

Pollution Incident Prevention Plan

The University of Michigan
Ann Arbor Campus

Revised:

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Acronyms and Abbreviations

AST	Above Ground Storage Tank
CAS	Chemical Abstract Service
CPP	Central Power Plant
DPSS	Department of Public Safety & Security
EGLE	Michigan Department of Environment, Great Lakes & Energy
EHS	Environment, Health & Safety
EPA	Environmental Protection Agency
ERCP	Emergency Response Contingency Plan
FEMA	Federal Emergency Management Agency
HAZWOPER	Hazardous Waste Operations Emergency Response
HMM	Hazardous Materials Management
ICS	Incident Command System
LEPC	Local Emergency Planning Committee
NCRC	North Campus Research Complex
NPDES	National Pollutant Discharge Elimination System
PEAS	Pollution Emergency Alerting System
PIPP	Pollution Incident Prevention Plan
SDS	Safety Data Sheets
SPCC	Spill Prevention, Control, and Countermeasures Plan
TMQ	Threshold Management Quantity
U-M	University of Michigan, Ann Arbor
UST	Underground Storage Tank

Document Control and Revision History

In accordance with Michigan Rule 324.2001 through R 324.2009, a review and evaluation of this Pollution Incident Prevention Plan (PIPP) is conducted at least every three years. Between February 2000 and January 2008, a review and evaluation was conducted every three years of the Integrated Spill Prevention Control Countermeasure (SPCC)-PIPP and certified by a Professional Engineer when required. January 2008 the integrated SPCC-PIPP Plan was divided and thereafter the PIPP will be reviewed and evaluated at least every three years. These reviews and evaluations are recorded below:

		Is PE recertification Required? Yes or No
Initial Date:	<u>February 2000</u>	By: <u>CH2M HILL</u> YES
Revision Date:	<u>October 22, 2001</u>	By: <u>OSEH – Andrew Berki</u> YES
Revision Date:	<u>December 14, 2001</u>	By: <u>OSEH – Brandi Campbell</u> YES
Revision Date:	<u>July 2, 2002</u>	By: <u>OSEH - Brandi Campbell</u> YES
Revision Date:	<u>April 17, 2003</u>	By: <u>OSEH - Brandi Campbell</u> NO
Revision Date:	<u>August 31, 2003</u>	By: <u>Clayton Group Services</u> NO
Revision Date:	<u>March 31, 2004</u>	By: <u>OSEH - Brandi Campbell</u> YES
Revision Date:	<u>January 13, 2006</u>	By: <u>OSEH – Brandi Campbell</u> YES
Revision Date:	<u>January 4, 2008</u>	By: <u>OSEH – Brandi Campbell</u> NO
Revision Date:	<u>August 23, 2010</u>	By: <u>OSEH – Brandi Campbell</u> NO
Revision Date:	<u>March 13, 2013</u>	By: <u>OSEH – Brandi Campbell</u> NO
Revision Date:	<u>February 8, 2016</u>	By: <u>OSEH – Jody Mathias</u> NO
Revision Date:	<u>February 9, 2018</u>	By: <u>EHS – Jody Mathias</u> NO
Revision Date:	<u>January 13, 2020</u>	By: <u>EHS – Jody Mathias</u> NO
Revision Date:	<u>December 21, 2021</u>	By: <u>EHS – Jody Mathias</u> NO

1.0 Purpose of Plan

The University of Michigan - Ann Arbor (U-M) is required to complete a PIPP as defined in the Michigan Department of Environment, Great Lakes & Energy (EGLE) Part 5 Spillage of Oil and Polluting Materials Rules (R 324.2001 through R 324.2009; henceforth referred to as “EGLE Part 5 Rules”). EGLE Part 5 Rules were developed to address release prevention planning, secondary containment, surveillance, and release reporting requirements of EGLE-defined polluting materials. Because U-M stores EGLE polluting materials in excess of the threshold management quantity (TMQ), it is required to prepare and implement a PIPP. The EGLE Part 5 TMQ is defined as:

