subpart ZZZZ

#### NOTES:

- The MiOps SSMP does not include the Hazardous Waste Combustor MACT, 40 CFR 63 Subpart EEE, and the Off Site Waste and Recovery Operation MACT, 40 CFR Part 63 Subpart DD.
  - The SSMP also does not apply to the following standards, as MiOps no longer owns facilities subject to these rules: Pharmaceuticals MACT, 40 CFR Part 63, Subpart GGG, Polyether Polyol MACT, 40 CFR Part 63, Subpart PPP, and Polymer and Resins IV MACT, 40 CFR Part 63, Subpart JJJ.
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### Purpose

The EPA allows the use of an SSMP as a way to control scenarios, which happen outside of operation under the standard. The SSMP was created to define events where the facility is not running in a "normal and usual" manner and when there is a **potential** to create excess emissions. Excess emissions are categorized as air pollution, which occurs in greater quantities than anticipated by the applicable standard. The primary function of the SSMP is to minimize emissions to the environment.

Ordinarily those situations would constitute a violation subject to penalties. However, if our SSM plan deals appropriately with the event and we follow the plan, then that constitutes compliance with the regulatory requirement.

#### Notes:

- Malfunction Abatement Plans (MAPs), whether voluntary, required by rule, or required by a consent order, are different and fall outside the scope of this guidance.
  - In certain cases, the facility air permit may be more stringent and may not allow any excess emissions, particularly during start-ups and shutdowns.
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### Malfunction Definition

**Malfunction** - any *sudden, infrequent, and not reasonably preventable* failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not considered malfunctions.

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### Start-Up Definition (HON Subpart A)

**Start-up** - Startup means the setting in operation of an affected source or portion of an affected source for any purpose.

**NOTE:** Some MACT rules have a different definition for start-ups. See your specific MACT guidance for the appropriate definition.

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## Dow Michigan Operations – Start-up, Shutdown, Malfunction Plan, Continued

**Shutdown Definition (HON Subpart A)**      **Shutdown** - Shutdown means the cessation of operation of an affected source or portion of an affected source for any purpose.

**NOTE:** Some MACT rules have a different definition for shutdowns. See your specific MACT guidance for the appropriate definition.

**Shutdown Procedures**      Below is the table of contents for the shutdown procedures for Dow Michigan Operations:

Procedure Description	Procedure number
<i>Process shutdown</i>	<i>1</i>

**Start-up Procedures**      Below is the table of contents for the start-up procedures for Dow Michigan Operations:

Procedure Description	Procedure number
<i>Process Start-up</i>	<i>2</i>
<i>Single mechanical seal equipment start-up</i>	<i>3</i>

**Malfunction Procedures**      Below is the table of contents for the malfunction procedures for Dow Michigan Operations:

Procedure Description	Procedure number
<i>Process temperature outside set parameters</i>	<i>4</i>
<i>Process flow outside set parameters</i>	<i>5</i>
<i>Process pH outside set parameters</i>	<i>6</i>
<i>Process pressure outside set parameters</i>	<i>7</i>
<i>Emission exceedance above the limits of the MACT</i>	<i>8</i>
<i>Data collection not achieved as required by the MACT</i>	<i>9</i>
<i>High pressure event that contravenes the MACT</i>	<i>10</i>
<i>Change in Process Wastewater Status</i>	<i>11</i>
<i>Change in Process vent Status</i>	<i>12</i>
<i>Compressor seal leak (designated as having no detectable emissions)</i>	<i>13</i>

**Maintenance Wastewater Procedures**      Below is the table of contents for the maintenance wastewater procedures for Dow Michigan Operations:

Procedure Description	Procedure number
<i>Maintenance Wastewater</i>	<i>Appendix A</i>

**SSMP Procedures**      [Dow - MiOps SSMP Generic Procced-Rev 3 21 19.docx](#)

**SSMP Recordkeeping**      Dow Michigan Operations utilizes the electronic logbook stamp or other approved methods as a means to document all SSMP events. The logbook stamp has all the required elements per the applicable MACT standards. Logbook records are maintained for 5 years + current.

