THE MICHIGAN GUIDE TO ENVIRONMENTAL, HEALTH, AND SAFETY REGULATIONS

INTRODUCTION

The ***Michigan Guide to Environmental, Health, and Safety Regulations*** is a joint publication of the Michigan Departments of Environmental Quality and Department of Licensing and Regulatory Affairs. Manufacturers, institutions, local governments, consultants, and regulators will all benefit from this guide, which simplifies the maze of environmental, health, and safety obligations facing Michigan's businesses and institutions. The guidebook is a ready-reference tool for anyone striving toward compliance with state and federal regulations that affect businesses and institutions. Although some reference is made to local regulations, they are not discussed in any detail. Be sure to contact your local government officials for information on applicable local requirements.

Many businesses and institutions utilize a variety of materials and potentially hazardous chemicals that generate waste and, in turn, must be handled, treated, or disposed of properly. Although the average business is not a major source of pollution, the industry's aggregate impact on the environment is substantial. Improper handling of materials and waste products often contributes to environmental contamination, leading to costly and harmful effects on everyone involved.

This guidebook describes how wastes may enter the environment, how to prevent them from doing so, and which remediation methods to use if contamination does occur. Some of the most common concerns, along with applicable solutions, are described in the chapters that follow. Topics include discharge of air pollutants; disposal of solid, liquid, and hazardous waste; discharges of wastewater to municipal sewage systems, storm drains, and on-site septic systems; storage of materials; and discharges/releases on the land or into lakes and streams.

Along with discussing these environmental protection issues, the guidebook also stresses the importance of health and safety in the work place, outlines applicable health and safety regulations, and teaches how to comply with them. Some topics covered include integrating safety into operations as a normal business process, discussing safety at regular business meetings, participating in periodic housekeeping and safety inspections, availability and use of personal protection equipment, conducting routine safety training, and regular review of performance.

The final two chapters of the guidebook focus on construction and fire code requirements. These topics include obtaining building, electrical, plumbing, and mechanical permits; various fire codes adopted by local municipalities; and local fire department response to hazardous material spills.

The promotion of a safe and healthy environment is in the best interest of all parties. By using the knowledge set forth in this guidebook to develop and sustain effective health and safety programs, Michigan businesses can steer clear of compliance problems, avoid costly penalties, and save money in the long run.

The ***Michigan Guide to Environmental, Health, and Safety Regulations*** is intended for guidance only and may be impacted by changes in legislation, rules, and regulations adopted after the date of publication. The suggestions given for identifying and implementing pollution prevention opportunities are not to be used as a substitute for applicable codes, rules, and regulations that impact businesses. Although the guidebook makes every effort to teach users how to meet applicable compliance obligations, use of this guidebook does not constitute the rendering of legal advice.

Diligent attention was given to assure that the information presented herein is accurate as of the date of publication; however, there is no guarantee, expressed or implied, that use of this guidebook will satisfy all regulatory requirements mandated by laws and their respective enforcement agencies. Reliance on information from this document is not usable as a defense in any enforcement action or litigation. The state of Michigan shall be held harmless for any cause of action brought on as a result of using of this publication.

The Michigan Department of Environmental Quality (MDEQ) will not discriminate against any individual or group on the basis of race, sex, religion, age, national origin, color, marital status, disability, political beliefs, height, weight, genetic information, or sexual orientation. Questions or concerns should be directed to the Office of Human Resources, PO Box 30473, Lansing, MI 48909.

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HOW TO USE THIS GUIDEBOOK

This guidebook is designed to answer questions regarding various regulations and furnish relevant, supplemental information. Although it may appear intimidating due to its size and the number of topics covered, you will find it quite easy to use.

The guidebook is subdivided into three main sections: environmental regulations; Michigan Occupational Safety and Health Act (MIOSHA) regulations; and construction and fire codes. Each chapter within each section targets a specific regulatory program. For example, Section One (Environmental Regulations), Chapter 2, contains an explanation of the regulations that manage the disposal of solid, liquid, and hazardous wastes. Section Two (MIOSHA Regulations), Chapter 32 contains an explanation of the lockout/tagout requirements. Because of the diversity found in business operations, not all chapters of this guide will be applicable to any one business. By completing the "Facility-Assessment Survey" beginning on page vi, you can create a personal checklist of the pages of the guide that are relevant to your business.

LAYOUT OF CHAPTERS

Many chapters of the guidebook, i.e., 1-11, 36, and 37, are subdivided into four distinct parts: Purpose and Applicability of Regulations, Agencies and Their Laws and Rules, the regulation abstracts, and Where to Go for Help.

The "Purpose and Applicability of Regulations" contains an overview of the type of activity that is regulated and the ultimate goal of compliance.

The "Agencies and Their Laws and Rules" cites all of the state and federal statutes and rules related to the particular regulatory program. Some guide owners will find it necessary to obtain actual copies of the regulations cited in this part of the chapter to further their understanding of the requirements. Appendix D gives a more detailed discussion of state and federal statutes and rules, how they are cited, and where you can find them on the Internet.

Following the "Agencies and Their Laws and Rules" part of the chapter are the regulatory abstracts. The abstracts highlight major components of the regulation and give readers an indication of whether or not the regulation is applicable to their manufacturing facility. When applicable, most regulations require a manufacturer to perform one or more of the following activities: modify or install equipment, maintain records, train employees, file reports, perform routine maintenance and monitoring, or develop a written plan.

The "Where to Go for Help" section identifies which state and federal agencies and other sources you can contact for additional information about the stated subject. Do not call these entities to obtain copies of the actual regulations. Instead, refer to Appendix D of the guidebook for step-by-step instructions on how to locate laws and rules on the Internet. It's a good idea to access and print the regulations you are questioning prior to calling for help and have a reference copy nearby when you call.

Whenever possible, the phone number, Web site, and list of useful publications associated with the agency or resource are listed. Traditionally, resource information such as this gets placed in an appendix at the back of the book. Because of its importance and value, we placed it at the end

of each chapter. The publications listed in "Where to Go for Help" appear throughout the regulatory abstracts in italics and in quotation marks, e.g., "*Air Pollution Control 101*."

Although there are numerous safety and health standards applicable to Michigan businesses, most of these standards were promulgated under one statute (the Michigan Occupational Safety and Health Act) and are administered by one agency the (Michigan Occupational Safety and Health Administration [MIOSHA]). Accordingly, MIOSHA contact information can be found in Appendix C, which provides an overview of the DEQ and MIOSHA. Specific contact information for MIOSHA programs can also be found throughout the chapters were applicable.

POLLUTION PREVENTION OPPORTUNITIES

There are many ways to lessen the impact of manufacturing on the environment while saving money in materials and operating costs through pollution prevention. Chapter 12 of the guidebook is devoted exclusively to pollution prevention opportunities for manufacturers of all sizes. Manufacturers can reduce the number of regulations they are subject to by implementing certain techniques and technologies that don't produce waste in the first place.

INFORMATION ICON

This symbol indicates important telephone numbers and Web sites you can access for more information about a particular regulation.

APPENDICES

Government is noted for its use of acronyms, and this guidebook is full of them. Appendix A contains a complete listing of all these acronyms used in the guidebook.

Appendix B contains definitions of the various regulated groups of materials referenced throughout the book. These defined terms appear in bold lettering (e.g., **hazardous material-Act 207**).

For enhanced understanding of the regulatory departments, we have included organizational charts of the DEQ and MIOSHA in Appendix C. In the environmental chapters of the guide, the DEQ district office is often referenced as the place to go for additional information and guidance. A map and phone numbers of the DEQ district offices are included in Appendix C.

Do you wonder what the numbers in front of the decimal point in a state rule citation refer to? Do you need the full text of a regulation your business may be subject to and need it fast? Appendix D unravels the mysteries associated with citing state and federal rules and tells how to locate electronic and hard copies of them. Thankfully, the Internet makes locating regulations an easy task. Key Web sites are listed in Appendix D.

FACILITY-ASSESSMENT SURVEY

This guidebook presents a comprehensive overview of all the environmental, safety, and health regulations applicable to Michigan businesses. Although the guide may appear overwhelming, you only need to review those chapters that apply to your facility. We encourage you to take the time to look at every chapter but realize this may not be a reasonable expectation. To tailor the guide to benefit your specific operation, we have included the Facility-Assessment Survey. The survey asks a series of questions through which the answers will lead you to specific chapters you need to read.

To complete the Facility-Assessment Survey, simply answer the questions on the following pages, “yes” or “no”. Depending on how you answer a particular question, you may be referred to a chapter of the guidebook that applies to your operation. Some chapters apply to all businesses and are phrased as such. The Facility-Assessment Survey is an effective navigational tool that can be referenced whenever necessary. Take the time to refer back to these questions as your operations change or new questions arise.

As you go through the self-assessment survey, you may find areas of non-compliance. It is estimated that thousands of small businesses in Michigan have never applied for or obtained necessary environmental permits, fearing the disclosure of information to state agencies would lead to enforcement and penalties. The Environmental Audit Privilege and Immunity Law removes this fear and provides incentives for businesses to perform environmental audits and promptly report and correct violations. This will lead to increased compliance with environmental requirements and further protection of Michigan’s outstanding natural resources.

In general, the program has two main elements: a privilege that protects the audit report and audit-implementing personnel from disclosure (they cannot be used in legal proceedings against the company), and immunity provisions can be sought for violations that are reported and corrected in accordance with the law. Obtaining privilege involves filing a document called a "Notice of Intent to Perform an Environmental Audit." To be eligible for privilege under this program, this notice must be filed before the audit is commenced and other general provisions must be met such as the findings must be found by the company, (not by DEQ staff). Immunity provisions can be sought later by filing a document called a "Voluntary Disclosure." You can learn more about the program from the program's fact sheet which can be accessed at **www.michigan.gov/documents/deq/deq-ess-audit-slfaudit_274862_7.pdf.**

SECTION ONE – ENVIRONMENTAL REGULATIONS

Chapter 1: Air Quality Regulations		
1. Do you have, or intend to install, equipment or processes that generate air pollution? *(e.g., incinerator, boiler, solvent degreaser, coating booth, grinding operations, material storage piles, etc.)*	☐ Yes 1.2.1	☐ No continue
2. Do any activities at your facility generate dust or particulate?	☐ Yes 1.3	☐ No continue
3. Do you open-burn any waste?	☐ Yes 1.3.3	☐ No continue
4. Do any of you processes emit volatile organic compounds (VOCs)?	☐ Yes 1.5 & 1.6	☐ No continue
5. Are you interested in learning about the benefits to be gained through environmental stewardship?	☐ Yes 1.11	☐ No continue
6. Are you renovating or demolishing a building?	☐ Yes 1.16.6	☐ No continue

Chapter 1: Air Quality Regulations		
7. Is your facility subject to a federal New Source Performance Standard (NSPS)? (see Appendix 1-C for a listing of source categories subject to a NSPS)	☐ Yes 1.17	☐ No continue
8. Do you sell electricity to the grid and burn fossil fuel?	☐ Yes 1.18	☐ No continue
9. Do you use or store any substance regulated under Section 112(r) of the Clean Air Act (CAA)? *(CAA Section 112(r) substances are defined in Appendix B.)*	☐ Yes 1.19	☐ No continue
10. Do you have equipment or processes that utilize chlorofluorocarbons (CFCs) or hydrochlorofluorocarbons (HCFCs) as a refrigerant? *(e.g., refrigeration units)*	☐ Yes 1.20	☐ No continue

Chapter 2: Waste Management		
11. Every facility generates solid waste *(e.g. garbage, rubbish, yard wastes, etc.);* therefore, it is important that you are aware of the disposal and recycling requirements and options. It is recommended that you read Chapter 2.2	☑ Read 2.2	
12. Do you open-burn any wastes?	☐ Yes 2.2.1	☐ No continue
13. Do you store scrap tires on your property or transport scrap tires?	☐ Yes 2.2.2	☐ No continue
14. Do you generate liquid industrial by-product at your facility? *(Liquid industrial by-product is discarded material that is not regulated as a hazardous waste and includes industrial wastewater, used oil that is being recycled, sewer clean-out residue, grease trap clean-out residue, and other liquid wastes.)* It is recommended that you read Chapter 2.3 and 2.4.1.	☐ Yes 2.3	☐ No continue
15. Do you know or suspect you may be generating hazardous waste at your facility? *(Hazardous waste is defined in Chapter 2.4.1.)*	☐ Yes 2.4	☐ No continue
16. Do you generate any universal waste at your facility? *(Universal waste includes electric lamps [fluorescent, sodium vapor, mercury vapor, neon and incandescent], batteries, pesticides, elemental mercury containing devices, consumer electronics, antifreeze, and pharmaceuticals.)*	☐ Yes 2.4.1.c	☐ No continue
17. Do you have or dispose of any of the following materials at your facility?		
• Used oil……	☐ Yes 2.7.1	☐ No continue
• Used oil filters……	☐ Yes 2.7.2	☐ No continue
• Lead acid batteries……..	☐ Yes 2.7.3	☐ No continue
• Dry cell batteries……	☐ Yes 2.7.4	☐ No continue
• Fluorescent lamps or other lights…….....	☐ Yes 2.7.5	☐ No continue
• Small capacitors and ballasts…….	☐ Yes 2.7.6	☐ No continue
• Sorbents……..……	☐ Yes 2.7.7	☐ No continue
• Shop towels and other textiles……..……	☐ Yes 2.7.8	☐ No continue
• Spent parts washer solvent or other solvents..……..	☐ Yes 2.7.9	☐ No continue

Chapter 2: Waste Management		
• Aerosols……....	☐ Yes 2.7.10	☐ No continue
• Painting wastes…….	☐ Yes 2.7.11	☐ No continue
• Wastes containing silver (e.g. photo processing waste)……	☐ Yes 2.7.12	☐ No continue
• Electronic waste……..….	☐ Yes 2.7.13	☐ No continue
• Waste containing radioactive materials……	☐ Yes 2.7.14	☐ No continue
• Antifreeze……..	☐ Yes 2.7.15	☐ No continue
• Scrap metal……..	☐ Yes 2.7.16	☐ No continue
• Pharmaceuticals……...	☐ Yes 2.7.17	☐ No continue
18. Do you know how to select a qualified company to transport your liquid industrial by-product and/or hazardous waste and/or dispose of it?	☐ Yes continue	☐ No 2.4.10
19. Do you dispose of any hazardous waste on-site?	☐ Yes 2.4.11	☐ No continue
20. Are you aware of the employee emergency training requirements?	☐ Yes continue	☐ No 2.4.12
21. Does your facility produce medical waste? *(e.g., does your facility produce blood, body parts, body fluids and/or sharps (needles, either used or unused); is your facility a pharmaceutical manufacturer or a research facility that produces and/or tests vaccinations with live or attenuated viruses; or a medical equipment manufacturer with testing programs, large company with in-house health care facilities, etc.?) It is recommended that you read Chapter 2.5*	☐ Yes 2.5	☐ No continue

Chapter 3: Wastewater		
22. It is important for you to be aware of what type of wastewater is discharged from your facility and how it is treated. It is recommended that you read Chapter 3.1.	☑ Read 3.1	
23. Is your wastewater discharged to a publicly owned treatment works facility?	☐ Yes 3.2.1	☐ No continue
24. Do you employ a hazardous or liquid industrial by-product transporter to dispose of wastewater generated at your facility?	☐ Yes 3.2.2	☐ No continue
25. Is any wastewater discharged into surface waters? *(Includes direct discharge to a lake, stream, river, or drain, and indirect discharges via a storm sewer or ditch.)*	☐ Yes 3.2.3	☐ No continue
26. Does your facility's storm water discharge to a separate storm sewer system or direct to waters of the state?	☐ Yes 3.2.3.d	☐ No continue
27. Is any wastewater discharged into the ground or groundwater? *(Includes seepage lagoons, septic tanks/tile field systems, and irrigation systems.)*	☐ Yes 3.2.4	☐ No continue
28. Do you have a wastewater treatment system on-site?	☐ Yes 3.4	☐ No continue

Chapter 4: Material Storage and Transportation

*There are a number of terms defined in Appendix B that are key to your understanding of the regulations and their applicability to your operation. It is recommended that you make yourself familiar with these terms before continuing. These defined terms appear in bold lettering. Please note, in some instances, multiple agencies use the same term to describe a regulated group of material; however, its definition differs. Such terms are identified in bold face type followed by a dash and the acronym of the defining agency or regulation (e.g., "**hazardous waste-DEQ**", "**hazardous waste-EPA**"). As you answer the questions pertaining to this chapter, refer back to the definitions.*

29. Do you store any of the following: **flammable & combustible liquids-Act 207**, **flammable & combustible liquids-MIOSHA, highly hazardous chemicals**, **hazardous material-Act 207, hazardous substances-CERCLA**, **hazardous waste-DEQ**, **hazardous waste-EPA, oil-DEQ**, **oil-EPA, salt**, *? (Definitions for the bolded terms are listed in Appendix B.)*	☐ Yes 4.1	☐ No continue
30. Do you store or use **polluting materials**?	☐ Yes 4.2	☐ No continue
31. Does your facility have, or intend to install, an *underground* storage tank?	☐ Yes 4.3.1	☐ No continue
32. Does your facility have, or intend to install, an *aboveground* storage tank to store flammable and combustible liquids with a flashpoint of less than 200°F?	☐ Yes 4.3.2	☐ No continue
33. Does your facility have, or intend to install, an *aboveground* storage tank that contains flammable compressed gas or liquefied petroleum gas?	☐ Yes 4.3.2	☐ No continue
34. Do you transport any **hazardous material-USDOT**, as defined by the U.S. Department of Transportation?	☐ Yes 4.4	☐ No continue
35. Do you store, use, or transport any polychlorinated biphenyls (PCBs) at your facility?	☐ Yes 4.5	☐ No continue

Chapter 5: SARA Title III & Community Right-to-Know Act

All bolded terms are defined in Appendix B of this guidebook. It is recommended that you make yourself familiar with these terms before continuing.

36. Does your facility store or use **extremely hazardous substances**?	☐ Yes 5.3	☐ No continue
37. Does your facility store or use **extremely hazardous substances** or **hazardous substances-CERCLA**?	☐ Yes 5.4	☐ No continue
38. Does your facility use, manufacture, or process any **toxic chemical** in an amount greater than its threshold quantity? *(Toxic chemical is defined in Appendix B. Threshold quantities are identified in the List of Lists, which can be accessed at **www.michigan.gov/sara**.)*	☐ Yes 5.6	☐ No continue

Chapter 6: Environmental Emergencies		
All bolded terms are defined in Appendix B of this guidebook. It is recommended that you make yourself familiar with these terms before continuing.		
39. Does your facility store, use, or generate any of the materials defined in Appendix B?	☐ Yes 6.1	☐ No continue
40. Do you generate any **hazardous waste-DEQ**?	☐ Yes 6.2.1	☐ No continue
41. Do you store or use any of the following polluting materials at thresholds listed: • **salt** = 5 tons solid form or 1,000 gallons liquid form? • other **polluting materials =** 440 pounds outdoors or 2,200 pounds indoors • **oil-DEQ** = 660 gallon storage tank capacity or 1,320 gallon total above ground storage capacity	☐ Yes 6.2.2	☐ No continue
42. Does the storage capability for **oil-EPA** or petroleum products exceed any of the following capacities at your facility: • 1,320 gallons for all aboveground storage? • 42,000 gallons for all underground storage? ***and*** • Could a release potentially reach navigable waters or adjoining shorelines?	☐ Yes 6.2.3	☐ No continue
43. Is your facility required to have a storm water permit for the discharge of storm water associated with a manufacturing activity?	☐ Yes 6.2.4	☐ No continue
44. Does your facility handle, use, or store any **CAA Section 112(r) substances**, at or above the listed threshold quantity? *(CAA Section 112(r) substances are defined in Appendix B. Threshold quantities are identified in the List of Lists, which can be accessed at **www.michigan.gov/sara**.)*	☐ Yes 6.2.5	☐ No continue
45. Does your facility have flammable and combustible liquids on site in above ground containers?	☐ Yes 6.2.6	☐ No continue
46. Do you transport **hazardous material-USDOT**?	☐ Yes 6.2.7	☐ No continue
47. Chapter 6.3 pertains to release notification requirements. It is recommended that you become familiar with the Release Notification Requirements Table so that you will be prepared should there be a spill or release at your facility	☑ Read 6.3	
48. Chapter 6.4 pertains to release response and cleanup criteria. It is recommended that you read this chapter if you have a release or spill at your facility.	☑ Read 6.4	

Chapter 7: Sites of Environmental Contamination, Property Transfers, and Liability Issues		
49. Do you own or operate property that you know or suspect is contaminated?	☐ Yes 7.2	☐ No continue
50. Are you considering purchasing property or moving your business to a new location?	☐ Yes 7.3	☐ No continue

Chapter 8: Activities at or Near the Land/Water Interface		
51. Are you involved in any of the following activities taking place within a 100-year floodplain of a river, stream, drain, or lake: construction, filling, or changing the grade?	☐ Yes 8.2	☐ No continue
52. Are you involved in any of the following activities taking place below the ordinary high-water mark of an inland lake or stream: dredging or filling, construction or modification of a structure on bottomland, operation of a marina, structurally interfering with the natural flow of the lake or stream, or enlarging or diminishing the area of the lake or stream?	☐ Yes 8.3	☐ No continue
53. Are you involved in any of the following activities taking place in a wetland: depositing fill material, removing soil, draining surface water, or conducting development? *(Wetland is defined on page 8-4.)*	☐ Yes 8.4	☐ No continue
54. Are you involved in any of the following activities taking place in a "Designated Environmental Area": dredging, filling, grading, or altering the soil; altering natural drainage; altering vegetation; or conducting construction? *(Designated Environmental Areas are listed on page 8-5.)*	☐ Yes 8.6	☐ No continue
55. Are you conducting any development activities in a "Critical Dune Area"? *(Critical Dune Areas are listed on page 8-6.)*	☐ Yes 8.8	☐ No continue

Chapter 9: Drinking Water	
56. Since all manufacturers supply water to their employees/customers *(e.g., drinking fountains, sinks, showers, etc.)*, it is recommended that you read Chapter 9.	☑ Read Chapter 9

Chapter 10: Radioactive Material Regulations		
57. Does your facility possess, use, transport, transfer, or dispose of any radioactive material (RAM)? *(RAM might be used in medical treatments, certain testing devices, pharmaceutical manufacturing processes, industrial smoke detectors, some waste "exit" signs, and radium paint. Natural RAM may be found as uranium in soils or as radium sulfite scales on some pipes and fittings from the oil and gas industry.)*	☐ Yes Chapter 10	☐ No continue

Chapter 11: Geological Resources		
58. Are you involved in the drilling, operation, or plugging of an oil or gas well?	☐ Yes 11.2	☐ No continue
59. Do you dispose of your waste in an underground injection well?	☐ Yes 11.3.1	☐ No continue
60. Is your business involved in mining?	☐ Yes 11.4	☐ No continue

Chapter 12: Pollution Prevention/Environmental Management Systems		
61. Do you know what pollution prevention is?	☐ Yes continue	☐ No 12.1.1
62. Do you know how to implement a pollution prevention plan?	☐ Yes continue	☐ No 12.1.4
63. Are you interested in learning how to increase efficiency and reduce waste in all aspects of your business?	☐ Yes 12.1.5	☐ No continue
64. Are you aware of what an environmental management system is and what it can do for your business?	☐ Yes continue	☐ No 12.2

SECTION TWO – MIOSHA REGULATIONS

Part 1: Common Regulations for Safety and Health		
65. Chapters 13, 14 and 15 deal with subjects that are applicable to all manufacturers. It is recommended that you read these chapters.	☑ Read Chapters 13, 14, 15	
66. Are there any hazards at your facility that you are unable to eliminate through safeguarding or engineering changes and require the use of personal protective equipment? *(e.g., safety goggles, respirators, gloves, etc.)*	☐ Yes Chapter 16	☐ No continue
67. Do any of your processes involve toxic, reactive, or flammable chemicals?	☐ Yes Chapter 17	☐ No continue
68. Do you manufacture, use, store, sell, or transport explosives, blasting agents, or pyrotechnics? *(Excluding the sale or use of public display pyrotechnics [fireworks])*	☐ Yes Chapter 17	☐ No continue
69. Do any of your processes or operations require that employees enter a confined space? *(e.g., tanks, hoppers, storage bins, vaults, etc.)*	☐ Yes Chapter 18	☐ No continue
70. Does your operation involve spray finishing?	☐ Yes Chapter 19	☐ No continue

Part 2: MIOSHA Health Regulations		
71. Are any employees at your facility exposed to hazardous chemical fumes, vapors, or any other air emissions within the facility?	☐ Yes Chapter 20	☐ No continue
72. Do any employees at your facility work with asbestos-containing materials?	☐ Yes Chapter 21	☐ No continue
73. Do any employees have the potential to be exposed to blood or other potentially infectious materials (OPIM)? *(OPIMs include semen, vaginal secretions, and several internal body fluids. OPIMs do not include sweat, tears, saliva, urine, feces, and vomitus, unless they contain visible blood or OPIM.)*	☐ Yes Chapter 22	☐ No continue

Part 2: MIOSHA Health Regulations		
74. Does your facility store hazardous substances in quantities that could require an emergency response if released*? (An emergency response is a response effort by employees from outside the immediate release area or by other designated responders.)*	☐ Yes Chapter 23	☐ No continue
75. Are medical services (clinic, ambulance, hospital, etc.) "readily accessible" at your facility? *(Readily accessible means within ten minutes travel time)*	☐ Yes continue	☐ No Chapter 24
76. Are the eyes or body of any person at your facility exposed to injurious or corrosive materials? *(e.g., materials with a pH of 9.0 or greater or pH 4.0 or less in solution.)*	☐ Yes Chapter 24	☐ No continue
77. Chapter 25 applies to all manufacturing facilities; therefore, it is recommended that you familiarize yourself with its contents.	☑ Read Chapter 25	
78. Do noise levels in any work area exceed or equal the action level for noise? (i.e., 85 dBA as averaged over an eight-hour workshift.)	☐ Yes Chapter 26	☐ No continue

Part 3: MIOSHA Safety Regulations		
79. Chapters 27 through 32 contain several safety standards that are applicable to all manufacturers. It is recommended that you read these chapters.	☑ Read Chapters 27-32	
80. Are powered industrial trucks used at your facility? *(e.g., forklift, motorized hand truck, etc.)*	☐ Yes Chapter 33	☐ No continue
81. Are flammable or combustible liquids stored or handled at your facility? *(Flammable liquid = any liquid with a flashpoint below 100°F; combustible liquid = any liquid with a flashpoint at or above 100°F.)*	☐ Yes Chapter 34	☐ No continue
82. Are any of the following devices utilized at your facility?		
• Portable ladders ……	☐ Yes 35.2	☐ No continue
• Fixed ladders……	☐ Yes 35.3	☐ No continue
• Abrasive wheels……	☐ Yes 35.4	☐ No continue
• Hand or portable powered tools……	☐ Yes 35.5	☐ No continue
• Air receivers ……....	☐ Yes 35.6	☐ No continue
• Refuse packer units……	☐ Yes 35.8	☐ No continue
• Conveyors ……..	☐ Yes 35.9	☐ No continue
• Overhead and gantry cranes……..	☐ Yes 35.10	☐ No continue
• Crawler, locomotive, or truck cranes……	☐ Yes 35.11	☐ No continue
• Underhung cranes or monorail systems……..	☐ Yes 35.12	☐ No continue
• Slings ……..	☐ Yes 35.13	☐ No continue
83. Are any of the following processes utilized at your facility?		
• Welding or cutting……	☐ Yes 35.1	☐ No continue
• Polishing, buffing, and abrading……	☐ Yes 35.7	☐ No continue

FACILITY-ASSESSMENT SURVEY

SECTION 3 – CONSTRUCTION AND FIRE CODES

Chapter 36: Construction Codes in Michigan		
84. Do you plan to: • Construct or alter a structure? • Construct an addition? • Demolish or move a structure? • Install or alter any equipment regulated by a construction code? • Move a lot line that affects an existing structure?	☐ Yes 36.1	☐ No continue
85. Do you plan to equip a building with electrical equipment or make an alteration or addition to electrical equipment in excess of $100?	☐ Yes 36.2	☐ No continue
86. Do you plan to install or alter any of the following at your facility: air pollution control systems; appliances that use gas, liquid, or solid fuel; barbecues; chimneys and vents; cooling systems; fireplaces; fire suppression systems; heating systems; incinerators; mechanical refrigeration systems; process piping; steam and hot water systems; systems utilizing solar or geothermal energy; ventilating systems; or water heaters?	☐ Yes 36.3	☐ No continue
87. Do you plan to install or alter sanitary facilities, sanitary piping, water services, or storm and sanitary sewers at you facility?	☐ Yes 36.4	☐ No continue
88. Do you have, or plan to install or repair, a boiler at your facility?	☐ Yes 36.5	☐ No continue
89. Do you have, or plan to install, an elevator at your facility?	☐ Yes 36.6	☐ No continue
90. Is your facility accessible and usable for all citizens including elderly persons, wheelchair users, and persons with permanent or temporary conditions that reduce coordination or mobility or make walking difficult or insecure?	☐ Yes continue	☐ No 36.7
91. Do you store any "high-hazard materials" at your facility? *(High-hazard materials are highly combustible, flammable, or explosive. They may also be corrosive liquids, highly toxic materials, or poisonous gases.)*	☐ Yes 36.9	☐ No continue

Chapter 37: Local Fire Departments		
92. Does your facility use, produce, or store any of the following: **hazardous chemicals**, **hazardous substances-MIOSHA,** or **extremely hazardous substances**? *(See Appendix B for definitions of the bolded terms.)*	☐ Yes 37.1 37.2	☐ No continue
93. Chapter 37.3 pertains to fire safety at your facility and making sure it is in compliance with all applicable codes. It is recommended that you read this chapter.	☑ Read 37.3	
94. Does your facility use, produce, or store **flammable and combustible liquids-Act 207** or **flammable and combustible liquids-MIOSHA**?	☐ Yes 37.4	☐ No End

Michigan Guide to Environmental, Health, and Safety Regulations

Chapter 1

Air Quality Regulations

SECTION ONE – ENVIRONMENTAL REGULATIONS

CHAPTER 1: Air Quality Regulations

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Purpose and Applicability of Regulations

Many businesses operate processes and equipment or engage in activities emitting air pollutants. Some processes or activities emit contaminants through a stack before entering the atmosphere and some are released in a building or open area before entering the atmosphere. These are considered direct and indirect sources of air contaminants. Typical regulated sources of air pollution include coating and degreasing operations; combustion sources, such as boilers and incinerators; and material handling operations, such as concrete and asphalt batch plants.

Air quality regulations address the toxicity and quantity of air pollutants that directly or indirectly enter the atmosphere. Regulations described in this chapter are not specifically aimed at reducing worker exposure to air contaminants in the workplace. Air Quality regulations have been developed to protect human health and the environment. Regulations protecting workers from the inhalation of air contaminants are administered by the Michigan Occupational Safety and Health Administration (MIOSHA). See Chapter 20 for a summary of these MIOSHA requirements.

Agencies and Their Laws and Rules

Indirect and direct releases of air contaminants into the outer air are regulated under federal and state statutes and rules. The purpose of these requirements is to minimize the adverse impact that air contaminants may have on human health and the environment. The U.S. Environmental Protection Agency (U.S. EPA) is responsible for developing new regulations that implement the mandates of the federal Clean Air Act Amendments (CAAA) of 1990. Federal air quality regulations are published under Title 40, Parts 50 through 99 of the Code of Federal Regulations (40 CFR Parts 50-99).

Part 55 (Air Pollution Control) of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451)
is the state law that regulates sources of air contaminants. The first administrative rules promulgated under Part 55 of Act 451, the Michigan Air Pollution Control Rules, became effective on August 15, 1967. The Air Quality Division (AQD) of the Michigan Department of Environmental Quality (DEQ) is responsible for developing and implementing state air quality requirements and enforcing compliance with both state and federal air quality requirements.

To address the concerns of small businesses impacted by state and federal air quality regulations, the DEQ provides assistance to small businesses by developing publications simplifying air quality regulations, offering workshops on a variety of air quality regulatory programs, and responding to phone calls

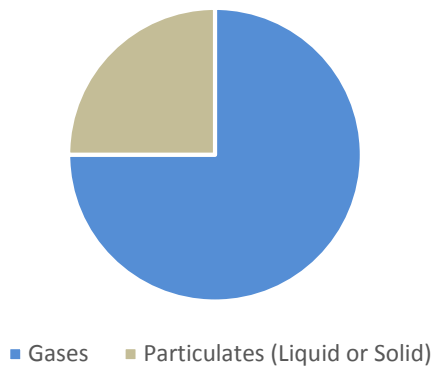
Important Air Quality Terms

There are a few terms that appear often when discussing state and federal air quality regulations. To enhance your understanding of the regulations, definitions of key terms are provided below.

Air Contaminant

In high school chemistry you learned that all matter exists in either a solid, liquid, or gaseous state under certain conditions. The same applies to air contaminants. Solid and liquid air contaminants are called particulate. The majority of air contaminants exist in a gaseous state.

Figure 1.1 Universe of Air Contaminants



Every air contaminant belongs somewhere on the pie chart in Figure 1.1. This pie chart represents the universe of air contaminants. State and federal air quality regulations, such as the New Source Performance Standards (NSPS) or the Renewable Operating Permit (ROP) program, target specific defined groups, or what we refer to as families of air contaminants. There are many families, some big and some small.

The following table summarizes the families of air contaminants. Many air contaminants belong to more than one family. In fact, most of the hazardous air pollutants (HAPs) are also considered Volatile Organic Compounds (VOCs). For example, xylene is a VOC, a HAP, and a regulated air pollutant. For additional information about air contaminants, including listings of air contaminants, see the Clean Air Assistance Program's fact sheet entitled, "What is an Air Contaminant/Pollutant?" Note: The U.S. EPA uses the term "air pollutant," whereas the state uses the term "air contaminant." Both terms mean the same and can be used interchangeably.

Families of Air Contaminants

Criteria - SO2, NO2, CO, Lead, Ozone, Particulate Matter (PM). The U.S. EPA has set National Ambient Air Quality Standards for the criteria air pollutants to protect public health and the environment.

Class I and II - Chlorofluorocarbons (CFCs) and Hydrochlorofluorocarbons (HCFCs)

Ozone Precursors - VOCs and NOX. Most sources do not emit ozone directly. However, they may emit VOCs and NOX which, in the presence of sunlight, contribute to ozone formation.

Hazardous Air Pollutants (HAPs) – The U.S. EPA has identified187 compounds and is regulating sources that are the primary emitters of these compounds through the promulgation of National Emission Standards for Hazardous Air Pollutants (NESHAPs). See Appendix 1-A for a listing of HAPs.

Toxic Air Contaminants - According to R 336.120(f), any substance which is or may become harmful to public health or the environment can be regulated as a toxic air contaminant, except for 41 substances which have been excluded. See Appendix 1-B for a listing of the excluded compounds.

New Source Performance Standards (NSPS) - The NSPS regulates the emission of the following air pollutants from various sources: criteria air pollutants plus dioxin/furan, fluorides, hydrogen chloride, hydrogen sulfide, sulfuric acid, total reduced sulfur, reduced sulfur compounds and more.

National Emission Standards for Hazardous Air Pollutants (NESHAP) - The following air pollutants were regulated by the NESHAPs that were promulgated prior to the Clean Air Act Amendments of 1990: arsenic, asbestos, beryllium, benzene, mercury, radionuclides, and vinyl chloride.

Section 112(r) Air Pollutants - Section 112(r) of the 1990 Clean Air Act Amendments requires risk management planning and accidental release prevention. A total of 77 toxic chemicals and 63 flammable chemicals are regulated under Section 112(r).

Regulated Air Pollutants - All air pollutants regulated under the federal Clean Air Act: criteria air pollutants, ozone precursors, HAPs, NSPS, NESHAP, and Class I and II air pollutants.

Devices

There are three types of devices: process, control, and stack. A process device is equipment that generates air contaminants, such as a boiler. A control device is equipment that captures and/or destroys air contaminants, such as a filter. A stack device is a conduit for dispersing air contaminants.

Emission Unit

Many manufacturing operations are made up of various individual process, control, and stack devices. Take a coating line for example. Process devices could include a primer booth, top coat booth, flash off, and curing oven. When it comes time to apply for a Permit to Install, does the applicant submit four permits, one for each device, or one permit for all four devices? To answer this, the AQD has issued guidance on how to arrange devices into the proper emission unit groupings. The purpose of the emission unit concept is simply to provide some order and consistency on how various air quality regulations (i.e., Permit to Install, ROP, and Michigan Air Emissions Reporting System [MAERS]) are administered.

According to the guidance, AQD Operational Memorandum #6 (which can be found at the Air Quality Division's Web site **www.michigan.gov/air**, click on “State Air Laws and Rules” on the News & Info tab, then “AQD Policy and Procedures”), state and federal rules are used to define the emission unit groupings. Many air rules are specific to a single device or collection of devices. Depending on the rules, the emission unit can be as simple as a parts cleaning tank which contains one process device (i.e., the tank of solvent), no control devices, and no stack devices (see R 336.1611). On the other hand, an emission unit can be as complex and large as an asphalt plant consisting of many process devices (i.e., dryers and systems for screening, handling, storing, and weighing hot aggregate, dust collectors, and stacks).

The emission unit concept ensures that the grouping of devices remains consistent throughout all regulatory programs. Under the Permit to Install, special conditions are grouped by emission unit. Under the ROP program, all applicable requirements that the source is subject to are grouped by emission unit. Under MAERS, the annual emissions of air contaminants are reported by emission unit. In summary, the emission unit is the common thread between the air regulatory programs.

Stationary Source

A stationary source or facility consists of all the buildings and structures that house the emission units. Stationary sources can range from something as simple as an auto body shop containing one emission unit (i.e., a spray paint booth) to an auto assembly plant containing multiple buildings housing hundreds of emission units.

Potential to Emit

Potential to emit (PTE) is defined in R 336.1116(n). This is a calculation done for each air contaminant that an emission unit emits based on operations at maximum rate capacity, 24 hours per day, 365 days a year, and without any air pollution control device. A stationary source's PTE is the summation of the PTE of all emission units. PTE is typically reported in tons of a specific air contaminant per year, e.g., 200 tons of sulfur dioxide per year.

The PTE of emission units can be reduced by installing control devices or placing restrictions on operating hours and/or the amount of raw materials used only if the operation of the control device and restrictions are contained in a Permit to Install or ROP.

PTE is such an important concept because applicability of the state and federal requirements is dependent upon a source's or emission unit's potential to emit, not actual emissions. Actual emissions can deviate day-to-day and year-to-year and are unpredictable, whereas the PTE remains consistent and predictable because it is based upon maximum capacity, continuous operation, or is reflected in an emission limit found in the Permit to Install.

Example 1:
Company ABC operates three emission units: a boiler and two coating lines. The company does not have a permit or any other ways to limit the PTE. The company calculated the PTE fore each of their processes assuming continuous operation and maximum capacity. The table below identifies the PTE of each air contaminant from each emission unit and from the source.

Table 1.1 PTE Calculation for Company ABC (tons per year)

Emission Unit	VOC	CO	NOx	SO2	PM
Coating Line #1	28				5
Coating Line #2	15				5
Boiler		6	5	1	3
PTE of Source	43	6	5	1	13

Major Source

A major source is a stationary source whose PTE exceeds established annual emission thresholds. These levels have been set for individual air contaminants. There are four different types of major sources: major prevention of significant deterioration source (PSD), major offset source, major ROP source, and major HAP source. Each one of these major sources has different annual emissions threshold levels. For example, under the ROP program, a major source is one that has a PTE greater than 100 tons or more of any regulated air contaminant, 10 tons of a single HAP, or 25 tons of a combination of HAPs. Under PSD, a major source may be one that has a PTE great than 100 or 250 tons of any regulated air contaminant, depending on what type of source it is.

Sources that meet one or more major source definition can become subject to some very complex and costly control requirements.

Minor Source

Sources whose PTE is less than the major source annual emission thresholds are considered minor sources. A true minor source is one that, even operating at its maximum capacity and continuously, cannot exceed the annual emission threshold levels. A synthetic minor source is a source that has a permit (i.e., Permit to Install or ROP) with conditions that legally restrict its PTE to below the threshold levels. Many sources avoid PSD, offset, and ROP requirements by becoming a synthetic minor source.

Permit to Install

Emission units or sources of air contaminants that exceed certain threshold with their potential to emit are required to apply for and receive a Permit to Install prior to installing and operation of the process(es). Receiving a Permitto Install involves filling out a Permi to Install application and providing the AQD with information about the air contaminants thatwill be generated by the process(es). An AQD permit engineer reviews the provided information and writes permit conditions. These conditions are shared with the company, and many times the public, for comments prior to being finalized and approved.

1.1 Summary of Michigan's Air Quality Rules

Chapter 1.1 provides a summary of the state air quality regulations that affect Michigan businesses. The DEQ's AQD has numerous regulations relating to air permitting of air contaminants. The purpose of these rules is to keep Michigan in attainment of the National Ambient Air Quality Standards (NAAQS). The U.S. EPA has set standards for six air contaminants: ozone, particulate matter, sulfur dioxide, nitrogen dioxide, lead, and carbon monoxide. Adverse effects to human health and the environment can occur when the concentration of these pollutants exceeds (or is in nonattainment of) the standard.

The rules promulgated under Part 55 of Act 451, the Michigan Air Pollution Control Rules, are grouped into parts:

- Part 1 - Definitions.
- Part 2 – Air Use Approval (Air Permitting, Offsets, and Air Toxics).
- Part 3 – Emissions Limitations and Prohibitions – Particulate Matter.
- Part 4 – Emissions Limitations and Prohibitions – Sulfur-Bearing Compounds.
- Part 6 – Emissions Limitations and Prohibitions – Existing Sources of VOC Emissions
- Part 7 – Emissions Limitations and Prohibitions – New Sources of VOC Emissions
- Part 8 – Emissions Limitations and Prohibitions – Oxides of Nitrogen.
- Part 9 - Miscellaneous Provisions.
- Part 10 – Intermittent Testing and Sampling
- Part 11 – Continuous Emissions Monitoring
- Part 14 – Clean Corporate Citizen Program
- Part 15 - Emission Limitations and Prohibitions-Mercury
- Part 16 - Organization, Operation, and Procedures
- Part 17 - Hearings
- Part 18 - Prevention of Significant Deterioration of Air Quality
- Part 19 - New Source Review For Major Sources Impacting Nonattainment Areas

The Michigan Air Pollution Control Laws and Rules can be viewed at **www.michigan.gov/deqair** under the "News & Info" tab.

The U.S. EPA also has a variety of complex air quality regulations such as New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAPs), and Prevention of Significant Deterioration (PSD) air programs, to regulate sources of air contaminants. These regulations are discussed in Chapter 1.14 through 1.20.

How do you know which regulations apply to your sources of air pollution?
Prior to installing a new source of air contaminants, you must complete and submit a Permit to Install application to the AQD. During the permitting process, all of the applicable federal and state regulations are identified and incorporated into the approved Permit to Install. Being well-informed of the laws is the best way to know which regulations apply to sources of air pollution or are exempt from permit requirements.

1.2 Part 2 Rules: Air Permits, and Air Toxics Regulations

Michigan has two state air permitting programs; Permit to Install and Renewable Operating Permit. The authority to permit air pollution sources under these programs are found in Part 2 of the Michigan Air Pollution Control Rules. In addition, the Part 2 rules contain a set of rules that regulate the emission of toxic air contaminants. Below is a summary of these widely applicable rules.

Air permitting is the means regulatory agencies use to combine applicable state, federal, and local requirements associated with a source of air pollution into one legally and enforceable document. Facilities that emit air contaminants but are exempt from permitting requirements do not go unregulated. These sources may be subject to air quality regulations; however, they are not as strictly regulated as the permitted sources.

1.2.1 Permit to Install Program

Many businesses do obtain building permits, electrical permits, or mechanical permits for the installation of new structures and equipment from their local municipality. However, many of these same businesses may not be aware that an air permit from the AQD may be required for equipment and activities that emit air contaminants. Air permitting in Michigan is pre-construction, meaning that prior to constructing a new facility or putting in equipment in an existing facility, a permit may be required.

According to R 336.1201 of the Michigan Air Pollution Control Rules, before a facility can legally install, relocate, modify, or reconstruct equipment that emits air contaminants, it must apply for and receive an approved Permit to Install. Each approved Permit to Install contains a list of general and special conditions that the source must comply with. These conditions typically:

- ✓ Limit the emission of air contaminants.
- ✓ Restrict hours of operation.
- ✓ Limit the amount and type of raw materials used.
- ✓ Require the operation of air pollution control devices.
- ✓ Contain monitoring and recordkeeping requirements

Not all sources of air contaminants need to be permitted under R 336.1201. Part 2 contains numerous rules exempting insignificant sources of air pollution from the Permit to Install requirement. For example, welding operations and natural gas-fired furnaces with a heat rated capacity of no more than 50 million Btu/hr are exempt from the permitting requirements.

Download the Permit to Install exemption handbook at **www.deq.state.mi.us/pubcenter**

The Permit to Install:

- is a state license to emit air contaminants into the ambient air.
- Dictates that a facility's compliance with conditions of the permit protects public health and the environment.
- Uncovers all of the specific state and federal rules that apply to the equipment covered under the permit. Many of these applicable rules become conditions of the permit.
- Conditions limit the potential to emit of the applicant's facility. If the proposed installation or modification of an emission unit or source meets the definition of a major PSD or offset source, then the source may be subject to additional stringent regulations such as modeling emissions, installing best available control technology (BACT), and going through a public hearing. The only way to avoid these added requirements is to accept restrictions limiting the PTE to below the major source emission threshold levels using permit conditions. Businesses who cannot avoid these additional requirements may need the services of a consultant to complete their permit applications.
- Has no fees associated with applying for and obtaining; it's free!
- Does not expire and does not have to be renewed. It is good for as long as the equipment is in operation. However, it may require notification of completion of the installation, construction, reconstruction, relocation, or modification (see R 336.1201[7][a]) and notification of the status of compliance (see R 336.1201[7][b]).

If you do need a permit, obtain the "*Permit to Install Workbook – A Practical Guide to Completing an Air Permit Application*." Permit to Install application forms and instructions are available on line (see Appendix C).

1.2.2 The Renewable Operating Permit (ROP) Program

It's important not to confuse the Permit to Install with Michigan's other air permit program: the ROP. The ROP program falls under Title V of the Clean Air Act Amendments of 1990 and is administered by the AQD under R 336.1210-1218 of the Michigan Air Pollution Control Rules. The ROP program clarifies which requirements apply to a facility that emits air contaminants. Currently, these obligations are scattered among numerous state and federal regulations. The ROP incorporates all requirements into a single document that gives the facility, state and local regulatory agencies, the U.S. EPA, and the public a clearer picture of air emission requirements at a facility.

According to R 336.1211, facilities that meet the definition of a "major source" must obtain an ROP. The U.S. EPA has also required all acid rain and waste incineration facilities to obtain an ROP even if they are below the major source cutoffs.