- Salt (including sodium chloride, potassium chloride, calcium chloride, magnesium chloride), in solid form, at any location in a quantity greater than 5 tons.
- Salt, in liquid form, at any location in a quantity greater than 1,000 gallons.
- Oil, stored aboveground in quantities of 1,320 gallons or greater or in a single aboveground storage tank (AST) with a capacity of 660 gallons or greater. Oil means oil of any kind or in any form, including any of the following: petroleum, gasoline, fuel oil, grease, oily sludges, oil refuse, and oil mixed with waste. Oil storage and use does not need to be addressed in a PIPP if a facility complies with 40 CFR 112. U-M complies with 40 CFR 112 and has implemented a Spill Prevention Control and Countermeasures (SPCC) Plan for its entire campus.
- All other polluting materials at any discrete outdoor location in aggregate quantities greater than 440 pounds.
- All other polluting materials at any discrete indoor location in aggregate quantities greater than 2,200 pounds.

Polluting materials in containers that do not individually exceed 10 gallons, or 100 pounds, and that are managed indoors with adequate safeguards to prevent releases are exempted from Part 5 Rules.

This PIPP provides guidelines for preventing the release of polluting materials into the environment, especially to surface water and groundwater. The PIPP provides guidelines for preventive maintenance, commitment of resources, and emergency response procedures that will be implemented in the event of a spillage of polluting materials at the U-M.

This PIPP has been prepared in accordance with EGLE Part 5 Rules. In addition, this PIPP creates mechanisms for responding to chemical discharges. The aim is to minimize any impact to human health, the environment, and employee safety.

2.0 General Information

2.1 Facility Information

1. NAME OF FACILITY AND OWNER:	The Regents of the University of Michigan
2. FACILITY STREET ADDRESS	The University of Michigan Ann Arbor, MI 48109
3. FACILITY MAILING ADDRESS	The University of Michigan Environment, Health & Safety (EHS) Campus Safety Services Building 1239 Kipke Drive Ann Arbor, MI 48109-1010
4. FACILITY PHONE NUMBER	734-763-4568 (7:30AM - 4:30PM) 734-763-1131 (24 hours – Department of Public Safety & Security)

The Spill Prevention and Control Coordinator is responsible for reporting any notifications of releases to the environment. The Facility Response Coordinator is responsible for on-site spill prevention and control.

Spill Prevention and Control Coordinator: Stephen M. O’Rielly
Working Hours Phone Number: (734) 763-4642 Office
After Hours Phone Number: (734) 355-9220 Cell

First Alternate: Brandi Campbell
Working Hours Phone Number: (734) 647-9017 Office
After Hours Phone Number: (734) 347-7765 Cell

NCRC Facility Response Coordinator: Preston Smith
Working Hours Phone Number: (734) 764-9019 Office
After Hours Phone Number: (734) 355-7375 Cell

CPP Facility Response Coordinator: Nathan Parker
Working Hours Phone Number: (734) 647-1347 Office
After Hours Phone Number: (720) 383-1061 Cell

In the event of an emergency, U-M EHS has a 24-hour Emergency Response Team that responds to all types of spills. During normal working hours of 7:30am-4:30pm, spills are reported to U-M EHS, Hazardous Materials Management (HMM) at 734-763-4568. If a spill is identified after regular hours of operation, U-M staff are trained to contact the U-M Department of Public Safety & Security (DPSS) at 734-763-1131 who in turn contact a member of the EHS emergency response team to arrive on site and clean up the spill.

2.2 Emergency Notification Phone Numbers

Depending on the nature of the spill, the Facility Response Coordinator will notify appropriate entities in the area (contractors, etc) to ensure their safety.

Department	Phone Number(s)
U-M DPSS	(734) 763-1131 or 911 (from a campus phone)
U-M CPP Control Room	(734) 764-3476
U-M NCRC Control Room	(734) 764-9005
U-M EHS -HMM	(734) 763-4568
EGLE, Jackson District Office	(517) 780-7690
EGLE (24-hour Pollution Emergency Alerting System - PEAS)	(800) 292-4706
Environmental Protection Agency (EPA Region 5)	(312) 353-2000 (800) 621-8431
U.S. Coast Guard - Detroit Michigan	(313) 568-9525
U.S. Coast Guard – National Response Center	(800) 424-8802
City of Ann Arbor Police and Fire Department	911 (from an OFF-CAMPUS phone)
City of Ann Arbor Wastewater Treatment Plant	(734) 794-6450
Michigan Department of Health & Human Services	(517) 335-9030
State Fire Marshal (Detroit District)	(517) 241-8847
Washtenaw County Health Department	(734) 544-6700
Michigan Department of Agriculture & Rural Development (pesticides only)	(800) 292-3939
Downstream Water Department (Ypsilanti Community Utilities Authority)	(734) 484-4600
Spill Clean-up Contractor (Young’s Environmental Cleanup Inc.)	1-800-496-8647