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## Dow Dow Michigan Operations – Start-up, Shutdown, Malfunction Plan, Continued

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### SSMP Applicable Equipment

Start-up, shutdown, malfunction plan applicable equipment may include, but is not limited to the following:

- Emission control equipment
  - Thermal treatment units (Throx, TOX, RTO, etc)
  - Condensers
  - Scrubbers and absorbers
  - Pressure swing adsorption units
  - Steam strippers
  - Dust collectors or baghouses
- Process instrumentation
  - Flow instrumentation
  - pH instrumentation
  - Temperature instrumentation
  - Pressure instrumentation
  - Conductivity instrumentation
  - Oxygen analysis
  - Continuous emissions instrumentation
- Process equipment
  - Pumps
  - Compressors
  - Valves and connectors
  - Piping
  - Storage and in-process tanks

For specific details on MACT and SSMP applicable equipment, see the most current facility-specific notification of compliance status.

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## Dow MiOps Start-up, Shutdown, Malfunction Plan Procedures - Revision 3/21/19

### Scope

The EPA allows the use of an SSMP as a way to control scenarios, which happen outside of operation under the standard. The SSMP was created to define events where the facility is not running in a "normal and usual" manner and when there is a **potential** to create excess emissions. Excess emissions are categorized as air pollution, which occurs in greater quantities than anticipated by the applicable standard. The primary function of the SSMP is to minimize emissions to the environment.

These procedures are used by operations personnel to minimize emissions during start-up, shutdown, or malfunction events in MACT facilities.

### Before You Begin

Start-up, Shutdown, Malfunction procedures are to be used in the event of a MACT SSMP event. The procedures in this document are intended to reflect your emergency plan. Ensure your emergency plan is followed in the event of any malfunction event. If you discover that these procedures do not adequately address an event, please report this to the Leveraged Air Specialist.

### Consequences of Deviation

The following are Consequences of Deviating from the procedure.

Type of Deviation	Consequences and How to Avoid
Title V deviation for not following the start-up, shutdown or malfunction procedure	Follow your emergency plan and the applicable procedure in the SSMP

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## Procedure 1 – Process Shutdown

### Scope of the SSM Event

This shutdown procedure's goal is to minimize any emissions that might exceed those emission limitations of the applicable MACT rules during a process shutdown. This procedure includes, but is not limited to shutting down and clearing process equipment, vessels, and lines in HAP service, in preparation for maintenance, repair, or inspection.

**NOTE #1:** The Maintenance Wastewater Plan may also be activated if the potential exists for excess emissions during cleaning operations.

**NOTE #2:** If your shutdown requires the use of a control device, the device should be operating properly until the shutdown concludes.

### Process Shutdown

Step	Action
1	Remove the contents from the vessel, equipment, or line by pumping, purging, draining, or flushing to a closed system, control device or container if possible.
2	If a large chemical heel or residual exists in large vessels (e.g. flat bottom vessels) then consider using a vacuum truck, pump, or equivalent system to remove as much of the material as possible.
3	If appropriate, use solvents or reactants to dissolve or neutralize any remaining HAP materials. Reacted/dissolved material should be disposed of properly.
4	Once the amount of residual has been minimized, flushing of the vessel or equipment with clean water can occur if necessary. Flushing should occur in a closed vessel if possible to minimize any evaporative losses.
5	Drain any water generated to the wastewater treatment plant.
6	Drain any unrecoverable solvents to a container for proper disposal.
Note:	<p>During the process shutdown, unexpected events may occur which could lead to emissions beyond those allowed by the MACT. Those events may include, but are not limited to the following:</p> <ul style="list-style-type: none"> <li>▪ Valve failure <ul style="list-style-type: none"> <li>○ Failure to open</li> <li>○ Failure to close</li> </ul> </li> <li>▪ Compressor or pump failure</li> </ul> <p>If these events occur, operations personnel may take action up to and including the following:</p> <ul style="list-style-type: none"> <li>▪ Halt the shutdown</li> <li>▪ Re-evaluate the shutdown plan</li> <li>▪ Diversion to an alternate tank</li> <li>▪ Redirection of process vents to an alternate control device</li> </ul> <p>In all cases, emission minimization and personal safety will be the top priority.</p>

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## Procedure 2 - Process Start-up

### Scope of the SSM Event

This start up procedure's goal is to minimize any emissions that might exceed those emission limitations of the applicable MACT rules during process start-up. This procedure outlines the plant operating discipline for starting up equipment, vessels, and lines after maintenance, repair, or inspection.