The ROP program does not supersede or replace the Permit to Install requirements. Sources having to apply for an ROP are still required to submit a Permit to Install application when installing or modifying emission units. All Permit to Install conditions are eventually folded into a facility's ROP.

For guidance on determining whether or not your facility is a "major source" and subject to the ROP program, contact the Environmental Assistance Center at 800-662-9278 or refer to the DEQ's "*Potential to Emit Workbook*," available at **www.deq.state.mi.us/pubcenter**.

1.2.3 Air Toxics Regulations

In response to increased concern over adverse health effects related to air toxics, federal regulations and state requirements have been put into effectto reduce air toxics emissions. In Michigan, air toxics are regulated under two sets of rules: (1) state administrative rules regulating toxic air contaminants or TACs; and (2) the federal Clean Air Act regulating the release of hazardous air pollutants (HAPs). See Chapter 1.16 for the discussion on HAPs.

According to Michigan's rules, all known substances which are or may become harmful to public health or the environment are regulated as "toxic air contaminants (TAC)." The state of Michigan addresses toxic air contaminants in R 336.1224-1232 (Rules 224-232) of the Michigan Air Pollution Control Rules promulgated under Part 55 of Act 451. The primary requirements are found in Rules 224 and 225, stating that a source that emits a TAC:

> "Shall not cause or allow the emission of the toxic air contaminant from the proposed new or modified emission unit or units in excess of each of the following:
>
> > (Rule 224 [1]): Best available control technology for toxics (T-BACT); requirements for new and modified sources of air toxics; exemptions.
> > (Rule 225 [1]): Health-based screening level requirements for new or modified sources of air toxics."

These rules apply to all new or modified sources of air pollution that are required under Michigan regulations to obtain a Permit to Install (see Chapter 1.2.1). Michigan's toxic air contaminant rules require a two-fold analysis. First, the owners or operators of sources of TACs are required to evaluate and use the best economically feasible, technologically advanced air pollution controls. This means that, as new technology progresses, and better air pollution controls are developed, each new or modified source is required to consider the newest and best technology. Second, the facility is required to limit its toxic air emissions to amounts at or below those deemed safe for protecting public health for each toxic air contaminant. Again, as technology advances, these limits must be continuously reviewed and changed if necessary, for each toxic air contaminant. Limiting these emissions may be done through the permitting process.

Michigan T-BACT

The special conditions of a Permit to Install set emission limits and work practice standards that are enforceable. The toxic air contaminant emission limits are based on a control technology analysis (T-BACT). Emission limits are expressed in pounds/hour based on maximum operational capacity and in terms of process variables such as material processed, fuel

consumed, or pollutant concentrations (e.g., pounds of TAC per million BTUs [lbs/10^6 Btu], pounds of TAC per gallon of coating solids applied, or micrograms of TAC per dry standard cubic meter of air [ug/dscm]).

Best available control technology for toxics (T-BACT) is the most efficient alternative reasonably achievable as stated in R 336.1102(a):

"T-BACT is the maximum degree of emission reduction which the department determines is reasonably achievable for each process emitting toxic air contaminants, taking into account energy, environmental, and economic impacts and other costs."

Screening Levels

R 336.1225 contains an AQD methodology used to demonstrate an emission unit's TAC emissions. Following this methodology ensures that emissions will not result in a harmful effect on the public. One does this by comparing the predicted ambient (outside air) level of the air contaminant at the facility's property line with the appropriate health-based screening level (defined below). If the predicted ambient level is below the screening level and the emission is adequately controlled under best available control technology for toxics (T-BACT), then the emission is acceptable. If it exceeds the screening level, the facility must make changes to reduce the emission or improve the dispersion of the air contaminant, or both. This is done to reduce the predicted ambient level to below the screening level.

R 336.1227 lays out how to demonstrate compliance with a health-based screening level. R 336.1227(1)(a) contains a simple method to determine the allowable emission rate based only on the screening level. This method does not use site-specific data and assumes there will be poor dispersion of the TAC, due to a short stack and short distance from the stack to the facility property line. The screening method in R 336.1227(1)(b) uses a table that requires a few facility-specific characteristics to determine the allowable emission rate. This method generally provides a higher allowable emission rate than that in R 336.1227(1)(a) by using site-specific characteristics. Lastly, R 336.1227(1)(c) uses dispersion models to determine compliance with health-based screening levels. This method generally provides for the highest allowable emission rate due to the use of facility and site-specific information and elimination of conservative assumptions.

A screening level indicates at what level an air contaminant can be emitted and still be protective of public health. R 336.1225 does not allow companies to emit air contaminants in quantities that will exceed the screening levels at the property line, except for special circumstances allowed under R 336.1225(3) and R 336.1226. There are three screening levels, the initial threshold screening levels (ITSL) are screening levels designed to protect against noncarcinogenic effects; and initial risk screening levels (IRSL) and secondary risk screening levels (SRSL) protect against carcinogenic effects. Not every air contaminant has all three screening leverls. Screening levels are developed from toxicological data and are expressed in concentrations of micrograms per cubic meter (ug/m3) and in various averaging times; i.e., 1 hour, 8 hours, 24 hours, and annually.

The AQD maintains a list of all screening levels. The list of screening levels is updated periodically as more compounds are evaluated, and available at **www.michigan.gov/air** (select "Permits" then "Air Toxics Screening Levels).

1.3 Part 3 Rules: Particulate Matter

Part 3 of the Michigan Air Pollution Control Rules establishes particulate emission limitations for various activities. Open burning and the density of visible emissions from a vent or stack are regulated as well. Certain facilities are required to develop plans to control fugitive dust emissions from roadways, storage piles, and other dust-generating activities.

1.3.1 Particulate Emission Limits

R 336.1331 contains maximum allowable emission rates of particulate matter from a variety of emission units, such as fuel-burning equipment, incinerators, steel manufacturing, foundries, kilns, asphalt paving plants, cement manufacturing, iron ore pelletizing, fertilizer plants, and exhaust systems serving material handling equipment not previously identified. The majority of emission rates are expressed in pounds of particulate emitted per 1,000 pounds of exhaust gas.

1.3.2 Opacity

Opacity is the degree to which air emissions reduce the transmission of light. Opacity is measured in percentage. For example, if the opacity of air contaminants being discharged from a stack is 20 percent, then 20 percent of the light traveling through the plume is blocked by the air emissions and 80 percent of the light passes through the plume. The higher the opacity, the denser the plume of air emissions. R 336.1301 limits the opacity of visible emissions discharged from an emission unit. This rule prevents businesses from discharging dense smoke from their activities.

1.3.3 Open Burning

Open burning is the burning of unwanted materials where smoke and other emissions are released directly into the air without passing through a chimney or stack. Open burning is regulated by air quality and solid waste regulations, and sometimes under local ordinance.

Open burning of trash from a business is prohibited, and open burning from other sources is restricted. Public Act 102 of 2012 was signed into law on April 19, 2012, prohibiting the open burning of household trash that contains plastic, rubber, foam, chemically treated wood, textiles, electronics, chemicals or hazardous materials. The burning of these household trash items poses a danger to human health and the environment. The law amends the open burning provisions contained in Section 11522 of the Natural Resources and Environmental Protection Act (Public Act 451 of 1994). The changes took effect on October 16, 2012, and contain penalty provisions, which may be enforced by local units of government, should a local ordinance not exist.

Open burning of brush, logs, stumps, and trees is prohibited within 1,400 feet of an incorporated city or village limit. The open burning of grass clippings and leaves is not allowed in municipalities having a population of 7,500 or more unless the local governing body has specifically enacted an ordinance authorizing it. A burn permit may be required prior to conducting open burning. For information on obtaining a burn permit go to **www.michigan.gov/burnpermit**. Structures may not be burned for the purpose of demolition. Air quality regulations allow structures to be intentionally burned for the purpose of fire suppression training only.

Open burning may also be regulated by the local unit of government. Contact local authorities about their ordinances. Additional information about open burning can be found at the DEQ's Open Burning website at **www.michigan.gov/openburning**.

1.4 Part 4 Rules: Sulfur Bearing Compounds

Part 4 of the Michigan Air Pollution Control Rules establish sulfur dioxide emission limitations on boilers and other fuel-burning equipment. The sulfur content of fuels, such as coal and fuel oil, must fall within prescribed percentages.

1.5 Part 6 Rules: Existing Sources of VOC Emissions

In 1978, the U.S. EPA published a document containing available methods and technologies designed to reduce emissions from a variety of sources that emit VOCs. Many of the control strategies in this document were incorporated into the Michigan Air Pollution Control Rules, specifically the Part 6 rules.

The U.S. EPA document describes the technologies as reasonably available control technology (RACT). RACT was developed to help state and local agencies determine the level of VOC control needed to represent the lowest achievable emission rate using reasonably available control technology. Significant research was conducted to establish RACT and identify a level of control that industry could comply with, while benefiting the environment through improved air quality. Part 6 rules are often referred to as the RACT rules, and they are used to regulate existing sources of VOCs in accordance with state obligations under the federal Clean Air Act. Table 1.2 contains a listing of all the VOC-emitting emission units regulated under the Part 6 rules.

TABLE 1.2 SUMMARY OF PART 6 RULES

Rule Number*	Emission Unit	Existing Means Equipment Installed before:
604-605	Storage of organic compounds	July 1, 1979
606-609	Loading of gasoline into gas stations and bulk plants	July 1, 1979
610	Automotive and light-duty trucks; cans; coils; large appliances; metal furniture; magnet wire; and nonmetallic surfaces of fabrics, vinyl, or paper coating lines	July 1, 1979
611-614	Solvent vapor degreasers and cold cleaners	July 1, 1979
615-617	Petroleum refinery	July 1, 1979
618	Cutback paving asphalt	July 1, 1979
619	Perchloroethylene dry cleaning equipment	July 1, 1980
620	Flat wood paneling lines	July 1, 1980
621	Metallic surface coating lines	July 1, 1980
622	Petroleum refineries	July 1, 1980
623	Storage of petroleum liquids	July 1, 1980

Rule Number*	Emission Unit	Existing Means Equipment Installed before:
624	Graphic art lines	July 1, 1980
625	Pharmaceutical products	July 1, 1980
627	Delivery vessels	Not applicable
628	Synthetic organic chemicals	January 5, 1981
629	Natural gas processing	January 20, 1984
630	Paint manufacturing	July 1, 1987
631	Polystyrene and organic resins	July 1, 1987
632	Plastic coating lines	July 1, 1979
651	Degreasers	Not applicable

1.6 Part 7 Rules: New Sources of VOC Emissions

Under Part 7 of the Michigan Air Pollution Control Rules, a new source is defined as any emission unit placed into service on or after July 1, 1979. According to R 336.1702, when installing a new source of VOCs or modifying an existing source, a facility must evaluate the following four emission rates and use whichever one results in the lowest maximum allowable emission rate of VOCs.

1. An emission rate based upon Best Available Control Technology (BACT).
2. The maximum allowable emission rate specified by a New Source Performance StandardNSPS promulgated by the U.S. EPA.
3. The maximum allowable emission rate specified as a condition of a Permit to Install.
4. The maximum allowable emission rate specified in the Part 6 rules of the Michigan Air Pollution Control Rules.

BACT Analysis

BACT is defined as the most stringent emission limit or control technique that has either been achieved in practice for a category of emission units, is found in other state air quality rules, or is considered by the regulatory agency to be technically feasible and cost effective. A BACT analysis performed as part of the permit review process, triggers continual use of technology resulting in low emissions of air contaminants. Since technology is ever-changing, BACT is an evolutionary process striving for continuous improvement of air quality in the state.

New Source Performance Standards

Under Section 111 of the Clean Air Act, the U.S. EPA is authorized to establish an NSPS for new or modified sources in specific industrial categories. These standards set emission limits for over 75 categories that have the potential to emit a significant amount of air contaminants that could endanger public health.

The NSPS requirements are found in the federal rules published in the Code of Federal Regulations (CFR). The federal rules relating to environmental protection are contained in Title 40 of the CFR. Air quality regulations are found in Parts 50 to 99 of Title 40. The NSPS requirements are located in Part 60. Each specific NSPS is a subpart of Part 60.

Appendix 1-C lists all of the NSPS subparts including those related to VOC emission units.

Permit Conditions

An emission rate contained in a previously issued Permit to Install is reviewed by the permit engineer of the AQD and applied to a similar new source undergoing the permit review. From a practical standpoint, this emission rate is not viable as it would be difficult to limit emissions by permit condition to a level more stringent than prescribed by BACT.

Part 6 Rules

Finally, the last step to identify the lowest maximum allowable emission rate for a proposed new source of VOC emissions is the emission limitations contained within the Part 6 rules of Michigan Air Pollution Control Rules. It is a reasonable expectation that new sources of VOCs should emit no more than existing sources of VOCs.

1.7 Part 8 Rules: Oxides of Nitrogen (NOx)

Part 8 of the Michigan Air Pollution Control Rules establish emission limits on sources of oxides of nitrogen. These sources include larger fossil fuel-fired emission units such as electricity generating units, boilers/process heaters, stationary internal combustion engines, cement kilns, and stationary gas turbines. Emission units subject to the Part 8 rules must comply with the emission limits provided, as well as all applicable monitoring, testing, and recordkeeping requirements.

1.8 Part 9 Rules: Miscellaneous Provisions

The rules in Part 9 of the Michigan Air Pollution Control Rules can apply to any business, regardless of the type of air contaminant emitted or emission unit installed. According to R 336.1901, air contaminants cannot be emitted in quantities that could have an injurious effect on human health or safety or cause unreasonable interference with the comfortable enjoyment of life and property.

Businesses, upon request from the AQD, must prepare a malfunction abatement plan to prevent, detect, and correct malfunctions resulting in the emissions of air contaminants exceeding any applicable limitation (R 336.1911). When a business has a malfunction of a process device and/or control device resulting in the exceedance of an emission standard or limitation over a prescribed amount of time, it must be reported to the AQD (R 336.1912).

1.9 Part 10 Rules: Intermittent Testing and Sampling

Part 10 of the Michigan Air Pollution Control Rules give the AQD authority to require sources to quantify their air emissions to verify compliance with the emission standards. The testing must be performed in accordance with established testing methodologies.

1.10 Part 11 Rules: Continuous Emission Monitoring

Large sources of air contaminants must operate continuous emission monitoring equipment to verify compliance with the applicable emission standards. The monitoring equipment is typically installed in the process device itself or in the stack.

1.11 Part 14 Rules: Clean Corporate Citizen Program

Michigan's Clean Corporate Citizen Program allows sources that have demonstrated environmental stewardship and a strong environmental ethic to receive public recognition and air quality permit processing benefits. For more information, call 800-662-9278 or go to **www.michigan.gov/deqc3.**

1.12 Michigan Air Emissions Reporting System

The federal Clean Air Act requires that each state maintain an inventory of air pollution emissions for certain facilities and update this inventory every year. Michigan's emission inventory is the Michigan Air Emissions Reporting System (MAERS). The AQD maintains MAERS by requesting certain facilities to annually report their emissions. This information is used to track air pollution trends, determine the effectiveness of current air pollution control programs, serve as a basis for future-year projections of air quality, track source compliance, provide information for permit review, and calculate the emissions portion of the air quality fee.

Not every facility is required to report to MAERS. Facilities that are subject to fees, participate in the emissions trading program, or have opted-out of the ROP program, must report emissions. In addition, facilities with actual annual emissions greater than the following thresholds will be included in MAERS and will be notified to report emissions annually:

- Carbon monoxide (CO) - 100 tons per year
- Nitrogen oxides (NOx) - 40 tons per year
- Sulfur dioxide (SO_2) - 40 tons per year
- Particulate matter (PM) - 25 tons per year
- Particulate matter (PM-10) - 15 tons per year
- Volatile organic compounds (VOC) - 10 tons per year

For more information about MAERS, view the *MAERS User Guide and Workbook* at **www.michigan.gov/deqmaers.**

MAERS reports are due by March 15 each year. By the end of January, the AQD notifies facilities that must submit the MAERS report.

1.13 Tax Exemption for Air Pollution Control

As per Article II, Chapter I, Part 59 (Air Pollution Control Facility; Tax Exemption) of Public Act 451 of 1994, hereinafter referred to as "Part 59," tax exemptions for air pollution control are available through an application separate from the Permit to Install application. Specific procedures must be followed to be granted tax relief and tax exemption certificates are terminated when equipment is removed.

Part 59 provides for the exemption of air pollution control facilities from sales, use, and property taxes (equipment installed prior to the effective date of Part 59 is eligible for tax exemption).

Applications for tax exemption for air pollution control facilities must be submitted to the **Michigan State Tax Commission** (STC) in triplicate on the "Application for Air Pollution Control Tax Exemption Certificate**"** forms. **All applications must be submitted by June 15 and be administratively complete** to ensure that final determinations are made by the end of the tax year. These forms can be obtained from:

Michigan State Tax Commission
Department of Treasury
430 W. Allegan Street
Lansing, MI 48922
Telephone: 517-373-3272

or from the Michigan State Tax Commission's Web site at **www.michigan.gov/taxes** (select "Property Tax," "Property Tax Exemptions," "Air Pollution Control Exemption." The evaluation of an application, the decision of what equipment meets the requirements of Part 59 will be based on the descriptions in the Act.

Once submitted, an administrative completeness check will be conducted by the STC for each application. Failure to complete the required information will result in a return of the application. A technical completeness check will be conducted by the DEQ. If the application is technically incomplete, and the requested additional information is not submitted within 30 days of notification of the deficiency, the DEQ will consider the application withdrawn and it will be returned to the State Tax Commission. The STC will then place the application on an inactive status and notify the company that no certificate will be issued. Once an application is administratively and technically complete, the STC keeps the official copy, and then forwards a copy to the AQD District Office (see Appendix C), and the third copy to the local tax assessor. Most tax exemption determinations are completed by October or November of the same tax year.

1.14 Federal Air Regulations

The U.S. EPA promulgates federal rules and standards that affect a wide variety of sources of air contaminants, especially those operated by manufacturers. The DEQ's AQD receives delegation from the U.S. EPA to implement and enforce compliance with these federal regulations. Some of the federal air quality regulations that manufacturers should be aware of include: Prevention of Significant Deterioration (PSD), New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAPs), Risk Management Plans, and the regulation of CFCs.

1.15 Prevention of Significant Deterioration

The primary provisions of the Prevention of Significant Deterioration (PSD) program, as found in Michigan's Part 18 Rules, mirror the federal requirements in 40 CFR 52.21 and require that new major stationary sources and major modifications at existing major sources be carefully reviewed prior to construction. The review is intended to ensure compliance with the national ambient air quality standards, the applicable PSD increment concentrations, and the requirement to apply best available control technologies on the project's emissions of air pollutants above significance. The review for major stationary sources and major modifications to major stationary sources are required by the Clean Air Act to undergo a new source review (NSR) and obtain a permit before construction.

PSD applicability depends on a new source or a modification to an existing source resulting in emission increases above certain applicability thresholds. A "major stationary source" is any source type belonging to a specific list of source categories which emits or has the potential to emit 100 tons per year or more of any NSR pollutant, or any other source type which emits or has the potential to emit any NSR pollutant in amounts equal to or greater than 250 tons per year. A stationary source generally includes all pollutant-emitting activities which belong to the same industrial grouping, are located on contiguous or adjacent properties, and are under common control.

A major modification is generally a physical change or a change in the method of operation of an existing major stationary source. In determining if a specific project would become subject to the PSD program, the modification must be determined to result in both a significant emissions increase (by itself) and a significant net emissions increase (across the whole stationary source) of any NSR pollutant.

The basic goals of the PSD program are: (1) to ensure that economic growth can continue while simultaneously preserving existing air quality (i.e., prevent degradation of an attainment area into a nonattainment area); and (2) to preserve and protect the air quality in areas of special natural recreational, scenic, or historic value, such as national parks and wilderness areas (i.e., Class I areas). Nonattainment areas are covered by Michigan's Part 19 Rules.

In two rulemaking actions, on December 31, 2002, and October 27, 2003, the U.S. EPA substantially reformed the PSD program. The reformed program modified PSD as it had been implemented pursuant to the 1977 Clean Air Act mandates and 1980 federal court decisions. The December regulations became effective in the state of Michigan on March 3, 2003. The October 2003 regulations were stayed by the federal courts and never became effective in Michigan.

The reforms originally contained six components:

1. Changed the method of determining the baseline level of emissions from which changes are measured to determine if a significant or significant net emissions increase will occur.
2. Instituted applicability determinations by comparing projected future actual emissions against baseline actual emissions. Previously, applicability was determined on the increase in allowable emissions above baseline actual emissions.

3. Created a Plantwide Applicability Limit permitting regime, in which compliance with a single, plantwide emissions limit becomes the sole determiner of NSR applicability for future changes at the facility.
4. Codified the exemption from NSR applicability granted to Pollution Control Projects. This exemption had been allowed through U.S. EPA guidance since 1994.
5. Created the Clean Unit applicability test which allowed changes to emission units that had installed state of the art controls to proceed without NSR applicability - as long as the changes did not alter the basis for the use of those controls.
6. Created an Equipment Replacement Provision under the routine maintenance, repair and replacement exclusions from NSR applicability.

As a result of two major federal court challenges to these reforms, only the first three remain. The Pollution Control Project exclusion, the Clean Unit test and the Equipment Replacement Provisions were ruled to violate the Clean Air Act and have been nullified.

The new method for determining baseline actual emissions expanded for some sources, from five years to ten years, the period of time over which a two-year average of actual annual emissions could be selected as the baseline from which emission changes are measured. Any consecutive 24-month period during the previous ten years can be selected by an applicant as the emissions baseline.

The actual to projected actual applicability test can be used to determine if a modification at an existing source will result in a significant emissions increase. To accomplish this, future emissions are projected based on anticipated business demand. Any emissions increases resulting from future production that would have, or could have, been accommodated without the modification do not count towards NSR applicability. The creation of the actual to projected actual applicability test does not eliminate the traditional actual to potential applicability test; it is an alternative test.

The Plantwide Applicability Limit (PAL) permit written into the reformed PSD regulations establish another alternative PSD applicability threshold to the actual to potential or actual to projected actual methods. The PSD PAL leaves almost all existing permit requirements in place and adds a new, facility-wide, tons per year emissions limit for a single pollutant. This facility-wide pollutant-specific limit establishes the applicability threshold for PSD – as long as the PAL is not exceeded, NSR applicability is not triggered. The goal of the PAL is to internally motivate facilities to voluntarily reduce emissions in order to accommodate future increases rather than subject those increases to NSR.

For more information about the PSD reforms, obtain a copy of the *"PSD Workbook – A Practical Guide to Prevention of Significant Deterioration*." The workbook is available for viewing and/or downloading at **www.deq.state.mi.us/aps**.

For assistance in determining whether or not your proposed installation or modification of an emission unit or source will trigger the PSD requirements, contact the Environmental Assistance Center at 800-662-9278.

1.16 National Emission Standards for Hazardous Air Pollutants (NESHAP)

The 1970 version of the federal Clean Air Act required the U.S. EPA to set emission standards referred to as National Emission Standards for Hazardous Air Pollutants (NESHAP). From 1970 to 1990, NESHAPs were issued for only seven compounds: asbestos, beryllium, mercury, vinyl chloride, arsenic, radionuclides, and benzene.

Under Title III of the Clean Air Amendments of 1990, Congress wanted the U.S. EPA to speed up the pace of regulation. Section 112 of the Clean Air Act Amendments calls for the development of NESHAPs to reduce the emissions of 187 hazardous air pollutants (HAPs). The original list of HAPs contained 189 compounds; however, caprolactam and methyl ethyl ketone (MEK) have been removed from the list. See Appendix 1-A for a listing of HAPs.

Implementation of Section 112 began with the identification of sources that are the major contributors of the 187 HAPs. The U.S. EPA has identified over 174 source categories of sources that emit HAPs and that should be regulated.

1.16.1 Major and Area HAP Sources Defined

A “major HAP source” is a facility that has the potential to emit more than 10 tons per year of any single HAP or 25 tons of all HAPs combined. An “area source” is one that has the potential to emit less than 10 tons of any single HAP or 25 tons of all HAPs combined. The majority of NESHAPs promulgated apply to major HAP sources. However, a number of NESHAPs have been and are currently being promulgated for area sources as well.

1.16.2 Regulating Major and Area HAP Sources - MACT and GACT

Section 112 of the federal Clean Air Act requires the U.S. EPA to promulgate regulations that establish emission standards (commonly referred to as NESHAPs) for each category of major sources and area sources of HAPs identified in the U.S. EPA schedule of regulation promulgation. The standards for major sources of HAPs must require the maximum degree of emission reduction that the U.S. EPA determines to be achievable by each particular source category. This standard is referred to as the maximum achievable control technology (MACT) for short. MACT levels can be different for existing and new sources. The U.S. EPA determines what kind of controls qualify as the “maximum control” for each category of HAP sources. For source categories with at least 30 sources nationwide, MACT must be no less stringent than the average emission rate achieved by the best performing 12 percent of existing sources. MACT ensures that both new and existing major sources of toxic air pollution use the kind of technology which provides maximum control of HAPs on an ongoing basis. The terms NESHAP and MACT are often used interchangeably.

Area sources may require either MACT or Generally Available Control Technology (GACT). GACT are standards less stringent than MACT. Information about standards that have been promulgated for area sources can be found at **www.epa.gov/ttn/atw/area/arearules.html**.

1.16.3 Schedule for Compliance with the NESHAPs

New sources (i.e., sources that commence construction or reconstruction after proposal of the NESHAP) must comply with the standard immediately upon start-up with one exception.

Sources constructed or reconstructed after the NESHAP proposal, but before promulgation, must comply with the promulgated standard within three years of promulgation. Existing sources (i.e., sources in operation prior to the proposed standard) have three years from the promulgation date to comply with the NESHAP.

1.16.4 Additional NESHAP Information

For a complete listing of NESHAPs that affect both major and areas sources go to **www.epa.gov/ttn/atw/area/arearules.html**. To obtain copies of the NESHAP standards as they appear in the Code of Federal Regulations (CFR), go to **www.epa.gov/lawsregs**. Click on "40 CFR (Code of Federal Regulations) and go to Part 63. NESHAPs are contained in Title 40 of the CFR, Part 63. For additional guidance on how to obtain federal regulations, see Appendix D.

To obtain copies of outreach materials on some of the promulgated NESHAPs, contact the DEQ at 800-662-9278. Some of the publications can be downloaded at **www.michigan.gov/air** (select "Compliance Tab").

1.16.5 Comparison of Federal and Michigan Air Toxics Rules

Michigan's air toxics rules take precedence over the federal Clean Air Act regulations where the rules provide for stricter control of toxic air pollution. The following table outlines the provisions of both Michigan's toxic air contaminant regulations and the federal Clean Air Act Amendment's hazardous air pollutant regulations:

TABLE 1.3 COMPARISON OF FEDERAL AND STATE AIR TOXIC REGULATIONS

Issue	Federal Clean Air Act Amendments	Michigan Air Toxics Rules
Applies to new or modified sources of air toxics?	Yes	Yes
Applies to existing sources of air toxics?	Yes	No
Which air toxics are regulated?	At present, 187 chemicals known as hazardous air pollutants or HAPs (the list is subject to change)	All substances which are harmful except for 41 specifically exempted compounds (see Appendix 1-B). These regulated contaminants are known as toxic air contaminants or TACs.
Effective date of regulations	Phased in between 1990 and 2000 (and beyond)	In effect now
Types of controls required	Maximum achievable controls	Best available controls and health-based screening levels

1.16.6 NESHAP for Asbestos

Businesses that are contemplating the demolition or renovation of any structure should be aware that this activity may be regulated under the NESHAP for Asbestos. The purpose of this NESHAP is to minimize the release of asbestos fibers during renovation and demolition activities. The NESHAP applies to renovations of institutional, commercial, or industrial structures if the amount of regulated asbestos-containing material is 260 or more linear feet, 160 or more square feet, or 35 or more cubic feet. The NESHAP applies to all demolition activities at institutional, commercial, or industrial structures, regardless of whether or not the structures contain asbestos.

The NESHAP for Asbestos was promulgated on April 6, 1973, and revised in 1990.

Since the NESHAP was one of the early promulgated NESHAPs, the regulation is found in Part 61 (Subpart M), not Part 63, of Title 40 of the Federal Code of Regulations.

The NESHAP for Asbestos basically has four requirements: notification, work practice standards, proper waste disposal, and training. A notification form describing the project must be postmarked or hand delivered at least 10 working days before beginning demolition or renovation activities enabling the regulatory agency to ensure all precautions are being taken to minimize asbestos emissions. The work practice standards require asbestos be adequately wetted and carefully lowered to the ground. For waste disposal, all asbestos-containing waste must be placed in leak-tight containers or leak-tight wrapping. These containers or wrapped materials must be properly labeled and taken to an appropriate waste disposal site as soon as is practical. Finally, the training requirement is met by having at least one trained supervisor present when asbestos is stripped, removed, disturbed, or handled.

While the NESHAP is concerned about the release of asbestos fibers to the outer air, there are other asbestos regulations focusing on worker protection. For information about these requirements see Chapter 21. For more detailed information about the NESHAP for Asbestos, contact the NESHAP Asbestos Coordinator at 517-373-7023. To obtain a copy of the **"***Understanding the Asbestos NESHAP***"** fact sheet, contact the DEQ, Office of Environmental Assistance, at 800-662-9278. This publication can also be downloaded from **www.deq.state.mi.us/pubcenter/**.

1.17 New Source Performance Standards

New Source Performance Standards (NSPS) are federal requirements applicable to over 75 categories of industrial emission units. The U.S. EPA developed these standards to ensure that old sources of air pollution would be replaced with less polluting technology, thus having a net benefit to air quality.

Not only does the installation of certain new emission units after a specific date trigger applicability of the NSPS, changes to your existing emission units could subject you to the standards. Changes are defined in terms of modifications and reconstruction. Modification is

defined as “any physical or operational change to an existing emission unit which results in an increase in emissions to the atmosphere of any pollutant to which a standard applies.” If the fixed capital cost of the changes you make to your emission unit is more than 50 percent of the fixed capital costs required to construct a comparable emission unit, then your facility has been “reconstructed” under the NSPS definition. For example, if you replaced the dryer portion of an asphalt plant, you would need to compare the cost of the new dryer to the cost of an entirely new asphalt plant as defined in the NSPS for Hot Mix Asphalt Facilities to determine if your changes fall under the definition of reconstruction.

All of the NSPS are located in Title 40, Part 60, of the Code of Federal Regulations. Each regulation is identified in subparts of Part 60. Appendix 1-C contains a brief description of the emission units covered under an NSPS, along with an effective date and subpart. The NSPS applies to emission units constructed, modified, or reconstructed after the effective date of the standard.

It is important that you understand the definitions of an affected facility under NSPS before you install, modify, or reconstruct sources of air pollution so you will be able to comply with all of the pertinent emission limits, record keeping, reporting, and other operational requirements that may be included in the NSPS.

1.17.1 Additional Sources of NSPS Information

To obtain copies of the NSPS regulations as they appear in the Code of Federal Regulations (CFR), go to **www.epa.gov/laws-regulations/regulations#find**. (Appendix D contains additional information on how to find federal regulations on the Internet). You can also get help by calling the Environmental Assistance Center at 800-662-9278.

1.18 Acid Rain Regulations

Electric generating units (EGU) selling electricity to the grid and burning fossil fuel may be required to obtain and operate in compliance with a Phase II acid rain permit, pursuant to Title IV of the federal Clean Air Act. EGUs that have a nameplate capacity of less than 25 MW and burn a fuel with an annual average sulfur content of less than 0.05 percent are exempt from Title IV.

The AQD is the authority responsible for issuing Phase II acid rain permits in Michigan. EGUs that become subject to Title IV are required to submit an application to the AQD 24 months before the unit commences operation. Units which are exempt from the program must submit the exemption form (original and one copy) to the AQD. All acid rain forms should be sent to Brian Carley, DEQ-AQD, 301 E. Louis Glick Hwy, Jackson, MI 49201. One copy must also be sent to the U.S. EPA. Application and exemption forms and their instructions are available from the U.S. EPA Acid Forms Web site **www.epa.gov/airmarkets**.

Any operating stationary combustion source that emits sulfur dioxide (SO2) but is not otherwise required to meet the mandatory SO2 emissions limitations of Title IV is eligible to opt into the Acid Rain Program. Combustion sources are defined as fossil fuel-fired boilers, turbines, or internal combustion engines. The Opt-in Program offers a combustion source a financial

incentive to voluntarily reduce its SO2 emissions. By reducing emissions below its allowance allocation, an opt-in source will have unused allowances which it can sell in the SO2 allowance market. Opting in will be profitable if the revenue from the sale of allowances exceeds the combined cost of the emissions reduction and the cost of participating in the Opt-in Program. Further information on the Opt-in Program is available on the U.S. EPA Air Markets Web site **www.epa.gov/airmarkets.**

All sources subject to the Title IV Acid Rain Program are also required to obtain a Renewable Operating Permit (see Chapter 1.2.3).

For further information about the Acid Rain Program, contact Brian Carley at 517-780-7843 or carleyb@michigan.gov. Information is also available at **www.michigan.gov/air** (select "Permits").

1.19 Managing Chemical Risk: Accidental Release/Risk Management Plan

Companies of all sizes using certain listed chemicals must submit plans detailing how they will prevent accidental chemical releases from occurring. This compliance requirement is known as the Accidental Release/Risk Management Program of the 1990 Clean Air Act Amendment's Section 112(r). The goal of this regulation is to communicate potential risks to the public and ensure that facilities have implemented a baseline internal management structure that includes safety and prevention and emergency response programs to reduce the possibility of an accidental release. The primary tool used to accomplish this goal is the Risk Management Plan (RMP). A facility must develop a RMP if they have regulated substances (comprised of toxic chemicals and flammables) identified under Section 112(r) at or above a specific threshold quantity set for each substance. Size of the company does not determine applicability; a business is required to complete a RMP if the type and quantity of chemicals used are listed as regulated substances under the rule.

There are three levels of compliance with Section 112(r) called "Programs." Facilities that have a process that uses, stores, manufactures, processes, or handles or transports on-site a Section 112(r) regulated substance over the threshold quantity, are required to conduct some level of accidental release "Program" planning. There are three Programs. Program 1 is the most lenient while Program 3 is the most stringent. The Programs are comprised of four major components:

1. A Hazard Assessment including the modeling of a worst case and alternative accidental chemical release.
2. Establishment of a Management Program (i.e., who's in charge of the RMP).
3. A Prevention Program to minimize the potential occurrence of an accidental release.
4. An Emergency Response Program to protect public health and the environment.

Program 1, 2, or 3 applicability dictates which of these components a facility must comply with. Facilities subject to Section 112(r) must meet their Program compliance requirements by June 21, 1999, or at the time that a substance is first present at their facility.

For more information on risk management planning, or questions regarding the rule, additional resources and guidance documents for compliance can be downloaded from the U.S. EPA emergency planning Web site at **www.epa.gov/emergencies.**

1.20 Ozone Depleting Substances

Chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) are inert, toxic chemicals used as refrigerants for air conditioning, home and commercial refrigeration, and in process cooling equipment that supports manufacturing. Scientists worldwide have concluded that CFCs and HCFCs deplete the ozone layer. As a result, the United States joined 160 nations in signing the Montreal Protocol, an international treaty designed to protect the ozone layer. In the United States, the Protocol is implemented by Title VI of the Clean Air Act (CAA) and Title 40, Part 82, of the Code of Federal Regulations. The regulations provided for the phase-out of CFC production by 1996, HCFC-22 production by 2020, and all other HCFCs by 2030. The regulations also put strict limitations on CFC/HCFC sales, their use in stationary and mobile sources, and their disposal.

The CAA prohibits individuals from knowingly venting CFCs, HCFCs, or any alternative refrigerant into the atmosphere while maintaining, servicing, repairing, or disposing of air conditioning or refrigeration equipment. Furthermore, only U.S. EPA-certified technicians can service or dispose of refrigeration or air conditioning equipment (both stationary and mobile sources). The U.S. EPA regional office must be notified that all equipment used in the recycling or recovery of refrigerants meets U.S. EPA standards. A list of approved certification programs and Air Conditioning and Refrigeration Institute (ARI)-rated recovery/recycle equipment is available from the Stratospheric Ozone Hotline at (800) 296-1996. Owners of air conditioning and refrigeration equipment with more than 50 pounds of charge must keep records of the quantity of refrigerant added to their equipment during servicing and maintenance procedures. Any “substantial” leaks in equipment must be repaired within 30 days.

As the effects of ozone-depleting substance phase-outs begin to take hold, the development and usage of viable alternatives becomes increasingly important. In 1994, the U.S. EPA established the significant new alternatives policy (SNAP) program to evaluate new alternatives for ozone-depleting substances. Alternatives that are rated “acceptable” by the SNAP Program can be implemented into processes as legal substitutes. The use of any substance not approved by the SNAP Program is illegal.

Persons with questions concerning CFC/HCFC regulations, the SNAP Program, and stratospheric ozone protection can contact the “Ozone Protection Hotline” at 800-296-1996. If you have Internet access, visit the U.S. EPA, Stratospheric Protection Division Web site at **www.epa.gov/ozone**.

1.21 Greenhouse Gas (GHG) Regulations

On June 3, 2010, the U.S. EPA issued a final rule that sets applicability thresholds for greenhouse gas (GHG) emissions defining when permits under the New Source Review Prevention of Significant Deterioration (PSD) and Title V Operating Permit programs are required for new and existing sources. This rule is known as the "Tailoring Rule."

The Tailoring Rule primarily targets sources of combustion, but it may affect other sources that are modifying or applying for new Permits to Install (PTIs) and Renewable Operating Permits (ROPs). Sources with emissions of any of the following pollutants may be affected by the Tailoring Rule:

- carbon dioxide (CO_2),
- hydrofluorocarbons (HFCs),
- methane (CH_4),
- nitrous oxide (N_2O),
- perfluorocarbons (PFCs), and
- sulfur hexafluoride (SF_6).

Under the Tailoring Rule, PSD permitting requirements cover new construction projects that emit GHG emissions of at least 100,000 tons per year (tpy) even if they do not exceed the permitting thresholds for any other pollutant. Modifications at existing facilities that increase GHG emissions by at least 75,000 tpy will be subject to permitting requirements, even if they do not significantly increase emissions of any other pollutant.

Facilities that emit at least 100,000 tpy Carbon Dioxide equivalent (CO_2e) and 100 tons of GHGs on a mass basis will be subject to permitting under Title V of the Clean Air Act. In Michigan, these permits are known as Renewable Operating Permits (ROPs). Sources with large or multiple fuel burning devices (e.g. boilers, generators, ovens, and process heaters) and sources with large refrigeration units (e.g., warehouses, food processors) should review the GHG Permitting Guidance the AQD has developed to determine whether or not they will be affected by the Tailoring Rule. This guidance and more can be found at **www.michigan.gov/air** (click on "Permits" tab then click on "Greenhouse Gas Emissions Regulations and Permitting").

1.21.1 Greenhouse Gas Reporting Rule

On December 29, 2009, the U.S. EPA's Mandatory Reporting of Greenhouse Gases Rule (MRR) became effective. The MRR requires facilities subject to the rule to report their GHG emissions directly to the U.S. EPA starting with their 2010 GHG emissions data by March 31, 2011.

Visit the U.S. EPA's Greenhouse Gas Reporting Program at **www.epa.gov/ghgreporting** to determine if your facility is subject to the MRR reporting requirements. If you have questions, contact the U.S. EPA MRR hotline at 877-GHG-1188 or GHGMRR@epa.gov.

APPENDIX 1-A: Hazardous Air Pollutants (HAPs)

(Revised December 2016)
CAS Number listed, followed by chemical name.

75070	Acetaldehyde
60355	Acetamide
75058	Acetonitrile
98862	Acetophenone
53963	2-Acetylaminofluorene
107028	Acrolein
79061	Acrylamide
79107	Acrylic acid
107131	Acrylonitrile
107051	Allyl chloride
92671	4-Aminobiphenyl
62533	Aniline
90040	o-Anisdine
1332214	Asbestos
71432	Benzene
92875	Benzidine
98077	Benzotrichloride
100447	Benzyl chloride
92524	Biphenyl
117817	Bis (2-ethylhexyl) phthalate (DEHP)
542881	Bis (chloromethyl) ether
75252	Bromoform
106990	1,3-Butadiene
156627	Calcium cyanamide
133062	Captan
63252	Carbaryl
75150	Carbon disulfide
56235	Carbon tetrachloride
463581	Carbonyl sulfide
120809	Catechol
133904	Chloramben
57749	Chlordane
7782505	Chlorine
79118	Chloroacetic acid
532274	2-Chloroacetophenone
108907	Chlorobenzene
510156	Chlorobenzilate
67663	Chloroform
107302	Chloromethyl methyl ether
126998	Chloroprene
1319773	Cresols/Cresylic acid (isomers and mixtures)
95487	o-Cresol
108394	m-Cresol
106445	p-Cresol
98828	Cumene
94757	2,4-D, salts and esters
3547044	DDE
334883	Diazomethane
132649	Dibenzofurans
96128	1,2-Dibromo-3-chloropropane
84742	Dibutylphthalate
106467	1,4-Dichlorobenzene(p)
91941	3,3-ichlorobenzidene
111444	Dichloroethyl ether (Bis(2-chloroethyl)ether)
542756	1,3-Dichloropropene
62737	Dichlorvos
111422	Diethanolamine
21697	N,N-Diethyl aniline (N,N-Dimethylaniline)
64675	Diethyl sulfate
119904	3,3- Dimethoxybenzidine
60117	Dimethyl aminoazobenzene
119937	3,3-Dimethyl benzidine
79447	Dimethyl carbarmoyl chloride
68122	Dimethyl formamide
57147	1,1 Dimethyl hydrazine
131113	Dimethyl phthalate
77781	Dimethyl sulfate
534521	4,6-Dintro-o-cresol, and salts
51285	2,4-Dinitrophenol
121142	2,4-Dinitrotoluene
123911	1,4-Dioxane (1,4-Diethyleneoxide)
122667	1,2-Diphenylhydrazine
106898	Epichlorohydin (1-Chloro-2,3-epozypropane)
106887	1,2-Epozybutane
140885	Ethyl acrylate
100414	Ethyl benzene
51796	Ethyl carbamate (Urethane)
75003	Ethyl chloride (Chloroethane)
106934	Ethylene dibromide) (Dibromoethane)
107062	Ethylene dichloride (1,2-Dichloroethane)
107211	Ethylene glycol
151564	Ethylene imine (Aziridine)
75218	Ethylene oxide
96457	Ethylene thiourea
75343	Ethylidene dichloride (1,1-Dichloroethane)
50000	Formaldehyde
76448	Heptachlor
118741	Hexachlorobenzene
87683	Hexachlorobutadiene
77474	Hexachlorocyclo pentadiene
67721	Hexachloroethane
822060	Hexamethylene-1,6-diisocyanate
680319	Hexamethyl phosphoramide
110543	Hexane
302012	Hydrazine
7647010	Hydrochloric acid
7664393	Hydrogen fluoride (hydrofluoric acid)
123319	Hydroquinone
78591	Isophorone
58899	Lindane (all isomers)
108316	Maleic anhydride
67561	Methanol
72435	Methozychlor
74839	Methyl bromide (Bromomethane)
74873	Methyl chloride (Chloromethane)
71556	Methyl chloroform (1,1,1-Trichloroethane)
60344	Methyl hydrazine
74884	Methyl iodide (Iodomethane)
108101	Methyl isobutyl ketone (Hexone)
624839	Methyl isocyanate
80626	Methyl methacrylate
1634044	Methyl tert butyl ether
101144	4,4-Methylene bis (2-chloroaniline)
75092	Methylene chloride (Dichloromethane)
101688	Methlene diphenyl diisocyanate (MDI)
101779	4,4'-methylenedianiline
91203	Naphtalene
98953	Nitrobenzene
92933	4-Nitrobiphenyl
100027	4-Nitrophenol
79469	2-Nitropropane
684935	N-Nitroso-N-methylurea
62759	N-Nitrosodimethylamine
59892	N-Nitrosomorpholine

56382 Parathion
82688 Pentachloronitrobenzene (Quintobenzene)
87865 Pentachlorophenol
108952 Phenol
106503 p-Phenylenediamine
75445 Phosgene
7803512 Phosphine
7723140 Phosphorus
85449 Phthalic anhydride
1336363 Polycholrinated biphenyls (Aroclors)
1120714 1,3-Propane sultone
57578 beta-Propiolactone
123386 Propionaldehyde
114261 Propoxur (Baygon)
75569 Propylene oxide
78875 Propylene dichloride (1,2-Dichloropropane)
75558 1,2-Propylenimine (2-Methyl aziridine)
91225 Quinoline
106514 Quinone
100425 Styrene
96093 Styrene oxide
1746016 2,3,7,8-Tetrachlorodibenzo p-dioxin
79345 1,1,2,2-Tetrachloroethane
127184 Tetrachloroethylene (Perchloroethylene)
7550450 Titanium tetrachloride
108883 Toluene
95807 2,4-Toluene diamine
584849 2,4-Toluene diisocyanate
95534 o-Toluidine
8001352 Toxaphene (chlorinated camphene)
120821 1,2,4-Trichlorobenzene
79005 1,1,2-Trichloroethane
79016 Trichloroethylene
95954 2,4,5-Trichlorophenol
88062 2,4,6-Trichlorophenol
121448 Triethylamine
1582098 Trifluralin
540841 2,2,4-Trimethylpentane
108054 Vinyl acetate
593602 Vinyl bromide
75014 Vinyl chloride
75354 Vinylidene chloride (1,1 Dichloroethylene)
1330207 Xylenes (isomers and mixtures)
95476 o-Xylenes
108383 m-Xylenes
106423 p-Xylenes

COMPOUNDS

Antimony compounds
Arsenic compounds (inorganic including arsine)
Beryllium compounds
Cadmium compounds
Chromium compounds
Cobalt compounds
Coke oven emissions
Cyanide compounds
Fine mineral fibers
Glycol ethers*
Lead compounds
Manganese compounds
Mercury compounds
Nickel compounds
Polycyclic organic matter
Radionuclides (including radon)
Selenium compounds

*Note: Ethylene glycol mono-butyl ether (EGBE) was removed from the HAP list in December 2004. Methyl ethyl ketone (MEK, 2-Butanone) was removed from the HAP list in December 2005.