2.3 Spill Notification to Outside Entities

U-M has an effective facility-wide Emergency Response Contingency Plan (ERCP) that is implemented for all chemical releases. Emergency spill notifications (e.g., fire and police departments) are contained within the ERCP. Notifications and follow-up reporting regarding reportable quantities of released material are conducted by EHS.

3.0 Implementation Plan

Provisions of this PIPP required by EGLE Part 5 Rules were implemented by August 31, 2003. The PIPP is implemented on an ongoing basis.

3.1 Plan Review and Revisions

Document reviews must be conducted at least once every 3 years and recorded in the PIPP. The PIPP will be revised more often if:

1. The PIPP fails in an emergency.
2. The Facility Response Coordinator or alternate information changes.
3. Processes or procedures identified change.
4. EGLE determines the PIPP is incomplete or inadequate.
5. There is a release that requires implementation of the PIPP.

The PIPP is available for review during normal business hours.

3.2 Notifications Regarding PIPP

EGLE, the Local Emergency Planning Committee (LEPC), and Local Health Department were notified of the plan completion in 2000 and that U-M was in compliance with the EGLE Part 5 Rules. Each time the plan is updated, a notification is sent to the Water Resources Division district office, LEPC and local health department. If requested, U-M will submit a copy of the PIPP to the requesting agency within 30 days.

If EGLE determines that the PIPP is incomplete or inadequate, EGLE may request, in writing, a modified copy of the PIPP. The PIPP must be resubmitted to EGLE within 30 days after receipt of EGLE's request, unless a longer period is authorized by EGLE in writing.

4.0 Facility Description and Operations

The U-M Ann Arbor campus (i.e., the facility) consists of several major campus areas: East Medical Campus (Figure 1); North Campus (Figure 2); Central Campus (Figure 3); Medical Center Campus (Figure 4); and Ross Athletic Campus (Figure 5). The facility is located roughly 40 miles west of Detroit and is located within the Huron River Watershed. The facility is a full-service university that provides education, housing, power, maintenance, medical, transportation,

and food services. Research and development is also performed at the facility. The student body consists of approximately 48,150 graduate and undergraduate students, and the Medical Center serves approximately 2.6 million patients per year.

A centralized power plant provides steam, hot water, air pressure, and electricity for about one-half of the roughly 27,000,000 square feet of infrastructure on the Ann Arbor campus. The Central Power Plant (CPP) uses natural-gas or No. 2 fuel oil to power the facility's operations. Underground storage tanks (USTs) at the power plant store up to 590,000 gallons of fuel oil for emergency generation purposes. The central power plant has a pipe color coding system to protect against many hazards and is attached as Appendix A.

Also there is an additional north campus power plant that generates steam for heating and cooling along with a chiller plant that provides cooling to the buildings at North Campus Research Complex (NCRC). There are seven (7) natural gas boilers to produce steam for heating and cooling of the surrounding buildings. Water softening and polishing of city-supplied water is provided on-site for use in the boilers. The powerhouse has the capability of producing electricity with a gas turbine generator. The primary fuel is natural gas, but the boilers and gas turbine have fuel oil back-up stored in an above ground storage tank. An operations diagram of the Powerhouse is attached as Appendix B.

The University also has a full-service transportation services department that provides maintenance and fuel for a fleet of approximately 1,000 vehicles. The attached campus maps (Figures 1 through 5) identify the facility relative to the surrounding areas, including thoroughfares and surface waters.