**NOTE:** If the process requires the use of a control device to manage emissions, the device should be operating properly prior to starting the process (exceptions may include condensers acting as control devices).

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### Process Startup

Step	Action
1	Place valves and equipment into their proper positions prior to adding HAPs to the process.
2	Add HAPs to the process, monitoring for leaks via audio, visual, or olfactory means, or by using appropriate instrumentation.
3	If leaks are found, follow your LDAR program and perform corrective actions to stop the leak or begin evacuation procedures.
4	Once corrective actions have been made, resume adding HAPs to the process.
5	Once the process is determined to be leak free or compliant with your LDAR program, resume normal operations.
Note:	<p>During the process start-up, unexpected events may occur which could lead to emissions beyond those allowed by the MACT. Those events may include, but are not limited to the following:</p> <ul style="list-style-type: none"><li>▪ Valve failure<ul style="list-style-type: none"><li>○ Failure to open</li><li>○ Failure to close</li></ul></li><li>▪ Compressor failure</li><li>▪ Pump failure</li><li>▪ Condensers reaching equilibrium when vapors are initially introduced</li><li>▪ Process Automaton tuning and adjustment</li></ul> <p>If these or other events occur, operations personnel may if necessary take action up to and including the following:</p> <ul style="list-style-type: none"><li>▪ Halt the start-up</li><li>▪ Re-evaluate the start-up plan</li><li>▪ Evacuate the system to an control device or surge tank</li></ul> <p>In all cases, emission minimization and personal safety will be the top priority.</p>

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### Procedure 3 - Start-up – Single Mechanical Seal Pump, Compressor or Agitator

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**Scope of the SSM Event**

During SSM events, the potential exists for an emissions exceedance. Due to the nature of equipment using single mechanical seals, a short period of leakage may occur prior to the adequate lubrication of the seal face. The following procedure can be used to minimize emissions during the start-up of single mechanical sealed pumps, compressors or agitators.

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**Start-up Single Mechanical Seal Pump, Compressor or Agitator**

The operator should follow all the actions described here in the event of a single-mechanical seal leak upon start-up.

Step	Action
1	Place valves and equipment into their proper positions prior to adding HAPs.
2	Add HAPs and start the equipment, monitoring the equipment for leaks via audio, visual, or olfactory means.
3	If minor leaks are found during the initial start up, monitor the leak for approximately 10 minutes. If the leak does not stop within this time period, shut the equipment down and implement your facility LDAR program.
4	If the leak stops within the above time period, no further action is needed.

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## Procedure 4.1 - Malfunction – Process temperature outside of set parameters

### Scope of the SSM Event

This procedure addresses any sudden and unexpected temperature excursion where the temperature is outside of the set parameters. This event could affect a thermal treatment unit, condenser, stripper, other similar control device or control technique.

### Malfunction-Process temperature outside of set parameters

The operator should follow all the actions described here in the event of a temperature excursion outside of the set parameters.

Step	Action
1	Operations personnel will receive an alarm or equivalent notification as an indication that a temperature problem exists.
2	Determine if an instrument problem exists.
3	If the instrument is found to be the problem, repair the instrument as soon as possible. See note below.
4	If the instrument is operating properly, take the action to minimize emissions. This may include any or all of the following: <ul style="list-style-type: none"><li>• the automatic shutdown of valves on process feeds or vents</li><li>• the pressurization of a vent surge tank</li><li>• the redirection of process feed streams or vents to an alternate control device</li><li>• the safe and orderly shutdown of the process</li></ul>
5	The process will remain in this state until it can be operated properly.
<b>Note:</b>	In most instances where the Dow Process Control Computer takes automatic action to control the process feeds, vent collection and process venting there is no credible scenario where excess emissions would occur. If the MOD resolved the problem without any MACT parameter excursion, no SSMP event has occurred. In many instances correcting the malfunction immediately with the process in operation will result in less environmental impact than shutting down the process. In these instances, prompt repair will occur in lieu of a shutdown. Actions taken must be documented in the appropriate manner.