APPENDIX 1-B: List of Compounds Excluded from The Definition of a Toxic Air Contaminant

- Acetylene
- Aluminum metal dust
- Aluminum oxide (nonfibrous forms)
- Ammonium sulfate
- Argon
- Calcium carbonate
- Calcium hydroxide
- Calcium oxide
- Calcium silicate
- Calcium sulfate
- Carbon dioxide
- Carbon monoxide
- Cellulose
- Coal dust
- Crystalline silica emissions from processes specified in Rule 120(f)(xi)
- Emery
- Ethane
- Graphite (synthetic)
- Grain dust
- Helium
- Hydrogen
- Iron oxide
- Lead
- Liquefied petroleum gas (LPG)
- Methane
- Neon
- Nitrogen
- Nitrogen oxide
- Nuisance particulates
- Oxygen
- Ozone
- Perlite
- Portland cement
- Propane
- Silicon
- Starch
- Sucrose
- Sulfur dioxide
- Vegetable oil mist
- Water vapor
- Zinc metal dust

APPENDIX 1-C: Standards of Performance For New Stationary Sources

Performance Standards Promulgated as of March 2012

40 CFR 60 Subpart	Source
A	General Provisions
B	Adoption and submittal of state plans for Designated Facilities
Ca (See Ea)	Municipal waste combustor units with capacity >225 megagrams/day (250 tons/day)
Cb (see Eb)	Municipal waste combustor units located within a municipal waste combustor plant with a plant capacity >35 megagrams/day
Cc (see WWW)	Municipal Solid waste landfill
Cd (See H)	Sulfuric acid production unit
Ce	Hospital/medical/infectious waste incinerators
D	Fossil fuel-fired steam generators >250 MM/Btu/hr
Da	Electric utility steam generators >250 MM/Btu/hr
Db	Industrial-commercial-institutional steam generators >100 MM/Btu/hr
Dc	Small industrial-commercial-institutional steam generators >10 MM/Btu/hr but <100 MM/Btu/hr
E	Solid waste incinerator of more than 50 tons/day charging rate
Ea (See Ca)	Municipal waste combustor unit with capacity >225 megagrams/day (250 tons/day)
Eb (See Cb)	Municipal Waste Combustor Unit located within a municipal waste combustor plant with a plant capacity >35 megagrams/day
Ec	Hospital/medical/infectious waste incinerators
F	Portland cement plants
G	Nitric acid production units
Ga	Nitric Acid plants for which construction, reconstruction, or modification commenced after October 14, 2011
H (See Cd)	Sulfuric acid production units
I	Hot mix asphalt facilities
J	Petroleum refinery oil: Fluid catalytic cracking unit catalyst regenerators Fuel gas combustion device
Ja	Petroleum refineries for which construction, reconstruction, or modification commenced after May 14, 2007
K	Storage vessels for petroleum liquids having a capacity >40,000 gallons but not >65,000 gallons Storage vessels for petroleum liquids having a capacity >65,000 gallons
Ka	Storage vessels for petroleum liquids having a capacity >40,000 gallons
Kb	VOC liquid storage vessels having a capacity > or equal to 40 cubic meters
L	Secondary lead smelters: pot furnaces of more than 550 pounds charging capacity, blast (cupola) furnaces, and reverberatory furnaces
M	Secondary brass and bronze production plants: reverberatory and electric furnaces of 2205 pounds or greater production capacity and blast (cupola) furnaces 550 pounds per hour or greater production capacity
N	Oxygen process furnaces
Na	Top-blown basic oxygen process steelmaking facilities (BOPF) and hot metal transfer stations and skimming stations used with bottom-blown BOPFs

40 CFR 60 Subpart	Source
O	Sewage treatment plants
P	Primary copper smelters: dryer, roaster, smelting furnace, and copper converter
Q	Primary zinc smelters: roaster and sintering machine
R	Primary lead smelters: sintering machine, sintering machine discharge end, blast furnace, dross reverberatory furnace, electric smelting furnace, and converter
S	Primary aluminum reduction plants: potroom groups and anode bake plants
T	Phosphate fertilizer industry: wet-process phosphoric acid plant having a design capacity of more than 15 tons of equivalent P2O5 feed per calendar day
U	Phosphate fertilizer industry: superphosphoric acid plant having a design capacity of more than 15 tons of equivalent P2O5 feed per calendar day
V	Phosphate fertilizer industry: granular diammonium phosphate plant having a design capacity of more than 15 tons of equivalent P2O5 feed per calendar day
W	Phosphate fertilizer industry: triple superphosphate plant having a design capacity of more than 15 tons of equivalent P2O5 feed per calendar day
X	Phosphate fertilizer industry: granular triple superphosphate storage facility
Y	Coal preparation plants which process more than 200 tons per day
Z	Ferroalloy production facilities
AA	Steel plants: product carbon, alloy, or specialty steels; electric arc furnaces; and dust-handling systems
AAa	Steel plants: product carbon, alloy, or specialty steels; electric arc furnaces; argon-oxygen decarburiation vessels; and dust-handling systems
BB	Kraft pulp mills: digester system, brown stock washer system, multiple-effect evaporator system, recovery furnace, smelt dissolving tank, lime kiln, and condensate stripper system
BBa	Kraft pulp mills, affected sources for which construction, reconstruction, or modification commenced after May 23, 2013
CC	Glass melting furnace
DD	Grain elevators: truck loading/unloading station, barge and ship unloading station, barge and ship loading station, railcar loading station, railcar unloading station, grain dryer, and all grain handling operations
EE	Surface coating of metal furniture
GG	Stationary gas turbines with a heat input peak load equal to or >10.7 gigajoules per hour, based on the lower heating value of the fuel fired
HH	Rotary lime kiln used in the manufacture of lime
KK	Lead-acid battery manufacturing plants that produce or have the design capacity to produce in one day (24 hours) batteries containing an amount of lead equal to or greater than 5.9 Mg (6.5 tons)
LL	Metallic mineral processing plants: crusher and screen in open-pit mines; each crusher, screen bucket elevator, conveyor belt transfer point, thermal dryer, product packaging station, storage bin, enclosed storage area, truck loading station, truck unloading station, railcar loading station, and railcar unloading station at the mill or concentrator
MM	Automobile and light-duty truck surface coating operations: prime coat operation, each guide coat operation, and each topcoat operation
NN	Phosphate rock plants: phosphate rock plants which have a maximum plant production capacity >3.6 megagrams per hour (4 tons/hr); dryers, calciners grinders, and ground rock handling and storage facilities, except those facilities producing or preparing phosphate rock solely for consumption in elemental phosphorus production

40 CFR 60 Subpart	Source
PP	Ammonium sulfate manufacture: ammonium sulfate dryer within an ammonium sulfate manufacturing plant in the caprolactam by-product, synthetic, and coke oven by-product sectors of the ammonium sulfate industry
QQ	Graphic arts industry: publication rotogravure printing process
RR	Pressure sensitive tape and label surface coating operation
SS	Industrial surface coating: large appliances
TT	Metal coil surface coating: prime coat operation, prime and finish coat operation combined when the finish coat is applied wet on wet over the prime coat and both coatings are cured simultaneously
UU	Asphalt processing and asphalt roofing manufacture: saturator and each mineral handling and storage facility at asphalt roofing plants; and each asphalt storage tank and each blowing still at asphalt storage tank or blowing still that processes and/or stores only nonroofing and asphalt roofing plants
VV	Equipment leaks of VOC in the synthetic organic chemicals manufacturing industry
VVa	Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006
WW	Beverage can surface coating industry: exterior base cot operation, overvarish coating operation, and inside spray coating operation
XX	Bulk gasoline terminals: loading racks at a bulk gasoline terminal which deliver liquid product into gasoline tank trucks
AAA	New residential wood heaters
BBB	Rubber tire manufacturing industry: undertread cementing operation, sidewall cementing operation, tread end cementing operation, bead cementing operation, greentire spraying operation, Michelin-A operation, Michelin-B operation, and each Michelin-C automatic operation
DDD	VOC emissions from the polymer manufacturing industry: • Polypropylene and polyethylene • Polystyrene and poly(ethylene terephthalate)
FFF	Flexible vinyl and urethane coating and printing: rotogravure printing line used to print or coat flexible vinyl or urethane product
GGG	Equipment leaks at petroleum refineries
GGGa	Equipment Leaks of VOC in Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced After November 7, 2006
HHH	Synthetic fiber production facilities: solvent spun synthetic fiber process that produces more than 500 megagrams of fiber per year
III	Synthetic organic chemical manufacturing industry air oxidation unit process
JJJ	Petroleum drycleaners: total manufacturers' rated dryer capacity equal to or greater than 38 kilograms (84 pounds): petroleum solvent dry cleaning dryers, washers, filters, stills, and settling tanks
KKK	Onshore natural gas processing
LLL	Onshore natural gas processing
NNN	Synthetic organic chemical manufacturing industry distillation operations
OOO	Nonmetallic mineral processing plants: crusher grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station. Also crushers and grinding mills at hot mix asphalt facilities
PPP	Wool fiberglass insulation manufacturing plants: rotary spin wool fiberglass insulation manufacturing line

40 CFR 60 Subpart	Source
QQQ	Petroleum refinery wastewater systems
RRR	Synthetic organic chemical manufacturing industry (SOCMI) reactor process
SSS	Magnetic tape coating facilities
TTT	Industrial surface coating: business machines
UUU	Calciners and dryers in mineral industries
VVV	Polymeric coating of support substrates facilities
WWW (see Cc)	Municipal solid waste landfills
AAAA	Small municipal waste combustor units
BBBB	Small municipal waste combustor units
CCCC	Commercial and industrial solid waste incinerator units
DDDD	Commercial and industrial solid waste incinerator units
EEEE	Other Solid Waste Incineration Units for which construction is commenced after December 9, 2004, or for which modification or reconstruction is commenced on or after June 16, 2006
FFFF	Other Solid Waste Incineration Units
HHHH	Coal-Fired Electric Steam Generating Units
IIII	Stationary Compression Ignition Internal Combustion Engines
JJJJ	Stationary Spark Ignition Internal Combustion Engines
KKKK	Stationary Combustion Turbines
LLLL	Standards of Performance for New Sewage Sludge Incineration Units
MMMM	Emission Guidelines and Compliance Times for Existing Sewage Sludge Incineration Units
OOOO	Crude Oil and Natural Gas Production, Transmission And Distribution
QQQQ	New Residential Hydronic Heaters and Forced-Air Furnaces
TTTT	Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units

WHERE TO GO FOR HELP

SUBJECT: **State and federal air quality regulations**

CONTACT: DEQ, Clean Air Assistance Program
800-662-9278 | **www.michigan.gov/air** (Select "Clean Air Assistance Program" under Compliance Tab)

PUBLICATIONS: Air Emissions Reporting:

1. Michigan Air Emissions Reporting System (MAERS) Workbook

Air Permits:

1. Permit to Install Workbook – A Practical Guide to Completing an Air Permit Application
2. PASS-ROP Workbook – A Practical Guide to Completing an Electronic Renewable Operating Permit Application
3. Life After ROP – Renewable Operating Permit Reporting and Revisions
4. PSD Workbook – A Practical Guide to Prevention of Significant Deterioration

General Publications:

1. Air Pollution Control 101
2. What is an Air Contaminant/Pollutant?
3. Working with an Environmental Consultant
4. Michigan Clean Air Consultant Directory
5. Open Burning Guidance

National Emission Standards for Hazardous Air Pollutants (NESHAPs):

1. Understanding the Asbestos NESHAPs
2. The National Emission Standard for Hazardous Air Pollutants (NESHAPs) Guide for Chromium Electroplating and Anodizing
3. How the Clean Air Act Affects Halogenated Solvent Cleaning Operations
4. Air Quality Compliance for Wood Manufacturing Operations
5. Wood Furniture Manufacturing Operations NESHAPs

SUBJECT: **State and federal air quality regulations and programs**

CONTACT: DEQ, Air Quality Division
800-662-9278 | **www.michigan.gov/air**

SUBJECT: **Federal air quality regulations**

CONTACT: U.S. Environmental Protection Agency, Office of Air and Radiation
www3.epa.gov/air
www3.epa.gov/airquality/
www3.epa.gov/ttn

Michigan Guide to Environmental, Health, and Safety Regulations

Chapter 2

Waste Management

SECTION ONE – ENVIRONMENTAL REGULATIONS

CHAPTER 2: Waste Management

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Purpose and Applicability of Regulations

Everyone generates waste on a daily basis and is subject to the state's waste regulations. When waste is improperly handled and disposed (i.e., illegal dumping along roadsides, in the woods, in illegal landfills, in wetlands, in lakes and streams, or by being improperly burned), both surface and groundwater quality, as well as air quality, can be impacted. Your legal responsibility as a generator of any quantity of waste extends from "cradle to grave." This covers the time from when the waste is first generated through its ultimate disposal. State and federal court decisions have consistently upheld that legal liability remains with the original generator, in some instances even after disposal.

As you review this chapter, consider referencing Appendix B, which provides definitions for the various terms that appear in bold throughout the chapter. Also note that in some instances, multiple agencies use the same term to describe a different regulated group. Such terms are followed by a dash and an acronym for the defining agency or regulation. For example, the U.S. Department of Transportation (U.S. DOT), the Michigan Fire Prevention Code, Public Act 207 of 1941, as amended (Act 207), and the Michigan Hazardous Materials Transportation Act, Public Act 368 of 1998 (Act 368) all have differing definitions for the term "hazardous material." Therefore, the U.S. DOT, Act 207, and Act 368 definitions of hazardous material will appear as "**hazardous material-U.S. DOT,**" "**hazardous material-Act 207,**" and **hazardous material-DEQ**," respectively.

Agencies and Their Laws and Rules

Several different agencies are involved with overseeing proper waste management. State agencies include the Michigan Department of Environmental Quality (DEQ); the Michigan Department of Licensing and Regulatory Affairs (DLARA); the Michigan Department of Agriculture and Rural Development (MDARD); and the Michigan State Police (MSP). Federal agencies include the U.S. Environmental Protection Agency (U.S. EPA), U.S. DOT, U.S. Nuclear Regulatory Commission (U.S. NRC) and the U.S. Drug Enforcement Administration (U.S. DEA). In addition, local entities such as solid waste management authorities, publicly owned treatment works (POTW) authorities, local fire departments, and county health departments may have jurisdiction over proper waste management.

The following identifies Michigan's common waste regulations (laws and rules implementing the law) that are overseen by the DEQ:

- Solid waste regulations under Part 115 (Solid Waste Management) of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451), the Part 115 rules, and Part 89 (Littering) of Act 451. (Summarized in Chapter 2.2)
- Scrap tire regulations under Part 169 (Scrap Tires) of Act 451. (Summarized in Chapter 2.2)
- Liquid industrial by-products regulations under Part 121 (Liquid Industrial By-products) of Act 451. (Summarized in Chapter 2.3)
- Hazardous waste requirements under Part 111 (Hazardous Waste Management) of Act 451 and the Part 111 administrative rules. (Summarized in Chapter 2.4)
- Transportation of **hazardous materials-DEQ** requirements, which includes both liquid industrial by-products and hazardous waste, under the Hazardous Materials Transportation Act (Public Act 138 of 1998). (Summarized in Chapter 2.3 and 2.4 and Chapter 4)
- Used oil recycling regulation under Part 167 (Used Oil Recycling) of Act 451.(See Chapter 2.7)
- Disposal of batteries regulations under Part 171 (Battery Disposal) of Act 451 (See Chapter 2.4.5.b).
- Consumer and small electronics from business with ten or less employees under Part 173. (Electronics) of Act 451. (See Chapters 2.4.5.b and 2.7.13)
- Recycling reporting under Part 175 (Recycling Reporting) of Act 451 (see Chapter 2.1.1.i)
- Medical waste requirements under Part 138 (Medical Waste Regulatory Act) of the Public Health Code, Act 368 of 1978, as amended (Act 368) and the Part 138 administrative rules. (Summarized in Chapter 2.5)
- Radioactive waste under Part 135 (Ionizing Radiation Rules) of Act 368; the Part 135 administrative rules; Part 111 (Hazardous Waste Management) of Act 451; and the Part 111 administrative rules. (Summarized in Chapter 10)
- Wastewater regulations under Part 31 (Water Resource Protection) of Act 451 and the Part 31 administrative rules. (Summarized in Chapter 3)
- Air pollution regulations under Part 55 (Air Pollution Control) of Act 451 and the Part 55 administrative rules. (Summarized in Chapter 1)

The following identifies common federal waste regulations (laws and rules implementing the law):

- Federal hazardous waste regulations implementing the federal Resource Conservation and Recovery Act (RCRA) are contained in Title 40, Parts 260-279, of the Code of Federal Regulations (40 CFR 260-279).
- Transportation regulations for **hazardous materials-U.S.DOT** overseen by U.S. DOT and MSP are contained in 49 CFR Parts 100 to 199. (See Chapter 4)
- Polychlorinated biphenyls (PCB) materials and waste regulations overseen by the U.S. EPA are in the federal Toxic Substances Control Act (TSCA) and Title 40, Part 761 (40 CFR 761). (See Chapter 4.5 and 6.4.3)

- Radioactive waste regulations are overseen by the U.S. NRC. (See Chapter 10)
- Controlled substance regulations are overseen by the U.S. DEA.
- Federal wastewater regulations implementing the federal Clean Water Act. (See Chapter 3)
- Federal air pollution regulations implementing the federal Clean Air Act. (See Chapter 1)

2.1 Waste Reduction, Recycling, and Diverted Waste

Different terms are often used to describe waste reduction practices. “Waste minimization” is a term found in RCRA that refers to source reduction and environmentally sound recycling of RCRA hazardous waste. “Pollution prevention” or “P2” is a term found in the federal Pollution Prevention Act of 1990 that refers to source reduction of all toxic wastes, including those released to air, water and land resources. Source reduction includes any practice that reduces the quantity and/or toxicity of pollutants entering a waste stream prior to recycling, treatment, or disposal. Examples include equipment or technology modifications, reformulation or redesign of products, substitution of less toxic raw materials, improvements in work practices, maintenance, worker training, and better inventory control. There are specific mandates under the federal statutes to evaluate and implement waste minimization and pollution prevention activities.

Per the provisions of the Pollution Prevention Act, when small quantity and large quantity generators of hazardous waste (see Chapter 2.4.3) sign their waste manifest for shipping hazardous waste, they must certify that as a:

- Large quantity generator, they have a program in place to reduce the volume and toxicity of waste generated to the degree they have determined to be economically practicable and have selected the practicable method of treatment, storage, or disposal currently available which minimizes the present and future threat to human health and the environment. Large quantity generators are required to have a written waste minimization program in place that reduces the volume and/or toxicity of hazardous waste and promotes recycling of wastes; or as a
- Small quantity generator, they have made a good faith effort to minimize their waste generation and selected the best waste management method that is available and that they could afford.

No matter what waste minimization term is used, you need to know what types of waste and how much waste is being generated before establishing a waste program focused on managing materials and not just disposal. You need to determine what waste regulations apply to the materials and the options for reuse, recycling, or disposal. Community planners and developers should apply these concepts when evaluating community redevelopment, blight removal, and disaster response. Sound planning that involves a waste survey will help reduce costs and ensure worker, community, and environmental safety by ensuring materials are managed properly and, just as importantly, timely. Resources to help in performing waste surveys and materials management planning include:

- Chapter 2.4.1 and 2.4.2 regarding waste determinations, and Chapter 12 for pollution prevention planning tips.
- DEQ's recorded "Hazardous Waste and Liquid Industrial By-products Regulations Webinar Series" found at **www.michigan.gov/deqwaste** under the "Announcements" tab.
- New state programs like the DEQ Integrated Assessment Program that offers free, on-site, one-on-one assistance services to help businesses and communities meet sustainability goals, increase efficiencies, reduce cost, conserve energy and water, and eliminate or minimize waste through materials management. Sign up for a free assessment on-line by going to **www.michigan.gov/p2integratedassessment**.
- U.S. EPA guidance and tools for identifying hazardous waste minimization practices like the U.S. EPA P2 Resource Exchange at **www.epa.gov/oppt/p2home/pubs/p2rx.html**, the waste minimization resources at **www.epa.gov/osw/hazard/wastemin/index.htm**, and the pollution prevention resources at **www.epa.gov/p2**.

- Tools like the Recycled Materials Market Directory available on-line at **www.michigan.gov/deqrmmd** and Michigan's Re:Source Materials Marketplace Exchange available at **www.michigan.gov/resource**.
- Northeast Michigan Council of Government's report on Recycling in Michigan, Successful Recycling Programs, Best Practices, and Diversion Potential.
- West Michigan Sustainable Business Forum's report on the Economic Impact Potential and Characterization of Municipal Solid Waste in Michigan.
- U.S. EPA's "On the Road to Reuse: Residential Demolition Bid Specification Development Tool" for assisting communities in developing bids for redevelopment.
- MSP's "Local Disaster Debris Management Planning Handbook."

Identifying Wastes and Waste Reduction Opportunities

It doesn't matter if you are a manufacturer, service provider, non-profit, university, hospital, or municipality, waste reduction and recycling activities generally pay off with reduced costs and environmental benefits. To get started, conduct a waste survey to identify the types and quantities of waste generated at your site. After identifying and inventorying your waste, evaluate what measures you can institute to reduce the volume and/or toxicity. Performing a waste survey will also help to determine waste streams that may be subject to hazardous waste regulation (see Chapter 2.4 for more information). When conducting a waste survey:

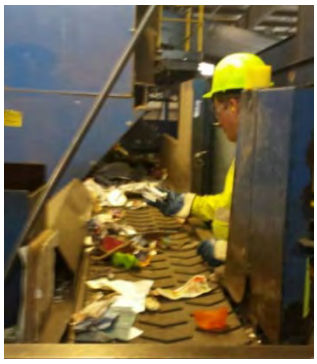
- Tour the whole facility and ask employees questions about work processes and the waste generated. Identify what is regulated as a hazardous waste, liquid industrial by-product, solid waste, or other waste type and how much waste is generated. Ask for suggestions about how waste could be reduced as a first option and recycled as a second option. Consider all wastes that are being generated from the different facility areas. Look both inside and outside the facility, including drains and sewers that may collect leaks. Look at discontinued operations that may have waste within them and equipment requiring disposal. Look at production, office and maintenance activities. Review product storage areas and institute measures to prevent excess inventories from expiring. Ensure when materials are discontinued, existing inventories are used before the replacement materials are made available, and make sure you know how the replacement product is subject to regulation when discarded. The product may be inexpensive, but disposal of any unwanted materials may not be. Institute procedures to routinely purge unwanted materials and equipment from inventory to reduce the likelihood of having a single month where your site generates larger volumes of hazardous waste, subjecting your facility to additional regulations, higher fees, and more reporting.
- Trace all chemical purchases for each step of every process or activity in the facility. Consider whether materials can be substituted to generate less or no hazardous waste.

To determine whether you have a solid waste, liquid industrial by-product, or hazardous waste, view the DEQ recorded waste characterization and generator status webinar available at **www.michigan.gov/deqwaste** under the "Hazardous Waste and Liquid Industrial By-products Webinar Series" link on the "Announcement" tab or see Chapter 2.4.

- Identify where in-house recovery and reuse of hazardous and non-hazardous materials is possible. Chapter 2.4 provides details about on-site recycling for some materials. For questions about the regulations and any waste permitting or licensing requirements for recycling, contact the DEQ, District Office, Hazardous or Solid Waste Program (see Appendix C).
- Also, check with the District Office, Air Quality Division (AQD) if you will install equipment to recycle that may generate an air contaminate to see if an air quality permit is required. When applying these principles to community redevelopment, be sure to consider the notifications require to address asbestos exposure concerns (see Chapter 1.16.6)

- Observe to see if employees are creating more hazardous waste by mixing other waste with known hazardous waste. For example, your facility may be able to reduce its volume of hazardous waste by not placing non-hazardous paints in the same container as waste solvents.
- Determine if different wastes are being mixed together. This mixing usually makes recycling difficult, if not impossible, and disposal more expensive.
- Develop and maintain accurate inventory control of all products. This helps to eliminate excessive inventory. Buying in bulk or ordering on a schedule will not be cost effective if the product must be disposed because it has expired.

If your facility finds it has unwanted materials that can be used as a product, it might be possible to find another company looking for the material by using a matchmaker materials exchange tools like the Michigan's Re:Source Materials Marketplace Exchange available online at **www.michigan.gov/resource** or the EPA Comprehensive Procurement Guideline Program and Directory. Once you know where the wastes are being generated, you may be able to reduce disposal costs by implementing waste reuse, reduction and recycling programs. Along with saving money on disposal costs, you might save money by purchasing less material and even earn money by selling the collected materials. You need to have both management and staff support to make these programs work. So, engage employees all levels in the process and report the benefits back to everyone to show the successes, in both waste reductions, reuse increases, cost savings, etc. Waste reduction involves implementing activities that result in less waste being generated. These activities may include any of the following:



- Change processes so less scrap is created.
- Purchase supplies that are made of less toxic materials.
- Purchase supplies that have less packaging.
- Have materials shipped in returnable and reusable containers.
- Use materials on a "first in, first out" basis so products don't expire.
- Replace disposable materials with reusable and recyclable materials.
- Establish an incentive program that encourages workers to suggest ways to reduce waste.
- Train employees in waste reduction methods.
- Install reclamation units to reduce the amount of waste needing disposal. For example, recover spent solvents from parts washers.
- Purchase raw materials that contain post-consumer recycled materials to complete the cycle.

Recycling involves converting materials from the waste stream into other usable goods. The first step for facilities involves the collection of those materials. If the materials cannot be used in-house, then the collected materials can be marketed through private brokers or local community recycling programs. Several areas in Michigan now have reuse centers that offer these materials for community or school activities.

Check with your broker, your local contact at **www.michigan.gov/deqrecyclingcontacts**, or search the Michigan Recyled Materials Market Directory at **www.michigan.gov/deqrmmd** to find out what materials are accepted in your area, how the materials must be prepared, and other collection details. You may need to use different brokers or several different recycling programs to market your collected materials because the individual broker or program might not handle the type or volume of material you have. For information on recycling funding, see the Guide to Operational and Funding Options fo Municipal Recycling Programs, Guide to Use of Special Assessments to Fund Recycling Services and Facilities, the Delta Institute Municipal Waste Procurement Tools, and contact your DEQ regional recycling specialists. A list of the regional recycling specialists is available at **www.michigan.gov/deqrecycling** by selecting "Contact Your Recycling Specialist."

Michigan manufacturers and service providers deliver the goods and services that make

Michigan's economy vibrant. They also hold the power to purchase products that can be recycled and to purchase recycled materials. Doing so not only conserves natural resources by reducing the need for virgin materials, but also lengthens the life of existing landfills, reduces pollution, saves energy, and ultimately saves money if implemented properly. While it takes energy to transport and recycle materials, the energy put into recycling is generally less than that needed to obtain and process virgin materials. Recycling supports a "loop" that results in extracted natural resources remaining utilized instead of being landfilled.

Commonly recycled materials include:

- Computers, cell phones, televisions and other household electronics
- Plastic
- Glass
- Paper, including office paper and corrugated cardboard
- Scrap metal
- Wood pallets. Other wood materials as described in Chapter 2.1.1

Help close the loop on recycling by finding manufacturers and suppliers of products that contain recovered materials at **www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program#product** where you can search by the products you need.

2.1.1 Solid Waste Exclusions and Exemptions

Solid waste recycling is regulated under Part 115 of Act 451 and the Part 115 administrative rules. Only material specifically defined as "recyclable material" are excluded from the waste regulations when recycled in accordance with the rules. Some solid waste is also not well suited for landfill disposal and can be managed as "diverted waste" if collected for diversion to an environmentally preferred management option. In either case, the collected materials cannot be speculatively accumulated. This means that typically at least 75 percent of the incoming materials must be sent onto the environmentally preferred management option within a year. For questions about recycling and/or diverting solid waste, see the following sections and contact the DEQ, District Office, Solid Waste Program (see Appendix C).

2.1.1.a Recyclable Materials

Recyclable materials are specifically defined in the law and include commonly recycled materials like glass, paper, plastic, metal (bits and pieces), untreated and uncoated wood, textiles, yard clippings, and other materials approved by the DEQ. These materials are not subject to solid waste regulation when:

- site, source separated at the generating site;
- at least 90% free of other solid waste
- not speculatively accumulated at a secondary site, and
- recycled within 1 year.

Materials are accumulated speculatively if less than 75 percent of the recyclable materials are recycled into marketable raw materials, marketable new products, or transferred to a different site

for recycling within 1 year. If site, source separated recyclable materials are speculatively accumulated at a location other than the generating site, the activity is subject to solid waste regulation and requires a solid waste permit and license, and the site activities must be included in the county solid waste plan. There may be additional storage requirements under other DEQ implemented regulations. For example, scrap metal bins or roll-off boxes that are covered to prevent contaminated stormwater runoff are required under water regulations in certain situations. For some low hazard materials approved by the DEQ, the material may be accumulated for up to 3 years, at the site of generation, without being considered speculatively accumulated. See page 2-13 for more information on low hazard industrial waste.

Additional materials may be specified as "recyclable materials" if approved by the Director. Recyclable materials approved by the Director include the following, when processed as specified under the approval:

- Concrete Grinding Slurry
- Scrap Wood
- Ethanol
- Fish Waste Exemption
- Flue Gas Desulfurization Sludge
- Gypsum Drywall
- Inert Lead Painted Debris
- Lime Sludge
- Manure, Paunch, and Pen Waste
- On Farm Anaerobic Digestion
- Inert Tire Materials

More details regarding the management standards that must be met for recyclable materials approved by the Director are found online. See the DEQ "Exemptions and Guidance" Web page at **www.michigan.gov/deqwaste**, after selecting the "Solid Waste" tab on the left.

2.1.1.b Organic Wastes

Nationally organic waste makes up the largest waste stream currently being disposed in municipal solid waste landfills. Organic waste consists of following materials which are specifically defined under Part 115 of Act 451:

1. Yard clippings (see Section 11506(14)) – Yard clippings include leaves, grass clippings, vegetable or other garden debris, shrubbery, or brush or tree trimmings, less than 4 feet in length and 2 inches in diameter, that can be converted to compost humus. Yard clippings do not include stumps, agricultural wastes, animal waste, roots, sewage sludge, or garbage.

2. Garbage (see Section 11503(14)) – Garbage includes rejected food wastes including waste accumulation of animal, fruit, or vegetable matter used or intended for food or that results from the preparation, use, cooking, dealing in, or storing of meat, fish, fowl, fruit, or vegetable matter.

3. Wood (see Section 11503(14)) – Wood includes trees, branches, bark, lumber, pallets, wood chips, sawdust, or other wood or wood product. Wood *does not* include treated wood (e.g. creosote, pentachlorophenol, or chrome copper arsenate); wood made with glue, resins or

fillers (e.g. plywood, particle board, pressed board, oriented strand board, fiberboard, resonated wood); painted wood or painted wood products; or any wood or wood products that have been contaminated during manufacture or use.

4. Food processing residuals (see Section 11503(15)) – Food processing residuals include:
   (a) Residuals of fruits, vegetables, aquatic plants, or field crops.
   (b) Otherwise unusable parts of fruits, vegetables, aquatic plants, or field crops from the processing thereof.
   (c) Otherwise unusable food products which do not meet size, quality, or other product specifications and which were intended for human or animal consumption.

Yard clippings are specifically prohibited from being landfilled unless they are diseased, infested, or are an invasive species collected as part of a control program. In Michigan, most yard clippings are composted at composting facilities operated in accordance with Section 11521 of Part 115. To locate registered composting facilities managing more than 200 cubic yards of yard clippings in Michigan, go to **www.michigan.gov/deqrecycling**, select "Composting" and "List of Registered Compost Facilities.

Yard clippings; organic recyclable materials like paper and wood; and source separated 'garbage" as defined above may also be recycled at an anaerobic digester, a gasification plant, or composting facility (see Section 11506(6)). To locate a registered compost facility that accepts source separated food waste, go to the List of Registered Composter Facilities above and see the facilities listed in bold. To locate anaerobic digesters located in Michigan, go to the Waste Data System at **www.deq.state.mi.us/wdspi/AdvancedSearch.aspx** , select "Utilization Activities", "Commercial Anaerobic Digester" and/or "On Farm Anaerobic Digester," and "Done," then scroll to the top of the page and elect "Run Query." Food processing residuals and "garbage" as defined above, may also be fed to animals and/or land applied consistent with the Right to Farm Act overseen by the Michigan Department of Agriculture and Rural Development. Food use activities that meet the MDARD Right to Farm Act requirements are exempt from solid waste regulation. For more information on the Right to Farm Act, go to **www.michigan.gov/mdard**, select "Environmental Programs," and "Michigan Right to Farm."
For questions about organics recycling, including whether an activity is exempted from solid waste regulation or requires a solid waste permit, license, or registration, please contact your DEQ, District Office, Solid Waste Program (Appendix C).

2.1.1.c Residential Recycling

In April 2014, Governor Rick Snyder called Michigan to action to double its residential recycling rate from 15% to 30%. While Michigan residents have a high rate of recycling returnable beverage containers, returnable beverage containers only make up about 2% of our municipal waste stream and Michigan's recycling rate was identified as one of the lowest in the nation.

Residential recycling programs across Michigan need to provide for the collection of recyclable material at residents' curbs, at one or more drop-off sites, or a combination of both. Municipal programs may also provide for processing and/or marketing of collected materials to close the loop

and prevent collected materials from being landfilled. For more information about funding and operating a municipal recycling program, please see the Guide to Operational and Funding Options for Municipal Residential Recycling Programs and Guide to Use of Special Assessments to Fund Recycling Services and Facilities, the Delta Institute Municipal Waste Procurement Tools, and contact your DEQ regional recycling specialist. A list of the DEQ regional recycling specialists is available at **www.michigan.gov/deqrecycling** by selecting "Contact Your Recycling Specialist" and your local municipal recycling contact list is available at **www.michigan.gov/deqrecyclingcontacts**.

Establishing a residential recycling program involves more than just providing residents with recycling bins and collecting the materials they offer. It also requires a consumer education component. Residents need to know what is and isn't recyclable in a given community. Residents need to know that home generated medical waste, especially used and unused needles, should never be placed in a recycling container because they can harm employees who sort the recyclables. Unfortunately, recycling isn't as simple as searching for a recycling symbol on a container and tossing it into a bin for pick-up. Many packages wear the "recycle" symbol but require special processing that is not available locally. Before they put an item into a bin, they also need to know that excessive residues need to be removed. Recyclers rely on clean, quality materials to market them for use in manufacturing. If the materials are not clean enough, they may just end up taking a long trip to the landfill. For more information about residential recycling, please see the DEQ Recycling 101 Guide and contact your DEQ recycling specialist. A list of your DEQ regional recycling specialists is available at **www.michigan.gov/deqrecycling** by selecting "Contact Your Recycling Specialist."

2.1.1.d Inert Materials

Section 11504 of Part 115 of Act 451 defines specific materials as inert materials. Inert materials are not a waste when managed as specified under the law. Inert materials and their conditional exclusions from the waste regulation include the following materials when managed as specified:

- Rock
- Trees, stumps, or other land clearing debris if the following conditions are met:
  - The debris is buried on the site of origin or another site, with the approval of the owner of the site.
  - The debris is not buried in a wetland or floodplain.
  - The debris is placed at least 3 feet above the groundwater table as observed at the time of placement.
  - The placement of the debris does not violate federal, state, or local law or create a nuisance.
- Uncontaminated excavated soil or dredged sediment. Excavated soil or dredged sediment is considered uncontaminated if it does not contain more than de minimis amounts of solid waste and 1 of the following applies:
  - The soil or sediment is not contaminated by a hazardous substance as a result of human activity. Soil or sediment that naturally contains elevated levels of hazardous substances above unrestricted residential or any other part 201 generic soil cleanup criteria is not

considered contaminated for purposes of being inert. A soil or sediment analysis is not required under this subparagraph if, based on past land use, there is no reason to believe that the soil or sediment is contaminated.

- For any hazardous substance that could reasonably be expected to be present as a result of past land use and human activity, the soil or sediment does not exceed the background concentration, as that term is defined in part 201.
- For any hazardous substance that could reasonably be expected to be present as a result of past land use and human activity, the soil or sediment falls below part 201 generic residential soil direct contact cleanup criteria and hazardous substances in leachate from the soil or sediment, using, at the option of the generator, EPA method 1311, 1312, or any other leaching protocol approved by the department, fall below part 201 generic residential health based groundwater drinking water values or criteria, and the soil or sediment would not cause a violation of any surface water quality standard established under Part 31 at the area of placement, disposal, or use.

For more information on handling dredge materials, see the guide for Managing Dredge Materials.

- Excavated soil from a site of environmental contamination, corrective action, or response activity if the soil is not a listed hazardous waste under Part 111 and if hazardous substances in the soil do not exceed generic soil cleanup criteria for unrestricted residential use as defined in Part 201 or background concentration as defined in Part 201, as applicable.
- Portland cement clinker produced by a cement kiln using wood, fossil fuels, or solid waste as a fuel or feedstock, but not including cement kiln dust generated in the process.
- Asphalt pavement or concrete pavement that meets all the following requirements:
  - Has been removed from a public right-of-way.
  - Has been stockpiled or crushed for reuse as aggregate material.
  - Does not include exposed reinforcement bars.
- Cuttings, drilling materials, and fluids used to drill or complete a well installed pursuant to part 127 of the public health code, 1978 PA 368, MCL 333.12701 to 333.12771, if the location of the well is not a facility under part 201.
- Any material determined by the department under section 11553(5) or (6) to be an inert material, either for general use or for a particular use, including:
  - Scrap tires as specified in the Designation of Inertness #13-I-001.

2.1.1.e Beneficial Use By-products

In September 2014, the Part 115, Solid Waste Management provisions of Act 451 were amended to establish certain materials as being eligible for use as “beneficial use by-product” when managed in accordance with one or more of five beneficial use options added to the statute under Sections 11502(8), 11551, 11551a, 11552, and 11553. The Part 115 beneficial use by-products designated in the statute include:

1. **Cement Kiln Dust/Lime Kiln Dust** - Particulate matter collected in air emission control devices serving Portland cement kilns and lime kilns.

2. **Coal Bottom or Wood Ash** - Ash particles from combustion of coal or any type of ash or slag resulting from wood burning.
3. **Coal or Wood Ash** - Material recovered from an air pollution control system or non-combusted residue from combustion of coal, wood, or both.
4. **Dewatered Concrete Grinding Sludge –** Sludge collected from grinding concrete when an agency builds or repairs a public roadway.
5. **Flue Gas Desulfurization Material** - Material recovered from air pollution control systems that capture sulfur dioxide during wood, coal, or fossil fuel combustion including synthetic gypsum.
6. **Foundry Sand** - Silica sand used in metal casting processes from ferrous or nonferrous foundries.
7. **Lime Softening Residuals** – Material recovered from the treatment and conditioning of water for domestic use or community water supply.
8. **Mixed Wood Ash** - Material recovered from air pollution control systems or non-combusted residue from combustion of wood, scrap wood, railroad ties, and tires.
9. **Pulp and Paper Mill Ash** - Non-combusted residue remaining after combustion of coal, wood, pulp and paper mill material, wood, or biomass pellets, rail road ties, tires, and scrap wood.
10. **Pulp and Paper Mill Material** - Materials generated at pulp and paper mills including wastewater treatment sludge; rejects from screens, cleaners, and mills; bark, wood fiber, and chips; scrap paper and causticizing residues.
11. **Soils Washed or Removed from Sugar Beets**
12. **Spent Media from Sandblasting** – Spent media from sandblasting with uncontaminated soil, newly manufactured, and unpainted steel.
13. **Stamp Sands**: Finely grained crushed rock resulting from mining, milling, or smelting of copper ore and includes native substances contained within the crushed rock and any ancillary material associated with the crushed rock.

The five use options for the beneficial use by-product materials listed above include:

- **Beneficial Use 1** - Use of the material as aggregate, road material, or building material if it will be bonded or encapsulated by cement, limes, or asphalt.
- **Beneficial Use 2** - Use of the material as construction fill, road base, soil stabilizer, or road shoulder material.
- **Beneficial Use 3** - Use of the material as a fertilizer, soil conditioner under Part 85, or a liming material under 1955 PA 162.
- **Beneficial Use 4** - Use of the material to stabilize, neutralize, or treat solid waste, wastewater, or hazardous substances; or to serve as a landfill construction material.
- **Beneficial Use 5** - Use of the material as a component of a manufactured soil.

All of the beneficial use options are not available for all of the beneficial use by-products. For help determining the beneficial use options for each material, consider reviewing the following resources found online on the DEQ Solid Waste Program, "Exemptions and Guidance" Web page found at **www.michigan.gov/deqwaste**, after selecting the "Solid Waste" tab on the left.

- DEQ Beneficial Use Matrix
- DEQ Beneficial Use Options Condition Summaries 1, 2, 3, 4, and 5
- DEQ Beneficial Use Frequently Asked Questions

2.1.1.f Petitions to Classify Solid Waste

For solid waste not otherwise excluded from regulation by statute or rule, a waste generator may petition the DEQ under Rule 118a of the Part 115 rules to designate a material:

- a beneficial use by-product for beneficial use options 1, 2, 4, or 5;
- an inert material;
- a source separated recyclable material;
- a site separated recyclable material;
- a low hazard industrial waste;
- a recycled agricultural or silvicultural material (see Part 115 Rules, Rule 111);
- an inert material appropriate for specific reuse (see Part 115 Rules, Rule 117); or
- a compostable material (see Rule 121).

When seeking to classify a waste, a petitioner must submit the information specified under Rule 118a to the DEQ for review and approval. Petitions must include information to verify the character and composition of the waste. Inertness often relies upon verification that the material is at or below the Part 201 residential generic criteria for any parameters of concern. As such, the Part 201, table 1 "Groundwater: Residential and Non-Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk Based Screening Levels" and table 2 "Soil: Residential Part 201 Generic Cleanup Criteria and Screening Levels/Part 213 Risk-Based Screening Levels are key to any petition for classification.

2.1.1.g Low Hazard Industrial Waste

If a material is not eligible for reclassification for use, it may be eligible for classification as a low-hazard industrial waste pursuant to Part 115 of Act 451 under Section 11553(7) which allows the generator:

- to store the waste at the site of generation for up to 3 years pursuant to Rule 105(l);
- to store the waste in a non-contained waste pile under Rule 129 and
- to dispose of the material in a low-hazard industrial waste landfill without performing any testing.

The following tables provide the threshold values used for classification of a low-hazard industrial waste. The waste must be at or below the threshold when tested in accordance with Part 115, Rule 302(2)(a) for approval.

Metals

Constituent	Low-Hazard Waste Threshold Value Milligrams per Liter (mg/l)
Aluminum	0.50
Antimony	0.06
Arsenic	0.50
Barium	20.0
Beryllium	0.04
Boron	5.0
Cadmium	0.1
Cobalt	0.4
Chromium	0.5
Copper	10.0
Iron	3.0
Lead	0.5
Manganese	0.50
Mercury (inorganic)	0.02
Nickel (soluble salts)	1.0
Selenium	0.1
Silver	0.5
Thallium	0.02
Vanadium	0.045
Zinc	24.0

Phenolic Compounds

Constituent	Low-Hazard Waste Threshold Value Milligrams per liter (mg/l
2-chlorophenol	0.45
o-Cresol (2-methylphenol)	3.7
m-Cresol (3-methylphenol)	3.7
p-Cresol (4-methylphenol)	3.7
2,4-Dichlorophenol	0.730
2,4-Dimethylphenol	3.7
2,6 -Dimethylphenol	0.044
3,4 Dimethylphenol	0.1
2-Methyl-4,6-dinitrophenol	0.2
Pentachlorophenol	10.0
Phenol	44.0
2,4,5-Trichlorophenol	7.3
2,4,6-Trichlorophenol	1.2

Volatile Organic Compounds

Constituent	Low-Hazard Waste Threshold Value (mg/l Milligrams per Liter)
Benzene	0.05
Benzyl chloride	0.077
Bromodichloromethane	0.8
Bromoform	0.8
Bromomethane	0.1
Carbon tetrachloride	0.05
Chlorobenzene	10.0
Chloroethane	4.3
Chloroform	0.8
Chloromethane	2.6
Dibromochloromethane	0.8
Dibromomethane	0.8
1,2-Dichlorobenzene	6.0
1,3-Dichlorobenzene	66.0
1,4-Dichlorobenzene	0.75
Dichlorodifluoromethane	17.0
1,1-Dichloroethane	8.8
1,2-Dichloroethane	0.05
1,1-Dichloroethylene	0.07
Cis-1,2-dichloroetheylene	0.7
Trans-1,2-dichloroethene	1.0
1,2-Dichloropropane	0.05
1,3-Dichloropropene	0.085
Diethyl ether	0.1
Ethylbenzene	0.74
Methylethylketone (2-butanone)	130.0
Methylisobutylketone (4-methyl-2-pentanone)	18.0
Methylene chloride	0.05
1,1,1,2-Tetrachloroethane	0.77
1,1,2,2-Tetrachloroethane	0.085
Tetrachloroethylene	0.07
Toluene	7.9
1,1,1-Trichloroethane	2.0
1,1,2-Trichloroethane	0.05
Trichloroethylene	0.05
Trichlorofluoromethane	26.0
1,2,3-Trichloropropane	0.42
Vinyl chloride	0.02
Total xylene isomers	2.8

2.1.1h Diverted Waste

In March 2014, Part 115 of Act 451 was amended to remove regulatory barriers to the collection of materials not well suited to traditional landfill disposal. Section 11521b was added to establish waste diversion center operating requirements that allow for the collection of site, source separated waste. These provisions only apply to solid waste that can lawfully be disposed in a licensed municipal solid waste landfill or municipal solid waste incinerator if the collected waste is being diverted to an environmentally preferred management method. Prior to the waste diversion amendment, all household hazardous waste collections were subject to the solid waste transfer facility permitting, licensing, operating requirements, as well as the county's solid waste planning requirements.

Some of the primary requirements for operating a waste diversion center include ensuring that the diverted waste is:

- collected safely and lawfully by personnel knowledgeable about safe management of the material;
- collected at a secure location protected from weather, fire, physical damage, and vandals;
- not processed except to the extent necessary for safe and efficient transport;
- managed to prevent release to the environment;
- not stored for more than 1 year; and
- documented (waste types, volumes, and disposition) for at least 3 years.

Diverted waste is a waste that meets each of the following:

✓ It is generated by a household, business, or governmental entity and can be lawfully disposed in a licensed sanitary landfill or municipal solid waste incinerator.
✓ It is separated from other waste by the waste generator.
✓ It is commonly collected at community household hazardous waste collections.

Diverted waste examples include pharmaceuticals, electronics, batteries, light bulbs, pesticides, fertilizers, thermostat, mercury switches, mercury bearing thermometers, devices containing elemental mercury, household sharps, corrosive cleansers, oils, solvents, paints, etc. that can be readily separated from solid waste for diversion to an environmentally preferred management method.

To learn more about the Part 115 solid waste operating center requirements for managing diverted household waste, see the law. Additional requirements apply to diverted waste collected from non-household generators like schools, non-profits, small businesses, churches, etc. These collections must meet the Part 115 waste diversion center operating requirements, any Part 111 hazardous waste regulations that apply to exempted or partially exempted hazardous waste, and the Part 121 liquid industrial by-products designated facility requirements for any liquids. Learn more about all of these regulations by viewing the Household and Very Small Generator Hazardous Waste

Collection Site Regulations Recorded Webinar after printing out the webinar notes which are available on-line at **www.michigan.gov/deqwaste**, after selecting the "Hazardous Waste" tab on the left, and the "Household Hazardous Waste" link in the center of the web page. Other resources available on the Household Hazardous Waste Web page include a list of local household hazardous waste contacts, vendors that assist with household hazardous waste collection, and more. Resources on proper household drug disposal, including a directory of household drug takeback locations across Michigan and a MDEQ Minute YouTube video on proper drug disposal are available on the DEQ Drug Disposal Web page at **www.michigan.gov/deqdrugdisposal**.