4.1 Facility Drainage

The general topography of the facility varies from rolling hills to level ground. Onsite surface drainage generally flows into the University's municipal separate storm water system (MS4). Maps showing the facility relative to the surrounding area, including nearby surface waters, are found in the figure section. In lesser-developed areas of the campus, surface drainage may sheet flow to surrounding terrain or into retention ponds that have no outlets. The facility MS4 discharges through numerous points of connection with the City of Ann Arbor's MS4, along with over 75 direct discharges to the Huron River and tributaries to the Huron River (Allen Creek, Traver Creek, Fleming Creek, Mallet's Creek, Honey Creek, and Miller's Creek). Floor drains inside facility buildings discharge to the City of Ann Arbor sanitary sewer system, which is connected to the City's waste water treatment plant (WWTP).

5.0 Polluting Material Storage, Distribution, and Use

Polluting materials, in excess of the threshold management quantity (TMQ), are stored, distributed, and used throughout U-M. A polluting materials storage table is provided as Table 1 that includes the product name, chemical name, Chemical Abstract Service (CAS) number, quantities, storage container/system and the locations. In addition, maps for each building containing polluting materials in excess of the TMQ are also attached. Many of the building on campus have ethylene glycol systems for heating and cooling. A list of these buildings is

included as Table 2.

Master copies of Safety Data Sheets (SDS) for all polluting materials identified in this PIPP are either maintained at the site or at the EHS Department office and are included in Appendix C.

Secondary containment for polluting materials is generally provided by the buildings. Other secondary containment may also be utilized including spill pallets, permanent berms and absorbent materials (e.g., spill mats, socks, granular material). Floor drains are covered when feasible during transfer of polluting material.

5.1 Potential Releases and Prevention Controls

Containment and diversionary structures for indoor aboveground storage tank (AST) and drummed storage areas consist of secondary containment systems capable of holding 100% of the volume or stored in conjunction with absorbent materials, oil/water interceptors, and/or diversions to spill collection sumps. All outdoor storage areas consist of secondary containment systems capable of holding 100% of the largest container or 10% of the volume of all the containers in the system, whichever is larger. The outdoor containment systems are either (1) covered to prevent rain accumulation or (2) the 25-year, 24-hour storm event volume is accounted for in the secondary containment capacity. All outdoor ASTs are double-walled.

Secondary containment for polluting materials is generally provided inside buildings by the room with no floor drains. If interior drains are located near a storage area, other secondary containment may also be utilized including spill pallets, berms, and absorbent materials (e.g., spill mats, socks, granular material). Floor drains are covered, when feasible, during transfer of polluting material to prevent a release from entering the floor drain.

5.2 Loading and Unloading Operations

Preventative measures are implemented during loading and unloading operations at the facilities on campus that require bulk deliveries of polluting materials to prevent spills. The catchment systems are specifically designed for each loading and unloading location. The size of the largest compartment in the tanker truck, area geography, size of storage tank, frequency of loading and unloading fuel, and location of the storm drains were all parameters that determined site-specific catchment design.

Best management practices are used when unloading polluting materials into the bulk tanks. At all times, there is a U-M employee present.

5.3 Best Management Practices for Ethylene Glycol Systems

U-M has implemented the following best management practices for storage of ethylene glycol (an EGLE Part 5 polluting material) within systems on campus. Ethylene glycol systems are used on campus in the heating, ventilation, and air-conditioning (HVAC) systems. Energy recovery systems, chilled water systems, or hot water heating systems containing ethylene glycol have

routine maintenance. Typically, ethylene glycol circulates throughout piping within buildings. Designated personnel, which includes U-M employees and outside contractors, who work with the ethylene glycol should follow these best management practices to ensure proper handling.

Loading and Unloading Procedures

- Designated personnel are present to receive ethylene glycol at the loading and unloading dock and assure that the material container is in good condition.
- Ethylene glycol is only loaded or unloaded when needed.
- Designated personnel transfer or accompany ethylene glycol containers to the designated storage location (typically a machine room).

Storage

- Ethylene glycol containers are stored in drums prior to use in heating HVAC systems, which can include energy recovery systems, chilled water systems, or hot water heating systems. All of these systems are closed-loop and are not open to the atmosphere.
- Containers of ethylene glycol are stored closed when not in use. Excess containers are disposed through Hazmat.
- Permanent storage of ethylene glycol in containers of 10 gallons or greater has required secondary containment.
- Temporary storage of ethylene glycol during maintenance operations will have a best management practice in place to prevent a spill from entering a floor drain (i.e. magnetic drain cover, adsorbent socks, etc.).
- Designated personnel regularly inspect the ethylene glycol containers for evidence of container damage.