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## Procedure 5 - Malfunction – Process flow outside of set parameters

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### Scope of the SSM Event

This procedure addresses any sudden and unexpected process flow excursion where the flow is outside of the set parameters. This event could affect a thermal treatment unit, condenser, stripper, scrubber, absorber, or other similar control device or control technique.

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### Malfunction-Process flow outside of set parameters

The operator should follow all the actions described here in the event of a flow excursion outside of the set parameters.

Step	Action
1	Operations personnel will receive an alarm or equivalent notification as an indication that a flow problem exists.
2	Determine if an instrument problem exists.
3	If the instrument is found to be the problem, repair the instrument as soon as possible. See note below.
4	If the instrument is operating properly, take the action to minimize emissions.  This may include any or all of the following: <ul style="list-style-type: none"><li>• the automatic shutdown of valves on process feeds or vents</li><li>• the pressurization of a vent surge tank</li><li>• the redirection of process feed streams or vents to an alternate control device</li><li>• the safe and orderly shutdown of the process</li></ul>
5	The process will remain in this state until it can be operated properly.
<b>Note:</b>	In most instances where the Dow Process Control Computer takes automatic action to control the process feeds, vent collection and process venting there is no credible scenario where excess emissions would occur. If the MOD resolved the problem without any MACT parameter excursion, no SSMP event has occurred. In many instances correcting the malfunction immediately with the process in operation will result in less environmental impact than shutting down the process. In these instances, prompt repair will occur in lieu of a shutdown. Actions taken must be documented in the appropriate manner.

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## Procedure 6 - Malfunction – Process pH outside of set parameters

### Scope of the SSM Event

This procedure addresses any sudden and unexpected process pH excursion where the pH is outside of the set parameters. The event could affect a thermal treatment unit, scrubber, absorber, or other similar control device or control technique.

### Malfunction- Process pH outside of set parameters

The operator should follow all the actions described here in the event of a pH excursion outside of the set parameters.

Step	Action
1	Operations personnel will receive an alarm or equivalent notification as an indication that a pH problem exists.
2	Determine if an instrument problem exists.
3	If the instrument is found to be the problem, repair the instrument as soon as possible.
4	<p>If the instrument is operating properly, take the action to minimize emissions.</p> <p>This may include any or all of the following:</p> <ul style="list-style-type: none"> <li>• the automatic shutdown of valves on process feeds or vents</li> <li>• the pressurization of a vent surge tank</li> <li>• the redirection of process feed streams or vents to an alternate control device</li> <li>• the safe and orderly shutdown of the process</li> </ul>
5	The process will remain in this state until it can be operated properly.
<b>Note:</b>	In most instances where the Dow Process Control Computer takes automatic action to control the process feeds, vent collection and process venting there is no credible scenario where excess emissions would occur. If the MOD resolved the problem without any MACT parameter excursion, no SSMP event has occurred. In many instances correcting the malfunction immediately with the process in operation will result in less environmental impact than shutting down the process. In these instances, prompt repair will occur in lieu of a shutdown. Actions taken must be documented in the appropriate manner.

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## Procedure 7 - Malfunction – Process pressure outside of set parameters

### Scope of the SSM Event

This procedure addresses any sudden and unexpected pressure excursion where the pressure is outside of the set parameters. This event could include excess process pressure which could result in excess emissions. This event could affect a thermal treatment unit, scrubber, absorber, condenser, stripper, or other similar control device or control technique.

### Malfunction- Process pressure outside of parameters

The operator should follow all the actions described here in the event of a pressure excursion outside of the set parameters.