2.1.1.i Recycling Reporting

In June 2016, Part 175, Recycling Reporting, of Act 451 became a law. Part 175 requires certain recycling facilities to report the amount of materials recycled each year. To better measure the amount of materials recycled in Michigan, recycling facilities not required to report are encouraged to report voluntarily using the Michigan Recycling Reporting system, housed in Re-TRAC CONNECT.

2.2 Solid Waste Disposal and Littering

No matter how effective your waste reduction and recycling programs are, you probably will still need to dispose of some solid waste. Solid waste includes garbage, rubbish, yard waste, ashes, incinerator ash and residue, industrial sludges, and solid commercial and industrial waste. Solid waste management as discussed in this section does not pertain to hazardous waste that is in a solid form.

Examples of solid waste that usually require disposal include: non-recyclable office paper, break room waste such as discarded food, non-recyclable packaging materials including empty containers (see Chapter 2.4.1.d.2 for definition of "empty"), and other materials which are not hazardous waste.

Wastes prohibited from landfill disposal under Part 115 of Act 451 include:

- Used oil (see Chapter 2.7.1 and 2.7.2)
- Whole tires (see Chapter 2.2.2)
- Liquid industrial by-products (see Chapter 2.3)
- Returnable beverage containers
- Lead acid batteries (see Chapter 2.7.3)
- Yard clippings and compost (see Chapter 2.1.1.b)
- Medical waste (See Chapter 2.5)
- Sewage/Septage (see Chapter 3)
- Asbestos unless landfill meets specific federal requirements
- Empty drums unless crushed
- Hazardous waste from small quantity generators and large quantity generators (Chapter 2.4)
- Low level radioactive waste (see Chapter 10)
- PCB waste unless landfill meets specific requirements (see Chapter 4)

Used oil is specifically required to be recycled under Part 167 (Used Oil Recycling) of Act 451. See

the Used Oil Overview guidance and additional guidance links provided therein for more information about the regulations and requirements that apply for managing used oil.

For more information about banned waste, go to **www.michigan.gov/deqwaste**, select "Solid Waste," then "Landfill Prohibited Material and Appropriate Disposal Options."

Open dumping and open burning of business waste is prohibited (see Chapter 2.2.1). Before solid waste is hauled to a licensed disposal facility:

- Store it in leak-proof, covered containers and control odors. This will prevent contaminated stormwater runoff, help keep the waste from blowing away, prevent access by rodents and other animals, and reduce odor problems. If odors are a concern due to the nature of the waste, consider double bagging, scheduling more frequent pick-ups, or both.
- Check if your local authorities have an ordinance that requires a privacy-type fence around the dumpster.
- Discuss using solid waste piles and necessary permits with your DEQ, District Office, Solid Waste Program (Appendix C).
- Check if the licensed disposal facility accepts your type of waste. They may request documentation, like test results, showing it is not a hazardous or liquid industrial by-product to ensure they can accept the waste. Examples of special wastes include remediation waste, fluorescent bulbs, batteries, pharmaceuticals, asbestos waste, aerosol cans, compressed gas cylinders or bulky items. They typically offer special wastes service for these items to divert them from landfills to preferable management options.

Solid waste must be disposed of at licensed disposal facilities.

- You can haul your own waste to a licensed landfill, incinerator, or transfer/processing facility. If you are considering shipping your solid waste out of your county, check with your county planning agent after reviewing the county planning import/export report and description to confirm that is acceptable under the provisions of your county's solid waste management plan, and the receiving county's solid waste management plan. Those plans identify where solid waste can be transported for disposal within Michigan. See the list of County Designated Planning Agency Contacts by going to **www.michigan.gov/deqwaste**, selecting "Solid Waste," and "Solid Waste Planning."
- You can also contract with a solid waste hauler to transport your solid waste to an approved facility in accordance with the county solid waste plan(s).

All waste generators except households are required by law to:

- Determine the regulatory status of their waste (hazardous waste, liquid industrial by-product, solid waste, etc.).
- Keep records of waste evaluations for 3 years

View the recorded webinar on waste characterization at **www.michigan.gov/deqwaste** under the "Hazardous Waste and Liquid Industrial By-products Webinar Series" link on the "Announcement" tab or see Chapter 2.4. Waste characterization requirements apply to all businesses, not just manufacturing. This includes service industries, governmental operations, health care, non-profits, etc.

Currently there are no DEQ licensing requirements for haulers of solid waste (except scrap tires–see Chapter 2.2.2), but there are requirements regarding the waste carrying portion of the vehicle. See the Solid Waste Hauler Resources at **www.michigan.gov/deqwaste** by selecting "Solid Waste." Some counties do require a local solid waste hauler license. You should know how the hauler handles and disposes of waste because you can be held liable for damages and cleanup costs if the waste is improperly managed. You may contact your DEQ, District Office, Solid Waste Program (see Appendix C) about:

- Shipping solid waste out-of-county.
- Handling sludge from industrial processes and trench or drain cleanout residue under either the solid waste or liquid industrial by-products regulations (see Chapter 2.3).
- Whether or not your waste is regulated as a solid waste, or how to properly manage it. For help determining whether you have a solid waste, liquid industrial by-product, hazardous waste, or other waste, go to **www.michigan.gov/deqwaste**, select the "Hazardous Waste and Liquid Industrial By-products Webinar Series," on the "Announcements" tab, then select the "Hazardous Waste Characterization and Generator Status" recorded webinar after printing out the webinar notes and/or review Chapter 2.4.

Manifests are not required for hauling and disposing of solid waste, with the exception of scrap tires (see Chapter 2.2.2). Although you don't have to manifest solid waste, you should keep records of when, where, and how much solid waste was removed from your business. This practice gives you an accurate record of waste disposal for management purposes and is valuable if a liability question arises.

Contact your DEQ, District Office, Solid Waste Program (see Appendix C), for information on permitting, licensing, and solid waste planning requirements that may apply to:

- storing solid waste at a location other than the site where it was generated;
- treating or processing solid waste; and/or
- disposing of solid waste.

2.2.1 Open Burning and Open Dumping

Open burning is the burning of unwanted materials, where smoke and other emissions are released directly into the air without passing through a chimney or stack. Open burning is regulated by air quality and solid waste regulations, and sometimes under local ordinance.

Open burning of trash from a business is prohibited. Michigan residents are also prohibited from open burning household trash that contains plastic, rubber, foam, chemically treated wood, textiles, electronics, chemicals or hazardous materials. Open burning of brush, logs, stumps, and trees is prohibited within 1,400 feet of an incorporated city or village limit. The open burning of grass clippings and leaves is not allowed in municipalities having a population of 7,500 or more unless the local governing body has specifically enacted an ordinance authorizing it. A burn permit may be required prior to conducting open burning. For information on obtaining a burn permit go to **www.michigan.gov/burnpermit**. Structures may not be burned for the purpose of demolition. Air quality regulations allow structures to be intentionally burned for the purpose of fire suppression training only. To quickly learn about what can and cannot be burned in Michigan, see the MDEQ

Minute YouTube video on Open Burning and consider subscribing to the MDEQ YouTube channel by going to **www.michigan.gov/deqconnect**.

Open burning may also be regulated by the local unit of government. Contact local authorities about their ordinances. Additional information about open burning and reaching local authorities can be found at the DEQ's Open Burning website at **www.michigan.gov/openburning** and **www.michigan.gov/burnpermit** (see also Chapter 1.3.3).

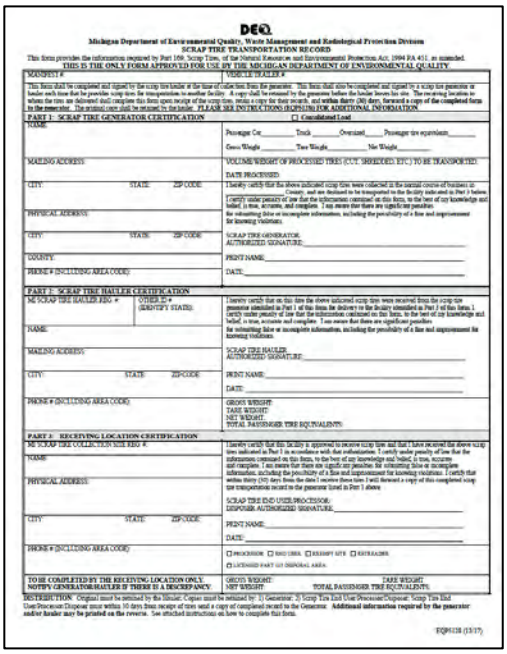
Open dumping of solid waste is prohibited of both businesses and residents across Michigan under the solid waste regulations. Open dumping generally refers to illegal dumping along roadsides, in the woods, in illegal landfills, in wetlands, in lakes and streams. Local authorities very often have local ordinances that also prohibit the dumping of solid waste. For complaints or problems with solid waste open dumping, contact your local authorities to discuss ordinance requirements. If a municipality is lacking a local ordinance, they may independently take action to enforce the state's prohibitions against littering under Part 89 of Act 451.

2.2.2 Scrap Tires

Part 169 was amended in January 2015. Haulers are now required to maintain a bond and there are amended requirements for displaying the scrap tire hauler registration on a vehicle transporting scrap tires, for record keeping and increased penalties for violations of the statute. See Section 16905 for more details on hauler registration and bonding.

It is illegal for anyone to discard scrap tires on property which is not in compliance with storage, bonding, and registration requirements under Part 169 (Scrap Tires) of Act 451. Scrap tires include any used vehicle tires and any hi-low, forklift, or other equipment discarded tires. Scrap tire information is available online by going to **www.michigan.gov/scraptires**.The basic requirements for scrap tire generators are as follows:

- Store scrap tires in a safe manner at the location of generation to reduce safety and fire risks. Check with the local fire department about local requirements. If you have 500 or more scrap tires, you must register as a scrap tire collection center and meet additional storage requirements. Requirements and common violations can be found at the above Web site.
- Ensure scrap tires are taken to registered scrap tire collection sites and scrap tire processors such as licensed energy recovery facilities, reuse, retreading, or recycling facilities. You can:
  - Haul ten or fewer of your own tires without being a registered hauler but make sure the loads are secure so tires do not fall out of the vehicle. If you haul more than ten of your own tires, you must register as a hauler.
  - Hire a currently registered scrap tire hauler for the removal of scrap tires. Lists of registered haulers and sites where to haul tires is at the above Web site under the "Information" heading titled "List of Scrap Tire Facilities." Many solid waste haulers won't accept used tires in the trash because whole scrap tires are prohibited by law from being landfilled. If you are offered extremely low prices for scrap tire disposal, you might want to question whether the hauler and/or disposal facility is simply accumulating the tires without intending to comply with the regulations.


DEQ

Michigan Department of Environmental Quality, Waste Management and Radiological Protection Division

SCRAP TIRE TRANSPORTATION RECORD

This form provides the information required by Part 166, Scrap Tires, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

THIS IS THE ONLY FORM APPROVED FOR USE BY THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY.

MANIFEST #

VEHICLE TRAILER #

This form shall be completed and signed by the scrap tire hauler at the time of collection from the generator. This form shall also be completed and signed by a scrap tire generator or hauler each time that he provides scrap tires for transportation to another facility. A copy shall be retained by the generator before the hauler leaves his site. The receiving location to where the tires are delivered shall complete this form upon receipt of the scrap tires, retain a copy for their records, and within thirty (30) days, forward a copy of the completed form to the generator. The original copy shall be retained by the hauler. PLEASE SEE INSTRUCTIONS (REPRINT) FOR ADDITIONAL INFORMATION.

PART 1: SCRAP TIRE GENERATOR CERTIFICATION

NAME:

MAILING ADDRESS:

CITY: STATE: ZIP CODE:

PHYSICAL ADDRESS:

CITY: STATE: ZIP CODE:

COUNTY:

PHONE # (INCLUDING AREA CODE):

☐ Consolidated Load

Passenger Car_____ Truck _____ Oversized____ Passenger tire equivalents_____

Gross Weight _____ Tare Weight_____ Net Weight_____

VOLUME/WEIGHT OF PROCESSED TIRES (CUT, SHREDDED, ETC.) TO BE TRANSPORTED:

DATE PROCESSED:

I hereby certify that the above indicated scrap tires were collected in the normal course of business in _____ County, and are declared to be transported to the facility indicated in Part 3 below.

I certify under penalty of law that the information contained on this form, to the best of my knowledge and belief, is true, accurate, and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of a fine and imprisonment for knowing violations.

SCRAP TIRE GENERATOR AUTHORIZED SIGNATURE:

PRINT NAME:

DATE:

PART 2: SCRAP TIRE HAULER CERTIFICATION

MI SCRAP TIRE HAULER REG #

OTHER ID # (IDENTIFY STATE):

NAME:

MAILING ADDRESS:

CITY: STATE: ZIP CODE:

PHONE # (INCLUDING AREA CODE):

I hereby certify that on this date the above indicated scrap tires were received from the scrap tire generator identified in Part 1 of this form for delivery to the facility identified in Part 3 of this form. I certify under penalty of law that the information contained on this form, to the best of my knowledge and belief, is true, accurate, and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of a fine and imprisonment for knowing violations.

SCRAP TIRE HAULER AUTHORIZED SIGNATURE:

PRINT NAME:

DATE:

GROSS WEIGHT:
TARE WEIGHT:
NET WEIGHT:
TOTAL PASSENGER TIRE EQUIVALENTS:

PART 3: RECEIVING LOCATION CERTIFICATION

MI SCRAP TIRE COLLECTION SITE REG #

NAME:

PHYSICAL ADDRESS:

CITY: STATE: ZIP CODE:

PHONE # (INCLUDING AREA CODE):

I hereby certify that this facility is approved to receive scrap tires and that I have received the above scrap tires indicated in Part 1 in accordance with that authorization. I certify under penalty of law that the information contained on this form, to the best of my knowledge and belief, is true, accurate and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of a fine and imprisonment for knowing violations. I certify that within thirty (30) days from the date I receive these tires I will forward a copy of this completed scrap tire transportation record to the generator listed in Part 1 above.

SCRAP TIRE END USER/PROCESSOR/DISPOSER AUTHORIZED SIGNATURE:

PRINT NAME:

DATE:

☐ PROCESSOR ☐ END USER ☐ DISPOSAL SITE ☐ RETREADER

☐ LICENSED PART 115 DISPOSAL AREA

TO BE COMPLETED BY THE RECEIVING LOCATION ONLY. NOTIFY GENERATOR/HAULER IF THERE IS A DISCREPANCY:

GROSS WEIGHT: NET WEIGHT: TARE WEIGHT: TOTAL PASSENGER TIRE EQUIVALENTS:

DISTRIBUTION: Original must be retained by the Hauler. Copies must be retained by: 1) Generator; 2) Scrap Tire End User/Processor/Disposer. Scrap Tire End User/Processor/Disposer must within 30 days from receipt of tires send a copy of completed receipt to the Generator. Additional information required by the generator and/or hauler may be printed on the reverse. See attached instructions on how to complete this form.

EQP5128 (5/17)

- Haulers must register and maintain bonding in favor of the DEQ in the amount of $10,000 and the registration must be renewed annually. Haulers must carry their registration, which includes the expiration date and a list of collection sites where they can take the tires, and the original manifest when transporting scrap tires. In addition, they must visibly display their registration number on the vehicle transporting the tires. Compare the disposal site listed on the manifest to the sites listed on the hauler's current registration. If a hauler is not taking the scrap tires to a disposal site listed on its registration, question it before shipping your scrap tires.
- Obtain and keep the following copies of the scrap tire manifest for each shipment of scrap tires for at least 3 years after shipment:
  - Copy of the scrap tire manifest/transportation record signed by the scrap tire hauler and generator at time of each pickup (form EQP 5128 or EQP 5128a for consolidated loads)
  - Copy of the scrap tire manifest/transportation record signed and returned from the end user, processor, or disposer within 30 days of their receipt of the scrap tires.

Scrap tire collection site and generator/hauler inspection forms are available at **www.michigan.gov/scraptires**, under the link titled "Scrap Tire General Documents and Procedures."

Call the DEQ, Scrap Tire Program at 517-614-7431 or the DEQ, District Office, Scrap Tire Program (see Appendix C) for information about the compliance status of a hauler or disposal site, or if you have questions about registering as a hauler or collection location.

2.3 Liquid Industrial By-products

Liquid industrial by-products are regulated under Part 121 of Act 451. On December 17, 2015, Part 121 was amended and renamed from "liquid industrial waste" to "liquid industrial by-product." The changes resulting from the amended law are reflected throughout this chapter and guidebook.

Liquid industrial by-products management is overseen by several entities:

- The DEQ, Hazardous Waste Program oversees the management of liquid industrial by-products at generator sites, when in transport, and at "designated facilities" receiving liquid industrial by-products.
- The DEQ, Hazardous Waste Transporter Program oversees the permitting and registering of liquid industrial by-products transporters (see Chapter 4.4.11).
- The DEQ, Water Resource Division (WRD) oversees the discharge and permitting of liquid by-products into surface water and groundwater (see Chapter 3).

- The local publicly owned treatment works (POTW) with discharge permits issued pursuant to Part 31 oversee the discharge and permitting of liquid by-products from businesses connected to their sanitary or combined sanitary sewer systems (see Chapter 3). Waste generators must obtain permission from the sanitary or combined sewer authority before discharging waste to the sanitary or combined sewer system. Discharge to any storm sewer is prohibited.
- The DEQ, Drinking Water and Municipal Assistance Division, Onsite Wastewater Program oversees the discharge and permitting of sanitary wastewaters to on-site septic systems in coordination with local health departments (see Chapter 3.2.2). These on-site septic systems are permitted and inspected by the local health departments. They are only designed to handle sanitary wastewaters from bathrooms, kitchens and laundry devices. Some communities may have local ordinance requirements in addition to the state regulations implemented by the local authorities. The local governing agency of these ordinances will vary from community to community and is typically the county, city, or township zoning or building office, or the public health department's environmental health section.
- The Michigan State Police, Commercial Vehicle Enforcement Division and U.S. DOT oversee transportation requirements if the liquid by-product is a **hazardous material-U.S. DOT** (see Chapter 4).
- Insurance companies may have requirements for storage and shipping.

2.3.1 Defining Liquid Industrial By-products

Liquid industrial by-products generally include any materials that:

- are discarded by non-households,
- fail the paint filter test (see Chapter 2.4.2.c),
- are not exempted or excluded under Part 121 of Act 451, and
- are not regulated as hazardous waste or medical waste (see Chapters 2.4 and 2.5).

Common examples of liquid industrial by-products include used oil that is being recycled, storm sewer and some sanitary sewer clean-out wastewaters or sludges, car wash catch basin waste, grease trap clean-out residue, industrial and commercial wastewaters (like wastewaters or on-site septic system sludges from food processing or laundromats), some precipitation removed from secondary containment structures (see Chapter 4.1), antifreeze that isn't a hazardous waste, some off-specification commercial chemical products, liquids exempted from hazardous waste regulation, like hazardous secondary materials, brine, and other discarded liquids that can no longer be used for their original intended purpose without reclamation or treatment. Liquid industrial by-product includes:

- most discarded liquids pumped and hauled over public roadway not subject to hazardous waste regulation, and
- liquids and sludges sent to a solid waste solidification facility prior to landfilling.

For a discarded material to be excluded from the Part 121, liquid industrial by-products regulations, the material needs to be specifically excluded under the statute. Common exclusions found under Part 121, Section 12101(n), the definition of liquid industrial by-product, include:

- Hazardous waste from small or large quantity hazardous waste generators subject to the Part 111 hazardous waste regulations (see Chapter 2.4)

- Septage waste or on-site septic system wastewaters and sludges removed from systems handling sanitary wastewaters from bathrooms, kitchens, and domestic laundry devices managed under the Part 117, Septage Waste Servicer, regulations (see Chapter 3.2.2)
- Medical waste or infectious or potentially infectious blood, body fluids, or body parts from humans or animals which is subject to the Act 363, Public Health Code, Part 138, medical waste regulations (see Chapter 2.5 and 2.6).
- Discarded liquids from household subject to the solid waste regulations found under Part 115 (see Chapter 2.2).
- Fats, oil, and grease sent for rendering and managed in accordance with Act 239, the Bodies of Dead Animals Act, of 1982, implemented by the Michigan Department of Agriculture and Rural Development.
- Wastewater **discharges** authorized by a Part 31 permit, rule or order issued by WRD (e.g. a publicly owned treatment works (POTW) possessing a Part 31, National Pollutant Discharge Elimination System (NPDES) or groundwater discharge permit) and any sanitary or combined sewer system wastewaters, including system maintenance wastewaters, specifically subject to the permit. This exclusion also applies to wastewater discharged to the sanitary or combined sewer system possessing a Part 31 discharge authorization, IF the POTW has authorized the generator's discharge to their system. Any management of the liquid industrial by-product by the generator before it is discharged to the sanitary or combined sewer system is subject to the liquid industrial by-product generator requirements. This exemption does not apply to any liquid industrial by-product transported by motor vehicle or rail to a receiving POTW. For information on Part 31 permits by rule, see Part 31, Part 22 Rules, Rule 2211, Chapter 3.2.4.a and Chapter 4.1.

If liquid industrial by-product is discharged to a POTW for disposal, keep a copy of the permit application or the submission to the receiving facility with their approval and records of your liquid industrial by-product discharges for at least three years. See Chapter 3 for more information. If a facility is doing any on-site treatment, including waste neutralization, that involves discharges to a sanitary sewer system, they need to have a certified wastewater operator (see Chapter 3.5).

Sanitary or combined sewer system clean-out waste is excluded from Part 121 if the sewer system and the maintenance waste is subject to a Part 31 wastewater discharge permit, rule or order. If sanitary sewer or combined sewer system clean-out waste is subject to a Part 31 discharge authorization, any direct or indirect release of sewage wastewaters occurring when removing, transporting, treating, and/or disposing of the waste that is not authorized under the permit must be reported as a sanitary sewer overflow (SSO) or combined sanitary overflow (CSO) to the WRD in accordance with Part 31, Section 3112a.

Contributing municipalities or "satellite" sanitary and combined sewer systems that do not possess a Part 31 discharge authorization, must manage their sanitary sewer or combined sewer system clean-out waste as a liquid industrial by-product. Satellite systems with a **separate** sanitary sewer system can also use a Part 117 permitted septage hauler when the sanitary sewer system wastewater is not land applied and it is transported to the same sanitary sewer system or receiving POTW. If any sanitary sewer or combined sewer clean-out wastes are transported to a receiving POTW other than the destination specified in the Part 31 discharge permit or permit from the receiving POTW, the wastewater must be managed as a liquid industrial by-product. All clean-out waste from sewer systems which only collect and convey stormwater also must be managed to meet the liquid industrial

by-products regulations. See the summary table identifying the different regulations that apply to wastewaters transported via public roadway for recycling or disposal for more information and contact your DEQ District Staff (See Appendix C) in the following programs with questions: Hazardous Waste Program, On-site Wastewater Program or Septage Program, Groundwater Permit or NPDES Permit Program.

Other exclusions from Part 121 are found under Section 12102a which identifies materials not specified as liquid industrial by-products. Some of the more common liquid industrial by-product exclusions found in this section include:

- Materials that can be used as effective substitutes without reclamation if they are not burned for energy or as fuel, and they are not applied to the land or used in products applied to the land;
- Specification used oil, as defined under the Part 111 hazardous waste regulations, that is burned to recover energy or used to produce a fuel and it is authorized for use as fuel under a Part 55 permit or permit exemption;
- Liquids fully contained in a manufactured article until they are removed from the manufactured item or when the manufactured item is destined for recycling or disposal (e.g. when a salvaged auto is destined to be shredded, the fluids must be removed and managed to meet the liquid industrial by-products regulations);
- When managed as specified in Sec. 12102a, the following materials are excluded from liquid industrial by-products regulation:
  - Samples, until discarded;
  - Liquid generated in the drilling, operation, maintenance, or closure of a well;
  - Animal and vegetable fats transported directly to biofuel producer for producing biofuel;
  - Off-specification fuel generated in a pipeline from the mixture of 2 adjacent fuels if processed into fuel;
  - Off-specification fuel product transported directly for refining into fuel;
  - Liquid or sludge authorized for land application under Parts 31 or 115 – (e.g. biosolids per Part 31, Part 24 rules, see Chapter 2.7.18);
  - Liquid remaining in a container if it was emptied using common practices employed by industry for that container type AND residues do not exceed;
    - 1 inch in the bottom nor more than 3% by weight for containers <110 gallons or
    - 0.3% by weight for containers > 110 gallons in size
- Residual liquid in a container as a result of transportation of a solid waste in that container;
- Brine authorized for use as dust and ice control under Parts 31 and 615;
- Food processing residuals per Section 11503, or site, source separated material approved by the DEQ under part 115 used to produce biogas under closed system anaerobic conditions authorized by Part 55; and
- Liquid approved by the director for use as a biofuel that is Part 55 authorized, not speculatively accumulated and is transported directly to biofuel burner.

For questions about the what is a liquid industrial by-product and what is excluded, please contact your DEQ, District Office, Hazardous Waste Program (see Appendix C).

2.3.2 Liquid Industrial By-product Generator Requirements

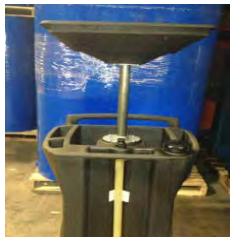
If you generate liquid industrial by-product, you need to:

- Characterize the liquid to determine if it is non-hazardous, hazardous, or subject to other waste regulations and keep a record of the characterization for at least three years after shipment for treatment, storage, or disposal.

> To determine whether you have a solid waste, liquid industrial by-product, or hazardous waste, view the "Hazardous Waste and Liquid Industrial By-products Recorded Webinar Series" available on-line at **www.michigan.gov/deqwaste** under the "Announcements" tab, or see Chapter 2.4.

- Meet storage requirements:
  - Protect containers and tanks from weather, fire, physical damage and vandals.
  - Containers and tanks must be labeled so workers and emergency responders know what is in them.
    - A good example of labeling would be marking a container of liquid industrial by-product antifreeze as "spent antifreeze," "spent ethylene glycol," or "spent propylene glycol" depending on the material used.
    - Labels should include language that is commonly used in commerce and emergency response. This may include a product name and may include details regarding the process generating the waste. Labels should be consistent with the waste type used on the shipping documents and the characterization records documenting the liquid industrial by-product determination.

      See Operational Memo 111-20 for more information about closed containers.
    - "Used Oil" labeling is required for liquid industrial by-product that is used oil - see Chapter 2.7.a for details regarding the requirements specific to used oil and Chapter 4.
  - Manage liquid industrial by-products to prevent unauthorized sudden or non-sudden releases into air, soil, drains, surface water or groundwater.
    - Containers must be maintained in good condition.
    - Any leaking containers must be replaced.
    - Containers must be kept closed except when adding or removing liquid industrial by-products. For liquid industrial by-products, closed means that container covers are securely affixed with a bolted ring clamp or closed snap ring, bung plugs are installed in openings, and threaded covers are screwed shut. Non-pressurized mobile oil drain pans must be, at a minimum, emptied when not in use. If a funnel is routinely used, to avoid having to remove the funnel and reclose the container regularly, a threaded funnel with a one-way valve, ball valve, or funnel with a latchable, gasketed cover can be used. Containers can also be closed in accordance with other state law. Documentation of the applicable state law is recommended.

      Non-pressurized mobile oil drain pan
    - Containers must be compatible with the type of liquid industrial by-products being stored in them. The SDS for the virgin ingredients may provide some recommendations or see Web sites like **www.flw.com/datatools**.

- Incompatible wastes must not be placed in the same container.
- Other environmental regulations may require secondary containment. See Chapter 4 for more details on secondary containment requirements.
- Liquid industrial by-product that has a flashpoint at or above 140 degrees and below 200 degrees Fahrenheit and stored in aboveground containers and tanks would also be regulated as a flammable and combustible liquid by the DLARA, Bureau of Fire Service, Storage Tank Division; by the MIOSHA General Industry Safety Standards - Part 75, Flammable and Combustible Liquids; and the local municipality's fire prevention code (see Chapters 4, 34 and 37 for more information).
- Liquid industrial by-product in an underground storage tank that is a regulated substance under Part 211 (Underground Storage Tanks) of Act 451 would have additional requirements under the tank regulations implemented by the DLARA, Bureau of Fire Service, Storage Tank Division (see Chapter 4).

- There are no state time limit requirements on storing liquid industrial by-product at the generating facility, but local ordinances may have limits.

TABLE 2.2 Liquid Industrial By-Products Generator and Used Oil Generator Summary (includes most used oil)

Amount generated in calendar month	Maximum amount that can be accumulated on-site	Maximum time period before liquid industrial by-products must be shipped
Liquid Industrial By-products and Used Oil Generator Any amount[1]	No maximum amount under state regulations. If the generator is also a designated facility receiving liquid industrial by-products from off-site, there are many additional requirements.[1]	No state time limit for generators, if containers are in good shape and closed but check local ordinances for any time limits.

[1]See Part 121 for possible liquid industrial by-product exemptions and designated facility requirements. See Chapter 2.1, including Chapter 2.1.1.a, for applicable solid waste regulations requiring solid waste permitting, licensing and planning authorizations. Additional Part 121 regulations requiring emergency planning, time limits, and reporting all apply when receiving liquid industrial by-products from off-site. Beyond reviewing Part 121, see if additional containment requirements apply when handling threshold management quantities of materials regulated under the. federal Spill Prevention Control and Countermeasure (SPCC) for oils and the state Part 5 rules for "Spillage of Oil and Polluting Materials" under Part 31, Water Resource Protection, of Act 451. See Chapters 4 and 6 for more information on water regulations requiring containment and don't forget to review local ordinance requirements.

- If operating an on-site reclamation, treatment, or disposal facility, keep records of all liquid industrial by-products produced and reclaimed, treated or disposed at the facility for at least three years unless facility is under investigation which requires them to be kept longer. Many companies keep records indefinitely to document they have properly managed their waste when they want to sell the business or property.
- If liquid industrial by-product is treated, stored or disposed of in a surface impoundment, obtain the applicable Part 31 (Water Resources Protection) of Act 451 discharge permit (see Chapter 3) and manage leachate appropriately. Discuss specific requirements with the DEQ, District Office, WRD (see Appendix C).

- Complete and maintain proper shipping documents demonstrating proper recycling or disposal. As of March 2016, Site ID numbers are no longer required for generators shipping liquid industrial by-products and/or conditionally exempt small quantity generator hazardous waste liquids for recycling or disposal. Generators choosing to use a Uniform Hazardous Waste Manifest as a shipping document to meet Part 121 are encouraged to use their Site ID number if they have one. If using the new e-Manifest system, a Site ID is required. If no Site ID number is assigned and the e-Manifest system is not used, generators are encouraged to complete the manifest as follows for the Generator ID Number field:

  - Use “MILIB” for manifests documenting shipment of only liquid industrial by-products;
  - Use “MICESQG” for manifests documenting shipment of only CESQG liquid hazardous waste; and
  - Use “MICESQGLIB” for manifests documenting shipment of both CESQG liquid hazardous waste liquids and liquid industrial by-products.

  As of March 2016, liquid industrial by-products and/or conditionally exempt small quantity generator hazardous waste liquid shipping documents may be a log, invoice, bill of lading, Uniform Hazardous Waste Manifest, or other record in written or electronic format (see liquid industrial by-products example shipping document). The liquid industrial by-product shipping document must include:

  - The name and address of the generator.
  - The name of the transporter.
  - The type and volume of liquid industrial by-product in the shipment.
  - The date the liquid industrial by-product was shipped off-site from the generator.
  - The name, address, and Site ID number of the designated facility.

  At the time of shipment, the generator must certify the shipping document stating he/she is fully and accurately describing the liquid industrial by-products on the shipping document, that the liquid industrial by-products are in proper condition for transport, and that the information contained on the shipping document is factual. An electronic signature is acceptable for electronic records. The certification included on Uniform Hazardous Waste Manifests meets the Part 121 certification requirement.

All waste generators except households are required by law to:

- Determine the regulatory status of their waste (hazardous waste, liquid industrial by-product, solid waste, etc.).
- Keep records of waste evaluations and support information used to determine the management, transport, treatment, storage, and disposal standards that apply.
- Keep records for 3 years

See Chapter 2.4 for more information about waste characterization.

Upon pick-up, the transporter must sign the shipping document with a certification statement confirming the liquid industrial by-products were accepted for transport. Both the generator and the transporter are required to retain a copy of the shipping document. The transporter copy of the shipping document must accompany the shipment in transport. The transporter must deliver the liquid industrial by-products only to the designated facility identified on the shipping document by the generator. The designated facility can only accept delivery if the facility is the designated facility identified on the shipping document. Following acceptance, the designated facility must provide confirmation of receipt of the shipment to the generator. The confirmation may be written or electronic via email, receipt, copy of the shipping document transmitted, invoice, etc.

Shipments may be documented on a consolidated shipping document if the shipment includes multiple pick-ups of the same type of liquid industrial by-products from multiple sites. A receipt must be provided to the generator which includes the transporter's name, transporter's Site ID, transporter's signature, date of pickup, type and quantity of by-products accepted, the consolidated shipping document number and the designated facility Site ID number. See Chapter 2.4.5.a and the Liquid Industrial By-products Frequently Asked Questions for more information about consolidated shipping documents and options for generators to self-transport waste generated on or in equipment or property in which they have an ownership interest.

Shipping documents must be maintained on file for at least three years from the last date of shipment. If the generator does not receive confirmation of acceptance of the liquid industrial by-product shipment from the designated facility, the generator must attempt to obtain confirmation by contacting the designated facility and the transporter. If resolution cannot be achieved after contacting both parties, the generator must notify the DEQ of the situation. Consider using the Generator Tracking Log for Manifests/Shipping Documents to ensure timely notification of receipt of liquid industrial by-products is provided by your designated facility(ies).

- Hire a permitted and registered transporter to take the liquid industrial by-products to an appropriate receiving facility (see Chapter 2.4.10) or meet the requirements to haul the company's own waste (see Chapter 2.4.5).
- Report releases to the Pollution Emergency Alerting System at (800) 292-4706 that could threaten the public health, safety, or welfare, or environment, or that has reached surface water or groundwater unless the release was already reported as required under a different state regulation. Prepare a written report summarizing incident and response measures and keep on-site and submit copy to DEQ if requested. A summary table of state and federal regulations that require release reporting is included in Chapter 6 and at **www.michigan.gov/chemrelease**. Some liquid industrial by-product may also be subject to the Part 5 rules of Part 31 (Water Resource Protection) of Act 451 (See chapter 6).
- Cleanup all spills (see Chapter 6).
- Depending on the liquid by-products generated, emergency planning may be required under other regulations (e.g. Part 5 rules mentioned above) if threshold management quantities are reached (see Chapter 6).

- If using pump and haul tanks, see the Liquid Non-hazardous Waste (By-Products) Holding Tank guidance for more information.
- If emptying tanks or containers, see the Emptying Tanks or Containers guidance.

2.3.3 Liquid Industrial By-products Designated Facility Requirements

A liquid industrial by-products designated facility is a facility that receives liquid industrial by-products from off-site via public roadway. The facility may store, treat, reclaim, and/or dispose of the liquid industrial by-products and/or residuals from the treatment and/or reclamation of the liquid industrial by-products. A liquid industrial by-products designated facility may require a solid waste processing permit and license under Part 115, a POTW permit under Part 31, an air use permit under Part 55, and/or the equipment may be exempt from permitting and licensing, depending on the types of the materials accepted, the activities the site performs, and the size of the facility. Designated facilities receiving liquid industrial by-products that are determined to be a solid waste disposal area would need to be consistent with the county's solid waste management plan and would require a solid waste permit and license prior to construction and operation.

To understand the permitting, licensing, notification, registration or other authorization(s) required for site-specific designated facility activities, see the Permit Information Checklist at **www.michigan.gov/deqpermits**. For information on wastewater treatment and on-site wastewater regulations, please see Chapter 3. To learn about solid waste construction permits and operating licensing go to **www.michigan.gov/deqwaste**, select "Solid Waste," then the like for "Solid Waste Disposal Area Construction Permit Application Forms & Instructions" or "Solid Waste Operating License Application & Instructions." To learn about county solid waste planning, go to **www.michigan.gov/deqwaste** and select "Solid Waste," then "Solid Waste Planning." In addition to any requirements provided under the other authorizing environmental regulations, a liquid industrial by-products designated facility must be managed to meet the designated facility requirements found in Part 121 and highlighted below.

Many designated facilities are Part 31 permitted POTWs. Beyond processing sanitary and combined sewer system wastewaters, the POTWs also accept incoming shipments transported via public roadway. Depending on the generator and type of material shipped, these materials may be subject to regulation under the facility's Part 31 discharge permit, the Part 117 septage regulations for on-site septic systems, or the Part 121 liquid industrial by-products regulations that apply to all other liquids, most notably commercial and industrial wastewaters. To learn more about the various regulations that apply to incoming shipments, see Chapter 2.3.1 and 2.3.2; the recorded webinars on Waste Characterization and Generator Status and the Liquid Industrial By-products Reporting (**www.michigan.gov/deqevents,** Recorded DEQ Webinars); and Chapter 3.

Designated facility waste profiling and approval processes for off-site waste shipments should include a review of the generator's records and regulatory conclusions. All non-households must characterize their waste streams and create a record of their waste determination. Only household generated discarded materials associated with daily living activities are excluded from the waste characterization requirements.

Under Part 121, designated facilities receiving liquid industrial by-products must:

- Notify the DEQ, WMRPD of the site's liquid industrial by-products activities using the EQP 5150 form and instructions. Most designated facilities accepting liquid industrial by-products also generate and transport liquid industrial by-products (see Liquid Industrial By-products Generator guidance, Chapter 2.2.1, and Chapter 4). When notifying of regulated waste activities, all activities occurring at the site must be identified.
- Maintain characterization/profiling records for the liquid industrial by-product received.
- Only place liquid industrial by-products in containers and tanks in good condition, unless other structures are specifically authorized under other DEQ regulations (e.g. surface impoundment authorized under Part 31 or a solid waste solidification unit authorized under Part 115). Liquid industrial by-products containers and tank should be marked or labeled to identify their contents to ensure the hazards from the materials are easy to identify during any emergency response.
- Except as otherwise expressly authorized by DEQ environmental regulations, managed the liquid industrial by-products to prevent it from being discharged into the soil, surface water or groundwater, or a drain or sewer, or air in violation of the air pollution control regulations.
- Ensure liquid industrial by-products are protected from weather, fire, physical damage and vandals.
- Ensure that all vehicles, containers and tanks used to hold by-products are maintained closed or covered, except when adding or removing liquid industrial by-products.
- Only accept a shipment if they are the designated facility listed on the shipping document certified by the generator and transporter. Designated facilities are not required to certify the shipping document.
- Provide confirmation of receipt of the shipment to the generator or generator representative (transporter in the case of a consolidated shipping document). The confirmation may be written or electronic (documented phone call, email, receipt, shipping document or manifest copy). Note, for consolidated shipping documents, the transporter fulfills the generator duties in completing the shipping document. Once delivered, the transporter must provide receipt to generator that includes:
    - ✓ Transporter name
    - ✓ Driver's signature
    - ✓ Date of pickup
    - ✓ Type and quantity of by product accepted/shipped
    - ✓ Consolidated shipping document number, and
    - ✓ Designated facility.
- Only accept liquid industrial by-products from Act 138 permitted and registered liquid industrial by-products transporters possessing adequate insurance documented on an MCS-90 endorsement form and carrying verification of registration and permit on the vehicle in written or electronic format, unless:
    - o the person transporting the liquid industrial by-product is the generator who generated the material on or from property or equipment in which he/she owns, or

  - the transport vehicle is owned and operated by a local, state, or federal government, or any other political subdivision (e.g. state university with elected regents) hauling their own by-product(s).

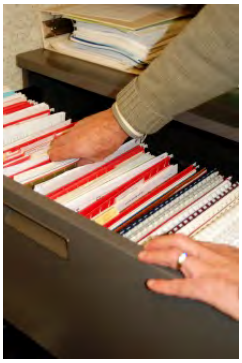
- Must process or ship the liquid industrial by-product to another site within 1 year unless:
  - It is stored for reclamation,
  - Not less than 75% of the cumulative amount, by weight or volume of each type of liquid industrial by-product that is stored is reclaimed or transferred to a different site for reclamation during that calendar year, ***and***
  - Documentation is maintained to verify any storage beyond a year is authorized for each waste stream.
- Must have a plan to respond to and minimize hazards to human health and the environment from unplanned sudden and non-sudden releases.
- Must meet waste diversion requirements found under Part 11521b if diverting household liquids from being landfilled.
- Must meet the regulations for collecting conditionally exempt small quantity generator hazardous waste found under Part 111, Rule 205(4).
- Must retain and make all required records available for 3 years.
  - Electronic recordkeeping is acceptable but must be readable, have all the required information, and be accessible
- Must train employees handling liquid industrial by-products in proper handling and emergency response as appropriate for their job duties and document the training.
- Must take appropriate immediate action to protect the public health, safety, and welfare, and the environment, including notification of local authorities and the pollution emergency alerting system if a fire, explosion, or discharge of liquid industrial by-product occurs that could threaten human health, the environment, or has reached groundwater or surface water, including:
  - Notify the DEQ Pollution Emergency Alert System at 800-292-4706 and
  - Submit any follow-up reports required.
- Must submit a liquid industrial by-products report identifying the type and amount of liquid industrial by-products handled at the site during the previous calendar year. The report must be submitted to the DEQ, WMRPD by April 30 of each year using the EQP 1602 form and instructions. See the summary table identifying the different regulations that apply to wastewaters transported via public roadway for recycling or disposal for more information. Contact your DEQ District Staff (See Appendix C) in the following programs with questions: Hazardous Waste Program, On-site Wastewater Program or Septage Program, Groundwater Permit or NPDES Permit Program. DEQ, Hazardous Waste or Septage Program for questions (see Appendix C).

For additional details on the generator, transporter, and designated facility requirements for handling liquid industrial by-products, see the Liquid Industrial By-products Generator guidance and Frequently Asked Questions (FAQs). For questions about the liquid industrial by-products designated facility requirements, contact your DEQ, District Office, Hazardous Waste Program (see Appendix C).

2.4 Hazardous Waste

All waste generators except households are required by law to:

- Determine if any of their waste is hazardous waste.
- Keep records of waste evaluations and other information used to determine the type of waste at least three years after the waste is shipped for treatment, storage, or disposal.
- Properly manage the waste.



These requirements apply to all businesses, not just manufacturing. This includes service industries, governmental operations, health care, etc. It is highly recommended you develop a record keeping system where all the waste determination records, manifests, shipping documents, land disposal restrictions records, reports, contingency plans, training records etc. are filed so you can easily provide these documents upon an inspection. Legal responsibility as a generator of any quantity of waste extends from "cradle to grave." This covers the time from when the waste is first generated through its ultimate disposal. State and federal court decisions have consistently upheld that legal liability remains with the original generator, in some instances even after disposal.

When reading this guidebook, do not confuse the term hazardous waste with **hazardous material-U.S. DOT, hazardous material-DEQ, and hazardous material-Act 207**. Each term has specific regulatory definitions and requirements. See Chapter 4 to learn about the differences in these definitions and the regulations that govern their management.

All hazardous waste that is required to be shipped with a Uniform Hazardous Waste Manifest is defined as a **hazardous material-U.S. DOT**. There are some wastes that are not regulated as a hazardous waste yet are regulated as a **hazardous material-U.S. DOT**. The following information discusses the general requirements regarding **hazardous waste**. More detailed information is provided for common hazardous waste streams in Chapter 2.7. The specific requirements that must be met depend upon the quantities of hazardous waste generated and accumulated within a specific time period at your site.

This chapter focuses on generator requirements and not hazardous waste treatment, storage and disposal facilities (TSDF) and transporter requirements. For information on the licensing required for storing hazardous waste at a location other than where it was generated, or for treating or disposing of hazardous waste at any location, please contact your DEQ, District Office, Hazardous Waste Program (see Appendix C). If you have any questions about managing your hazardous waste, call your environmental consultant or the DEQ, District Office, Hazardous Waste Program (see Appendix C). For questions about hazardous waste transport, refer to Chapter 4.

2.4.1 Defining Hazardous Waste

Hazardous wastes are wastes that have been determined to be a threat to human health or the environment. Federal and state regulations define wastes as hazardous if they 1) are included on specific lists within the regulations (listed hazardous waste) or 2) exhibit hazardous characteristic(s) specified in the regulations (characteristic hazardous waste). Each hazardous waste type, regardless of whether it is a listed hazardous waste or characteristic hazardous waste, is assigned a specific number for purposes of waste tracking and management.

Michigan regulates more hazardous wastes than what is included in the federal regulations. Wastes that are included in both the federal and state regulations have a U.S. EPA waste number that begins with a letter followed by 3 digits. The additional Michigan hazardous waste numbers begin with the 3 digits and ends with a letter. There are some wastes that can have several waste numbers that apply.

The hazardous waste regulations also allow businesses the option of handling some waste streams under streamlined management standards called the "universal waste" standards. For further information on universal wastes and their management standards, please see Chapter 2.4.1.c in addition to the following sections. If you have waste containing radioactive materials, please see Chapter 10.

To determine whether you have a solid waste, liquid industrial by-product, or hazardous waste, view the "Hazardous Waste and Liquid Industrial By-products Recorded Webinar Series" available on-line at **www.michigan.gov/deqwaste** under the "Announcements" tab.

2.4.1.a Listed Waste

Listed waste includes waste materials listed by name or generation source that are identified on the federal and Michigan lists of hazardous waste. If listed hazardous waste is mixed with other waste, then that mixture is defined as a listed hazardous waste under the "mixture rule" as incorporated under the state and federal regulations. The intent is to ensure that the solution to pollution is not dilution. Only waste meeting a regulatory exclusion identified in the Part 111 rules are excluded. Even waste excluded under Rule 203(7) is still subject to land disposal restrictions (see Chapter 2.4.5.c). Moreover, any waste excluded from Part 111, hazardous waste regulation would generally be subject to Part 121 if liquid, or Part 115 if solid.