Transfer

- During routine use, ethylene glycol is only added to the systems and not removed.
- Typically, during routine use, less than two 55-gallon drums of ethylene glycol are added to each system at a time.
- Designated personnel are present during transfer of ethylene glycol.
- When ethylene glycol systems are maintained or reconditioned, designated personnel containerize the ethylene glycol. If the ethylene glycol cannot be re-used, Hazmat will be notified for removal.

Spill Response

- Designated personnel are trained to detect any spilled material.
- Ethylene glycol is not permitted to be discharged to the sanitary or storm sewer systems. If any spilled material enters a floor drain, designated personnel will immediately call DPSS who will contact EHS.
- If this is beyond designated personnel and EHS's ability to clean up, EHS will contact an Environmental Contractor.

5.4 Best Management Practices for Lithium Bromide Systems

U-M has implemented the following best management practices for storage of lithium bromide

(an EGLE Part 5 polluting material) within systems on campus. Lithium bromide systems are used on campus in heating and cooling systems. Lithium bromide within the systems is fixed within the machine and does not circulate through the building. Designated personnel, which includes U-M employees and outside contractors, who work with the lithium bromide should follow these best management practices to ensure proper handling.

Loading and Unloading Procedures

- Designated personnel are present to receive lithium bromide at the loading and unloading dock and assure that the material container is in good condition.
- Lithium bromide is only loaded or unloaded when needed.
- Designated personnel transfer lithium bromide containers to the designated storage location.

Storage

- Containers of lithium bromide are stored closed when not in use. Excess containers are disposed through Hazmat.
- Permanent storage of lithium bromide in containers of 10 gallons or greater has required secondary containment.
- Temporary storage of lithium bromide during maintenance operations will have a best management practice in place to prevent a spill from entering a floor drain (i.e. magnetic drain cover, adsorbent socks, etc.).
- Designated personnel regularly inspect the lithium bromide containers for evidence of container damage.
- Chillers containing lithium bromide are operated under a vacuum, which reduces the likelihood of a release.
- Chillers containing lithium bromide have routine preventative maintenance.

Transfer

- Lithium bromide absorbent chiller equipment rarely requires the removal of lithium bromide. If the lithium bromide cannot be re-used, Hazmat will be notified for removal.
- Designated personnel are present during transfer of lithium bromide.

Spill Response

- Designated personnel are trained to detect any spilled material.
- Lithium bromide is not permitted to be discharged to the sanitary or storm sewer systems. If any spilled material enters a floor drain, designated personnel will immediately call DPSS who will contact EHS.
- If this is beyond designated personnel and EHS's ability to clean up, EHS will contact an Environmental Contractor.

6.0 Spill Response Plan

6.1 General Initial Response Measures and Spill Reporting

The initial spill response is initiated by the U-M personnel that discovers the spill. U-M personnel are trained to properly respond to a spill of the chemicals they use or store. In the event of a minor spill, the U-M personnel would follow the standard operating procedure based on the type of spill.

For minor spills, the U-M personnel would proceed with the cleanup procedure. For a major spill, U-M personnel would notify U-M DPSS. During business hours, U-M DPSS contacts EHS HMM to respond. After hours, DPSS is directed to alert the U-M EHS Incident Response Team. All members of the emergency response team have received HAZWOPER training and are proficient in cleaning up spills of this nature. List of 24-hour emergency numbers are in Section 2.2.

Appropriate personal protective equipment (PPE) would be donned and initial spill response activities would begin. If there is a potential that drains will be impacted by the spill, sorbent booms would be placed around the drains. The area surrounding the spill would be blocked off with caution tape if feasible. Then granular absorbent would be applied to the spill impacted area. Spill kits are located in all bulk chemical storage areas. At a minimum, spill kits contain absorbent socks and pads compatible with the type of chemical or oil storage and in quantity sufficient to protect nearby drains from spills. Standard Operating Procedures for Minor Spills, Major Spills and Spills Near a Drain or on a Permeable Surface are included as Appendix D.