Step	Action
1	Operations personnel will receive an alarm or equivalent notification as an indication that a pressure problem exists.
2	Determine if an instrument problem exists.
3	If the instrument is found to be the problem, repair the instrument as soon as possible.
4	If the instrument is operating properly, take the action to minimize emissions.  This may include any or all of the following: <ul style="list-style-type: none"><li>• the automatic shutdown of valves on process feeds or vents</li><li>• the pressurization of a vent surge tank</li><li>• the redirection of process feed streams or vents to an alternate control device</li><li>• the safe and orderly shutdown of the process</li></ul>
5	The process will remain in this state until it can be operated properly.
<b>Note:</b>	In most instances where the Dow Process Control Computer takes automatic action to control the process feeds, vent collection and process venting there is no credible scenario where excess emissions would occur. If the MOD resolved the problem without any MACT parameter excursion, no SSMP event has occurred. In many instances correcting the malfunction immediately with the process in operation will result in less environmental impact than shutting down the process. In these instances, prompt repair will occur in lieu of a shutdown. Actions taken must be documented in the appropriate manner.

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## Procedure 8 - Malfunction – Emissions exceedance above the MACT limits

**Scope of the SSM Event** This procedure addresses any sudden and unexpected emission exceedance where emissions limits of the MACT are exceeded.

**Malfunction - Emissions exceedance above the MACT limits** Events that may cause an emission exceedance may include, but are not limited to the following:

- Catastrophic events (acts of God)
  - Floods due to heavy rain or river flooding
  - Tornado, Lightning, High winds
  - Fire
  - Earthquake
  - Meteor
- Loss of utilities or process control equipment
  - MOD process control computer failure
  - Electricity
  - Air, Nitrogen or Steam (plant supplied and stand-alone system)
  - Water (DI, Huron, Service, city)
  - Natural gas
  - Cooling tower
  - Heat transfer fluids (Dowtherm™ Heat Transfer Fluids, Dowfrost™ Heat Transfer Fluids, Freon™ Refrigerants, etc)
- Sample purges necessary for upset events

The operator should follow all the actions described here in the event of an emission excursion outside of the limitation of the MACT standard.

Step	Action
1	Upon notification or realization that a MACT emission limit may have been exceeded, operations personnel will determine the extent of the malfunction. This may include, but is not limited to the following: <ul style="list-style-type: none"> <li>• Viewing MOD parameter data (if available)</li> <li>• Field investigation</li> <li>• Consultation with in-plant support personnel</li> </ul>
2	If upon investigation, it is determined that emissions may be exceeded, operations may take the following actions to minimize emissions: <ul style="list-style-type: none"> <li>• the automatic shutdown of valves on process feeds and vents</li> <li>• the pressurization of a vent surge tank</li> <li>• the redirection of process feed streams and vents to an alternate control device</li> <li>• the safe and orderly shutdown of the process</li> </ul>
3	The process will remain in this state until the unit can be operated properly.
<b>Note:</b>	In most instances where the Dow Process Control Computer takes automatic action to control the vent collection and process venting there is no credible scenario where excess emissions would occur.

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## Procedure 9 - Malfunction – Data collection not achieved per the MACT requirement

### Scope of the SSM Event

This procedure addresses any sudden and unexpected failure of the data collection system to collect the required data per the MACT. A data collection failure can include, but is not limited to:

- Complete loss of the data collection system
- Loss of communications to the data collection system

Data collection is performed through the MOD process control computer (or equivalent) to a centralized collection device (VAX or equivalent). Communications to the device and the device performance is monitored via the process control computer. If a data collection failure occurs, operations personnel will be alerted via an alarm. Loss of the data collection system may not interfere with the safe operations of the plant. Required data collection may not occur during this time.

### Malfunction- Data collection not achieved per the MACT requirement

The following procedure shall be used during a failure of the data collection system:

Step	Action
1	If operations personnel are alerted to a data collection failure, action will be taken to correct the problem up to and including the following: <ul style="list-style-type: none"> <li>• Contact Process Control personal and inform them of the outage</li> <li>• Contact in-plant support personnel of the outage</li> </ul>
2	Operations personnel will verify the plant is operating properly by reviewing operating parameters, alarm status, or print reports.
3	If the outage lasts more than 1 hour, if practical, operations personnel may document required parameters. At all times, safe plant operations will be the primary concern of the operations staff. During abnormal operations during a failure of the data collection system, manual data gathering may not occur.
4	Once the data collection system has resumed normal operations, the documented parameters (if performed) will be submitted to the facility environmental coordinator.
<b>Note:</b>	Most MACT standards require 75% required data be gathered on a daily basis. If the data gathered in a given 24 hour period is equal to or greater than 75% of the required data, no action is required.