To determine if a waste is a listed hazardous waste, you need to know the process used to produce the waste and/or the chemical names, and in some instances the chemical concentrations for the materials used to generate the wastes. When claiming an exclusion or exemption, be prepared by having good records for your determination as required under Rule 202(5), Rule 302, and Rule 307(1). To determine if a waste is a listed hazardous waste, you must review the lists of listed hazardous wastes found in the regulations. When reviewing these lists, it is helpful to know they are grouped as follows:

- **Common wastes from non-specific sources.** The list of common wastes from non-specific sources is found under Table 203a of the Part 111 rules. It includes wastes from equipment like degreasers and wastewater treatment operations used at many manufacturing and service businesses. Common wastes from non-specific sources are referred to as the "F" listed hazardous wastes because the waste codes assigned to these wastes all begin with an "F." Many manufacturers generate F001-F005 spent solvents. To generate an "F" listed solvent waste, the virgin solvent must contain the constituents included in the waste descriptions at or above the concentration specified in the table. Besides knowing the solvent constituents and their concentration, proper characterization of "F" listed solvent waste also depends on how the

solvent was used (see Chapters 2.7.8 and 2.7.9). Some “F” listed hazardous wastes also have an “(H)” designation included in the hazard code column of the table. An “H” hazard code designation identifies the listed hazardous waste is an acute hazardous waste that triggers full regulation as a hazardous waste if greater than 2.2 pounds are generated in one month. Michigan has the same F list as the federal regulations.

- **Waste from specific industries.** The list of wastes from specific industries is found under Table 204a of the Part 111 rules. It includes wastes from industries like chemical manufacturing, petroleum refining, and iron and steel production, among others. The listed wastes from this table are referred to as the “K” listed wastes because the waste codes assigned to these wastes all begin with a “K.” Most Michigan manufacturers do not generate “K” wastes. Most Michigan “K” wastes are generated from the iron and steel production and petroleum refining industries. Michigan has the same federal “K” list and rescinded the additional state “K” waste list on November 5, 2013.

- **Discarded commercial chemical products, off-specification chemicals, and their spill or container residues.** Discarded commercial chemical products, off-specification chemicals, and their spill or container residues are a listed hazardous waste if they are found listed in Tables 205a, 205b, and 205c of the Part 111 rules. These wastes all have waste codes that begin with a “P” or “U” except the state listed hazardous waste codes found in table 205c which all end with a “U.” Discarded commercial chemical products or off-specification chemicals are “P” or “U“ listed hazardous wastes if they contain, as their sole active ingredient, one of the chemicals identified in the “P’ or “U” lists in the Part 111 rules. Formulations with a sole active ingredient have only one ingredient that serves a function. Chemicals which have a sole active ingredient may contain water, oil, or other materials that serve as a carrier for the sole active ingredient. An example of a commercial chemical product is technical grade toluene that is used for cleaning. It is a U220 hazardous waste if the product was discarded *before being used* even if there was another ingredient included in the formulation as a carrier. It is a F005 waste if it was used for cleaning and then is discarded. Businesses have “P” or “U” wastes when disposing of unused or off-specification chemicals, when cleaning up a spill of these listed chemical products and/or chemical intermediates having the generic names listed, or when disposing of a container with container residues from the “P” or “U” listed hazardous wastes. Pharmaceutical industries generate “U” and “P” wastes, especially when they are involved with take back programs with hospitals, pharmacies, and other medical facilities. Chemicals included on the “P” list are designated as acutely hazardous, triggering full regulation as a hazardous waste if greater than 2.2 pounds is generated in one month. “U” wastes include toxic chemicals and chemicals that display a characteristic like ignitability. Michigan has the same federal “P” and “U lists and some additional state U waste numbers.

2.4.1.b Characteristic Waste

Waste exhibiting any of five characteristics identified in the Michigan and federal regulations is also defined as a hazardous waste. These wastes have a U.S. EPA or Michigan hazardous waste number that begins with a “D” or ends with or “S”. The five characteristics are:

Ignitable - Starts burning easily; liquids with a flashpoint below 140 degrees Fahrenheit, solids that spontaneously ignite, ignitable compressed gasses, and oxidizers. Ignitable compressed gasses are those that meet the criteria in 40 CFR 261.21(a)(3), not the criteria referenced in the U.S. DOT regulations. This includes gases that form flammable mixtures in air. Oxidizers are materials that may, generally by yielding oxygen, cause or enhance the combustion of other materials and is defined in 49 CFR 173.127, which is a U.S. DOT regulation. Examples of wastes that are characteristic hazardous wastes due to their ignitability include: mineral spirits, methyl isobutyl ketone and other solvents, solvent-based paints, solvent- soaked rags, gasoline, cleaning fluids, naphtha, sludges containing petroleum, and ignitable compressed gas like hydrogen, propane, and acetylene. These wastes have a hazardous waste number of D001.

Corrosive - Liquids that dissolve steel or aqueous wastes with a pH less than or equal to 2.0 or greater than or equal to 12.5. Examples of wastes that are characteristic hazardous wastes due to their corrosivity include caustics like alkaline cleaners and battery acid. These wastes have a hazardous waste number of D002.

Reactive – Undergoes rapid or violent chemical reaction and necessitates special handling requirements. Examples of wastes that are characteristic hazardous wastes due to their reactivity include organic peroxides, cyanides, sulfides, nitroglycerine, and explosives. These wastes have a hazardous waste number of D003.

Toxic - Poisonous to humans and other living organisms. Waste becomes regulated as a characteristic hazardous waste due to its toxicity when a toxic substance in a sample extract from the waste meets or exceeds chemical concentration levels specified in Table 201a of the Part 111 rules. See Table 2.3 in this Chapter for the list of toxic substances that may cause a waste to be a characteristic hazardous waste due to its toxicity. These wastes are assigned hazardous waste numbers D004 through D043. Wastes that are a characteristic hazardous waste due to their toxicity are sometimes called toxicity characteristic leaching procedure (TCLP) wastes because a TCLP laboratory test is used to evaluate whether the waste meets the hazardous waste characteristic (see Chapter 2.4.2.c). Examples of wastes that are generally characteristic hazardous wastes due to their toxicity include: fluorescent lamps, electronic waste, lead acid batteries, various metal-bearing solutions, solvents, mercury switches, lead tire weights, some pesticides, some medical related wastes including mercury thermometers and older antiseptics containing mercury from medical kits, and other organic chemicals. An example of a D009 hazardous waste includes mercury from electric lamps or switches that have a TCLP test concentration result of 0.2 milligrams per liter (mg/l) or more of mercury and are not being managed under the universal waste rule (see Chapter 2.4.1.c). Methyl ethyl ketone (MEK) waste has a waste number of D035 if the TCLP concentration is 200 mg/l or more of MEK. MEK can also be an “F” listed hazardous waste if it meets any of those regulatory definitions.

Severely toxic – Severely toxic to humans and other living organisms. These Michigan hazardous wastes contain 1.0 parts per million (PPM) or more of a severely toxic material listed in Table 202 of the Part 111 rules. These materials are regulated at quantities of one kilogram, which is just over two pounds or more. Severely toxic hazardous wastes are assigned hazardous waste numbers 001S through 007S. Most businesses do not generate this waste.

TABLE 2.3 Characteristic Hazardous Wastes for Toxicity (if waste meets or exceeds the listed concentration)

U.S. EPA Hazardous Waste Number	Chemical Abstract Services Number	Material	Extract Concentration from TCLP analysis in milligrams per liter
D004	7440-38-2	Arsenic	5.0
D005	7440-39-3	Barium	100.0
D018	71-43-2	Benzene	0.5
D006	7440-43-9	Cadmium	1.0
D019	56-23-5	Carbon tetrachloride	0.5
D020	57-74-9	Chlordane	0.03
D021	108-90-7	Chlorobenzene	100.0
D022	67-66-3	Chloroform	6.0
D007	7440-47-3	Chromium	5.0
D023	95-48-7	o-Cresol	200.0**
D024	108-39-4	m-Cresol	200.0**
D025	106-44-5	p-Cresol	200.0**
D026	--------	Cresol	200.0**
D016	94-75-7	2,4-D (2,4-Dichlorophenoxyacetic Acid)	10.0
D027	106-46-7	1,4-Dichlorobenzene	7.5
D028	107-06-2	1,2-Dichloroethane	0.5
D029	75-35-4	1,1-Dichloroethylene	0.7
D030	121-14-2	2,4-Dinitrotoluene	0.13*
D012	72-20-8	Endrin (1,2,3,4,10,10-hexachloro-1,7-Epoxy-1,4,4a,5,6,7,8,8a octahydro-1,4-endo, endo-5,8-dimenthano naphthalene)	0.02
D031	76-44-8	Heptachlor (and its Epoxide)	0.008
D032	118-74-1	Hexachlorobenzene	0.13*
D033	87-68-3	Hexachlorobutadiene	0.5
D034	67-72-1	Hexachloroethane	3.0
D008	7439-92-1	Lead	5.0
D013	58-89-9	Lindane (1,2,3,4,5,6-hexa-chlorocyclo-hexane, gamma isomer)	0.4
D009	7439-97-6	Mercury	0.2
D014	72-43-5	Methoxychlor (1,1,1-trichloro-2,2-bis(p-methoxyphenyl)ethane)	10.0
D035	78-93-3	Methyl ethyl ketone	200.0
D036	98-95-3	Nitrobenzene	2.0
D037	87-86-5	Pentachlorophenol	100.0
D038	110-86-1	Pyridine	5.0*
D010	7782-49-2	Selenium	1.0
D011	7440-22-4	Silver	5.0
D039	127-18-4	Tetrachloroethylene (also called perchloroethylene)	0.7
D015	8001-35-2	Toxaphene (C10H10C18, Technical chlorinated camphene, 67-69 percent chlorine)	0.5
D040	79-01-6	Trichloroethylene	0.5
D041	95-95-4	2,4,5-Trichlorophenol	400.0
D042	88-06-2	2,4,6-Trichlorophenol	2.0
D017	93-72-1	2,4,5 TP Silvex (2,4,5-Tri-chlorophenoxypropionic acid)	1.0
D043	75-01-4	Vinyl chloride	0.2

*Quantitation limit is greater than the calculated regulatory level, so the quantitation limit becomes the regulatory level.
**IF o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/l.

2.4.1.c Universal Waste

The universal waste standards are streamlined standards for managing common types of hazardous waste. Hazardous wastes volumes managed under the universal waste standards are not included when determining your hazardous waste generator status (see Chapter 2.4.3). A primary benefit of managing hazardous waste under the universal wastes standards is that it reduces your monthly hazardous waste volumes. This may reduce your generator status and consequently reduce the overall regulatory requirements that your facility must meet when managing hazardous waste. For example, a large quantity generator of hazardous waste that manages part of its hazardous waste stream as universal waste may be able to become a small quantity generator. This would result in the site being subject to fewer hazardous waste regulations and lower waste handler fees. The universal waste standards give facilities the choice of handling the following waste types as a universal waste or hazardous waste:

- **Lamps,** or what we commonly call light bulbs, including fluorescent, high intensity discharge, sodium vapor, mercury vapor, neon, and incandescent lamps. A lamp is defined as the bulb or tube portion of a lighting device specifically designed to produce radiant energy. Broken lamps are not universal wastes (see Chapter 2.7.5).
- **Batteries**, including nickel cadmium dry cell (see Chapter 2.7.4) and lead acid types (see Chapter 2.7.3 which also discusses another lead acid battery management option).
- **Mercury containing devices**, including thermostats, switches, thermometers, and other devices which contain elemental mercury.
- **Pesticides**, including certain suspended, canceled, or unused pesticides.
- **Consumer electronics,** including computers, televisions and other equipment containing circuit boards commonly found in homes and small businesses (see Chapter 2.7.13).
- **Antifreeze** (see Chapter 2.7.15).
- **Pharmaceuticals** (drugs), including nicotine, coumadin, nitroglycerine, epinephrine, and other drugs (see Chapter 2.7.17).

There are two types of universal waste handlers, a small quantity handler and a large quantity handler of universal waste. Do not confuse universal waste handler types with hazardous waste generator types (e.g. small quantity generator and large quantity generator). If a universal waste handler chooses to mix household waste or conditionally exempt small quantity generator waste of the same type, with universal waste, the commingled waste must all be managed to meet the universal waste regulations. See Table 2.4 below which summarizes the universal waste handling requirements for small and large quantity universal waste handlers. For more detailed information on handling universal waste, see Chapters 2.4.4, 2.4.5, 2.4.7, 2.4.8 and 2.7. Universal waste transporters and destination facilities requirements are not discussed in this guidebook.

Table 2.4 Summary of Universal Waste Handler Categories

Issue	Small Quantity Handler (SQH)	Large Quantity Handler (LQH)[1]
Amount of all universal waste types accumulated at any time during the calendar year beginning January 1	Less than 5,000 kilograms (11,000 pounds)	5,000 kilograms (11,000 pounds) or more
Maximum amount of all universal waste types that can be accumulated on-site during the calendar year beginning January 1	Less than 5,000 kilograms (11,000 pounds)	No limit
Maximum time period before waste must be shipped	1 year after generated or received from another facility	
Accumulation[2]	Accumulate in closed containers compatible with the waste, and properly labeled (Chapters 2.7 and universal waste handler guidance)	
Notification Required	No.	Yes, use form EQP 5150 (Chapter 2.4.4)
Permitted and registered transporters required to be used[3]	No, unless liquid which is managed as liquid industrial by-product (Chapter 2.4.10)	
Manifests or shipping papers[4]	If liquids, use shipping document or Uniform Manifest (Chapters 2.3.2, 2.4.5.a and 2.4.5.b.)	
Employee Training & Emergency Response	Yes (Chapters 2.4.12 and 6)	
Export/Import	Additional federal notification and reporting requirements (Chapter 2.4.5.d)	
Universal Waste Receiving Facility[5]	Universal waste must be delivered to a universal waste handler, a universal waste destination facility, or a universal waste foreign destination facility. Destination facility requirements vary and may require a hazardous waste license.	

[1] Once the LQH status is reached, the business must keep that designation through the end of that calendar year.

[2] Satellite accumulation standards do not apply to hazardous waste managed to meet the universal waste standards.

[3] Universal wastes that are a liquid would need to be transported by a registered and permitted transporter to meet the liquid industrial by-products regulations (see Chapter 2.3). In addition, some universal waste may be regulated as U.S. DOT hazardous material if it meets the criteria specified in 49 CFR 173.2. For example, shipments of more than one pound of mercury per package, and many pesticides, are regulated U.S. DOT hazardous materials. The amount of mercury varies in the different devices. This material must be packaged, labeled, marked, placarded, and transported with the proper shipping papers according to U.S. DOT requirements. Contact the Michigan State Police, Commercial Vehicle Enforcement Division at 517-241-0506, the U.S. DOT at 517-853-5990 or visit **www.phmsa.dot.gov/hazmat** for information about U.S. DOT requirements. Also see Chapter 4.4 for details on transport requirements.

[4] Liquid universal wastes must be shipped to meet the Part 121 liquid industrial by-products transport and shipping requirements. When manifesting universal waste that is liquid, follow the Part 121 requirements for shipping documents.

[5] For questions about acceptable receiving facilities, contact your DEQ, District Office, Hazardous Waste Program (see Appendix C).

Learn the basics about Michigan's universal waste regulations, including why the regulations exist, what a universal waste is and how the different universal waste types must be handled and disposed by viewing the recorded "Universal Waste Webinar" available at **www.michigan.gov/deqwaste** under the "Hazardous Waste and Liquid Industrial By-products Webinar Series" link on the "Announcements" tab or see Chapter 2.7.

2.4.1.d Hazardous Waste Exclusions and Exemptions

Some waste streams may meet applicable exclusion and exemption criteria and not be fully regulated as a hazardous waste. These exclusions and exemptions are too numerous to include in their entirety in this publication, but the following summarizes some common ones and others are identified in Chapter 2.4.2.d. Additional management requirements are included in Chapter 2.7 for some specific types of wastes (e.g. fluorescent bulbs, batteries, antifreeze, disposable rags, etc.). See the U.S. EPA RCRA Orientation Manual at **www.epa.gov/hwgenerators/resource-conservation-and-recovery-act-rcra-orientation-manual** and the RCRA Training Module on exclusions and exemptions found at **www.epa.gov/rcra/resource-conservation-and-recovery-act-rcra-training-module-about-solid-and-hazardous-waste**. Discuss any exclusion or exemption questions you have with your DEQ, District Office, Hazardous Waste Program (see Appendix C).

Hazardous Waste Recycling

Recycling may occur at the generator's site or off-site. Different regulations apply to companies recycling their own wastes on site and those offering commercial recycling services. Generators must keep records of on-site reclamation and the treatment performed must be performed in accordance with an exemption found under Rule 503 of the Part 111 Rules. As provided in Rule 205(5) of the Part 111 Rules, in some cases the waste may not need to be counted when determining your monthly generator status.

Companies that offer commercial recycling services are listed in the Recycled Materials Market Directory at **www.michigan.gov/deqrmmd**. Vendors who assist with recycling are encouraged to register and market these services in the Recycled Materials Market Directory at **www.michigan.gov/deqrmmd**.

Generators should ensure the recyclers are meeting the applicable regulations. For example, if the recycling company offers transportation services, ask if they meet the applicable transporter regulations to haul your type of waste and what authorization or exclusion from waste regulation they have to treat and/or store the waste. It is necessary to consider all the regulations (e.g. Parts 31, 55, 111, 115, and 121) that may be applicable to meet requirements to recycle materials. In some cases, recycling a material may be exempt under all the waste regulations but the recycling process itself may be subject to air regulations (Part 55) and wastewater discharge limitations (Part 31). In other situations, some hazardous waste that is recycled is excluded from being regulated as a hazardous waste, but it is regulated as liquid industrial by-product. For example, gas removed from an abandoned underground storage tank for clean-up purposes under Part 213 or a gas/water mixture that is shipped off site to be burned as a fuel at a cement kiln is exempt from being a hazardous waste, but it must be shipped and managed as a liquid industrial by-product. See Rule 206 of the Part 111 rules and discuss your specific recycling questions with your DEQ, District Office, Hazardous Waste Program (see Appendix C).Other resources that may be helpful when reviewing recycling vendor options include the guide for Selecting Transporters or

Treatment, Storage and Disposal Facilities (TSDFs) (see Chapter 2.4.10), the List of Vendors that Assist with Household Hazardous Waste Collection, and the Waste Data System available online at www.deq.state.mi.us/wdspi. The Waste Data System can be used to review vendors notifications, authorizations and DEQ, WMRPD inspection findings related to hazardous waste, liquid industrial by-products, solid waste, and scrap tires. For questions regarding these resources, contacting your DEQ, District Office, Hazardous Waste Program (see Appendix C) or the Environmental Assistance Center at 800-662-9278.

Materials that are directly used or reused are not regulated as hazardous waste when they are:

- Used as an ingredient to make a product without first being reclaimed. A material is "reclaimed" if it is processed to recover a usable product, or if it is regenerated which may include filtering or any other processing before reuse.
- Used as an effective substitute for a commercial chemical product.
- Returned to the original process from which it was generated, without first being reclaimed. However, if the material is reclaimed prior to reuse or is used to produce products that are applied to or placed on the ground or burned for energy recovery, the material and the recycling process are fully regulated.

Note too that the hazardous waste regulations require that any exemption or exclusion claim be demonstrated by the generator of the waste and maintained as part of the generator's waste characterization record. There are also speculative accumulation limits for materials being collected for recycling. Speculative accumulation under the hazardous waste regulations does not include collected materials when at least 75 percent of the material (either by volume or weight) is recycled, or transferred to another site for recycling, within the calendar year beginning January 1. Keep inventory records to verify recycled materials are not speculatively accumulated , and thus are exempted from hazardous waste regulation. See Rule 107(z) of the Part 111 rules for the definition of hazardous waste speculative accumulation and Section 12112(3) of Part 121 for this definition if the material is subject to liquid industrial by-products regulations.

Hazardous Secondary Materials

On January 13, 2015, the federal "Definition of Solid Waste" regulations were revised to establish new standards for "hazardous secondary materials." The new regulations encourage the reclamation of certain materials without increasing risks to human health and the environment. Michigan adopted the federal "Definition of Solid Waste" changes into the Part 111 rules on April 5, 2017. Michigan facilities can now reclaim certain "hazardous secondary materials" if the recycling meets the newly codified legitimacy criteria found under Rule 232 of the Part 111 rules and the conditional exclusions provided under Rule 204(1)(aa), (bb), and (cc) of the Part 111 rules. To learn more about hazardous secondary material recycling requirements, see the Hazardous Secondary Material Guidance and contact your DEQ, District Office with questions.

Laboratory Samples

A waste sample that is sent to a laboratory to determine if it is a hazardous waste is exempt from most of the hazardous waste regulations if it meets certain conditions. Send the smallest amount needed for the test (typically this is less than one gallon) to the laboratory, and the laboratory may return any remaining sample to the generator. If the waste is determined to be a hazardous waste this exemption no longer applies to the sample after it is no longer needed for waste characterization purposes. See Chapter 2.4.2.b for shipping record requirements.

Empty Containers

Empty containers, liners, and residue from "empty containers" are not subject to the hazardous waste requirements if the following conditions are met:

1. The container or the inner lining that held non-acute hazardous waste has had as much material removed as possible using practices commonly used to remove that material (e.g. pouring, pumping, and aspirating), ***AND*** the amount of hazardous waste residue in the container or liner meets any of the following:
   - One inch or less; OR
   - No more than three percent by weight of the total capacity for containers 119 gallons or less in size; OR
   - No more than 0.3 percent by weight of the total capacity for containers over 119 gallons.

   Smaller containers can generally be emptied beyond the one inch or 3% standard. Therefore, smaller containers must be emptied to the extent possible using common practices for emptying the container type.
2. The containers that held acutely or severely toxic hazardous waste (e.g., waste identified on the "P" or "S" lists and "F" wastes with a "H" hazard code) have been triple-rinsed using a material capable of removing the product or by another proven cleaning method, or the inner lining that prevented contact of the chemical with the container has been removed from the container. For containers or inner liners that held acute hazardous waste listed solely for a hazardous waste characteristic and the formulation in the container or inner liner no longer exhibits that characteristic, the container or inner liner is empty if the above requirements in condition #1 are met. Any rinsate generated from rinsing a container or tank that held acutely or severely toxic hazardous waste is a listed hazardous waste unless it meets an exemption under the hazardous waste regulations (e.g. it is direct discharged to a POTW under an authorization issued by the POTW who is authorized by the DEQ under Part 31 discharge permit and there is no accumulation or storage prior to the discharge to the sanitary sewer).
3. Compressed gas cylinders have been emptied to the point where the pressure in the container approaches atmospheric pressure. To ensure the container is empty, listen for audible liquids and check to see if it is clogged. If the container is clogged and has audible liquids, manage it as a non-empty container.

Wastewater Discharges to Sanitary or Combined Sewer Systems

Wastewater that contains hazardous waste and is discharged to a sanitary or combined sanitary sewer system to a publicly owned treatment works (POTW) authorized under a Part 31 discharge permit, a discharge permit by rule (see under Part 31, Part 22 Rules, Rule 2211 and Chapter 3.2.4.a), or an order issued pursuant to Part 31, is exempt from the hazardous waste regulations at the point of discharge into the sanitary or combined sewer system ***IF*** the discharge is approved by the receiving POTW (see Chapter 3.2.1). Any hazardous waste treatment or storage prior to that discharge may be subject to the hazardous waste regulations. This exemption does not apply to any hazardous waste that is transported by truck or rail to a POTW. This exemption also does not apply to the discharge of any wastewater to a storm sewer which is strictly prohibited by law.

The U.S. EPA issued a memorandum and Pretreatment Factsheet on Hazardous Waste Reporting in November 2016. The memorandum highlights that generators of discarded materials, when discharging a substance to the publicly owned treatment works that would otherwise be a

hazardous waste, must submit an initial notice of the discharge activity to the receiving POTW; the EPA Regional Waste Management Director; and the DEQ, WMRPD under 40 CFR 403.12 (p) and (j). The notification is a one-time written notice required for each waste stream being disposed to a POTW. Notices submitted to meet the Clean Water Act pretreatment requirements under 40 CFR 403.12 (p) and (j) should be mailed via U.S. Postal Service to DEQ, WMRPD, Management and Tracking Unit, P.O. Box 30038, Lansing, Michigan 48909-7538. For more details regarding the required report contact your POTW and see Chapter 3.2.1a.

An exemption from the mixture rule exists if very small amounts, or de minimis amounts, of listed hazardous waste are discharged to a publicly owned treatment works (POTW) with large volumes of non-hazardous wastewater. De minimis losses are inadvertent releases to a wastewater treatment system. There are additional requirements if claiming the de minimus exemption including meeting wastewater discharge requirements.

If hazardous waste is discharged to a POTW for disposal, keep a copy of the permit application or the submission to the receiving facility with their approval and records of your hazardous waste discharges for at least three years. See Chapter 3 for more information. If a facility is doing any on-site treatment, including waste neutralization, that involves discharges to a sanitary sewer system, they need to have a certified wastewater operator (see Chapter 3.5). Discuss this exemption with your DEQ, District Office, Hazardous Waste Program and WRD, as well as the local POTW (see Appendix C).

2.4.2 Determining If You Generate Hazardous Waste

All facilities must determine if the waste they generate is hazardous or non-hazardous. If the materials used, or the process generating the waste changes, or there are other impacts from business operations that may change the waste (e.g. cross contamination from aerosol overspray), the waste must be re-evaluated. The regulations do not identify a specific timeframe (like annually) to re-evaluate the waste determination. As a precaution, to ensure no changes have been overlooked, periodically waste determinations should be re-evaluated. Check with your disposal vendor. They generally have a retesting schedule. Always be sure to keep any records obtained during waste determinations (i.e., test analysis results, safety data sheet (SDS) (see Appendix E), or other documentation such as product information from a supplier or manufacturer) for at least three years from the time the waste was last sent for treatment, storage, or disposal. If large quantity generators are doing on-site treatment, they must also have a waste analysis plan (WAP) under the land disposal restriction regulations (40 CFR 268.7(a)(5)). See U.S. EPA guidance at www.epa.gov/sites/production/files/2015-04/documents/tsdf-wap-guide-final.pdf

2.4.2.a Who can do waste determinations for a business?

A business may either:

- Hire a consultant or use a disposal company's waste characterization services. Be aware the waste generator is still ultimately responsible for meeting the waste regulations.
- Characterize the waste themselves by either:
  - ✓ Using knowledge of the material and the process it came from. Information from the safety data sheets (SDS), supplier and manufacturer literature, or other documentation may be useful when you have unused product needing disposal. A SDS often provides information about the flashpoint, pH, or if a discarded product is a hazardous waste.

However, a SDS is not completely reliable for determining if a used material is hazardous waste because:

- it does not include information about contaminants that might be in the waste as a result of its use, and
- it may not list all hazardous constituents of concern for disposal, since the SDS may only identify hazardous constituents of concern for occupational safety.

The SDS can be obtained from the suppliers or manufacturers of the products you are using. If using a SDS to characterize the waste, confirm with the manufacturer that all hazardous constituents in the product are listed on the SDS, making note of your confirmation, as part of your waste evaluation record. Some SDS' are also available on Internet sites like **www.hazard.com**. A waste stream may conservatively be presumed to contain certain constituents above regulatory thresholds for compliance purposes, but disposal facilities may still require testing before accepting a waste stream. Applying your knowledge is more useful when declaring something is a hazardous waste than when saying a waste is NOT hazardous.

✓ Having a representative sample of the waste tested.

2.4.2.b What are testing requirements?

Before collecting samples and submitting them for testing, contact your disposal company to ensure you perform the correct tests. The disposal company might require specific tests or may only accept analysis data from specific laboratories. Ask the disposal company for a list of the test(s) they require, the purpose of the tests, approved testing methods, and acceptable laboratories. This will prevent you from spending money on laboratory tests that are not necessary or do not meet the disposal company's requirements. The waste rules identify which laboratory methods can be used. If the waste is from cleanup activities, see the methods in the Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria, but before testing discuss your cleanup situation with the DEQ, Remediation and Redevelopment Division (see Appendix C).

To find a DEQ certified laboratory performing chemistry, microbial, or radiological analyses, go to **www.michigan.gov/deqlab** and select "Certifications" then select "Drinking Water Analysis Laboratory."

It is wise to obtain estimates from two or more laboratories. In some cases, the tests will save you money by showing that you do not have hazardous waste. When hiring testing services, use a reputable firm and obtain a written contract. The contract should clearly identify which specific services the company will provide. For example, instead of vague language about sampling waste, identify:

✓ Who is responsible for collecting samples?

✓ Who will arrange to have it analyzed?

✓ Who will arrange to have an expert look at the analysis results?

✓ Who will determine if the waste is hazardous and at which regulatory limit?

Waste samples being sent to laboratories are exempt from most of the hazardous waste regulations if it meets certain conditions. Submit the smallest sample amount as possible for testing (typically less than one gallon), and the laboratory may return any remaining waste sample to the generator. The exemption no longer applies when the sample is determined to be hazardous waste and is no longer needed for waste characterization purposes.

Contact the laboratory about its procedures for accepting samples. When shipping the sample, you must meet U.S. Postal Service or U.S. DOT labeling and shipping requirements. U.S. DOT questions can be directed to Michigan State Police, Commercial Vehicle Enforcement Division at 517-284-3250or the U.S. DOT at 800-467-4922. If these agencies' regulations do not apply to the sample, it must be packed so it does not leak, spill, or vaporize. Waste samples being shipped to a laboratory are not required to be manifested, but the following information must accompany the shipment:

- ✓ Sample collector's name, mailing address, and telephone number.
- ✓ Laboratory's name, mailing address, and telephone number.
- ✓ Date of shipment.
- ✓ Quantity of the sample.
- ✓ Description of the sample.

2.4.2.c What are common laboratory tests?

The hazardous waste rules reference the acceptable test methods that are to be used to determine if wastes are hazardous or not. These methods can be found in the U.S. EPA publication "SW-846" at **www.epa.gov/hw-sw846**.

The **paint filter test** is U.S. EPA Method 9095B that is used to determine the presence of free liquids in a representative sample of waste. A predetermined amount of material is placed in a paint filter. If any portion of the material passes through and drops from the filter within the 5-minute test period, it contains free liquids. If these wastes are not regulated under the hazardous waste regulations, they are regulated under Part 121 of Act 451 as a liquid industrial by-product.

The **Toxicity Characteristic Leaching Procedure (TCLP)** is U.S. EPA Method 1311 that is used to determine if a waste has toxicity characteristics in amounts that meet or exceed regulatory limits causing it to be regulated as hazardous waste. The TCLP was designed to predict whether a waste is likely to leach chemicals into groundwater. It simulates the conditions a waste might encounter in a typical municipal solid waste landfill. Be aware that it is not necessary to identify every chemical component of the waste in order to meet the hazardous waste regulations and ensure adequate treatment or disposal. It may not be necessary to run a TCLP for every constituent included on the "D" list in Table 201a of the Part 111 rules if you are familiar with your process. For example, you may only need to have a TCLP done for metals and volatiles if you know that the other constituents are not present in the waste. If you are unsure of the types and concentrations of hazardous contaminants present in the waste, a cost-effective option to running a TCLP test is to first run a total waste analysis to demonstrate that toxicity characteristics. If the waste is 100 percent solids, divide the total constituent concentration by 20 and then compare the

resulting theoretical concentration to the regulatory limit in Table 2.3. This is sometimes called the 20 times rule. If none of the theoretical concentrations equal or exceed the regulatory limits, the solid cannot exhibit the toxicity characteristic and the TCLP does not need to be run. If the waste is a liquid or contains both liquids and solids, go to **www.epa.gov/rcraonline** and search for "Total Waste Analysis" for more information and a formula to convert totals results.

In other situations, you may only need to know if a liquid waste is ignitable and can request a flashpoint test; or to find out if it is corrosive, a pH test can be done. Special tests might be required if you have drums or containers of mixed or unidentified old waste. You may be able to minimize laboratory testing costs by providing information about your waste streams and operations that were previously collected during your waste survey.

Although it is not commonly done, you may be able to conduct some tests on your own to determine if you have hazardous waste. For example, used oil can be tested on-site by using a commercial test kit to determine if it contains total halogens greater than 1,000 PPM requiring it to be handled as a hazardous waste. Discuss these testing options with your permitted and registered waste transporter; treatment, storage, and disposal facility (TSDF); or recycling company to see if they will accept these test results.

2.4.2.d Steps when doing waste determinations

A. Conduct a waste survey as described in Chapter 2.1 to identify all your waste streams. Hazardous waste may be generated in many areas of your business from the shop floor to offices. The following list identifies some commonly overlooked hazardous wastes with the reasons why they may be hazardous noted in parenthesis:

- Spent fluorescent tubes and other lighting fixtures (toxic for mercury).
- Disposable rags containing free liquids with a flashpoint of less than 140 degrees Fahrenheit or used with a listed solvent (ignitability, spontaneous combustion, used with "F" listed solvents).
- Spent activated carbon media, included in some air filters and other equipment (contains "F" listed solvents).
- Used solvents with low flashpoint (toxic, ignitability) and used solvents with high flashpoints (toxic).
- Drain or sump sludge, including loading/unloading area trenches (contains toxic metals or "F" solvents, ignitability due to gasoline from trucks).
- Painting materials and waste including paint thinners, enamel reducers, epoxies, primers, enamels, solvent-based paints, and paint booth filters (contains "F" solvents, metals, ignitability).
- Aerosol cans that are not empty (contains "U" or "P" chemicals, ignitability, corrosive).
- Solvent-based adhesives (toxic, ignitability).
- Antifreeze (may be toxic for lead).
- Dry cleaning solvents with a flashpoint above 140 F (may be toxic for chrome).
- Batteries - lead acid and dry cell (toxic for lead, cadmium, and mercury, corrosive).
- Used water-based or synthetic lubricating fluids containing high concentrations of heavy metals (toxic metals of concern include lead, chromium, cadmium, and barium).

- Listed wastes mixed with another non-hazardous waste.
- Office computer equipment (may contain lead in the cathode ray tubes, mercury switches, batteries, heavy metals in the circuit boards).
- Discarded, unused chemical products from inventory reduction activities (any of the commercial chemical products on the “P” and “U” lists in the state or federal regulations).
- Pharmaceuticals (may be toxic for mercury, creosol, silver and others or contain “U” or “P” chemicals).
- Medical kits containing mercury thermometers or antiseptics containing mercury (toxic).

B. Identify if the material can be used “as is” without any processing, filtering, etc. and thus can be used as a product and not be disposed of as a waste. Consider using business connections to find another company to use the product. See Chapter 2.4.1.d for additional details.

C. Identify if the material is a characteristic and/or listed hazardous waste as identified in Part 2 (Identification and Listing of Hazardous Waste) of the hazardous waste rules and Part 111 of Act 451. Be aware Michigan regulations identify more hazardous wastes than does the U.S. EPA under the federal Resource Conservation and Recovery Act (RCRA) and rules.

Consider these five questions when doing a hazardous waste characterization:

1. Is the unwanted material a waste (solid, semisolid, liquid, or gas)?
2. Is the material specifically excluded, exempted, or partially exempted from the hazardous waste regulations? See the complete descriptions in the Part 111 rules. Some common materials include:
   - Universal waste, which includes lamps like fluorescent light bulbs (see Chapter 2.7.e), batteries (see Chapter 2.7.c and d), devices containing mercury, consumer electronics including computers (see Chapter 2.7.13), certain pesticides, antifreeze (see Chapter 2.7.14), and pharmaceuticals (see Chapter 2.7.16, 2.5 and 2.6).
   - Rags and other textiles being cleaned for reuse or disposed (see Chapter 2.7.h)
   - The remaining residue in “empty containers” (see Chapter 2.4.1.d)
   - Solvents (see Chapter 2.7.i)
   - Oils and filters (see Chapter 2.7.a and 2.7.b)
   - Lead acid batteries (see Chapter 2.7.c),
   - Spent chlorofluorocarbon refrigerants
   - Scrap metal when recycled (see Chapter 2.7.l and p). Be aware that scrap metal from sealed radioactive sources, typically installed in measurement gauges used in manufacturing operations or in hospital equipment and other sources, may also contain radioactive materials (see Chapter 10). Companies hauling industrial scrap metal for hire must meet requirements overseen by the Michigan State Police (MSP), Commercial Vehicle Enforcement Division under the Motor Carrier Act (Act 254 of 1933). Contact the MSP, Commercial Vehicle Enforcement Division at 517-284-3250.
3. Is the waste a "listed" hazardous waste? To be considered listed waste, either the chemical or the process used to generate the waste is specifically included in the listed hazardous waste tables in the Part 111 rules. Listed wastes include “F,” “K,” “P,” and “U” in the hazardous waste number (see Chapter 2.4.1.a). When listed hazardous waste is combined

with other non-hazardous waste, the mixed waste is generally all regulated as listed hazardous waste. See Chapter III of the U.S. EPA RCRA Orientation Manual for an overview of the "mixture and derived from" and the "contained in" rules along with an overview of hazardous waste characterization and exemptions/exclusions. For a printed copy, call 800-424-9346 to order document # EPA 530-R-02-016. To minimize the amount of hazardous generated and the amount of regulations your facility is subject to, do not mix listed hazardous waste with non-hazardous solid waste.

4. Does the waste exhibit a characteristic of hazardous waste? The waste could be flammable, corrosive, reactive, or it meets or exceeds the toxicity levels identified for the materials identified in Tables 201a and 202 of the Part 111 rules (see Chapter 2.4.1.a). Characteristic wastes include "D" and "S" in the hazardous waste number. Use all waste codes that apply when managing your hazardous waste.
5. Is the waste subject to the Land Disposal Restrictions (LDR)? (See Chapter 2.4.5.c)

D. If the waste is not hazardous waste, does it contain free liquids which would make it a Part 121 liquid industrial by-product in Michigan? Does it meet any exclusion listed in Part 121 of Act 451? If you are unsure if liquids are present, it may be necessary to have a paint filter test done. Please note used oil has requirements under both Parts 111 and 121 (See Chapter 2.7.a).

Process wastewaters are not authorized for discharge to on-site septic systems. On-site septic systems are only designed to handle sanitary wastewaters from bathrooms, kitchens, and laundry devices. Process wastewaters in rural areas without publicly owned treatment works (POTW) access are typically regulated under Part 121 as a liquid industrial by-product and must be collected, pumped and hauled for treatment and disposal. Medical wastewaters cannot be disposed to on-site systems. When an on-site septic system accepts process wastewaters, the liquids removed for maintaining the system are subject to regulation as a liquid industrial by-product or medical waste (see Chapters 2.5 and 2.6) and they cannot be managed as a septage waste under Part 117 (Septage Waste Servicers) of Act 451. Moreover, the septic system receiving process wastewaters requires a groundwater discharge permit from the DEQ, WRD (see Chapter 3) or the discharge must be permitted by rule under Part 31, Part 22 Rules, Rule 2211. Any business on an on-site septic system must look closely at their waste handling practices and ensure liquids that are not sanitary wastewaters are properly collected and managed for disposal and not sent to the on-site septic system unless specifically permitted under Part 31.

E. If it is not hazardous waste or a liquid industrial by-product, is it a solid waste regulated under Part 115 of Act 451, a scrap tire regulated under Part 169 of Act 451, or a NESHAP regulated asbestos waste? Does it meet any exclusion included in these regulations? (See Chapter 2.1.1)

F. In some instances, it may be necessary to determine if the material is a medical waste (see Chapter 2.5), a radioactive waste (see Chapter 2.7.n and 10), or regulated under the federal Toxic Substances Control Act (TSCA) such as PCB waste (see Chapter 4.5).

Learn more about the waste regulations, including waste characterization, used oil, universal waste, and more by viewing the recorded "Hazardous Waste and Liquid Industrial By-Products Webinar Series" available on-line at **www.michigan.gov/deqwaste** under the "Announcements" tab.

2.4.2.e Additional waste determination resources

> Not properly characterizing and keeping records of waste characterizations are common waste violations.

- RCRA Online is a compendium of U.S. EPA correspondence related to RCRA. RCRA Online allows the user to search based on topic, word, title, author, recipient, statutory citation, among other criteria.
- Look for free on-line alternatives where waste characterization data is shared like the U.S. EPA pharmaceutical wiki at **http://hwpharms.wikispaces.com** developed for pharmacists to share their determinations.
- U.S. EPA – "*Hazardous Waste Generator Regulations A User-Friendly Reference Document.*"
- U.S. EPA "*Guide for Industrial Waste Management, Chapter 2 Characterizing Waste.*"
- RCRA Training Modules including "Hazardous Waste Identification", "Exclusions", and "Definition of Solid Waste and Hazardous Waste Recycling."
- Federal List of Lists can help identify federal RCRA listed and toxic hazardous wastes. It does not include all characteristic wastes or the additional listed Michigan hazardous wastes.
- Use Internet tools such as the U.S. EPA Envirofacts Datasets and safety data sheet (SDS) information to search for chemical and hazardous waste information. SDS can be obtained from the product supplier, manufacturer, or Internet.
- Purchase characterization publications from private companies or associations. For example, the American Society for Testing and Materials has their "*ASTM Manual 42 RCRA Waste Management: Planning, Implementation, and Assessment of Sampling Activities*."
- Discuss waste determination requirements with the DEQ, District Office, Hazardous Waste Program (see Appendix C).

2.4.3 Hazardous Waste Generator Status & Requirements Summary Chart

Under the regulations, businesses must evaluate their generator status on a continual basis. A facility's hazardous waste generator status is based on 1) the total quantity of the hazardous waste generated each calendar month and 2) the amount of hazardous waste accumulated at a site at any one time. A facility's generator status is used to determine the disposal requirements that apply to the waste generated from a site. The more hazardous waste generated in a month, the more regulations apply when managing and disposing of the waste. Therefore, to minimize the regulations that apply to your facility, you should initiate measures to minimize the volume of hazardous waste generated. Moreover, your generator status and the regulations that apply to your facility when disposing of waste can vary month to month. Facilities that periodically generate large volumes of hazardous waste should meet the regulatory requirements that periodically apply due to episodic events.

See Table 2.5 for a summary of the different generator categories and Table 2.6 for a summary of the hazardous waste generator requirements for the different generator types.

Generators must notify the DEQ of their generator status and other waste handling activities when applying for a Site Identification Number, also known as Site ID or EPA Number, or EPA ID (see Chapter 2.4.4). Facilities are subject to annual handler and manifest user fees based on the largest hazardous waste generator status they operated at during the previous calendar year. Just like the

requirements, the fees increase as the business generates more hazardous waste. For each of the generator status types, there are storage time limits and accumulation volume limits. If the generator does not exceed these limits, a hazardous waste storage operating license is not required.

When calculating your hazardous waste generator status, use the results from your waste survey (see Chapter 2.1) and waste determinations that identified all of the hazardous waste streams your business generates (see Chapter 2.4.2). You DO NOT count the following hazardous wastes when determining your monthly generator status:

- Waste that is not a regulated hazardous waste.
- Hazardous waste that is being managed as a universal waste (see Chapters 2.4.1.c, 2.7.d, 2.7.e, and 2.4.m, 2.7.o, and 2.7.q).
- Hazardous secondary materials managed to meet the legitimacy criteria for reclaimed recycle materials and the conditional exclusion provisions for hazardous secondary materials (see Chapter 2.4.1.d)
- Laundered and reused shop towels or textiles and disposable solvent wipes managed to meet the conditional hazardous waste exclusions for these materials (see Chapter 2.7.h).
- Scrap metal being recycled (see Chapter 2.7.p).
- Some materials being recycled such as used oil and filters (see Chapter 2.7.a and 2.7.b) and lead acid batteries (see Chapter 2.7.c).
- The remaining residue in “empty containers” (see Chapter 2.4.1.d.2).
- See Rule 205(5) of the Part 111 rules for additional wastes that are recycled, reclaimed or treated on-site which are not counted.

You also DO NOT count the volume of liquid industrial by-product when determining your hazardous waste generator status.

Keep in mind that different activities at the site may change the facility’s generator status. For example, when a facility is taking product tanks, totes, other containers, or equipment containing liquids or residues out of service for maintenance, repair or permanent closure, it is necessary to determine if the materials removed are a product or a waste. If the material is a waste that is subject to hazardous waste regulation, it must be counted when determining your hazardous waste generator status unless specified otherwise under Rule 205(5) of the Part 111 rules. See the Emptying Tanks or Containers guidance for more information.

If a business is on the border of a generator category, it is recommended a simple written log be kept by the waste accumulation container(s) that shows when and how much hazardous waste was generated per month. This will provide documentation to support the generator status level at which the facility is notified. For example:

Waste Paint Solvent

Date waste added:	How much added:	By:	Monthly running total
1/3/06	1 gal	George G.	1 gallon
1/15/06	*9 gal*	*Pat M.*	*10 gallons*
2/9/06	2 gal	Sammy Jo	2 gallons

A company may lower their hazardous waste generator status and the regulations they must meet if they implement waste minimization and other pollution prevention practices and reduce the amount of waste generated (see Chapter 2.1). In addition, when they sign a manifest (see Chapter 2.4.5), they are certifying they have tried to reduce the amount and toxicity of the waste generated and are familiar with the site-specific pollution prevention efforts. If a disposal company or transporter is preparing your hazardous waste shipments, be sure they are trained in your site-specific pollution prevention efforts and able to certify to those details when offering your waste for shipment.

Since the waste management requirements are based on the total weight of hazardous waste generated in a calendar month, you may need to convert the amount of waste generated in gallons to pounds to determine your generator status. You can weigh the containers of your hazardous waste. If you have unused products that need to be disposed, you can also use the SDS information in your calculations. The specific gravity, also called the relative density, can be found in the "Physical & Chemical Properties" section of the SDS. It is a unit-less number that tells how much the substance weighs relative to the weight of water. If the specific gravity is 1, the substance weighs the same as water.

Specific gravity of the product x 8.34 lb./gal (weight of water) = weight of the product in lb./gal

Since waste generated from a process may not be same weight as the original products, this calculation may not be accurate for the waste. It may weigh more due to contamination from use.

TABLE 2.5 Summary of the Hazardous Waste Generator Categories

Summary Topic	Conditionally Exempt Small Quantity Generator (CESQG)[1]	Small Quantity Generator (SQG)[1]	Large Quantity Generator (LQG)
Amount of acute or severely toxic hazardous waste generated or accumulated at any time[2]	1 kilogram (2.2 pounds) or less	1 kilogram (2.2 pounds) or less	More than 1 kilogram (2.2 pounds)
Amount of non-acute hazardous waste generated in 1 calendar month	Less than 100 kilograms (220 pounds)	At least 100 kilograms (220 pounds) but less than 1,000 kilograms (2,200 pounds)	1,000 kilograms (2,200 pounds) or more
Approximate volume of non-acute hazardous waste[3]	Less than half of a 55gallon drum, or 25 gallons	One-half to five drums, or 25 to 250 gallons	Five full drums, or 200-250 gallons or more
Maximum amount of non-acute hazardous waste that can be accumulated on-site	1,000 kilograms (2,200 pounds)	6,000 kilograms (13,200 pounds)	No maximum amount
Maximum time period before waste must be shipped	No time limit if never exceed 2,200 pounds	180 days, unless shipping over 200 miles, then 270 days	90 days

[1] If you are registered at one generator status but have a monthly hazardous waste shipment larger than the quantities allowed at that status, then you will need to update your generator status by renotifying and meet the additional hazardous waste management requirements (see Chapter 2.4.4).
[2] Acute hazardous wastes are those in the "P" list and certain wastes in other lists indicated with an "(H)" hazard code; severely toxic wastes are those with an "S" in their number.
[3] The liquid volume is only given as an estimate and is based on the waste having approximately the same weight and volume as water. Your liquid hazardous waste might have a different volume based on its weight. The regulations state amounts by weight.