U-M has an effective Emergency Response Contingency Plan (ERCP) that serves as a guidance document to assist University employees as well as outside responding agencies in dealing with emergency operations on the facility. The facility ERCP incorporates the majority of the criteria for oil removal contingency plans specified in 40 CFR Part 109. The ERCP addresses emergency situations involving natural disasters, fires, explosions, chemical releases, and biological and radiological incidents. The ERCP covers incidental releases and minor spills of chemicals and oil products.

The ERCP specifies emergency procedures, identifies emergency coordinators, and describes the hierarchy of incident command. In addition, it also describes internal and external notifications, emergency response actions, and spill response actions.

To ensure that U-M personnel are familiar with the ERCP and how to approach incidents should they occur, U-M personnel that are responsible for responding to spills have completed 32-hour Hazardous Waste Operations (HAZWOPER) Emergency Response Technician/Incident Command level training. In addition the U-M EHS has completed Federal Emergency Management Agency (FEMA) Incident Command System (ICS) 100 and 200 training.

6.2 Remedial Action

Because the nature and extent of potential chemical spills can vary, the range of remedial actions will likewise vary. For small spills, leaks, or drips, the remedial action is as simple as removing the contaminated material (whether dirt, booms, or other adsorbents) and placing it in an approved container for subsequent treatment or disposal. A large spill, on the other hand, could result in an extensive cleanup of soil, groundwater, and surface water and may be beyond the immediately available facility resources. Licensed environmental remediation companies are under contract with U-M to respond if a spill occurs that is beyond the scope of U-M emergency response capabilities. The facility-wide ERCP specifies procedures for post-emergency actions such as cleanup, waste characterization, disposal procedures, and additional/follow-up notification.

U-M EHS has a 24-hour Emergency Response Team that responds to all types of spills specified in

the ERCP including polluting materials. If a spill is identified after regular hours of operation, U-M staff is trained to contact the U-M DPSS who in turn contact a member of the EHS emergency response team to arrive on site and clean up the spill. All members of the emergency response team have received HAZWOPER training and are proficient in cleaning up spills of this nature.

7.0 Security

To assist in preventing a spill or release from being caused by accidental or unauthorized entry or vandalism, the following security measures are taken:

- Unmanned fuel pumps are equipped with electronic locks, allowing only authorized, trained personnel to use the fuel pumps.
- Adequate lighting is provided for the visual detection of spills by both facility personnel and the general public.
- USTs and ASTs are reinforced in areas with vehicular traffic.
- All of the transportation and ground areas handling or storing oil are surrounded by fencing that is kept locked during non-working hours.
- Buildings storing oil or polluting materials are kept locked during non-working hours.

8.0 Plan Reviews

Amendments or updates during plan reviews to the PIPP are described in the table below, including a summary of the update and the date the amendment or update was completed.

Sections Updated	Date
Distribution List - updated contact names	2/19/04
Added Section 2.3 to cover portable units	2/19/04
Emergency generators were added	2/19/04
Updated flow drainage maps	2/19/04
Updated flow drainage maps	11/30/05
Added to section 2.2 discussing temporary const. AST	11/30/05
Updated spill record	11/30/05
Updated integrity testing in section 4.2	11/30/05
Integrated plan separated into individual plans	1/08
PIPP written plan updated	1/08

Sections Updated	Date
Chemical tables updated; new buildings added	1/08
Chemical tables updated; Updated Facility Coordinator; added a regulatory matrix.	8/10
Chemical tables updated; new buildings added; maps updated; minor verbiage changes to summary tables; change in verbiage in section 3.1; facility response coordinator changed; updates made in emergency response agencies phone numbers.	1/13
Chemical tables updated; maps updated; first alternate coordinator changed; updates made in emergency response agencies phone numbers.	2/16
Updated written plan to reflect change in department name from OSEH to EHS.	2/18
Polluting material storage tables updated; maps updated; facility response coordinator changed; addition of ethylene glycol and lithium bromide BMPs.	1/20
Combined CPP and NCRC PIPP Plans into this plan; polluting material storage tables updated; maps updated.	12/21