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## Procedure 10 - Malfunction – High process pressure event that contravene the MACT

### Scope of the SSM Event

This procedure addresses any sudden and unexpected high pressure event that contravenes a requirement of the MACT standard. These events can include but are not limited to the following:

- Relief activation, mechanical seal failure, gasket failure, or other pressure release events that could contravene the process vent requirements

### Malfunction- High process pressure events that contravene the MACT

The following procedure shall be used during an unexpected high pressure event that contravenes the MACT:

Step	Action
1	Upon notification or realization that a high pressure event may have contravened a requirement of the MACT standard, operations personnel will determine the extent of the malfunction. This may include, but is not limited to the following: <ul style="list-style-type: none"><li>• Viewing process control computer data (if available)</li><li>• Field investigation</li><li>• Consultation with in-plant support personnel</li></ul>
2	If a high pressure event has occurred that contravenes the MACT standard, operations will take actions to reduce emissions which may include but are not limited to the following: <ul style="list-style-type: none"><li>▪ Perform a safe and orderly shutdown of the process</li><li>▪ Route feeds or process vents to an alternate control device</li><li>▪ Isolate the source of the unplanned emissions</li></ul>
3	After emission minimization has occurred, determine if the event was caused by a malfunction. If the event was caused by a malfunction, document accordingly.

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## Procedure 11 - Malfunction –A temporary change in status of a process wastewater stream

### Scope of the SSM Event

A change in Status is defined as a Group 2 process wastewater stream becoming a Group 1 process wastewater stream.

This procedure addresses any sudden, infrequent, and unexpected event that would cause a process wastewater stream to change status, requiring treatment. These events can include but are not limited to the following:

- An unexpected malfunction of process equipment
- An unexpected malfunction of a recovery system
- A unexpected change in process conditions

### Malfunction-A temporary change in the Status of a Process WW Stream

The following procedure shall be used during an event where a group 2 process wastewater stream temporarily becomes a group 1 stream due to a malfunction.

Step	Action
1	Upon discovery that a process wastewater stream may have changed status and contravened a requirement of a MACT standard, operations personnel will determine the extent of the malfunction. This may include, but is not limited to the following: <ul style="list-style-type: none"><li>• Reviewing process sampling results (if available)</li><li>• Viewing process control computer data (if available)</li><li>• Field investigation</li><li>• Consultation with in-plant support personnel</li><li>• Process and equipment troubleshooting</li></ul>
2	If a process wastewater stream has changed status, operations will take actions to reduce emissions which may include but are not limited to the following: <ul style="list-style-type: none"><li>▪ Make changes in process or equipment operation</li><li>▪ Perform a safe and orderly shutdown of the process or portions of the process that generate the process wastewater</li><li>▪ Route the wastewater stream to an alternate treatment device</li><li>▪ Route the wastewater stream to alternate containment</li></ul>
3	The process will remain in this state until an assignable cause is identified and corrected and the process wastewater is determined to be back to normal.

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## Procedure 12 - Malfunction –A temporary change in Status of a process vent stream

### Scope of the SSM Event

A change in Status is defined as a Group 2 process vent stream becoming a Group 1 process vent stream or.

This procedure addresses any sudden, infrequent, and unexpected event that would cause a process vent stream to change status, requiring treatment. These events can include but are not limited to the following:

- An unexpected malfunction of process equipment
- An unexpected malfunction of a recovery system
- A unexpected change in process conditions

### Malfunction-A temporary change in the Status of a Process WW Stream

The following procedure shall be used during an event where a group 2 process vent stream temporarily becomes a group 1 stream due to a malfunction.