TABLE 2.6 Summary of the Hazardous Waste Generator Requirements

Summary Topic	Conditionally Exempt Small Quantity Generator (CESQG)	Small Quantity Generator (SQG)	Large Quantity Generator (LQG)
Waste Characterization	Records of waste characterization required for all businesses generating waste (Chapter 2.4.2). Keep records at least 3 years from date waste was last sent for on or off-site treatment, storage, or disposal.		
Generator Status Determination	Records of monthly generator status determinations required for all businesses generating hazardous waste (Chapter 2.4.3). Keep records at least 3 years from date hazardous waste was last sent for on or off-site treatment, storage, or disposal.		
Off-site Treatment, Storage or Disposal Destination for Waste	Licensed solid waste disposal facility (solids); Liquid industrial by-product designated facility (liquids); licensed or exempt recycler; or licensed hazardous waste facility. Also, universal waste handler or universal waste destination facility for hazardous waste managed as universal waste.	Licensed hazardous waste facility; or exempt hazardous waste recycling facility. Also, universal waste handler or universal waste destination facility for hazardous waste managed as universal waste.	Licensed hazardous waste facility; or exempt hazardous waste recycling facility. Also, universal waste handler or universal waste destination facility for hazardous waste managed as universal waste.
Maximum Time Period Before Waste Must Be Shipped	No time limit if never exceed 2,200 pounds.	180 days, unless shipping over 200 miles, then 270 days. Storage beyond time period requires a hazardous waste license for storage.	90 days and storage beyond time period requires a hazardous waste license for storage unless meeting Rule 306(7) of the Part 111 rules.
Maximum Amount of Hazardous Waste That Can Be Accumulated On-site	2,200 pounds non-acute and/or 2.2 pounds or less acute. If exceed 2,200 pounds non-acute, subject to SQG requirements. If exceed 2.2 pounds acute, subject to LQG requirements.	13,200 pounds non-acute and/or 2.2 pounds or less acute. If exceed 13,200 pounds non-acute, requires a hazardous waste license for storage. If exceed 2.2 pounds acute, subject to LQG requirements.	No maximum amount
Site/EPA identification Number	No (Chapter 2.4.4)	Yes (Chapter 2.4.4)	Yes (Chapter 2.4.4)
On-site Treatment, Disposal, & Waste Analysis Plan	SQG and LQG on-site treatment is allowed without a hazardous waste license if conditions in Rule 503 or Rule 206 of the Part 111 rules are met. CESQGs can treat on-site and are not subject to Rule 503. Facilities with waste discharges to a POTW (sanitary sewer system authorized under Part 31 [Chapter 3]) may need wastewater operator certification depending on process (Chapter 3.5). POTW discharges require a permit/approval from the receiving authority, and records of disposal. LQGs doing		

Summary Topic	Conditionally Exempt Small Quantity Generator (CESQG)	Small Quantity Generator (SQG)	Large Quantity Generator (LQG)
	on-site treatment must have Waste Analysis Plan and keep records (Chapter 2.4.2) to meet Land Disposal Restrictions.		
Weekly Accumulation Area Inspections	No, and recommend meet SQG requirements. May be subject to other regulations depending on waste (Chapter 2.4.7 and Chapter 4)	Yes, and recommend written inspection logs (Chapter 2.4.7)	Yes, and written inspection logs required (Chapter 2.4.7)
Labeling Requirements	Yes, under liquid industrial by-products regulations, used oil rule and MIOSHA (Chapters 2.3.2, 2.4.8, 2.7, and 13). Used oil must be labeled "Used Oil."	Yes (Chapters 2.4.8 and 2.7)	Yes (Chapters 2.4.8 and 2.7)
Secondary Containment Requirements	No, unless required under water regulations or DLARA regulations (Chapter 4).	Yes, if ever accumulate 2,200 lbs. or more at any time (Chapter 2.4.7.b).	Yes (Chapter 2.4.7.b)
Air Emissions Control for Volatile Organic Compounds Hazardous Wastes	No	No	Yes (Chapter 2.4.7.b)
	A facility may have requirements under AQD regulations (Chapter 1).	A facility may have requirements under AQD regulations (Chapter 1).	A facility may have requirements under AQD regulations (Chapter 1).
Uniform Hazardous Waste Manifest or Shipping Documents	Shipping document required if liquid and manifest is optional (Chapter 2.3).	Yes, required unless meet tolling agreement recordkeeping (Chapter 2.4.5).	Yes (Chapter 2.4.5)
	U.S. DOT shipping document requirements must also be met if offering a U.S. DOT hazardous material (see Chapter 4.4).		
Land Disposal Restriction Records	No	Yes (Chapter 2.4.5.c)	Yes (Chapter 2.4.5.c)
Contingency plan[1]	No, unless also a liquid industrial by-products designated facility (see Chapter 2.3.3). Recommend meet SQG requirements (Chapter 6.2.1). U.S. DOT security plan also required if shipping in excess of 1000 pounds hazardous waste (Chapter 6.2.7).	Yes, basic plan and emergency posting by phones required (Chapter 6.2.1). U.S. DOT security plan required too if shipping in excess of 1000 pounds hazardous waste (Chapter 6.2.7).	Yes, written plan required (Chapter 6.2.10). U.S. DOT security plan required too if shipping in excess of 1000 pounds hazardous waste (Chapter 6.2.7).
Emergency procedures [1]	No, unless also a liquid industrial by-products designated facility (see	Yes (Chapter 6.2.1)	Yes (Chapter 6.2.10)

Summary Topic	Conditionally Exempt Small Quantity Generator (CESQG)	Small Quantity Generator (SQG)	Large Quantity Generator (LQG)
	Chapter 2.3.3). Recommend meet SQG requirements (Chapter 6.2.1).		
Personnel training[1]	No, unless also a liquid industrial by-products designated facility (see Chapter 2.3.3). Recommend meet SQG requirements (Chapter 2.4.12). U.S. DOT training required when shipping hazardous waste (Chapters 4.4.10 & 6.2.7). MIOSHA training may also be required (Chapter 13).	Yes, basic training required (Chapter 2.4.12). U.S. DOT training required when shipping hazardous waste (Chapters 4 & 6). MIOSHA training may also be required (Chapter 13).	Yes, written documentation also required (Chapter 2.4.12). U.S. DOT training required when shipping hazardous waste (Chapters 4 & 6). MIOSHA training may also be required (Chapter 13).
Requirements to use Permitted and Registered Transporter	Self-haul option (see Chapter 2.4.5.a) or permitted and registered liquid industrial by-products transporter if liquid (Chapter 2.4.10).	Permitted and registered hazardous waste transporter (Chapter 2.4.10).	Permitted and registered hazardous waste transporter (Chapter 2.4.10).
Waste minimization requirements	Recommend meet SQG requirements (Chapter 2.1)	Yes (Chapter 2.1)	Yes (Chapter 2.1)
Annual Handler and Manifest User Fees	No fees; however, if a facility was on file as a SQG or LQG during any period of the billing cycle, they will receive an invoice for those activities.	$100 user charge and $8.00 for each manifest used for hazardous waste shipments in the calendar year up until June 30, 2018.	$400 user charge when generates < 900,000 kg in calendar year; OR $1000 user charge when generates ≥ 900,000 kg in the calendar year AND $8.00 for each manifest used for hazardous waste shipped in the calendar year.
Hazardous Waste/Biennial Report	No	No	Yes (Chapter 2.4.6)
Used Oil Biennial Report	Not required for generators. Used oil processors, re-refiners, and transfer facilities storing used oil more than 35 days are required to submit used oil biennial reports by March 1 of each even numbered year that covers the previous calendar year's activities. See Chapter 2.4.6).		
Annual Import/Export Report	Yes, for hazardous and universal wastes (Chapter 2.4.5.d).		
U.S. DOT Transport Requirements	Yes, when required by U.S. DOT (Chapters 2.4.8 & 4).	Yes (Chapters 2.4.8 & 4)	Yes (Chapters 2.4.8 & 4)

Summary Topic	Conditionally Exempt Small Quantity Generator (CESQG)	Small Quantity Generator (SQG)	Large Quantity Generator (LQG)
Closure of Accumulation Areas	Meet Part 201 of Act 451 cleanup requirements (Chapter 6.4)	Meet requirements in 40 CFR Parts 265.111 and 265.114. Decontaminate and remove all contaminated equipment, structures, and soil, and minimize the need for further maintenance of your site. Meet unit-specific closure standards for tanks, containment buildings, and drip pads. Also meet Part 201 cleanup requirements (Chapter 6.4)	Meet requirements in 40 CFR Parts 265.111 and 265.114. Decontaminate and remove all contaminated equipment, structures, and soil, and minimize the need for further maintenance of your site. Meet unit-specific closure standards for tanks, containment buildings, and drip pads. Also meet Part 201 cleanup requirements (Chapter 6.4)

[1] May also be subject to other emergency planning and training regulations in Chapter 6.

2.4.4 Site Identification Numbers

Businesses are required to have a unique Site Identification Number (Site ID) assigned to each site that engages in regulated waste activities. Some people refer to this as a Site ID, EPA ID, or EPA Number. A Site ID is required of:

- Hazardous waste large quantity and small quantity generators.
- Hazardous waste and liquid industrial by-products transporters.
- Liquid industrial by-products designated facilities.
- Liquid industrial by-products generators utilizing the e-Manifest system.
- Hazardous waste treatment, storage, and disposal or destination facilities, including hazardous waste fuel burners and marketers.
- Universal waste large quantity handlers and destination facilities.
- Used oil collection/aggregation sites, transporters, processors, re-refiners, burners, and marketers.

If it isn't known for sure if a business has a Site ID, or what activities are on file, search the Waste Data System (WDS) at **www.deq.state.mi.us/wdspi**. If you don't know the Site ID, it is recommended to first search on the street number and zip code in the appropriate address fields. By searching on an address, you avoid getting no matches when a business may be in the system under one name, but commonly known as something else. If you know the Site ID Number, type that in the WDS Quick Search field. If you need help or do not have internet access, call your DEQ, District Office, Hazardous Waste Program (see Appendix C) or the Environmental Assistance Center at 800-662-9278 for assistance.

See the information posted on the Waste Data System (WDS) web page at **www.deq.state.mi.us/wdspi** about applying for a Site ID Number. If an existing facility needs to update information on file with DEQ, Hazardous Waste Program, they should request a pre-populated Site ID Form (EQP 5150) by calling the DEQ, District Office, Hazardous Waste Program (see Appendix C) or the Environmental Assistance Center at 800-662-9278. Facilities needing a new Site ID Number must file the Michigan Site ID Form (EQP 5150) (select initial notification in box I). For Michigan facilities, this form replaces the U.S. EPA Notification of Regulated Waste Activity Form 8700-12, the U.S. EPA Hazardous Waste Permit Part A Form 8700-23, the Michigan Notification of Regulated Waste Activity Form, and the U.S. EPA Notification Identification and Certification Form 8700-13A/B. The Site ID Form is also used in conjunction with the Michigan Hazardous Waste Permit Part A Form (EQP5111). The Site ID Form (EQP 5150) is no longer used to notify of PCB waste management activities. For information about notification for PCB activities, please see Chapter 4.5. When a Site ID number is needed or there is a change in company name or ownership/operators, there is a $50 application fee. Facilities have the option to pay online or pay with a check or money order.

> **TIP:** Make sure to completely fill out the EQP 5150 form. Some commonly missed fields are the tax number, number of employees, no day, month and year in the approximate date when your company became owner or operator, signature, email, and applicable NAICS codes. The NAICS codes can be found at **www.naics.com**.

Do not use outdated versions of the form EQP 5150 (the current version at time of this publication's printing was 5/10). However, the form will be updated to collect notification information related to managing academic laboratory waste, hazardous secondary materials, and other regulated waste details. To ensure you are using the current form, always got to **www.michigan.gov\deqwaste** and select the link for the Michigan Site Identification Form EQP5150. If you are uncertain about whether you have the correct form or if you need a different Site ID Number, or have questions about hazardous waste and liquid industrial by-product management, contact your DEQ, District Office, Hazardous Waste Program (see Appendix C) or call the Environmental Assistance Center at 800-662-9278.

When submitting the form, make sure your form is filled out completely and correctly. Sign the certification section and mail or fax the form to the address or number listed on the form. If paying on-line, fax verification of payment with your updated form for owner or operator charges. Companies are currently issued new numbers beginning with the prefix MIK. Companies may have numbers issued previously with a prefix of MIR, MID, MIT, MIE, or MI0 or have a Michigan identification number which has a prefix MIG, MIH, or MIP.

A facility may need to update notification information previously submitted if there are changes regarding their regulated waste activities at the site. It is necessary to check all the boxes that apply to the regulated waste. Examples when a new or updated notification must be submitted by using the form EQP 5150 include:

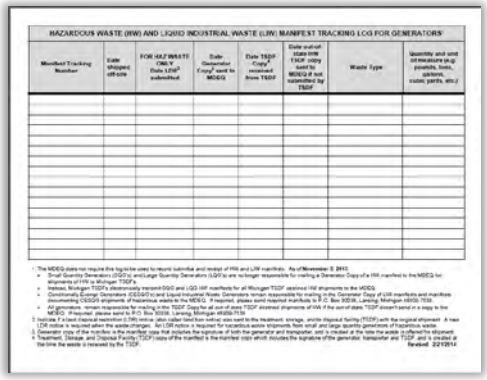
- A company that had previously only shipped used oil and had a Site ID Number, but now also generates hazardous waste in amounts making them a small quantity generator or large quantity generator. Check the appropriate box in Section A for hazardous waste generator and check box in Section X. E. for liquid industrial by-product generator.

- A company moves to a new location and will be generating or managing regulated waste at the new site. Search the Waste Data System at **www.deq.state.mi.us/wdspi** to see if the new location has already been assigned a Site ID and complete new Site ID form. If a Site ID exists for the new location, include the property Site ID on the form. See the next bullet if there was a Site ID Number issued for the site where they used to operate.
- A company no longer generates waste that had previously required a Site ID Number at a location, but the company is still in operation at that site, or it has gone out of business. Check the box in Section X. F. that states it is no longer in business or not generating waste at that location.
- A company wants to offer a community used oil collection service to accept used oil from individuals changing their own oil and they generate their own used oil. Check the boxes in Section X.C. for collection center or aggregation point that accepts DIY oil.
- A company handles total accumulated amount of 11,000 pounds or more of all universal wastes. Check appropriate boxes in Section X.D.
- A facility accepts liquid industrial by-product from other sites. Check box 4 in Section X. E. for liquid industrial by-product designated facility activities.
- A facility accepts hazardous waste from conditionally exempt small quantity generators of hazardous waste and accumulates over 2,200 pounds on site. Check the box 7 in Section X. A.

A facility may have an identification number issued under a different program, such as a medical waste registration number issued by the DEQ, Medical Waste Regulatory Program or a federal identification number for PCBs assigned by the U.S. EPA TSCA Program. The TSCA number may be used on a manifest but only when shipping the waste regulated under only the TSCA program. Shipments of regulated hazardous waste require the use of the Site ID Number issued by the DEQ, Hazardous Waste Program, or previously issued by the U.S. EPA.

2.4.5 Manifests and Shipping Records

The following summarizes the waste manifest and shipping records requirements under the waste regulations. See Chapter 4.4 for additional shipping requirements overseen by the Michigan State Police related to **hazardous materials-U.S. DOT** and Chapter 4.5 for information on shipping waste containing PCBs. The DEQ has a generator tracking log (right) to help with tracking waste shipments and recordkeeping. Customize this form to make waste tracking easier.


HAZARDOUS WASTE (HW) AND LIQUID INDUSTRIAL WASTE (LIW) MANIFEST TRACKING LOG FOR GENERATORS[1]

Manifest Tracking Number	Date shipped off-site	FOR HAZ WASTE ONLY Date LIW[2] submitted	Date Generator Copy[3] sent to MDEQ	Date TSDF Copy[4] received from TSDF	Date out-of-state HW TSDF copy sent to MDEQ if not submitted by TSDF	Waste Type	Quantity and unit of measure (e.g. pounds, tons, gallons, cubic yards, etc.)

1 The MDEQ does not require this log to be used to record submittal and receipt of HW and LIW manifests. As of November 5, 2012:
- Small Quantity Generators (SQG's) and Large Quantity Generators (LQG's) are no longer responsible for mailing a Generator Copy of a HW manifest to the MDEQ for shipments of HW to Michigan TSDFs.
- Instead, Michigan TSDF's electronically transmit SQG and LQG HW manifests for all Michigan TSDF destined HW shipments to the MDEQ.
- Conditionally Exempt Generators (CESQG's) and Liquid Industrial Waste Generators remain responsible for mailing in the Generator Copy of LIW manifests and manifests documenting CESQG shipments of hazardous waste to the MDEQ. If required, please send required manifests to P.O. Box 30241, Lansing, Michigan 48909-7741.
- All generators remain responsible for mailing in the TSDF Copy for all out-of-state TSDF destined shipments of HW if the out-of-state TSDF doesn't send in a copy to the MDEQ. If required, please send to P.O. Box 30241, Lansing, Michigan 48909-7741.

2 Indicate if a liquid industrial waste (LIW) manifest (also called field form waste) was sent to the treatment, storage, and/or disposal facility (TSDF) with the original shipment. A new LIW notice is required when the waste changes. An LIW notice is required for hazardous waste shipments from small and large quantity generators of hazardous waste.

3 Generator copy of the manifest is the manifest copy that includes the signature of both the generator and transporter, and is created at the time the waste is shipped.

4 The TSDF copy of the manifest is the manifest copy which includes the signature of the generator, transporter and TSDF, and is created at the time the waste is received by the TSDF.

Revised 2/27/2014

2.4.5.a Hazardous and Liquid Industrial By-products Manifests & Shipping Documents

When completing shipping documents, you need to know the type of waste you are shipping (e.g. hazardous waste, liquid industrial by-product, or solid waste, etc.) to understand what information that must recorded on what form and available for review.

Hazardous Waste Shipped from SQGs and LQGs - When shipping hazardous waste from a small quantity or large quantity generator of hazardous waste, the Uniform Hazardous Waste Manifest (U.S. EPA Form 8700-22) must be used and the form must be completed in accordance with the manifest instructions and e-Manifest process. The manifest tracks the shipment from its

point of generation to its final destination. To locate the hazardous waste numbers, see Table 2.3 and see Part 2 of the Part 111 rules for the listed hazardous waste numbers. When shipping hazardous waste from a small quantity or large quantity generator, the generator, the transporter, and the receiving hazardous waste treatment, storage, and disposal facility (TSDF) each must sign and keep a copy of the manifest as they handle the waste. The only exception to using a manifest for fully regulated hazardous waste is when the hazardous waste is recycled and reused under a "tolling agreement" between a small quantity generator and the recycler. Under a tooling agreement, the following provisions must be met:

- The vehicle used to transport the waste to the recycling facility and deliver the regenerated material back to the generator is owned and operated by the reclaimer and the reclaimer is permitted and registered to transport liquid industrial by-product.
- The generator maintains a copy of the reclamation agreement for at least three years after the contract expires.
- The generator must also meet the land disposal restriction requirements per 40 CFR 268.7(a)(10) (see Section 2.4.5.c). Keep a copy of the notification and certification on-site with the tolling agreement for at least three years after termination of the agreement.

Most waste companies will provide the Uniform Hazardous Waste Manifest needed for shipment and assist with completing the form or e-Manifest. If you need to get your own forms, you must order them from a U.S. EPA registered printer. A link to the approved printers is online on the Uniform Manifest Information Web page. You may contact your DEQ, District Office, Hazardous Waste Program (see Appendix C) with questions. If someone else prepares the manifest for you, be sure to check it over carefully to ensure it is correct as you must sign it to certify the listed information is correct. Any small quantity generator and large quantity generator of hazardous waste who signs the manifests must also meet the **hazardous material-U.S. DOT** training and documentation requirements described in Chapter 4.4.10.

As of March 16, 2016, generators only need to submit manifests documenting shipments of hazardous waste from small quantity and large quantity generators to out-of-state TSDFs if the out-of-state TSDF fails to provide the DEQ with a timely copy. Please send these to P.O. Box 30038, Lansing, Michigan 48909-7538 at least quarterly within thirty days of the end of the calendar quarter. This is not necessary if using the e-Manifest system. When submitting manifest copies to the DEQ, be sure they are legible. Often a photocopy of the manifest is necessary to ensure it is legible.

There are time limits by which small quantity and large quantity hazardous waste generators should receive the manifest copy from the TSDF with their signature verifying receipt. This may require use of the e-Manifest system. Check with your TSDF to be sure. If you do not get your TSDF copy of the manifest with the destination facility signature within the time frames below (via hard copy or the e-Manifest system), you will need to report the matter to the DEQ.

If you are a small quantity generator, a manifest copy signed by the TSDF must be received within 60 days of shipping the hazardous waste. If you have not received the TSDF copy of the manifest with the receiving facility's signature within this time frame, send a copy of the manifest along with an explanation to the DEQ, Hazardous Waste Program stating you have not received confirmation of the delivery from the TSDF.

If you are a large quantity generator, a manifest copy signed by the TSDF must be received within 35 days of shipping the hazardous waste. If you have not received the TSDF copy of the manifest with the receiving facility's signature on it, contact the transporter and TSDF about the shipment. If you still haven't received a copy within 45 days after shipment, file an exception report with the DEQ, Hazardous Waste Program. Please send any reports related to this to the DEQ, WMRPD, Waste Management and Tracking Unit, P.O. Box 30038, Lansing, Michigan 48909-7538.

CESQG Hazardous Waste Liquids and Liquid Industrial By-product - As of March 16, 2016, the use of a manifest for shipping liquid industrial by-products and CESQG hazardous waste liquids became optional. Now, a manifest, bill of lading, invoice, shipment log or other document that includes the following information, either written or electronic, is acceptable when properly distributed:

- The name and address of the generator,
- The name of the transporter,
- The type and volume of liquid industrial by-product in the shipment,
- The date the liquid industrial by-product was shipped off-site from the generator, and
- The name, address, and Site Identification (Site ID) number of the designated facility.

A Site ID and liquid industrial by-products waste code(s) are required if using an e-Manifest for shipping liquid industrial by-product(s) or CESQG liquids using the e-Manifest system. When using a PAPER manifest for shipping CESQG hazardous waste liquids or liquid industrial by-product for a site that does not have a Site ID, the DEQ encourages the use of the following wording so that handlers may easily identify the regulatory status of the shipment:

- Enter "MICESQG" for shipping CESQG hazardous waste liquids
- Enter "MILIB" for shipping liquid industrial by-product(s)
- Enter "MICESQGLIB" for shipping both CESQG liquid hazardous waste and liquid industrial by-product(s).

For more information about liquid industrial by-product shipping documents, please see the Liquid Industrial By-products Frequently Asked Questions.

Consider discussing any manifest exemptions or shipping document questions with your disposal vendor and the DEQ District Office, Hazardous Waste Program (see Appendix C).

Manifest/Shipping Document Required Recordkeeping

Consider customizing the DEQ generator tracking log for tracking your shipments and verifying proper treatment or disposal. For manifests, be sure to keep a copy of the manifest signed by the generator and transporter at least until the manifest documenting TSDF receipt is received, then keep the manifest copy with 3 signatures. For CESQG hazardous waste liquids and liquid industrial by-products shipping documents, be sure to keep a copy of the shipping document with the required information, including the certifications. Also keep a record verifying the designated facility confirmed receipt. All manifests and shipping documents must be kept on file by all parties (generator, transporter and receiving TSDF) for at least three years.

2.4.5.b Universal Waste

Liquid universal waste shipments (e.g. antifreeze, pesticides, and some pharmaceuticals) need to have shipping documents to meet the liquid industrial by-products regulations (see Chapter 2.3.2). Although they are not required to be manifested under Part 111, when liquid, they must meet the Part 121 shipping document requirements. In addition, universal wastes not accompanied by a waste manifest may still require U.S. DOT shipping papers if the waste meets the definition of a **hazardous material-U.S. DOT** (see Chapter 4 and 49 CFR 172 and 49 CFR 171.8). For example, packages containing one pound or more of mercury are subject to U.S.DOT regulation but when in a mercury containing device may be managed as a universal waste. See the following sections pertaining to specific waste streams for more details and contact the Michigan State Police, Commercial Vehicle Enforcement Division at 517-284-3250or U.S. DOT at 800-467-4922 for more shipping information.

The universal waste rule does not specifically state that a small quantity handler is required to keep records of their universal waste shipments, but they would need to meet the liquid industrial by-product shipping document requirements if it is liquid. Additionally, small quantity handlers need to have records to demonstrate they did not accumulate the waste for greater than 1 year and to verify shipment to an appropriately authorized destination facility. As such, shipment documentation that shows your waste was handled properly is necessary to meet the regulations.

Large quantity handlers are required to keep records of universal waste they receive, and universal waste shipped off-site. These records must be kept at least three years. The records can be in the form of a log, invoice, manifest, bill of lading, or other shipping document. The following information must be recorded:

- ✓ Name and address where the universal waste came from and/or to where it was shipped.
- ✓ Quantity of each waste type (i.e., batteries, electric lamps, pesticides, etc.) received and/or shipped out.
- ✓ Date when you received the shipment and/or when you sent out the shipment.

See Chapter 2.4.7 for details on tracking accumulated universal waste.

Learn more about the waste regulations, including how to manage universal waste and more by viewing the recorded “Hazardous Waste and Liquid Industrial By-Products Webinar Series” available on-line at **www.michigan.gov/deqwaste** under the “Announcements” tab.

2.4.5.c Land Disposal Restrictions

For each waste sent to each TSDF, small quantity and large quantity generators must send a one-time written notice with the initial shipment of hazardous waste to the TSDF. The notice must contain specific language advising the TSDF whether the hazardous waste shipment is prohibited from land disposal. A new notification must be sent when there is a waste or facility change. This is commonly called a land ban notification and known as a land disposal restriction (LDR) notification. The LDR regulations require hazardous waste to undergo physical or chemical changes so that there is less threat to the groundwater, surface water, and air when the hazardous waste is disposed in landfills, surface impoundments, injection wells, concrete vaults, underground mines or caves, waste piles, or other land disposal locations. Both listed and characteristic hazardous wastes must meet the LDR treatment standards before being land disposed. The notification is required for wastes sent to non-land-based units. For waste treated on-site prior to shipment, the

generator must evaluate whether the waste meets the LDR standards prior to treatment, not after, and the generator must have a waste analysis plan detailing how the treatment meets the LDRs. LDRs are also required for small quantity generators using tolling agreements to ship hazardous waste for recycling (see Chapter 2.4.5.a). Compare the standards that are found in 40 CFR 268.42 with the hazardous waste numbers generated at the facility.

The specific treatment standards are too numerous to include in this guidebook. Go to https://www.epa.gov/hw/land-disposal-restrictions-hazardous-waste for more information. Also discuss your specific LDR requirements with your TSDF or local DEQ, District Office, Hazardous Waste Program (see Appendix C). Many TSDFs have preprinted the specific statements on forms that you can use to meet this requirement and will help you properly fill out the information. You are required to keep copies of the LDR notifications, certifications, and LDR waste analysis plan if treating to meet the LDRs for at least three years after the last shipment of that waste.

Common violations regarding land ban notifications include:

- ✓ Failing to keep a copy of the LDR notice
- ✓ Missing a category or subcategory of waste information
- ✓ Listing incorrect (outdated) treatment standards or information that is inconsistent with the waste characterization

2.4.5.d Export/Import Records

Companies importing or exporting hazardous waste and universal waste must meet additional federal notification and other requirements overseen by the U.S. EPA. See the following rules:

- 40 CFR 262 Subpart H, Section 262.83 for hazardous waste exports and
- 40 CFR 262 Subpart H, Section 262.84) for hazardous waste imports.

Contact the U.S. EPA at least 60 days before the intended date of shipment to obtain written consent. The U.S. EPA's "Acknowledgement of Consent" document must accompany the shipment at all times. For hazardous waste or universal waste exportation questions, e-mail RCRANotificaitons@epa.gov or call William Damico, the U.S. EPA Region 5 importation contact at 312-353-8207.

The hazardous waste regulations do not require annual reporting in Michigan for shipments in the United States. If you export hazardous waste out of the country, annual reports are submitted to the U.S. EPA.

2.4.6 Biennial Reports

If your site was a large quantity generator, a TSDF, and/or a used oil processor at any time during an odd numbered year, you are required to submit a biennial report to the DEQ, Hazardous Waste Program by March 1 of every even-numbered year. This report summarizes the previous calendar year's hazardous waste and/or used oil activities at your facility.

2.4.6.a Hazardous Waste Biennial Reporting

As of the 2014 reporting year, the DEQ, Hazardous Waste Program began collecting biennial reports from large quantity hazardous waste generators and TSDFs electronically. For information about hazardous waste biennial reports, go to **www.michigan.gov/deqwaste** and search for "biennial." For questions about biennial reporting, e-mail BiennialReports@michigan.gov or call the Environmental

Assistance Center at 800-662-9278. To stay updated on changes related to Michigan's biennial reporting requirements, go to www.michigan.gov/deqconnect and sign up for e-mail updates related to the WMRPD biennial reports.

2.4.6.b Used Oil Biennial Reporting

Used oil processors, refiners, and marketers are also required to submit used oil biennial reports. Used oil generators are not required to submit used oil biennial reports. For information on used oil biennial reporting, see the Used Oil Biennial Report guidance available at www.michigan.gov/documents/deq/deq-ess-p2tas-usedoilreport_225479_7.pdf and the Liquid Industrial By-products Reporting Web page. Starting in the 2018 reporting year, used oil biennial reports are to be submitted using the EQP 1602 form and instructions. The hazardous waste regulations do not require annual reporting in Michigan for shipments in the United States. However, if you export hazardous waste out of the country, annual reports are required to be submitted to the U.S. EPA (see Chapter 2.4.5.d).

For copies of biennial reports from 1999 to present, contact your DEQ, District Office, Hazardous Waste Program (see Appendix C). For copies of biennial reports from 1997 or earlier, contact the U.S. EPA Region 5 at 312-353-5069 or 800-353-2000. Be sure to keep a copy of the biennial report in your records for at least 3 years from the due date. Current facility information reported to the DEQ can be viewed in the Waste Data System. Go to **www.deq.state.mi.us/wdspi** and search using facility specific data.

2.4.7 Hazardous Waste and Universal Waste Accumulation On-site

There are specific requirements regarding the accumulation of waste, including how long you can accumulate it before shipping and how the containers must be labeled. These requirements are detailed in the following sections and Table 2.7 below.

2.4.7.a Accumulation Time and Amount Limits

You can accumulate your hazardous waste and universal waste on-site in containers or tanks for a specified number of days.

TABLE 2.7: Accumulation Time and Amount Limits

Limit	CESQG	SQG	LQG	SQH	LQH
Storage Time Limit	No state time limit if don't exceed weight limits	180 days (or 270 if distance to disposal site is over 200 miles)	90 days	1 year from generation or receiving from another handler	1 year from generation or receiving from another handler
Total Limit at any time	2,200 pounds non-acute or 2.2 pounds of acute or severely toxic hazardous waste	13,200 pounds non-acute or 2.2 pounds of acute or severely toxic hazardous waste	No limit	<11,000 pounds	No limit

If you wish to exceed this period, you must obtain an operating license for the storage of hazardous waste PRIOR to the storage activity. These limits are determined by your generator status and detailed in Table 2.7 above. In the event a brief extension is required due to an unforeseen, temporary, and uncontrollable circumstance, contact your DEQ, District Office, Hazardous Waste Program (see Appendix C) PRIOR to accumulating hazardous waste beyond the exemption period.

Hazardous Waste

During this time period, hazardous waste must be properly accumulated at your facility to prevent contamination of the environment. You must comply with specific state and federal regulations if your company has a small quantity generator or a large quantity generator status (see Table 2.6 which summarizes the hazardous waste generator requirements). If you are a conditionally exempt small quantity generator, you are not required by law to meet all of the requirements provided you do not exceed the 2,200 pounds of non-acute hazardous waste or 2.2 pounds acute hazardous waste accumulation limit. However, you must still operate your business in a manner that meets the exemption requirements to be subject to the reduced handling and disposal requirements. All generators are required to prevent contamination and are responsible for any contamination they cause. Conditionally exempt small quantity generators are recommended to practice accumulation, secondary containment, and inspection procedures similar to those required of the small quantity generators to provide safeguards against environmental contamination.

Universal Waste

Universal waste handlers can accumulate universal waste up to one year after generation or after receiving the waste from another handler. A longer storage time may be allowed if it is proven that it's necessary to accumulate enough universal waste to facilitate proper recovery, treatment, or disposal. A handler must be able to show how long they have had the waste. This can be done by one of the following:

- Labeling the container with the first date universal waste was put into it or when the container was received.
- Labeling the individual item with the date it was considered a waste or received as a universal waste.
- Maintaining an inventory system on-site which identifies the date it became a waste or was received.
- Placing the universal waste in a specific accumulation area and identifying the earliest date that any universal waste was put in that area.
- Using any other method that clearly demonstrates how long the universal waste has been accumulating.

Transporters may store universal waste up to ten days. If transporters exceed this period, they need to manage the universal waste according to the respective handler requirements.

2.4.7.b Container and Tank Requirements

Hazardous Waste

Hazardous waste is commonly stored in either portable containers with lids such as pails, 55-gallon drums, totes, or in aboveground storage tanks. It can also be stored in underground storage tanks, although it is not usually practical for small quantity or conditionally exempt small quantity generators due to the costs to install, maintain, and monitor the tanks.

Hazardous waste tanks have more regulations than containers. Generally, hazardous waste tanks must have secondary containment and leak detection systems, be certified by a professional engineer, be labeled, meet special requirements for ignitable, reactive, and incompatible wastes, and meet closure and post-closure requirements. Once each operating day the overfill/spill control equipment, monitoring equipment data, and the level of the waste in aboveground storage tank systems must be inspected. For underground storage tanks containing hazardous waste, a complete inventory of the contents must be conducted at least twice every month. Records of these inspections and analyses must be kept for three years.

Small quantity generator tank and large quantity generator tank inspection checklists are available at **www.michigan.gov/deqwaste** "Hazardous Waste," under the link titled "Forms."

Contact your local DEQ, District Office, Hazardous Waste Program (see Appendix C) for information regarding specific hazardous waste storage tank requirements. See Chapter 2.4.8.a for used oil requirements. In addition, the DLARA, Bureau of Fire Service, Storage Tank Division regulates the storage of flammable and combustible liquids, including waste, with a flashpoint of less than 200 degrees Fahrenheit (see Chapter 4.3 for more information). The aboveground storage of flammable and combustible liquids may also be regulated by the MIOSHA General Industry Safety Standards - Part 75, Flammable and Combustible Liquids, and the local municipality's fire prevention code (see Chapters 34 and 37 for more information).

Different containers should be used to segregate different types of waste. It is a good management practice to keep a waste log for liquid wastes noting the type and quantity of waste added to the container. Avoid overfilling containers, especially if they are stored outdoors. Fifty-five gallons of some hazardous liquids can expand to 60 gallons or more when exposed to the heat and sun and may overflow. It is also a good idea to use drip pans under the spigots of containers storing liquid materials. Make sure the drip pans are routinely emptied into the appropriate waste container.
The waste regulations do not require generators to post hazardous waste accumulation area signs alerting people of areas specifically designated for accumulating hazardous waste. However, signage is recommended because it will only enhance the safety of staff, visitors and emergency responders. "No Smoking" signs should also be posted in areas where ignitable, reactive or incompatible wastes are located.

Basic Container Storage Requirements

See Chapter 2.4.8.a for satellite container operating requirements. General requirements for all other hazardous waste storage containers include:

- Containers must be labeled, and the labels must be visible (see Chapter 2.4.8).
- Containers must be maintained in good condition.
- Any leaking containers must be replaced.
- Containers must be kept closed except when adding or removing waste. For liquid hazardous waste, closed container means that container covers are securely affixed with a bolted ring clamp or closed snap ring, bung plugs are installed in openings, and threaded covers are screwed shut. If a funnel is routinely used, to avoid having to remove the funnel and reclose the container regularly, a threaded funnel with a one-way valve, ball valve, or funnel with a latchable, gasketed cover can be used. For solids, the container cover must have complete contact between the lid and the rim of the storage container, all around the top of the container. If the container is continuously receiving hazardous waste solids, the container must catch and retain all of the hazardous waste.

  See Operational Memo 111-20 for more information about closed containers.

- Containers must be compatible with the type of waste being stored in them. The DEQ does not maintain a list of compatible materials but companies can look at the safety data sheets for suggestions and Web sites such as **www.flw.com/material/index.html**.
- Incompatible wastes must not be placed in the same container.
- All containers holding hazardous materials must be inspected weekly for signs of corrosion and leaks. The rules do not define "weekly" and a facility can decide what will be the days they want to be considered their "week." The inspections do not have to be done on the same day. The inspectors are looking at whether inspections have been done on a regular basis.
  - ✓ Large quantity generators are required to keep written documentation of inspections for at least three years.
  - ✓ Small quantity generators and conditionally exempt small quantity generators are encouraged to keep records.

    The DEQ has a Required Weekly Hazardous Waste Maintenance Checklist available for your use in meeting this record keeping requirement, but you are not required to use this form.

To learn more about the DEQ hazardous and liquid industrial by-products inspection process and the records inspectors will request, see the recorded "Hazardous Waste and Liquid Industrial By-products Webinar Series" available on-line at **www.michigan.gov/deqwaste** under the "Announcements" tab.

- Containers must be kept in an area that meets the required isolation distance from property lines. Check for any local requirements. Large quantity generators must have ignitable and

reactive hazardous waste stored at least 50 feet from the property line. If a company cannot meet the isolation distance, see Rule 306(1)(a) of the Part 111 rules which allows compliance with local fire code to be acceptable. A copy of an approved letter indicating the containers are stored in compliance with the fire prevention code and signed by the authority having oversight of that code shall be maintained at the generator's site.

- Containers must be protected from weather and fire and secure from vandalism and physical damage such as that caused by fork lifts or other equipment. Weather protection is to avoid bulging and damaged drums caused by contents freezing in cold temperatures or expanding due to heat.
- Containers must be accumulated in a manner that provides adequate aisle space for unobstructed movement of emergency equipment and personnel. The waste regulations do not specify a minimum specific distance for aisle space. You should review applicable MIOSHA regulations, local fire code, and NFPA standards to see if a minimum aisle space is applicable to your facilities.
- Precautions must be taken to prevent containers holding flammable and combustible hazardous waste from igniting. Sources of ignition include but are not limited to open flames; lightning; smoking; cutting and welding; hot surfaces; frictional heat; static, electrical, and mechanical sparks; spontaneous ignition, including heat producing chemical reactions; and radiant heat.

  The flammable and combustible liquid rules require metal containers to be bonded and/or grounded usually by using a bonding strip and ground clamps. Bonding physically connects two conductive objects together with a bond wire to eliminate a difference in static charge potential between them, but there is still the change of difference between objects and ground. Grounding uses a ground wire to eliminate the difference in the static charge between objects and the ground. The flammable and combustible liquid regulations also prohibit smoking except in designated localities and “No Smoking” signs must be conspicuously posted where hazard from flammable liquid vapors is normally present. No smoking signs are also required for large quantity generators storing reactive hazardous waste. Also see Chapter 34 for additional MIOSHA requirements for containers containing flammable and combustible liquids.

  Some insurance companies may require all hazardous waste drums to be grounded. In addition, some local fire ordinances may require grounding clamps on hazardous waste containers. If a facility is considering using metal flooring, the flooring and containers must have bond wires and meet MIOSHA standards. Contact your local electrical or building code inspector to see what is required including if the use of a grid or steel floor would be acceptable.

Secondary Containment

Secondary containment of the hazardous waste accumulation area is required for the following generators but is not required for satellite containers:

- Small quantity generators accumulating over 1,000 kg (2,200 pounds) of liquid hazardous waste and F020, F021, F022, F023, F026, and F027 waste.

- Large quantity generators accumulating any amount of liquid hazardous waste and F020, F021, F022, F023, F026, and F027 waste. Liquid hazardous waste and the above-mentioned "F" wastes must have secondary containment or be managed according to the following:
- The base must be free of cracks and have an impervious surface.
- The containment area for containers must be constructed so that it is able to hold either 10 percent of the total liquid volume of all the containers or 100 percent of the volume of the largest container, whichever is greater. If, however, a loss from one container can lead to losses from other containers, the enclosed area must be able to contain 100 percent of all of the liquid portion stored in all the containers. Tank secondary containment must be able to contain 100 percent of the capacity of the tank and precipitation from the 25-year 24-hour storm.
- The secondary containment area must be designed to prevent run-on or be designed with sufficient excess capacity to contain any rainwater or snowmelt or other precipitation that might accumulate in the storage area. It is recommended that containers be stored in areas protected from the weather, if possible.
- The containers must be elevated or put on a sloped base that prevents them from coming into contact with any liquid accumulating within the containment area.
- All spills, leaks, and precipitation must be removed in a timely manner to prevent overflow from the containment area.

Other solid hazardous waste in containers can be put in containment areas where the containers are not in contact with accumulated liquids including precipitation. The containers can be either:

- Elevated, or otherwise protected; OR
- Stored on a sloped surface, or the containment area can be of another design and operated to drain and remove precipitation.

The hazardous waste regulations do not specify exactly how secondary containment areas must be constructed. You can install a curb, a ramped pad, or a containment room; have structures custom-made for your situation; or use commercially available portable pallets that have a holding structure included in their design. Be aware that the spill pallets are not sufficient to meet the secondary containment requirements for liquid hazardous waste because they do not provide adequate protection for "squirt distance," which is the distance a liquid would squirt out if a leak occurred. As a general rule for containers holding liquids, the secondary containment outer boundary should be at least as far away as the height of the container(s) holding the liquid hazardous waste unless the container is adjacent to a wall. Other design factors and regulations should also be considered when planning secondary containment. See Chapter 6.1 for more information about secondary containment and storage of other materials besides waste.

Air Emission Control Requirements (Subparts AA, BB, and CC)

There are additional federal hazardous waste regulations regarding air emissions of hazardous waste from tanks and container. The RCRA air emission standards were promulgated in phases. The first phase includes 40 CFR Part 264/265, Subparts AA and BB. These subparts address air emissions from process vents associated with certain types of hazardous waste management processes (Subpart AA) and leaks from certain types of equipment at TSDFs and Large quantity

generators (Subpart BB). At such facilities, owners and operators are required to install control equipment and employ management practices to reduce air emissions from affected units and equipment. Phase II of the RCRA air emission standards, Part 264/265, Subpart CC, regulates organic air emissions from tanks, surface impoundments, and containers located at hazardous waste treatment storage and disposal facilities and large quantity generators. If applicable, these facilities must use various monitoring and control mechanisms to meet the Subpart CC requirements which include:

- Controlling volatile organic compound (VOC) emissions from hazardous waste management activities.
- Reducing organic emissions from process vents associated with certain recycling activities and equipment that is in contact with hazardous waste that has significant organic content.
- Controlling VOCs from hazardous waste tanks, surface impoundments, and containers using fixed roofs, floating roofs, or closed-vent systems routed to control devices.

Learn more about the hazardous waste generator handling requirements by viewing the recorded "Hazardous Waste and Liquid Industrial By-products Webinar Series" available on-line at **www.michigan.gov/deqwaste** under the "Announcements" tab.

The air emissions standards in Part 265, Subpart CC, do not extend to containers used for satellite accumulation. These requirements are too complex to include in this guidebook. Discuss the requirements for your company with your environmental consultant or the DEQ, District Office Hazardous Waste Program (see Appendix C), or go to the U.S. EPA **www.epa.gov/wastes/inforesources/pubs/training/air.pdf** and RCRA Organic Air Emission Standards for TSDFs and Generators for U.S. EPA information on these requirements.

Universal Waste

Universal waste must be stored in a way that prevents any spills or releases. Containers must be kept closed, in good condition, and be compatible with the type of universal waste stored in them.

2.4.8 Labeling Requirements

The proper labeling of waste helps to ensure that the waste is not mismanaged. It is a good idea to put one person in charge of making sure the wastes are correctly identified and labeled. Labeling also helps to protect the workers and emergency responders. If the contents of drums are not known, the chances of someone being exposed to hazards or being injured are great. An explosion can occur if wastes that are incompatible are mixed with unknown wastes in a drum. Labeling requirements differ for hazardous waste being accumulated on-site and that being shipped. More extensive information is required on labels for shipping. In addition to meeting the labeling requirements for containers, you should also clearly mark the accumulation area, so employees know that hazardous waste is being kept there. Also make note of any special precautions that must be taken, like no smoking signage would be appropriate for an area used to accumulate ignitable hazardous waste.

The U.S. DOT regulations specify which containers, packaging, labels, and placards must be used for shipping **hazardous materials-U.S. DOT**. They also and define **hazardous materials-U.S. DOT** to include all **hazardous waste** offered for shipment by small quantity and large quantity generators of hazardous waste. The hazardous waste regulations specifically require small quantity and large quantity generators to have the appropriate placards available for the transporter. Placards are required for hazardous waste shipments in excess of 1000 pounds. For more information about U.S. DOT shipping requirements, go to the Michigan State Police, Commercial Vehicle Enforcement Division Web page at **www.michigan.gov/motorcarrier**, the U.S. DOT Web page at **www.fmcsa.dot.gov**, and see Chapter 4.4.

2.4.8.a Labeling Hazardous Waste Satellite Containers

See Operational Memo 111-2 for more information about satellite accumulation.

It is permissible to accumulate up to a total of 55 gallons of hazardous waste, or one quart of acutely or severely toxic hazardous waste, in labeled container(s) at the point of generation as long as the operator has control of the processes generating the waste. This accumulation is generally referred to as using satellite containers. These containers must be labeled with the words “Hazardous Waste” AND the waste number OR the chemical name of the contents and be kept closed at all times except when waste is being added. There is no limit on the number of containers used at one satellite location or how long the satellite container can be kept at its location, as long as it is being used on a regular basis and the total volume limit of 55 gallons is not exceeded. Once the volume meets the allowable amount, the container(s) holding the accumulation must be:

- Labeled with that date (which would be considered the accumulation date)
- Labeled with the hazardous waste number if the chemical name was initially used on the label
- Moved into the accumulation area within three days

As of November 5, 2013, academic laboratories have additional options for managing laboratory waste under Rule 313 of the Part 111 Rules. For more details on the federal academic laboratory rule adopted by Michigan, see the U.S. EPA Academic Laboratory Rule Web page and their side-by-side comparison of the academic lab rule and the satellite accumulation requirements.

2.4.8.b Labeling Hazardous Waste for Accumulation On-Site

Each container must be labeled with the following when a waste is accumulated on-site and not in a satellite area:

- The words “Hazardous Waste.”
- The hazardous waste numbers.
- An accumulation date (meaning the date waste was first put into the container, unless it was first a satellite container – then it would be the date the volume in the container(s) in the satellite area met or exceeded the 55-gallon allowable amount).

Although not required of accumulation containers, it is helpful for employees to also label the storage containers with the common name of the waste in the container. For example, containers might be labeled with “Used Parts Washer Solvent.” Tanks must also be labeled with the words “Hazardous Waste.”

You are not required to use any specific label to meet these requirements. You can stencil the information on the containers and/or tanks or you can purchase commercially made labels. You may also use the shipping label as long as the required information specified above is filled out. Make sure the label you use does not become unreadable and the label is visible for inspection (e.g. not on the back of a drum against the wall or elevated so high it cannot be readily viewed). Maintaining readable labels is more problematic for containers holding solvents.

2.4.8.c Labeling Hazardous Waste for Shipment

Hazardous waste must be shipped in containers acceptable for transportation and properly labeled. Each container of 110 gallons or less must have the hazardous waste numbers identifying the waste as well as the following statement: *"Hazardous Waste – Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency."*

A container must also have the headings "Generator Name and Address" and "Manifest Document Number," with that information provided. The label to the right and others are available from commercial firms including mail order companies. Properly labeled containers also include:

- Labels clearly identifying the type of waste and its hazards in that particular container
- The accumulation dates
- Words or symbols for characteristics such as "flammable" and "corrosive" that are clear and understandable to employees
- Label protection from solvents and weather

You may want to cover the label with varnish or clear packing tape. Your hazardous waste transporter should be able to help you properly label the containers for transport. Contact the Michigan State Police, Commercial Vehicle Enforcement Division at 517-284-3250or U.S. DOT at 800-467-4922 for more shipping information. Also see Chapter 4.4.

2.4.8.d Labeling Universal Waste for Accumulation On-Site

You need to label the individual universal waste (such as each thermostat) or the container holding the universal waste with the following while it is being accumulated:

- Electric lamps: the words "universal waste lamps," or "waste lamps," or "used lamps."
- Consumer electronics: "universal waste electronics" or "universal waste consumer electronics"
- Batteries: the words "universal waste battery(ies)," or "waste battery(ies)," or "used battery(ies)."
- Mercury containing devices: the words ''universal waste—mercury containing equipment," "waste mercury- containing equipment," or "used mercury-containing equipment" or, if a thermostat "universal waste— mercury thermostat(s)," "waste mercury thermostat(s)," or "used mercury thermostat(s).

- Pesticides: include the legible label that was on or accompanied the original product and the words “universal waste pesticide(s)” or “waste pesticide(s).” If the pesticide label is not readable, then use the appropriate label as required by the U.S. DOT.
- Pharmaceuticals: use the original label. If unreadable, it is suggested to label as “universal waste pharmaceuticals.”

2.4.8.e Labeling Universal Waste for Shipment

Before shipping the universal waste to another universal waste handler, the originating handler must have made arrangements so that the shipment will be received. If the universal waste is a **hazardous material-U.S. DOT,** then that waste has to be packaged, labeled, marked, and placarded according to the requirements under 49 CFR 172-180. Discuss your specific universal waste shipment requirements with Michigan State Police, Commercial Vehicle Enforcement Division at 517-284-3250 or U.S. DOT at 800-467-4922.

2.4.9 Retail Specific Resources

The federal and state hazardous waste regulations were originally enacted to address a growing problem related to industrial, manufacturing operations and disposal of hazardous waste. However, the same regulations apply to waste streams generated in small quantities by commercial and service industries, like retailers. While industrial and manufacturing operations typically generate a limited number of waste streams in large volumes, retail often generates very small quantities of the thousands of consumer products they sell. Consumer products may need to be discarded for many reasons including damage, expiration, suspension, and recall. In light of unique retail challenges associated with the many products inventoried that may become a waste at any time in the distribution or sale process, the DEQ has developed additional retail specific resources found at www.michigan.gov/deqretail.

For retailers interested in minimizing pesticide waste associated with damaged packaging, see the Pesticide Container Repair Guide which details how retailers can establish a pesticide container repair program that allows for sale of certain pesticide containers experiencing minor damage when repaired as specified under an EPA approved program.

2.4.10 Selecting a Transporter and TSDF

Because transporter and treatment, storage and disposal facilities (TSDF) services and costs are highly varied, you should contact and interview several facilities to obtain price estimates before making a selection. Transporters may be independent companies or may be affiliated with a TSDF. There are requirements for transporters hauling either hazardous waste or liquid industrial by-product. A transporter needs to be registered and permitted under Act 138 to haul either of these materials.

You might want to tour the TSDF yourself to see its operations. Remember that, as the generator, you are ultimately responsible for how your waste is transported and disposed, so it is wise to choose a company on more than price alone. Use the following list of questions as a starting point for your interviews and compare the companies’ responses before making your selection. It is important to select a waste transporter and TSDF that you are comfortable doing business with and who provides the best services for your particular circumstances, at a reasonable price.

Questions to Ask Prospective Transporters and TSDFs

1. **Hazardous waste** - Is the hazardous waste transporter currently permitted and registered in Michigan to transport hazardous waste under Act 138? Does the TSDF where the hazardous waste is being taken have a current operating license? You may search the Waste Data System at **www.deq.state.mi.us/wdspi/** for hazardous waste transporters and TSDFs. You may also look for companies in your telephone directory under the heading "Waste Reduction, Disposal, and Recycling Service."

A TSDF can accept only those types of wastes allowed by its permit or operating license. Special fees may be charged for small quantities of hazardous waste requiring extra handling by the facility.

2. **Liquid industrial by-product** - Is the liquid industrial by-product transporter currently permitted and registered to transport liquid industrial by-product under Act 138? Is the liquid industrial by-product being taken to a facility that has notified the DEQ, Hazardous Waste Program as a designated facility that accepts liquid industrial by-product? You may search the Waste Data System for companies that have notified as being liquid industrial by-product designated facilities and liquid industrial by-product transporters. You may also look for companies that deal with liquid industrial by-product in your phone directory under the heading "Waste Reduction, Disposal, and Recycling Service," or for used oils look under the heading "Oils-Waste."

3. What type and amount of insurance does the transporter or TSDF carry? Permitted and registered transporters are required to have insurance coverage to cover accidents and environmental spills. You may want to ask for proof of current insurance coverage for your records.

4. If you are hiring an independent transporter, find out what TSDF the transporter uses for your type of waste. Do they use a transfer facility? If the waste is going to a treatment facility before disposal, where is the ultimate place of disposal for the treated wastes?

5. Does the transporter or the facility offer special services for small volumes of waste? Some transporters might not service small quantity or conditionally exempt small quantity generators.

6. Does the transporter or TSDF initially prepare the waste manifests or will they assist you by reviewing manifests you prepare for correct and complete information (see Chapter 2.4.5)? Does the TSDF provide the land ban or land disposal restriction notice forms (see Chapter 2.4.5.c) and do they help complete them?

7. Does the transporter test used oil prior to picking up the waste or do they require you to do any testing (see Chapter 2.7.1 and 2.2.2)? Does the TSDF require specific tests or laboratories to be used (see Chapter 2.4.2).

8. Is there anything additional to the labeling requirements you must do before your waste is picked up by the transporter or accepted at the TSDF? Some facilities have their own requirements as to how they accept waste material. For example, some companies will not accept hazardous waste in drums even though this is a common method of storage and only pick up bulk loads.

9. Does the transporter or TSDF serve other businesses similar to yours? If so, obtain telephone numbers and contact these companies to evaluate the services they received.

10. Does the transporter deliver waste to the treatment, storage, or disposal facility the same day that it's picked up? If not, ask questions about the company/location where the waste will be stored while in transport. Hazardous waste must reach its final destination within 10 days.

11. What steps does the transporter or TSDF operator take to avoid spills or leaks and minimize the facility's own legal liability? You may want to note for your records the method of temporary waste storage used at a treatment or recycling facility. If your waste is going to a hazardous waste landfill, ask about their leachate control and ground water monitoring provisions. Use this information when comparing companies. A company that costs more to take your waste but practices an extensive environmental protection program may actually be cheaper in the long run than a company that initially costs less but does not practice adequate environmental protection. If contamination occurs, you can be held financially responsible for the site cleanup costs.

12. Have any violations of state regulations occurred? You may also search the Waste Data System for information regarding a company's compliance history. Call the appropriate DEQ, District Office, Hazardous Waste Program (see Appendix C) to discuss the compliance history for prospective transporters or a TSDF. Transporter and TSDF inspection files are kept by the Hazardous Waste Program at the DEQ, District Office responsible for the area where the business is located. If you want to review the files, contact the District Office to confirm the appropriate office and set up an appointment to review the records.

13. Will they enter into a written contract with you? For liability protection, it is a good idea to have a written contract that clearly identifies what specific services the company will provide. Be cautious of firms who do not want to offer a written contract for services.

Conditionally exempt small quantity generators are not required to hire a permitted and registered hazardous waste transporter or dispose of hazardous waste at a hazardous waste TSDF, but it must be disposed of at a facility that can legally accept the waste using a liquid industrial by-products permitted and registered transporter. It is recommended that CESQG exempted hazardous waste be sent to a hazardous waste disposal facility or waste recycler. In a few Michigan areas, local household hazardous waste collection programs accept hazardous waste from conditionally exempt small quantity generators for a fee. A list of local collection sites is available at **www.michigan.gov/deqrecyclingcontacts**. Your waste that is not considered a liquid (passes the paint filter test) can be disposed of at a municipal solid waste landfill if the landfill authority will accept it. Your liquid industrial by-product must be hauled by a permitted and registered transporter, unless you haul your own generated liquid industrial by-product and meet the requirements outlined in Chapter 2.3.2.

2.4.11 Disposing Hazardous Waste On-Site

You may NOT dispose of hazardous waste on your site unless you have obtained a construction permit or operating license for disposal from the DEQ, Hazardous Waste Program. Under limited circumstances, it might be legal to dispose of certain types of waste through a discharge to the sanitary sewers to the publicly owned treatment works (POTW). Any such discharge is only legal IF the discharge is approved by the POTW (see Chapters 2.4.1.d and Chapter 3.2). The POTW authorization should be in writing and made available for review upon inspection.

Any on-site POTW authorized discharge only becomes excluded from regulation as a hazardous waste at the point of discharge to the sanitary sewer. Therefore, any management of the waste in advance of authorized POTW discharge is subject to the hazardous waste regulations and must be counted when determining a facility's hazardous waste generator status. Direct discharges to the sanitary sewer from process equipment are not counted if there is no on-site management of the waste. See Chapter 2.4.1.d and Chapter 3 on wastewater management for more information. Contact your local wastewater treatment facility and your DEQ, District Office, Hazardous Waste Program (see Appendix C) for more information about on-site disposal of hazardous waste to the POTW and how this affects your hazardous waste generator status.

2.4.12 Employee Emergency Training

In addition to the following training requirements, see Chapter 6 for contingency planning, release reporting, and release response requirements.

2.4.12.a Hazardous Waste Training

This section discusses emergency training requirements under the hazardous waste regulations. Training is required for all employees who are involved with hazardous waste management, such as personnel at the areas of generation, their supervisors, hi-low drivers who move the hazardous waste, shipping dock employees, emergency coordinators, or anyone else who handles the hazardous waste. You must tailor your training specifically to the hazardous waste procedures relevant to your facility and employee involvement.

TABLE 2.8: HAZARDOUS WASTE TRAINING REQUIREMENTS

Aspect	CESQG	SQG	LQG
Training type	No specific requirements under hazardous waste rules	Informal training [1]	Classroom setting or on the job formal instruction with written description of training program type and amount of training[1]
Written training records	No specific requirements	Recommended as verification training occurred	Required written records. ✓ For employees who left company, keep records at least 3 years from last day worked. ✓ For current employees, keep records until facility closes.
Training Schedule	No specific requirements	No specific requirements	✓ Initial training within 6 months of starting job involving hazardous waste ✓ Annual training (during calendar year, not necessarily 1 year from date of initial training)
Trainer Qualifications	No specific requirements	No specific requirements. May be someone in-house or hire outside trainer	Someone with significant experience in hazardous waste management. May be someone in-house or outside trainer.
Manifest & Transportation Training	This is required under U.S. DOT regulations. See Chapter 4.4.10.	This is required under U.S. DOT regulations. See Chapter 4.4.10.	This is required under U.S. DOT regulations. See Chapter 4.4.10.

The preceding summarizes requirements under the hazardous waste regulations. Facilities may also be subject to MIOSHA requirements for training and record keeping which are not included here.

[1] This training can be combined with other training sessions as long as a portion of the training is clearly devoted to hazardous waste requirements. Training under the Hazard Communication Employee Right-to-Know Standard (Right-to-Know) alone, as required by MIOSHA (see Chapter 13), is not sufficient to meet the hazardous waste training requirements. Review the DEQ guidance on Personnel Training Requirements for Large Quantity Generators of Hazardous Waste online at **www.michigan.gov/documents/deq/deq-ead-tas-wmd-perstran_320908_7.pdf** for more information on hazardous waste training requirements.

See Chapter 4.4 for training requirements under the transportation regulations including manifest training. See Chapters 13 and 23 for information about the MIOSHA regulations that require employees to be trained on proper waste handling and how to effectively respond to emergencies in a manner that protects their safety and the environment. Hazardous waste training involves familiarizing employees with emergency procedures; emergency equipment; emergency systems (such as communication or alarm systems, response to fires or explosions, shutdown of operations, response to unplanned sudden or non-sudden releases of hazardous waste); and their roles in handling hazardous waste or on a day to day basis at your facility, including implementing the hazardous waste contingency plan relevant to their positions.

Some common hazardous waste training violations include:

- ✓ Missing or incomplete documented records of required training for large quantity generators:
  - Job title omitted
  - Job description omitted
  - Employee name omitted
- ✓ Missing written training description for large quantity generators
- ✓ Using another required emergency training program which does not contain a portion clearly devoted to the hazardous waste requirements intended to ensure compliance with the hazardous waste regulations
- ✓ Failing to have employees trained annually for large quantity generators

2.4.12.b Universal Waste Training

Small Quantity Handlers and Large Quantity Handlers must inform employees who handle or have responsibility for managing universal waste about the proper handling and emergency procedures relative to their responsibilities and appropriate for the type of universal waste handled at that facility.

2.5 Medical Waste

The management of medical waste is directly or indirectly regulated under federal, state, and local statutes, and rules, and recommended guidelines. The following summarizes the different agencies with regulatory oversight in the management of medical waste.

- The DEQ, Medical Waste Regulatory Program oversees Michigan's Medical Waste Regulatory Act (Part 138 of Michigan's Public Health Code, Public Act 368 of 1978, as amended [Act 368]) and administrative rules. Part 138 of Act 368 mandates how generators of medical waste must manage their medical waste from point of generation to disposal excluding transport on public roadway which is regulated by the U.S. DOT.
- The U.S. EPA has regulations and has issued guidelines for land disposal and incineration facilities handling infectious wastes. The guidelines list minimum performance criteria and outline recommended management procedures.
- The U.S. DOT regulates packaging, labeling, transportation, and shipping of medical waste on an interstate basis (see Title 49, Part 171 of the Code of Federal Regulations [49 CFR 171]) along with the Michigan State Police, Commercial Vehicle Enforcement Division. Federal guidelines and regulations are basically minimum standards that have been either adopted by Michigan statute, or Michigan has established parallel statutes and rules that are more comprehensive than the federal regulations.
- The MIOSHA Standard - Part 554 "Bloodborne Infectious Diseases" (R 325.70001 through R325.70018), administered by DLARA also addresses the handling of liquids, semi-liquid blood, or other potentially infectious materials (see Chapter 22).
- The U.S. Postal Service has guidelines for mailing medical waste under Publication 52 - Hazardous, Restricted, and Perishable Mail and summarized under USPS Packaging Instruction 6D.
- For local requirements, contact the local health department.

Medical waste as defined under Part 138 of Act 368 includes the following wastes that are not generated from a household, a farm, an agricultural business, a home for the aged, or a home health care agency:

- Cultures and stocks of infectious agents and associated biologicals, including laboratory waste, biological production wastes, discarded live and attenuated vaccines, culture dishes, and related devices.
- Liquid human and animal waste, including blood and blood products and body fluids, but not including urine or materials stained with blood or body fluids.
- Pathological waste which includes human organs, tissues, body parts other than teeth, products of conception, and fluids removed by trauma or during surgery or autopsy or other medical procedure, and not fixed in formaldehyde. Pathological waste does not include a fetus or fetal body parts.
- Contaminated wastes from animals that have been exposed to agents infectious to humans, these being primarily research animals.
- Sharps, which includes needles, syringes, scalpels, and intravenous tubing with needles attached. The MOSHA Blood borne Infectious Diseases Standard (Part 554) includes additional types of Sharps that are regulated as medical waste as well. Please consult this standard for additional types of Sharps subject to regulation under Part 138 see Section Two – Part 2, Chapter 2.

For wastes generated from households, please see the DEQ brochure titled "*The Point Is…Needles Hurt* " at **www.michigan.gov/documents/deq/whm-stsw-mwrp-The-Point-is-Needles-Hurt_257177_7.pdf**.

Medical waste includes discarded unused sharps. Medical waste *does not* include any medications or pharmaceuticals unless they contain live or attenuated vaccines in which case they are mixed medical waste (see Chapter 2.6). Medical waste also does not include specimens that are fixed, as the fixative renders the waste non-infectious. Similarly, used, decanted formaldehyde (formalin) or other fixative is not a medical waste but is a liquid industrial by-product unless commingled with hazardous waste and subject to hazardous waste regulation.

Medical waste producers must register, and all medical waste must be incinerated, autoclaved, or treated by an alternative method approved by the department at a facility authorized to accept medical waste. If medical waste is not mixed with pharmaceuticals, it can be treated by any method contained under Part 138 or any approved alternative method found on the listing of "Approved Alternative Treatment Technologies" link on the program Web site at **www.michigan.gov/deqmedwaste** and then disposed in a non-hazardous solid waste landfill."

Find additional information at **www.michigan.gov/deqmedwaste**.
For questions about medical waste call 517-230-9800 or e-mail **MedicalWaste@michigan.gov**.

2.5.1 Registration and Record Keeping Requirements

Registration of medical waste producing facilities is required under Section 13815 of Part 138 of Act 368. To register a new facility or renew an existing registration, go to **www.michigan.gov/deqmedwaste**, select the "Registration and Fee Payment Portal" link and choose the appropriate option at the bottom of the page. If you do not have access to the Internet and are a new registrant, you may also remit the "Initial Application for Registration as a Medical Waste Producing Facility" via postal mail. To get a copy of the application, please contact the Medical Waste Regulatory Program at 517-230-9800. Remittance and payment instructions are included on the application. Please contact the Medical Waste Regulatory Program at 517-230-9800 or via email at **medicalwaste@michigan.gov** if you have additional questions."

Facilities that employ a full-time nurse and/or doctor or operate a health clinic that provides medical services to employees and generates medical waste would be required to register. Discuss requirements about the medical waste on-site management requirements with the DEQ, Medical Waste Program.

A business that has incidental amounts of medical waste from an employee accident or provides a sharps container and/or first aid kits for employee or student use is not considered a medical waste producing facility. It is recommended, however, that this waste be treated as a biohazard, put in red bags, and picked up by a medical waste hauler. A list of companies that offer medical waste disposal services can be obtained by going to **www.michigan.gov/deqmedwaste** and selecting "Medical Waste Disposal Services."

2.5.2 Medical Waste Management Plans

A medical waste management plan is required and must be maintained by all medical waste producing facilities. Major components of the plan must include the following:

- The types of medical waste handled.
- The use and methods of on-site or off-site storage.
- The use of on-site or off-site incineration or disinfection services.
- The use of sanitary landfills, cemeteries, or other final disposal sites.
- The business name of solid waste haulers who transport medical waste for the producing facility's medical waste.
- The measures used to minimize exposure of the facility's employees to infectious agents when handling and disposing of the facility's medical waste.

The medical waste plan must be updated whenever any changes in management of medical waste occur and it must be readily available for inspection. A **s**ample medical waste management plan is available at **www.michigan.gov/deqmedwaste**, after selecting "Sample Medical Waste Management Plan."

2.6 Mixed Medical Waste

Medical waste should not be inadvertently mixed with other wastes because other wastes are subject to different standards and mixing the wastes together may complicate the disposal requirements. The following sections briefly summarize the requirements for managing medical waste mixed with wastes subject to other regulations. If medical waste is not mixed with

pharmaceuticals waste, it may be treated at an autoclave and disposed in a non-hazardous solid waste landfill. If medical waste is mixed with pharmaceuticals, it must be incinerated at a facility authorized to take both medical waste and the pharmaceuticals commingled with the infectious waste.

2.6.1 Medical Waste Commingled with Hazardous Waste or Liquid Industrial By-product

Some unused pharmaceuticals discarded as a result of medical treatment meet the definition of hazardous wastes and need to be managed in accordance with the hazardous waste regulations found under Part 111 of Act 451 and the Part 111 rules. Pharmaceutical hazardous waste that is commingled with medical waste, more commonly sharps, must be managed in accordance with Part 138 of Act 368 and Part 111 of Act 451 and its rules. If the pharmaceutical container is empty (see Chapter 2.4.1.d), it could be excluded from hazardous waste regulations and only be subject to the medical waste regulations.

To simplify the management requirements for hazardous wastes, Michigan established universal waste standards for pharmaceuticals. The universal waste standards can be used when managing medical waste commingled with hazardous and/or liquid industrial by-product (see Chapter 2.4.1.c) if the hazardous waste TSDF is authorized to incinerate medical waste, however this is typically costly. Medical waste commingled with hazardous waste and managed as a universal waste must meet all of the requirements under *both* the medical waste and universal waste regulations. To simplify the management requirements that apply to the different wastes and lower costs, it may be more practical to manage medical waste separately from hazardous waste and/or liquid industrial by-product.

An example of a medical waste commingled with liquid industrial by-product is a partially administered IV bag containing an antibiotic that is not a hazardous waste which remains connected to the tubing and needle used to administer the antibiotic. If the IV bag used to administer the antibiotic was empty, it could be excluded from the liquid industrial by-product regulations and only be subject to the medical waste regulations. The needle and attached tubing that is a medical waste could also be removed from the IV bag and managed separately from the liquid industrial by-product.

Liquid pharmaceutical waste that is not subject to the hazardous waste regulations is subject to the liquid industrial by-product requirements in Part 121 of Act 451. Pharmaceuticals defined as liquid industrial by-product should not to be inadvertently commingled with medical waste since the wastes are subject to different management standards. When commingled, the disposal options are limited because most medical waste treatment (e.g. autoclaves) and disposal facilities (e.g. incinerators) are not specifically authorized to accept pharmaceuticals. As such, it appears the only disposal option for medical waste commingled with liquid industrial by-product is a permitted and licensed hazardous waste TSDF that is also authorized to incinerate non-hazardous liquid industrial by-product and medical waste.

Liquid industrial by-product that is not commingled with medical waste or subject to hazardous waste regulation can be solidified on-site by the generator then managed as a non-hazardous solid waste under Part 115. It can also be managed as a liquid industrial by-product under Part 121. Any liquid industrial by-product commingled with hazardous waste, is a hazardous waste and it must be managed in Michigan as a universal waste or hazardous waste under the Part 111 hazardous

waste regulations. If liquid industrial by-product is treated and/or disposed on-site, records of characterization of the waste and the on-site treatment and/or disposal must be maintained. If the waste is discharged to the sanitary sewer, the activity must be approved by the POTW and the POTW approval should be in writing and made available during inspection to verify the on-site disposal authorization.

More resources outlining the management options for handling drug waste and medical waste are available at **www.michigan.gov/deqhealthcare** under the "Waste Health Care Resources" link. Consider viewing the DEQ 2012 Pharmaceutical Waste Tutorial outlining the simplest compliance option or reviewing the Michigan Health and Hospital Association Pharmaceutical Waste Management Guide for details on the different management options. For an overview of common health care wastes and the management options detailed in the MHA Pharmaceutical Waste Guide, see the MHA Guide Example Posting. For questions related to these resources, contact the Environmental Assistance Center at 800-662-9278 or the DEQ, District Office, Hazardous Waste Program (see Appendix C). For questions related to medical waste, see the resources at **www.michigan.gov/deqmedwaste** and call 517-335-1146 or e-mail MedicalWaste@michigan.gov.

2.7 Managing Specific Waste Streams

This section provides details regarding the proper management of various types of waste that are commonly generated by businesses. See also our DEQ Waste Quick Look Guide as a helpful resource for printing and quickly understanding the majority of the handling requirements for many of these commonly generated waste streams covered in this section.

2.7.1 Used Oil
2.7.2 Used Oil Filters
2.7.3 Lead Acid Batteries
2.7.4 Dry Cell Batteries
2.7.5 Fluorescent Lamps and Other Lights
2.7.6 Small Capacitors and Ballasts
2.7.7 Sorbents
2.7.8 Shop Towels and Other Textiles
2.7.9 Spent Parts Washer and Other Solvents
2.7.10 Aerosols
2.7.11 Painting Wastes
2.7.12 Wastes Containing Silver and Other Precious Metals
2.7.13 Electronic Waste
2.7.14 Waste Containing Radioactive Materials
2.7.15 Antifreeze
2.7.16 Scrap metal
2.7.17 Pharmaceuticals

2.7.1 Used Oil

Used oil in a liquid form CANNOT be disposed of by any of the following methods:

- Dumped down drains or sewers or into surface or groundwater.
- Disposed of in landfills.
- Used as dust control or weed control.
- Burned in municipal solid waste incinerators or other incinerators without energy recovery.

The specific management requirements depend on the type of oil, its flashpoint, how it is stored, hazardous waste generator status, and how much oil storage capacity is on-site. When evaluating what requirements apply to your used oil, keep in mind different regulations define oil differently. Used oil as defined by the Part 111 rules of Act 451, the federal used oil regulations in 40 CFR Part 279, and Part 121 of Act 451 is "*any oil* which has been refined from *crude oil*, or any *synthetic oil*, which has been used and as a result of use, is contaminated with physical or chemical impurities." Examples of used oil include:

- used motor oil.
- used hydraulic oil.
- used transmission and brake fluids.
- spent synthetic cutting and machine oils.
- spent mineral seal oils.
- spent quench oils.
- spent gear oils.
- non-PCB transformer oils.
- CFC-contaminated oils from air-conditioning and refrigeration units.
- Oil-water mixtures if sufficient oil exists for legitimate recycling and oil does not arise from "de minimis" sources. De minimis means small spills, leaks, or other drippings from pumps, machinery, pipes, and other similar equipment during normal operations. (40CFR 279.10(f)).
- Oil drippings from metal shavings from turning and drawing operations, etc.

Used oil under the hazardous waste regulations *does not* include petroleum-based products that are not used as lubricating agents or in other protective applications. It does not include fuels (gasoline, diesel, and fuel oils), mineral spirits, animal fats and vegetable oils, along with test and calibration fluids. Note: All of the above materials would be subject to the federal SPCC regulations (see Chapter 6.2.3) and the state Part 5 rules of Part 31 of Act 451 (Water Resource Protection (see Chapter 6.2.2)). If used oil has a flashpoint below 200 degrees Fahrenheit, then it is also regulated as flammable and combustible liquids in addition to the waste regulations (see Chapters 4.3.2 and 34).

Used oil being recycled which contains less than 1,000 PPM total halogens is not considered hazardous waste and is managed as a liquid industrial by-product under Part 121 of Act 451 when

it is accumulated, stored, or treated. However, the following oils are not presumed to be hazardous waste even if the total halogens are greater than 1,000 PPM:

- Metalworking oils or fluids that contain chlorinated paraffin's which are recycled and handled by a tolling arrangement per 40 CFR 279.24(c). A tolling arrangement is a contractual agreement where the oil or fluid is reclaimed and returned to the generator as a lubricant, cutting oil, or coolant. These oils would still need to be recorded on a shipping document as liquid industrial by-product (see Chapter 2.4.5.a).
- Oils containing chlorofluorocarbons (CFCs) removed only from refrigeration units and being reclaimed. These oils would still need to be recorded on a shipping document as liquid industrial by-product.

Used oil is presumed to be mixed with hazardous waste under Part 111 of Act 451 if it contains more than 1,000 PPM total halogens - a test for chlorine, bromine, fluorine, and iodine content. Most haulers will do a quick test for total halogens before picking up the oil, require you to provide characterization information, or both.

You have the option to demonstrate that the used oil does not contain significant concentrations of halogenated hazardous constituents that are listed in 40 CFR 261, Appendix VIII, and thus would not be regulated as hazardous waste. This demonstration is commonly called the "rebuttable presumption." Rebutting the presumption through analysis is costly. If used oil contains halogenated hazardous constituents, it becomes even more difficult and costly for used oil processors and re-refiners to rebut the presumption. As such, to ensure you can easily locate used oil handlers that will recycle your used oil, the DEQ recommends you not mix your used oil with other waste.

The generator may use knowledge or testing to rebut the mixing presumption. If the generator has a SDS for the oil being recycled which shows that it contains chlorinated paraffins and can also demonstrate that no chlorinated solvents are used in the facility, this should be sufficient knowledge. A facility could also have a laboratory run a chlorinated solvent scan for common halogenated constituents including PERC also known as tetrachloroethylene, 1,1,1-trichloroethane, trichloroethylene, carbon tetrachloride, chloroform, and other halogenated solvents suspected of contaminating the oil. If each halogenated constituent is below 100 PPM, then the oil would be considered to be liquid industrial by-product. See the U.S. EPA RCRA Used Oil Rebuttable Presumption Guidance at **www.epa.gov/wastes/conserve/materials/usedoil/oil-rebut.pdf** for more information.

Learn more about how used oil is characterized differently than other waste and the used oil generator requirements by viewing the recorded "Hazardous Waste and Liquid Industrial By-products Webinar Series" available on-line at **www.michigan.gov/deqwaste** under the "Announcements" tab.

Often the used oil transporter will conduct one or two tests at your site to determine if the used oil is a hazardous waste before accepting it. They usually charge a small fee for these tests. As an alternative, they may require you to determine if the used oil is a hazardous waste and provide them with documentation supporting your results. If the used oil is a hazardous waste, then it must be managed in accordance with the hazardous waste regulations. Also see Chapter 2.4, Table 2.5, Table 2.6 and the following guidance documents for more details about managing used oil:

"Household Do-It-Yourselfer Used Motor Oil and Filters" — if employees are asking how to manage their own private vehicle's motor oil and also have used oil filters

"Used Motor Oil Generator Requirements" — for facilities that generate motor oils from servicing their own vehicles and equipment that meets certain conditions

"Other Used Oil Generator Requirements" — for facilities that generate other used oil types like cutting fluids, lubricating oils, oils from transformers, etc., or generate oils that don't meet the conditions listed in the used motor oil generator guidance

"Used Oil Filters Generator Requirements" — for facilities that generate used oil filters

"Burning Used Oil" — for facilities burning used oil generated on-site or operating an off-spec fuel burner

"Used Oil Sorbents, Oil Contaminated Textiles, & Other Petroleum Contaminated Materials" — for facilities that generate these wastes from cleaning up oil spills

"Oil Water Separators" — for facilities operating separators and managing the collected oil

"Used Oil Collection Centers and Aggregation Points" — for locations that collect oils from do-it-yourselfers, other companies, or from other locations owned by the same facility

"Mobile Oil Changing Business" — for companies that offer mobile services where they go to another business or residential location to change oil in vehicles or equipment

"Emptying Product Tanks and Containers" — for facilities removing materials due to tank closure, maintenance or repair activities

2.7.1a Basic Requirements for Used Oil Storage On-Site

- Do not mix other wastes with used oil. This restriction applies to large quantity generators and small quantity generators mixing hazardous waste with used oil. Conditionally exempt small quantity generators of hazardous waste cannot mix halogenated wastes with used oil as of December 16, 2004. Check with your used oil recycler before mixing any wastes with used oil.
- Store only in containers or tanks that are in good condition and compatible with oil.
- Keep containers closed except when filling or emptying and keep the exterior clean of waste and residue.
- Label each container or tank, including fill pipes to underground storage tanks, with the words "USED OIL."
- Protect the accumulation containers from weather, fire, physical damage, and vandals.
- Regularly inspect tanks and accumulation areas for leaks or potential problems.
- Secondary containment is recommended for all oil storage, and is required when threshold management quantities are met e.g. federal Spill Prevention Control and Countermeasure (SPCC) for oils and state Part 5 rules under Part 31 of Act 451 (Water Resource Protection) "Spillage of Oil and Polluting Materials" (see Chapters 4 and 6).
- Check if any local ordinances pertain to oil storage.
- Provisions should be made to prevent further release if a leak occurs.

2.7.1b Used Oil Burning and On-Site Use

A generator may use their used oil at the generating site:

- As a rust preventative coating on farm or construction equipment.
- By mixing it with diesel fuel and using it as a fuel in the generator's own vehicles. Until mixed, the oil must be managed under the used oil regulations.
- As a fuel in a heater. See the "*Burning Used Oil*" guidance for the conditions under which it may be burned.

If you have questions about burning used oil, contact the DEQ District Office, AQD to determine if an air permit is required and DEQ District Office, Hazardous Waste Program to determine if other waste regulations apply (see Appendix C for phone numbers and Chapter 1.1 for more details regarding air permitting).

2.7.2 Used Oil Filters

Look for scrap metal recyclers in the Recycled Materials Market Directory available at **www.michigan/deqrmmd**. When properly drained, used oil filters can be recycled as scrap metal and the filters are not subject to hazardous waste regulations. Used oil filters being disposed are exempt from hazardous waste regulations if they are non-tern plated and hot-drained in a manner that removes the oil. See the Used Oil Filter Generator Requirements guidance for more information how to drain and prepare them for recycling or disposal.

2.7.3 Lead Acid Batteries

Lead acid batteries are banned from disposal in Michigan's landfills and incinerators, so you need to return them for recycling. Recyclers can be found in the Recycled Materials Market Directory available online at **www.michigan.gov/deqrmmd**. They can also be returned to retailers, distributors, or manufacturers.

Facilities have two options for managing lead acid batteries. Both options are described in more detail in the Universal Waste guidance at **http://www.michigan.gov/documents/deq/deq-ead-tas-univwaste_320878_7.pdf**.

The options for managing lead acid batteries include:

- Recycle them under Rule 804 of the Part 111 rules which exempts them from most of the requirements of Part 111 of Act 451. The generator must characterize the waste batteries and meet land disposal restrictions (see Chapter 2.4.5.c). You do not have to include the battery volume when determining your generator status or use manifests when shipping the used batteries to a recycler. In addition, there is no time limit in the state regulations on how long you may store the batteries before shipping. There may be local ordinances that have time limits or other requirements.
- Manage them as a universal waste. Universal waste batteries or containers need to be labeled with the words "universal waste battery(ies)," or "waste battery(ies)," or "used battery(ies)." Meet the universal waste requirements as outlined in Chapters 2.4.1.c, 2.4.5.b, 2.4.8 and 2.4.12 and the universal waste guidance specified above.

2.7.4 Dry Cell Batteries

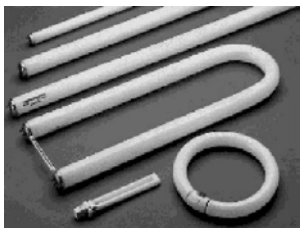
Dry cell batteries (AA, C, D etc.) are used to power portable power tools, flashlights, calculators, etc. and found in computers, clocks, and other equipment.

Facilities have the option to:

- Assume they are hazardous waste and manage them as universal waste. Battery recyclers can be found in the Recycled Materials Market Directory available online at **www.michigan.gov\deqrmmd**. Universal waste batteries or containers need to be labeled with the words "universal waste battery(ies)," or "waste battery(ies)," or "used battery(ies)." Meet the other universal waste requirements as outlined in Chapters 2.4.1.c, 2.4.5.b, 2.4.8 and 2.4.12, or
- Determine if the batteries exhibit hazardous waste characteristics and dispose of them in accordance to the facility's generator status.

Both options are described in more detail, along with other regulations that pertain to batteries, in the Universal Waste guidance at **http:\\www.michigan.gov/documents/deq/deq-ead-tas-univwaste_320878_7.pdf**. For questions on U.S. DOT requirements related to batteries, see Chapter 4 and contact the Michigan State Police, Commercial Vehicle Enforcement Division at 517-241-0506.

2.7.5 Fluorescent Lamps and Other Lights



Lamp management and disposal options depends on the type of bulbs and the company's generator status. See the Electric Lamp and Small Ballast guidance at **http://www.michigan.gov/documents/deq/deq-ead-tas-eleclamp_320858_7.pdf** for more specific management requirements. The DEQ recommends companies handle and recycle their spent lamps. Recyclers can be found in the Recycled Materials Market Directory. Drum top crushers require an air permit prior to installation and operation. For more information on drum crushers, see the guidance at **www.michigan.gov/deqair** when selecting "Clean Air Assistance" and "Fluorescent Light Bulb Crushers." If you are considering the use of a lamp crusher, contact the DLARA, Consultation Education and Training Program at 517-322-1809 to discuss operating and permitting requirements that address worker safety.

Basic lamp management options include:

1. Determine if you have low mercury bulbs, commonly called green tip bulbs, which are designed by the manufacturers not to be a hazardous waste. Keep documentation supporting that determination like the SDS or sales literature that may have a statement the lamps are not a hazardous waste or not a RCRA waste. Recycling of low mercury bulbs is recommended to reduce a company's liability in case contamination eventually occurs at the landfill where the solid waste was sent. However, at this time these non-hazardous bulbs can legally be disposed in a permitted solid waste landfill assuming the trash hauler and licensed disposal facility provides approval.

2. Assume they are hazardous waste and manage them as universal waste. Most recyclers only want to handle unbroken/uncrushed lamps. Broken lamps generally cannot be handled as

universal waste in Michigan. If you are managing lamps as a universal waste and experience incidental breakage while handling, if the container remains intact and closed, preventing any release, contact your universal waste handler to determine whether they can accept your waste and any additional requirements you must take to ensure proper handling upon receipt. alternate precautions you must take to ensure proper handling of the universal incidentally broken bulbs. Label unbroken individual lamps or containers with the words “Universal Waste Lamps,” “Waste Lamps”, or “Used Lamps.” Meet the other universal waste requirements as outlined in Chapters 2.4.1.c, 2.4.5.b, 2.4.8 and 2.4.12.

3. Determine if the bulbs or residue are a hazardous waste when the lamps are not handled as universal waste or are broken by either assuming they are hazardous waste, using knowledge about the lamps, such as documentation from the lamp manufacturer, or by testing. If testing is done, the commonly used lamps would be hazardous waste if the Toxicity Characteristic Leaching Procedure (TCLP) results meet or exceed the following limits:
   - ✓ Fluorescent and High-Intensity Discharge (HID) lamps or other lamps containing mercury at concentrations of 0.2 mg/l or more are a D009 hazardous waste.
   - ✓ Incandescent or other lamps containing lead at concentrations of 5.0 mg/l or more are a D008 hazardous waste.

Disposal options of hazardous waste bulbs will depend on the company’s generator status. At this time, conditionally exempt small quantity generator may put the bulbs in the trash if the hauler and licensed solid waste disposal facility will accept them and it is authorized under MIOSHA standards. Most disposal facilities and haulers will not take them because of safety concerns for their employees. A small quantity generator and large quantity generator would need to dispose of them as hazardous waste unless they are intact and managed as a universal waste.

2.7.6 Small Capacitors and Ballasts

If small capacitors and ballasts are intact, non-leaking, and contain less than 50 PPM polychlorinated biphenyls (PCBs), they may be disposed of in a licensed landfill if the landfill will accept them. Some ballasts will have “No PCBs” on the label.

Contact the landfill about their acceptance policy. If a company is doing a re-lamping project or getting rid of a number of devices at one time, the landfill may not take them. It is recommended to pack the devices in an U.S. DOT approved drum with adequate absorbent such as sawdust or soil to absorb any potential liquid in the device and label the container. If no free liquids are present, there are no manifesting requirements.

If the devices are leaking and contain 50 PPM PCBs or more, you need a list of PCB disposal sites, for more information about PCBs in other devices, see Chapter 4.5 and the U.S. EPA TSCA information online at **www.epa.gov/pcbs**. PCB waste that is liquid must be managed to meet the liquid industrial by-product requirements and documented on a shipping document unless a manifest is required under TSCA. For PCB waste that is solid, use the PCB codes required by your disposal facility and discuss any PCB manifesting requirements with them.

Questions regarding management and disposal of PCB articles under TSCA should be directed to the U.S. EPA, Region 5 PCB Contact who can be reached at 312-886-7890.

2.7.7 Sorbents

Sorbents used to clean up spills can be sent to a licensed sanitary landfill (Type II) if:

1. The landfill has approved them. Check with the landfill operator;
2. The sorbents contain no free liquids (they pass the paint filter test); and
3. The materials are either of the following:
   - ✓ Not a hazardous waste, including sorbents used for oil spills or
   - ✓ A hazardous waste generated by a conditionally exempt small quantity generator.

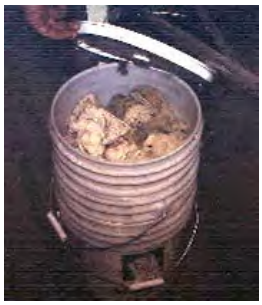
Except under specific circumstances, it is not permissible to intentionally add wastes, including used oil, to sorbents for disposal in a landfill. Used sorbents that are not considered hazardous waste and do not pass the paint filter test must be handled as a liquid industrial by-product.

Small and large quantity generators must handle the sorbents as hazardous waste if the material was used to clean up listed hazardous waste. Generators must also evaluate used sorbents to determine whether they exhibit one or more hazardous waste characteristics and manage them appropriately. This volume of hazardous waste needs to be included in calculating your generator status. Remember that this quantity could affect your generator status and, therefore, your regulatory requirements. See Chapter 2.4 for more details.

A DEQ, Hazardous Waste Program permit is not required to add absorbent materials to hazardous waste in a container if all the conditions in Rule 503(1)(i) of the Part 111 rules are met and the treatment does not violate the land disposal restrictions.

Some companies offer services where used sorbents are returned to them for oil recovery and then the sorbents can be reused. Search for sorbent recyclers in the Recycled Materials Market Directory online at **www.michigan.gov/deqrmmd**. For manufacturers and suppliers of sorbents containing recycled materials, go to **www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program#product**, Select “Products,” “Miscellaneous Products,” and then “Sorbents.”

2.7.8 Shop Towels and Other Textiles



Disposable and reusable rags, uniforms, gloves, and other textiles must be handled as a hazardous waste if they contain free liquids that have a flashpoint below 140 degrees Fahrenheit, were used with a listed waste (commonly the F001-F005 solvents) or if they exhibit any other hazardous waste characteristics. If textiles were used as a sorbent to clean up spills, also see Chapter 2.7.8.

Textiles that are spontaneously combustible are a D001 hazardous waste. When determining the waste code for the textiles used with solvents, it is necessary to determine if it is a listed or characteristic hazardous waste. This distinction is based on whether the solvent is a waste before or after the textile is used.

- If a listed solvent is put onto the textile and the textile is subsequently used to clean a part, the facility needs to determine if the resulting waste is characteristically hazardous.

- If a listed solvent is put onto the part and the textile is then used to remove the excess solvent waste, the textile is automatically a listed hazardous waste because the textile is used to absorb a listed hazardous waste and the mixture rule applies.

In 2013, U.S. EPA issued new federal rules conditionally excluding solvent-contaminated wipes from hazardous waste regulation under 40 CFR 261.4(b)(18). Michigan adopted the federal exclusion into the Michigan rules which became effective in April 2017. Generators meeting the solvent contaminated wipes exclusion may launder and reuse the wipes or dispose of them so long as the provisions of the exclusion are met. A "solvent-contaminated wipe" means a wipe that, after use or after cleaning up a spill:

- contains one or more of the F001 through F005 solvents listed in Rule 220 of the Part 111 rules or the corresponding P- or U-listed solvents found in Rules 224, 225, or 226 of the Part 111 rules;
- exhibits a hazardous characteristic as defined in Rule 212 of the Part 111 rules and that characteristic results from a solvent listed in Part 2 of the Part 111 rules; OR
- Exhibits only the hazardous characteristic of ignitability as defined in Rule 212 of the Part 111 rules due to the presence of one or more solvents that are not listed in Part 2 of the Part 111 rules.

Solvent-contaminated wipes do not include mops, floor mats, and personal protective equipment. Solvent contaminated wipes that contain listed hazardous waste other than solvents; or exhibit the characteristic of toxicity, corrosivity, or reactivity due to contaminants other than solvents, are <u>not</u> eligible for exclusions. Nor are wipes containing trichloroethene (TCE).

When accumulating excluded wipes, the wipes must be contained in closed containers, except for when wipes are being added or removed. The containers must be non-leaking and able to contain free liquids if free liquids occur. The containers must be labeled "Excluded Solvent-Contaminated Wipes." Each excluded wipes container must be stored for no more than 180 days from the date the first wipe was placed in the container. The generator of the excluded wipes must remove all free liquids before sending the container of wipes for cleaning or off-site disposal. Any compacting of excluded solvent wipes is considered treatment and must be performed in accordance with Part 111. If free liquids are generated during solvent accumulation due to percolation, compression, or compaction, they must be characterized and managed as a newly generated waste stream. Reusable wipes must be laundered and reused. Disposable wipes must be sent for disposal to one of the following:

- A municipal solid waste landfill regulated under Part 115, Solid Waste Management, of Act 451
- A municipal solid waste landfill regulated under 40 C.F.R. Part 258, including 40 C.F.R. §258.40.
- A hazardous waste landfill regulated under Part 111.
- A hazardous waste landfill regulated under 40 C.F.R. Part 264 or 265.
- A municipal waste combustor or other combustion facility regulated under Section 129 of the federal Clean Air Act.
- A hazardous waste combustor, boiler, or industrial furnace regulated under Part 111.
- A hazardous waste combustor, boiler, or industrial furnace regulated under 40 C.F.R. Part 264, 265, or 266, Subpart H.

Records sufficient to verify the exclusion must be maintained for at least three years and made available upon request. If an intermediary facility is used prior to a final destination disposal facility, the generator must maintain records regarding both the intermediate facility and ultimate disposal facility. Wipes managed to meet the exclusion are not included when calculating a site's generator status. For additional details on meeting the exclusions, including required records and what is adequately closed for purposes of the solvent wipes exclusions, see the Solvent Contaminated Wipes Guide. For questions regarding hazardous waste textile recycling or disposal and the disposable wipes exclusion, contact your DEQ, District Office Hazardous Waste Program (see Appendix C).

MIOSHA also has requirements that should be considered. MIOSHA requires that the rags be put into metal waste cans immediately after use and the contents of the waste cans are to be properly disposed of at least once daily at the end of each shift. Contact MIOSHA Consultation Education and Training Program who at 517-322-1809 for questions about MIOSH regulations.

Caution: There have been some instances where textiles have been exposed to chemicals from other business operations when shipped off site for cleaning. If your company has a sensitive process, you may want to make arrangement with the cleaning company that your textiles are cleaned separately from other rags and only your rags are returned to your company.

Let your cleaning company know what type of chemicals you use with these materials, so they can determine the best way to clean them and the effect they will have on their own waste stream. Reusable textiles being sent for cleaning are not included when calculating your hazardous waste generator status.