Step	Action
1	Upon discovery that a process vent stream may have changed status and contravened a requirement of a MACT standard, operations personnel will determine the extent of the malfunction. This may include, but is not limited to the following: <ul style="list-style-type: none"><li>• Reviewing process sampling results (if available)</li><li>• Viewing process control computer data (if available)</li><li>• Field investigation</li><li>• Consultation with in-plant support personnel</li><li>• Process and equipment troubleshooting</li></ul>
2	If a process vent stream has changed status, operations will take actions to reduce emissions which may include but are not limited to the following: <ul style="list-style-type: none"><li>▪ Make changes in process or equipment operation</li><li>▪ Perform a safe and orderly shutdown of the process or portions of the process that generate the process vent</li><li>▪ Route the vent stream to treatment device</li></ul>
3	The process will remain in this state until an assignable cause is identified and corrected and the process vent stream is determined to be back to normal.

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## Procedure 13 - Malfunction – Equipment leak on a compressor that is designated to have no detectable emissions (NDE)

### Scope of the SSM Event

Dow Michigan Operations utilizes the designation for no detectable emissions (NDE) on compressors in HAP service. These compressors have historically seen leak-free performance. In the event a compressor that has been designated NDE encounters a leak above the 500 ppm threshold, the following procedure can be used to minimize emissions during the event.

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### Malfunction-A leak in a compressor designated with no detectable emissions

The following procedure may be used if operations personnel encounter an equipment leak on a compressor that has been designated as a unit with no detectable emissions.

For a current list of applicable compressors designated with no detectable emissions, contact the site LDAR SME.

Step	Action
1	Upon discovery that a compressor that has been designated NDE is leaking above the leak threshold, evaluate process conditions to determine if a malfunction has occurred which could change the performance of the compressor. Examples of a process condition malfunction may include, but are not limited to the following: <ul style="list-style-type: none"><li>• High pressure event</li><li>• High level event</li><li>• Other process abnormalities</li></ul>
2	After evaluation of the process has occurred, the following actions may include, but are not limited to the following in order to minimize emissions: <ul style="list-style-type: none"><li>• Correct the process abnormality</li><li>• Switch to a back-up compressor (if applicable) until repairs can be made to the leaking unit.</li><li>• Take a safe and orderly shutdown of the process or portion of the process to minimize environmental impact.</li><li>• Isolate and evacuate the unit of HAPs to minimize emissions to the environment.</li></ul>
3	The process will remain in this state until the unit has been repaired and has been determined to be leak-free per the appropriate standard.

## Appendix A – Maintenance Wastewater Procedure

### Maintenance Wastewater Guidance

Many of the MACT rules follow the precedent established by the HON and require sources to develop procedures for management of maintenance wastewaters. Under §63.105 of the HON, which is referenced by many other MACT rules, the maintenance wastewater procedures are to be recorded in, and implemented as part of, the SSM plan. While the SSM plan is the repository for these wastewater procedures, they are not subject to the SSM certification, recordkeeping and reporting requirements, since other upkeep requirements are specified and SSM requirements are written specifically to address SSM periods when emission limitations do not apply. Since there is no emission standard for maintenance wastewaters other than having and implementing this plan, there are no emission limitations and thus no waiver of them for SSM periods.

The following MACTS applicable within Dow MiOps do not require maintenance wastewater plans – Subpart DD (Offsite Waste); Subpart EEE (Hazardous Waste Combustion); and Subpart GGGGG (Site Remediation);

### Scope of the SSM Event

This maintenance wastewater procedure's goal is to minimize emissions. This procedure outlines the plant operating discipline for handling wastewater that may be generated as a result of any cleaning, draining, de-scaling, sampling/purging, or general maintenance activities.

### Maintenance Wastewater Procedure

Step	Action
1	Assure that any residual Hazardous Air Pollutants (HAP's) are collected, drained, purged, pumped, absorbed, or otherwise removed prior to maintenance activity and disposed of properly.
2	Use appropriate plant water sources (De-Ionized, City, Huron, or Service) to wash the equipment.
3	Use copious amounts of water to assure that the washed material does not remain in any areas open to atmosphere and are flushed into the plant sewer system for treatment at the WWTP.  NOTE: Group 1 water streams are not allowed to go to the WWTP. If your stream is considered group 1, treat it properly prior to disposal.