2.7.9 Spent Parts Washer and Other Solvents

There are several different types of solvents used in parts washers, and the management requirements that apply to the used solvent and any sludge depends on if it is a hazardous waste or not (see Chapter 2.7.8 for information about solvents on rags). Spent solvent and sludge can be either a listed or characteristic hazardous waste, depending on the chemicals used and contamination sources from use. Cross contamination is also a concern, especially in facilities without strict policies prohibiting employees from using parts washer fluids to clean other equipment or mixing other wastes with it or in facilities using aerosols. Two common situations when cross contamination occurs are when employees:

- Mix solvents used to clean paint guns from the maintenance area with the used parts washer fluids creating a listed F005 hazardous waste by the mixture rule; or
- Add other degreasers that contain tetrachloroethylene (TCE), which is also known as perchloroethylene (PERC), to the parts washer solvents. One suspected practice that may cause contamination involves using aerosol products containing TCE on a part to accelerate the cleaning action and then putting that part into the parts washer. The used parts washer may also become a D039 waste if the TCLP concentration for TCE exceeds 0.7 milligrams per liter or an F listed hazardous waste.

Common parts washer fluids include the following:

- Mineral spirits (naphtha or stoddard solvent) are commonly used. Products containing mineral spirits have varying flashpoints. Mineral spirits with a flashpoint of 140 degrees Fahrenheit and above are not a hazardous waste due to their ignitable characteristic but may be contaminated with other hazardous constituents through use, requiring them to be managed as hazardous waste. Mineral spirits with a flashpoint below 140 degrees Fahrenheit are classified as a D001 hazardous waste. Where economical, the solvents may be recycled instead of being disposed.
- Aqueous cleaners are a recommended replacement for solvent cleaners for several reasons. The aqueous cleaners contain less volatile organic compounds (VOCs), are usually less toxic, and generally result in the waste being non-hazardous unless it is contaminated with a listed waste or has acquired a contaminant that causes the solvent to exhibit a hazardous waste characteristic. One way to manage spent aqueous washers is to discharge this waste stream to a POTW (municipal sanitary sewer system) if the company has permission from the POTW to do so.
- Methylene chloride is occasionally used as a paint remover or to clean carburetors or "white metals" such as die cast zinc or aluminum. Spent methylene chloride used for degreasing usually has a waste code of F001. If it is contaminated with other wastes, however, it may also have a waste code of F005.

Note: Some aqueous cleaning formulations contain solvent additives such as terpenes, glycol ethers, and alcohols.

Facilities should evaluate the parts washers they are using to determine if an alternative product can provide the same desired results without generating hazardous waste. Management can also reduce the chance of cross contamination by controlling the inventory of products used at the facility and educating their employees on the importance of not contaminating the parts washer with other wastes. See Chapter 1 or discuss with your District Office, AQD (see Appendix C) questions regarding VOCs emission calculations and operating requirements under Part 55 of Act 451. Air quality regulations require that parts washer lids be kept closed when not in use if the solvents used contains regulated VOCs (see Chapter 1.4). If facility is a large quantity generator, also see Chapter 2.4.7.b section on VOC air emissions.

2.7.9a On Site Solvent Recycling

Facilities that use large volumes of solvents should consider recycling the used solvents on-site. See Chapter 12.1.5.e for information on solvent pollution prevention options. It is not necessary to obtain a hazardous waste permit to recycle solvents at the site of generation, but there are requirements to operate a solvent distillation unit or still at the site where the used solvents are generated. If recycling on-site generated solvents:

- Manage the solvents both prior to and after recycling under the appropriate hazardous or liquid industrial by-product regulations depending on the type of solvent.
- Keep a log of the amount of waste treated on-site. This amount needs to be included when calculating the company's hazardous waste generator status (see sample calculation below). These logs can also be helpful to document how you handled your waste when you want to sell your business and a Baseline Environmental Assessment is being done (see Chapter 7).

How do I calculate the amount of hazardous waste generated from a recycling still?

The following scenario is given as an example on how to count the used solvent reclaimed through a recycling unit when determining your generator status. The original solvent is counted once during the calendar month, plus any additional solvent added during the month, and any generated still bottoms. The count starts new every calendar month. Counting waste is addressed in Rule 205(5) of the Part 111 rules.

A company with a painting line uses acetone to clean the paint gun and line. Acetone is a F003 listed solvent. To save on purchasing costs of buying more cleaning chemicals and reduce hazardous waste disposal costs, the company weekly uses a 5-gallon capacity still to recycle the used acetone waste. They collect spent acetone in satellite containers until they put the used solvent into the recycling unit.

June Week 1, an employee put 5 gallons of spent solvent in the still and got 4 ½ gallons cleaned solvent and ½ gallon sludge. Need to count the 5 gallons of spent solvent. They then took the 4 ½ reclaimed gallons and added ½ gallon new virgin solvent and used it to clean the equipment.

June Week 2, an employee put another 5 gallons of spent solvent in the still and got 4 ½ gallons cleaned solvent and ½ gallon sludge. Since 4 ½ gallons of solvent had already been included in the Week 1 calculation, this week they only count the ½ gallon of additional virgin solvent that was used and ½ gallon sludge towards the generator status.

June Week 3, repeat of week 2

June Week 4, repeat of week 2

In this scenario, they add 5 + ½ + ½ + ½ (solvent) + ½ +½ + ½ (sludge) = 8 ½ gallons of hazardous waste was generated in June from solvent use and recycling.

Week	Solvent in gallons	Sludge in gallons	Notes
1	5		The sludge is not counted this first week because the waste is included in the initial amount of used solvent put into the still.
2	½	½	Need to count the new solvent that was used and the amount of sludge generated this week
3	½	½	
4	½	½	
Subtotal	**6 ½**	**1½**	

6 ½ gallons X 6.64 (acetone weight in lbs./gallon) = 43.16 pounds of liquid acetone hazardous waste generated in month

1.5 gallons X 8.5 (sludge weight in pounds/gallon) = 12.75 pounds of hazardous waste sludge generated in month

Acetone liquid waste + sludge = 55.91 pounds of hazardous waste

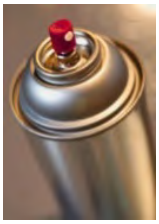
- Meet the generator hazardous waste requirements or liquid industrial by-product requirements while managing solvents on-site (e.g. labeling, containers, containment, etc.).
- Use units approved or listed in accordance with UL 2208 Standard for Solvent Distillation Units
- Locate still according to manufacturers' instructions and away from ignition sources
- Only use with materials specifically listed on the still label or instruction booklet.
- Meet flammable and combustible liquids and waste storage requirements. The NFPA 30 adopted in the flammable and combustible liquid rules have requirements for stills. However, there are several types of operations that are exempted in Chapter 5.11 including stills used in research, testing, or experimental processes, petroleum refineries, chemical plants, or dry cleaners
- Do not exceed 55-gallon batch capacity. An air quality permit is required in advance of installation if there are air emissions from a distillation unit that exceeds the 55 gallon batch capacity. Check with the DEQ, District Office, AQD (see Appendix C) if you are considering using a still and have questions.
- Check if the local fire department and your insurance company have requirements for still operations.
- Periodically review the servicing schedule to determine if the best solvent is being used and the schedule meets the facility's solvent requirements.

2.7.9b Off Site Solvent Recycling

A manufacturer may ship the used solvents off-site to a commercial recycler for reclamation. Recyclers can be found in the oils and solvents category of the Recycled Materials Market Directory available online at **www.michigan.gov/deqrmmd**. Confirm they are a permitted and registered transporter and meet waste manifest requirements. This waste would be counted towards your generator status. A small quantity generator may ship solvents for reclamation under a tolling arrangement as discussed in Chapter 2.3.2. Call the DEQ, District Office, Hazardous Waste Program (see Appendix C) if you have any questions about reuse or recycling of solvents.

Learn more about the DEQ hazardous and liquid industrial by-products inspection process and the records inspectors will request by viewing the recorded "Hazardous Waste and Liquid Industrial By-products Webinar Series" available on line at **www.michigan.gov/deqwaste** under the "Announcements" tab.

2.7.10 Aerosols



Aerosols are a commonly overlooked hazardous waste and industry uses numerous spray cans including degreasers, paints, etc. Residues in aerosol containers are exempt from the hazardous waste regulations if the cans are "empty," which means the pressure in the container approaches atmospheric pressure and they contain less than one inch of non-acute residue. One practical test is to turn the aerosol can upside down and press down on the nozzle. If you don't hear or see anything and the can feels light, it is usually empty. This quick test is not accurate if the nozzle is blocked. It is recommended to recycle empty cans for scrap metal where possible. Unfortunately, salvage yards in some areas of the state will not accept them at this time. Check with your local salvage yard or look for recyclers of empty cans in the Recycled Materials Market Directory.

If the spray can contains product and it needs to be disposed of, you must determine if it is a hazardous waste. Not only is it illegal to intentionally spray out the can's contents just so it meets the "empty" definition, it is also costly in lost product. Look at the SDS or label to help determine if its contents are a hazardous waste:

- Are the cans contaminated with "F" listed solvents? On occasion an aerosol is F-listed if, for example, the outside of the aerosol can was contaminated with a spent solvent on the "F" list. That is because the container would be considered contaminated by the waste and therefore due to the "mixture rule" it would be an "F" listed waste. Unwanted solvents in the aerosol cans are not normally "F" listed because the solvent has not yet been used.
- Do the contents have the single active ingredient on the "U" or "P" list?
- Do the contents exhibit one or more of the characteristics? Cans containing flammable propellants or ingredients with a flashpoint below 140 degrees F would be ignitable (D001). Some aerosol cans may contain products that reactive (D003), while others, like oven cleaners, may contain corrosive materials (D002). Review the product SDS to determine if the contents exhibits a characteristic.

> **Tip:** Consider using products in refillable containers to reduce disposal costs of containers that are hazardous waste only because of the aerosol propellant. There are some metal containers that can be pressurized with air compressors or plastic containers that are pressurized by hand pumps or squeeze triggers.

For example, aerosols products containing a mixture of tetrachloroethylene (PERC) in regulated concentrations (0.7 mg/L when tested using TCLP) or more with other ingredients is a D039 waste. If the unwanted aerosol product is PERC, it would be U210.

2.7.10a Aerosol Can Crushers and Puncturing Devices

Aerosol can puncturing devices normally fit onto a 55-gallon drum. If you are considering operating an aerosol can device, first contact your District Office, AQD and Hazardous Waste Program (see Appendix C) and MIOSHA, Consultation Education and Training Program at 517-322-1809 to discuss any operating and permitting requirements. It may be possible to meet air permitting and generator on-site waste treatment exemptions if you are only crushing your own aerosol cans at the site where they were used and became a waste. To be exempt from a DEQ, Hazardous Waste Program hazardous waste permit and license, small quantity generators and large quantity generators must meet the requirements of Rule 503(1)(i) of the Part 111 rules. This includes, but is not limited to, meeting the on-site treatment requirements for container management, secondary containment, and preparedness and prevention specified under this rule. Conditionally exempt small quantity generators are not subject to this rule.

If you have a can crushing or puncturing device, determine if the treatment is occurring in a satellite container or a hazardous waste accumulation container and meet the applicable requirements for your generator status for the container and the Rule 503 exemption requirements. See Chapter 2.4.8. for the management requirements that apply to a satellite containers and Chapter 2.4.7 and 2.4.8 for the requirements that apply to hazardous waste accumulation containers.

Facilities must characterize the carbon filters when they are replaced, and any liquids collected in the process, to determine if these materials are a hazardous waste. The collected waste is often flammable (D001) waste so you will want to ensure that no sparking or smoking occurs near the device and meet the other regulations pertaining to flammable and ignitable liquids (See Chapter 4). Other waste codes may apply depending on the products being used. In addition, large quantity generators may be subject to the 40 CFR 264 and 265 Subpart BB and CC air emission requirements. See the On-Site Aerosol Can Drum Top Recycling Systems guide for more details on the regulations that apply to on-site recycling systems and direct any questions to the DEQ, District Office, Hazardous Waste Program (see Appendix C).

2.7.11 Painting Wastes

Proper characterization of air filters, paints, solvents, and other wastes resulting from painting operations requires knowing which chemicals are in the paints and other products used, what is used to clean out the paint guns and lines, and how the solvent was used (also see Chapters 2.7.8 regarding shop towels and textiles and 2.7.9 regarding parts washers and other solvents). If you have any questions about your waste generated from painting operations, call your DEQ, District Office, Hazardous Waste Program (see Appendix C).

Identify if any of the paints and chemicals used are listed or characteristic hazardous waste. If the product ingredients are listed as an “F” waste, determine if the product was used as a cleaning solvent or as an ingredient in a paint product. If it was used as a solvent, then the “F” listing applies (see Chapter 2.7.9). Most common paint wastes include F005, F003, D001, D035, and occasionally D039. Paint formulations vary, but metals in paints such as barium, cadmium, lead, and chromium may be in amounts that fail the TCLP, making the waste a toxic characteristic hazardous waste. Confirm with your paint manufacturer that all the chemicals in Table 201a are listed on the SDS and note your review on your waste characterization records. SDS’ were developed for occupational health reasons and some manufacturers do not list all chemicals of concern for disposal on the SDS. Paint filters and waste rags may also be a D001 waste because they are spontaneously combustible or contain enough ignitable liquid waste. Look for paint and solvent recyclers in the Recycled Materials Market Directory at **www.michigan.gov/deqrmmd** and be sure to confirm they are a permitted and registered transporter (see Chapter 2.7).

> **Example 1:** A paint booth operation at the facility uses a solvent product (that contained methyl ethyl ketone [MEK] and other listed solvents which resulted in a blend that was over 10 percent by volume of the product). This solvent was used to clean out the paint gun and line and directly sprayed into the filters. The waste solvent would be an F005 waste because the solvent was used for its cleaning properties. The hazardous waste mixture rule would apply to the paint booth filters and they would also be an F005 waste because the F005 solvent was sprayed onto the filters. If the solvent used to clean up the paint gun and line was sprayed into a container instead, the paint booth filters would not be a F005 waste, but the used solvent would be a F005 listed hazardous waste.
>
> **Example 2:** A paint product contained MEK and was used for its intended purpose as a paint. The waste paint and paint booth filter waste would not be an “F” listed waste as long as other listed solvents were not used as a gun and line cleaning agent. In this case, the MEK was not used as a solvent. However, it could be a D035 toxic characteristic hazardous waste if the concentration met or exceeded 200 PPM in the waste.

Example 3: A solvent based paint was thinned with lacquer thinner before being sprayed. Any leftover paint would probably be an ignitable characteristic hazardous waste. Paints and related wastes may also be regulated hazardous waste because the ingredients contained metals or other chemicals included in the "D" wastes in regulated concentrations or because it met ignitable characteristics.

See Chapter 1 or discuss with your District Office, AQD (see Appendix C) questions regarding VOC emission from painting operations. Also see Chapter 19 for information about the MIOSHA Standard - Part 76 Spray Finishing and Dip Tanks.

2.7.12 Wastes Containing Silver and Other Precious Metals

Some industries may have wastes from photo or x-ray processing or other processes that generate wastes containing silver or other regulated wastes. If waste contains economically significant amounts of precious metals (silver, gold, platinum, palladium, iridium, osmium, rhodium, ruthenium, or any combination), it can be managed under alternative standards found under Rule 803 of the Part 111 rules. A facility is required to include the amount in determining its hazardous waste generator status, obtain a Site ID Number (see Chapter 2.4.4), include the waste in the biennial report for large quantity generators of hazardous waste (see Chapter 2.4.6), and the waste must be shipped using the Uniform Manifest (see Chapter 2.4.5). Additionally, these materials must not be accumulated speculatively, meaning that at least 75 percent of the waste must be sent for reclamation each calendar year.

The following summarizes requirements when these specific wastes are not managed under the precious metals rule.

Used fixer and other solutions:

Used fixer or other solutions may contain silver in amounts that cannot be discharged to a publicly owned treatment works (POTW) or septic system. It may be necessary to install a silver recovery unit. Before purchasing or leasing a unit, check with the POTW for any local requirements to discharge processed liquids. Off-site shipments of the silver recovery unit cartridges and solutions by small quantity and large quantity generators must be done by a permitted and registered hazardous waste transporter and manifested as a D011 hazardous waste if the solution has a TCLP concentration of 5.0 milligrams per liter (mg/l) or more of silver.

Conditionally exempt small quantity generators may take the silver recovery unit cartridges and liquid solution waste to a destination facility themselves if meeting the conditions in Chapter 2.3.2 or hiring a permitted and registered liquid industrial by-product transporter to haul the liquids. Liquid solutions, and cartridges that contain free liquids, that do not meet this silver concentration would be managed and shipped as liquid industrial by-product (see Table 2.1).

Recovered silver flake which does not contain liquids is considered product and is not manifested or shipped as regulated waste when sent off-site. All shipments must comply with U.S. DOT requirements regardless of the status under waste regulations.

Used developer and system cleaners:

Check if the publicly owned treatment works (POTW) will allow discharges of used developer and system cleaners. If not, check if the fixer recycler will accept the used developer. If the printer is not

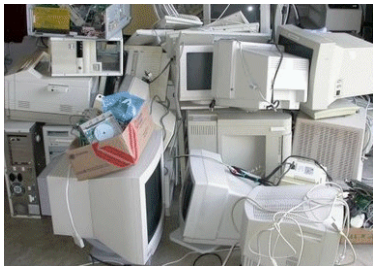
taking the used developer themselves to a destination facility, hire a permitted and registered transporter when shipping used developer off-site as liquid industrial by-product and record the transport on a shipping document (see Chapter 2.3.2). Do not mix used fixer and developer.

Cleaners used in developer systems may contain chromium. Review the SDS and other information to determine if the waste cleaner has a chromium TCLP concentration of 5.0 mg/l or more. If so, it would be considered a D007 hazardous waste. If possible, switch to a non-chromium cleaner.

Used film:

The DEQ recommends that used film be recycled for silver. Recyclers can be found in the Recycled Materials Market Directory at **www.michigan.gov/deqrmmd**. Conditionally exempt small quantity generators may dispose used film in the trash. Small quantity and large quantity generators may also put it in the trash unless the used film has a silver TCLP concentration of 5.0 mg/l or more classifying it as a hazardous waste although this is unusual. Unused or expired film can normally be returned to the dealer or manufacturer.

2.7.13 Electronic Waste



In Michigan consumer electronics can be managed as universal waste. Consumer electronics means devices containing an electronic circuit board, liquid crystal display, or plasma display commonly found in homes and offices and those devices when used in other settings. Common consumer electronic wastes include computers, printers, telephones, two-way radios, and televisions. Label the devices or the containers with “Universal Waste Electronics” or “Universal Waste Consumer Electronics” and meet the applicable universal waste handler requirements (see Chapters 2.4.1.c, 2.4.4, 2.4.5, 2.4.7, and 2.4.8).

Universal waste handlers of electronics may do any of the following and still be a handler:

- Repair the device for potential direct reuse
- Remove other universal waste e.g. batteries from the device
- Remove individual modular components for direct reuse
- Perform processing of business and commercially generated material exempt under Part 111 of Act 451 and its rules.

See the Electronic Equipment guidance available at **www.michigan.gov/documents/deq/deq-ead-tas-elecequp_305263_7.pdf**, which provides details about when consumer electronics are a waste, where to recycle electronics, recycling exemptions, and more. Part 173 requires recyclers of consumer electronics to register with the State and to meet certain operational requirement. A listing of those registered recyclers can be found on the Takeback Program website found at **www.michigan.gov/deqewaste**. Electronics that are not typically found in a home are generally a hazardous waste because they fail the TCLP test for metals. This is especially true for equipment that contain cathode ray tubes (lead) and LCD screens (mercury). For more information on this topic, including exemptions for handling electronics that cannot be managed as a consumer electronic under the universal waste regulations, see the electronic equipment guidance at **www.michigan.gov/electronicwaste**.

2.7.14 Waste containing radioactive materials

Some companies may generate “mixed waste” which contains both hazardous waste and source special nuclear, or byproduct material subject to the Atomic Energy Act of 1954. This waste is managed under both the hazardous waste and the radioactive material regulations described in Chapter 10. See Rule 822 of the Part 111 rules regarding low-level mixed waste (LLMW) and Rule 823 of the Part 111 rules regarding LLMW and naturally occurring and/or accelerator-produced radioactive materials (NARM). Discuss requirements with the DEQ by calling 517-241-1275 or the DEQ, District Office, Hazardous Waste Program (see Appendix C). See Chapter 10 for management of exit signs and industrial smoke detectors.

2.7.15 Spent Antifreeze

Used antifreeze (ethylene glycol and propylene glycol) may be removed from transportation equipment or cooling/heating systems or the chemicals may have been used for deicing aircraft. Spent antifreeze may be either hazardous or non-hazardous waste depending on its characteristics. There have been increased incidents of antifreeze meeting hazardous waste toxicity characteristics when removed from radiators and equipment that contained lead solder. The higher lead levels are generally exhibited in antifreeze removed from heavy duty equipment. To simplify the management options associated with antifreeze exhibiting the D008 lead characteristic, the DEQ established antifreeze as a universal waste in the 2008. Non-hazardous antifreeze may be managed as liquid industrial by-product, universal waste, or hazardous waste. Hazardous waste antifreeze must be managed as a hazardous waste or universal waste. See the Antifreeze guidance available in the DEQ publication center at **www.michigan.gov/documents/deq/deq-ead-tas-antifrez_320830_7.pdf.** Antifreeze recyclers can be found in the Recycled Materials Market Directory at **www.michigan.gov/deqrmmd**.

2.7.16 Scrap Metal

Scrap metal is excluded from the hazardous waste and solid waste regulations when it is recycled. Scrap metal is defined as "bits and pieces of metal parts such as bars, turnings, rods, sheets, wire, or metal pieces which may be combined together with bolts or by soldering such as radiators, scrap automobiles, and railroad box cars, which when worn or superfluous may be recycled." It can also include solder sponges that can be recycled for scrap metal. Accumulation of scrap metal prior to recycling under the hazardous waste regulations is limited to the speculative accumulation conditions under the solid waste regulations (see Chapter 2.1).
At least 75 percent of the scrap metal must be recycled in a calendar year to be exempt from the hazardous waste regulations. To find recyclers, look in the Recycled Materials Market Directory at **www.michigan.gov/deqrmmd** or look in the yellow pages under the heading “Scrap Metal.” If you have precious metals, see Chapter 2.7.2.

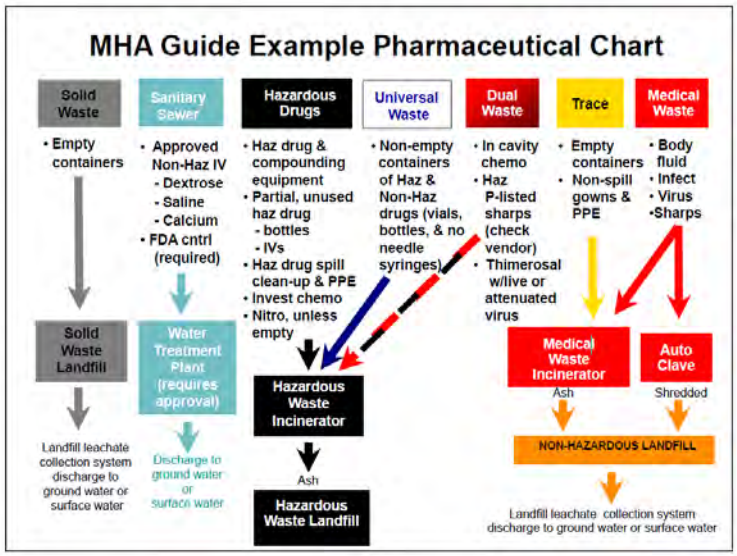
2.7.17 Pharmaceuticals

Pharmaceuticals are drugs, regardless if they’re used in the diagnosis, cure, mitigation, treatment, therapy, or prevention of disease in humans or animals. Pharmaceuticals, like any business waste, must be characterized. A small percentage of pharmaceuticals meet the definition of hazardous waste and need to be managed in accordance with the hazardous waste regulations found under Part 111 of Act 451 and the Part 111 rules. Pharmaceutical waste that is not subject to hazardous waste regulation but is liquid, is subject to regulation as a liquid industrial by-product under Part 121 of Act 451, unless specifically exempted. The environmental regulations also have exemption

for empty containers which, when met, allow for some containers that previously held medications to be disposed as a non-hazardous solid waste or recycled.

To simplify the management requirements that apply to pharmaceuticals requiring disposal in healthcare, in 2007 Michigan adopted pharmaceuticals as a universal waste type, allow them to be managed under streamlined standards (see Chapter 2.4.1.c). To assist healthcare providers with understanding and taking advantage of this rulemaking, additional resources were developed including:

- Handling Unwanted Pharmaceuticals and their Containers in Healthcare – A guide for characterizing unwanted pharmaceuticals and their containers, to determine how the must be handled when no longer able to be administered to a patient.
- Michigan Health and Hospital Association Pharmaceutical Waste Management Guide – A guide that includes guide sheets for the various types of pharmaceutical and medical wastes generated by healthcare and best management practices for assisting with meeting worker and patient exposure and waste regulations. The guide sheets quickly summarize the primary accumulation, transport and disposal requirements that must be met by healthcare providers. Pharmaceuticals manufacturers are subject to alternate standards for managing their pharmaceutical formulations.
- MHA Guide Example Posting – A chart (right) which depicts common healthcare pharmaceutical waste streams, how they are typical handled and how the handling option selected has different environmental impacts.



- Ten Steps to Developing a Pharmaceutical Waste Management Program – A list of steps for developing and implementing a pharmaceutical waste management program.
- Selecting a Transporters or Treatment, Storage and Disposal Facilities (TSDFs) – A guide for selecting a pharmaceutical waste vendor.
- Pharmaceutical Waste Disposal Vendor List – A list of vendors that specialize in handling pharmaceutical waste.

These resources are found at www.michigan.gov/deqdrugdisposal along with resources to help patients properly dispose of household medications. For questions related to these resources, contact the Environmental Assistance Center at 800-662-9278 or the DEQ, District Office, Hazardous Waste Program (see Appendix C). For more information on managing mixed medical waste, also see Chapter 2.5 and 2.6.

2.7.18 Biosolids

"Biosolids" include sewage sludges generated from the treatment of sanitary sewage or domestic sewage that is subject to a residuals management program approved by WRD under Part 31. Biosolids may be solid, semisolid, or liquid and includes scum or solids removed in primary, secondary, or advanced wastewater treatment processes and any derivatives from these materials. Biosolids managed under a WRD part 31 approved residual management program are subject to the Part 31 permit requirements and excluded from the liquid industrial by-product management requirements. Sewage sludge that is not subject to a residual management program is a by-product or waste and must be managed to meet the liquid industrial by-product regulations if they are a liquid that fails the paint filter test. See the summary table identifying the different regulations that apply to wastewaters transported via public roadway for recycling or disposal for more information and contact your DEQ, WMRPD, Hazardous Waste Program; DEQ, DWRPD, On-Site Wastewater or Septage Program; or DEQ, WRD, Groundwater Permit or NPDES Permit Program for questions (see Appendix C).

WHERE TO GO FOR HELP

SUBJECT: **Compliance Assistance**

CONTACT: DEQ, Environmental Assistance Center
800-662-9278 or deq-assist@michigan.gov
www.michigan.gov/environmentalassistance

SUBJECT: **Confidential and Free Integrated Assessments**

CONTACT: DEQ, Integrated Assessment Program
517- 285-7847
www.michigan.gov/p2integratedassessment

SUBJECT: **Electronics Recycling**

CONTACT: DEQ**,** Electronic Takeback Program
www.michigan.gov/deqewaste
517-449-6153

SUBJECT: **Hazardous Waste and Liquid Industrial By-product Generators**

CONTACT: DEQ, District Office, Hazardous Waste Program (see Appendix C)
www.michigan.gov/deqwaste (under "Hazardous Waste," "Hazardous and Liquid Industrial By-product Management."

SUBJECT: **Hazardous and Liquid Industrial By-product Manifests and Shipping Documents**

CONTACT: DEQ, District Office, Hazardous Waste Program, See Appendix C
www.michigan.gov/deqwaste, select "Hazardous Waste" and "Hazardous and Liquid Industrial By-product Management" or look up facility manifests for hazardous waste transport in Waste Data System at
www.deq.state.mi.us/wdspi (liquid industrial by-product manifest and shipping document data is not available).

PUBLICATIONS:

1. Manifest Tracking Log
2. Large Quantity Generator's Tracking System for Hazardous Waste Manifests
3. Small Quantity Generator's Tracking System for Hazardous Waste and All Liquid Industrial By-products Shipments
4. Consolidated Manifest Operational Memo 121-3

SUBJECT: **Hazardous Waste Site Identification Number (U.S. EPA number)**

CONTACT: DEQ, District Office, Hazardous Waste Program, See Appendix C
www.michigan.gov/deqwaste (select "Michigan Site Identification Form")

PUBLICATIONS: Site Identification Form (EQP 5150)

SUBJECT: **Hazardous Waste and Liquid Industrial By-products Transporters**

CONTACT: DEQ, Hazardous Waste Transporter Program
586-753-3850
www.michigan.gov/deqwaste under "Hazardous Waste" on the left, (select "Transporters")

SUBJECT: **Hazardous Waste Licensed Treatment, Storage, and Disposal Facilities**

CONTACT: DEQ, Hazardous Waste Program
517-284-6838
Perform an "Advanced Search" of the Waste Data System (WDS) at **www.deq.state.mi.us/wdspi** (select "Hazardous Waste Permitting and Corrective Action," "Legal/Operating Status Code," then "PIOP" for "Permitted – Operating, Actively Managing RCRA-Regulated Waste")

SUBJECT: **Hazardous, Liquid, and Solid Waste Regulation Questions and Publications**

CONTACT: DEQ, Environmental Assistance Center
800-662-9278
DEQ, District Office, Hazardous Waste Program (see Appendix C)
www.deq.state.mi.us/pubcenter

PUBLICATIONS:

1. Waste Characterization
2. Universal Waste
3. Used Oil
4. Conditionally Exempt Small Quantity Generator
5. Liquid Industrial By-products Generator
6. Small Quantity Generator
7. Emergency Information Poster
8. Required Weekly Hazardous Waste Maintenance Checklist
9. Personnel Training Requirements for Large Quantity Generators of Hazardous Waste
10. Manifest Tracking Log
11. Emptying Tanks or Containers
12. Non-hazardous Waste Holding Tanks
13. Mixed Medical Waste
14. Electronic Equipment

15. Electric Lamps and Small Ballasts
16. Antifreeze

SUBJECT: **Household Hazardous Waste Collection and Diversion**

CONTACT: DEQ, Solid Waste Program
517-284-6588

RESOURCES
1. Local HHW Programs in Michigan
2. List of HHW Collection Companies in Michigan
3. Household and Very Small Generator Hazardous Waste Collection Site Regulations Webinar and Webinar Notes

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SUBJECT: **Liquid Industrial By-products**

CONTACT: DEQ, District Office, Hazardous Waste Program, See Appendix C

PUBLICATIONS:
1. Liquid Industrial By-products Generators
2. Liquid Industrial By-products Frequently Asked Questions
3. Hazardous Secondary Materials

SUBJECT: **Medical Waste Program**

CONTACT: DEQ, Medical Waste Program
517-284-6590 or 517-284-6594
e-mail: **medicalwaste@michigan.gov**
www.michigan.gov/deqmedwaste

PUBLICATIONS:
1. Medical Waste Registration and Fee Payment Portal
2. Sample Medical Waste Management Plan
3. Medical Waste Pocket Guide

SUBJECT: **Oil Filters Recycling**

CONTACT: DEQ, District Office, Hazardous Waste Program, See Appendix C

PUBLICATIONS:
1. Household Do-It-Yourselfer Used Motor Oil and Filters
2. Used Oil Filters Generator Requirements
3. Recycling Materials Market Directory – **www.michigan.gov/deqrmmd**

SUBJECT: **Recycling**

CONTACT: DEQ, Solid Waste Program
517-284-6588
www.michigan.gov/deqrecycling
Local Program Contacts – **www.michigan.gov/deqrecyclingcontacts**
Recycled Materials Market Directory– **www.michigan.gov/deqrmmd**

SUBJECT: **Safety Data Sheets, formerly Material Safety Data Sheets**

RESOURCES: **www.hazard.com**
www.reade.com/MSDS_Links.html

SUBJECT: **Scrap Tire Storage and Disposal; Scrap Tire Registered Haulers and Collection Sites**

CONTACT: DEQ, District Office, Scrap Tire Program (See Appendix C)
www.michigan.gov/scraptires

SUBJECT: **Solid Waste Exemptions**

CONTACT: DEQ, Solid Waste Program
517-284-6588
www.michigan.gov/deqwaste (select "Solid Waste" then "Exemptions and Guidance")

SUBJECT: **Solid Waste Landfills**

CONTACT: DEQ, District Office Solid Waste Program (See Appendix C)
www.michigan.gov/deqwaste (select "Solid Waste" then "Solid Waste Facilities")

SUBJECT: **Solid Waste Planning Agency Contacts**

CONTACT: DEQ, Solid Waste Program
517-614-7426
www.michigan.gov/deqwaste (select "Solid Waste" and "Solid Waste Planning")

SUBJECT: **Toxic Substance Control Act, PCB information**

CONTACT: U.S. EPA Region 5
312-886-7890, 800-621-8431, or 312-353-2318
www3.epa.gov/epawaste/hazard/tsd/pcbs/pubs/laws.htm

SUBJECT: **U.S. DOT Hazardous Materials Transportation**

CONTACT: U.S. Department of Transportation
800-467-4922 or 517-853-5990
https://www.fmcsa.dot.gov/

SUBJECT: **U.S. DOT Hazardous Materials Transportation**

Michigan State Police, Commercial Vehicle Enforcement Division
517-241-0506
www.michigan.gov/msp

Michigan Center for Truck Safety
800-682-4682
www.truckingsafety.org

SUBJECT: **U.S. EPA Waste Compliance Assistance Publications**

WEB SITE: **www.epa.gov/epawaste/index.htm**

PUBLICATIONS:
1. Hazardous Waste Generator Regulations A User-Friendly Reference
2. RCRA Online
3. RCRA Orientation Manual

Michigan Guide to Environmental, Health, and Safety Regulations

Chapter 3

Wastewater

SECTION ONE – ENVIRONMENTAL REGULATIONS

CHAPTER 3: Wastewater

In this Chapter

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3.1 Key to Chapter 3-2
3.2 Disposal Options 3-7
3.3 Common Non-Compliance and Frequently Asked Questions Issues 3-22
3.4 Wastewater Treatment Operator Training and Certifications 3-31
WHERE TO GO FOR HELP 3-32

Purpose and Applicability of Regulations

Many manufacturers generate wastewater that must be discharged or treated in accordance with local, state, and/or federal requirements. Chapter 3 discusses wastewater disposal options, permitting, and operator training requirements. This chapter also identifies wastewater regulatory agencies and common non-compliance issues.

Agencies and Their Laws and Rules

The Department of Environmental Quality (DEQ) has several roles related to wastewater discharges. The DEQ regulates discharges of wastewater, including stormwater for some communities, to surface waters of the state through the National Pollutant Discharge Elimination System (NPDES) permit program. The NPDES permit program was delegated to Michigan from the U. S. Environmental Protection Agency (U.S. EPA). The U.S. EPA has jurisdiction to enforce federal regulations under the Clean Water Act and has an oversight role for state delegated programs, including the NPDES permit program. State statutes that provide the basis for the NPDES program in Michigan: Part 31 (Water Resources Protection) and Part 41 (Sewerage Systems) of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451), and the NPDES permitting discharge rules. Therefore, the DEQ is the primary contact for manufacturers, construction site owners/developers, and municipalities in relation to NPDES permits. Through NPDES permits, the DEQ regulates discharges from publicly owned treatment works (POTWs) into state waters, and reviews local ordinances for compliance with statewide industrial pretreatment standards. While wastewater discharges that are sent to POTWs are regulated by local agencies through local ordinances and permits, the DEQ has the authority to enforce the local industrial pretreatment standards.

The DEQ also implements a state permit program regulating industrial and commercial wastewater discharges to groundwater. These discharges to groundwater are regulated pursuant to Part 31 and Part 41 of Act 451 and their rules. Local entities may have additional requirements regulated and enforced by the POTW and/or building and zoning ordinances.

The DEQ's Onsite Wastewater Program oversees the discharge and permitting of sanitary wastewaters to on-site septic systems. This program is administered in coordination with local health departments who permit and inspect on-site sanitary wastewaters systems. On-site sanitary wastewater systems permitted under this program are only designed to handle sanitary wastewater from bathrooms, kitchens and laundry devices. Some communities may have local ordinance requirements in addition to the state regulations implemented by the local authorities. The DEQ's Septage Program also regulates the transportation and land application of domestic septage removed from on-site sanitary wastewaters systems under Part 117 (Septage Waste Servicers) of Act 451.

The DEQ's Hazardous Waste Program oversees the management of waste, wastewaters, and sludges that must be accumulated, stored, transported, treated and disposed if they:

- are not permitted for discharge to the POTW.
- are permitted for discharge to the POTW and are managed (accumulated and handled) prior to disposal to the POTW.
- are not permitted for discharge to surface water or groundwater via a discharge permit issued by DEQ, WRD pursuant to Part 31.
- are not generated from an on-site wastewater system and subject to the Part 117 handling requirements.

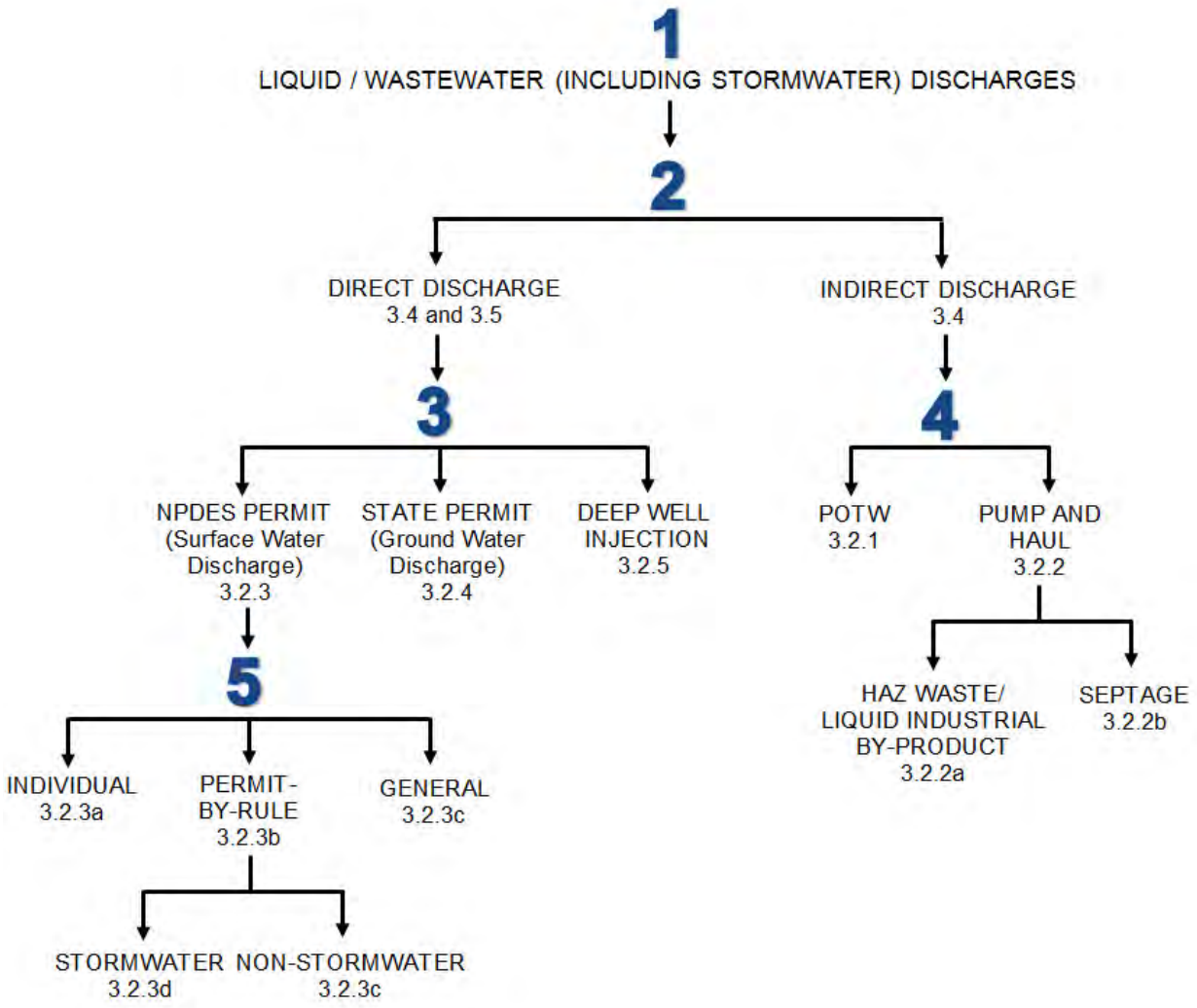
All non-households must evaluate the character, composition and, in some cases, the amount of the waste before they can determine the management standards that apply to their handling and disposal. Most wastes are subject to Part 121 (Liquid Industrial By-products) of Act 451, Part 111 (Hazardous Waste Management) of Act 451 and the Part 111 rules, or Part 115 (Solid Waste Management) and the Part 115 rules. Some wastes have additional requirements like medical waste, radioactive waste, and polychlorinated biphenyl (PCB) wastes. Transportation of hazardous waste and liquid industrial by-products by public roadway is also regulated by the DEQ under the Hazardous Materials Transportation Act, Public Act 138 of 1998, as amended, which is discussed in greater detail in Chapter 4.

Learn more about waste regulations and whether your wastewater is subject to waste management requirements as a hazardous waste or liquid industrial by-product, see Chapters 2 and 4 of this guide.

3.1 Key to Chapter

The following key is to help identify which portions of Chapter 3 may apply to your facility. Questions in the key coincide with numbers in the flow chart. Start at Number 1 and work your way through the key and corresponding numbered questions. Your path through the key identifies the Sections of Chapter 3 that apply to your wastewater discharges.

CHAPTER KEY



1. Do you discharge any liquids or wastewater from your facility?

"Wastewater" is liquid waste that results from industrial and commercial processes and municipal operations, including liquid or water-carried process waste, cooling and condensing waters, and sanitary sewage. "Waste" means any waste, wastewater, waste effluent, or pollutant, including any of the following: dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, industrial, municipal, and agricultural waste. Wastewater includes storm water that comes into contact with industrial activities or materials, or which runs off an urbanized area or a construction site that disturbs an acre or more.

If your answer is yes, then go to #2 and continue the key for each discharge.

If your answer is no, this chapter does not apply to you.

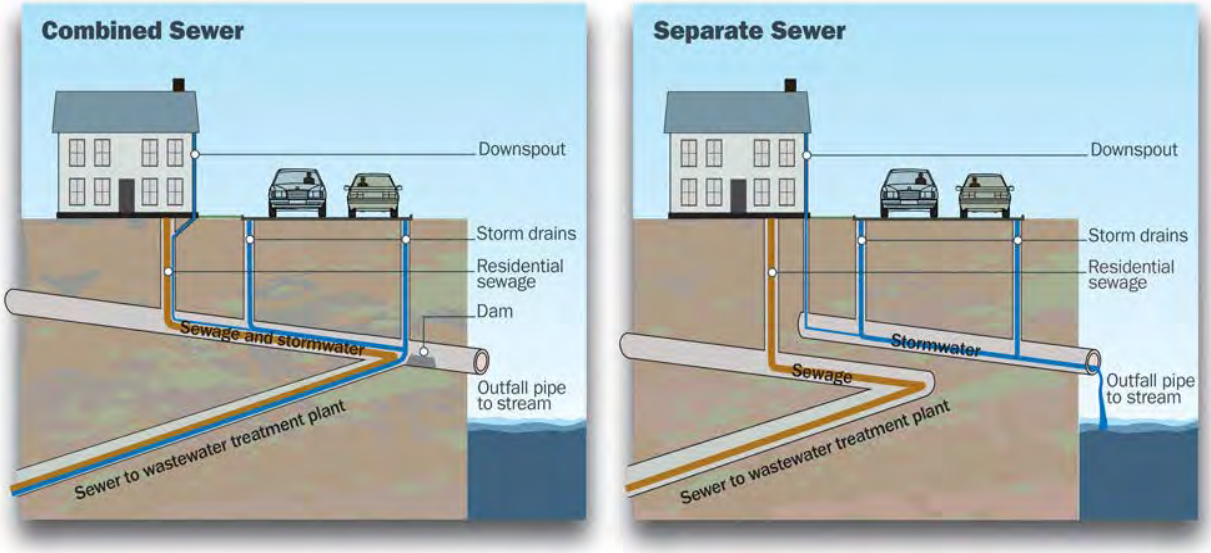
2. Is the discharge direct or indirect to waters of the state?

For the purposes of this key, an “indirect” discharge is wastewater that is treated by a publicly owned treatment works (POTW) before it is discharged to waters of the state. Whereas, a “direct” discharge goes directly into waters of the state (groundwater, streams, lakes, rivers, etc.) without treatment from a POTW via a storm sewer system (picture below), a ditch, or other conveyance.

When a sewer system is called “combined” it means that the sewers were designed to carry both storm water and non-storm water (i.e. sanitary and non-domestic source wastewater) to the POTW for treatment. If you are unsure whether your storm sewer system is combined, contact the municipality that owns and operates your system (usually a city or township).

You may have both a direct and an indirect discharge. If you have a direct discharge, go to #3. If you have an indirect discharge, go to #4.

If you own and operate your own wastewater treatment system that discharges to the environment, go to #3; if you own and operate a wastewater treatment system that discharges to a POTW, go to #4.



3. Does your wastewater discharge into surface waters, groundwaters or injected deep into the ground?

All direct dischargers (to surface water, to groundwater including deep injection wells) are required to have an operator certified by the State. See Chapter 3.5 “Wastewater Treatment Operator Training and Certifications.”

“Surface waters of the state” means all of the following: the Great Lakes and connecting waters, all inland lakes, rivers, streams, impoundments, open drains, and other surface bodies of water within the confines of the state, but does not include drainage ways and ponds used solely for wastewater conveyance, treatment, or control. Regulated discharges include wastewater discharges from discernible, confined, and discrete conveyances, including from a pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, concentrated animal feeding operation, or vessel or other floating craft.

If you have a surface water discharge, such as through a storm sewer system, go to #5.

If you discharge on to land and the water goes into the ground, see Chapter 3.2.4 “Groundwater Permit.”

If you inject wastewater (e.g. reverse osmosis reject, brine or greywater) to a deep injection well, see Chapter 3.2.5 "Deep Injection Wells."

4. Do you send your wastewater for treatment to a POTW, either through a sewer system or collecting and hauling it (pump and haul)?

Any discharge to a publicly owned treatment works other than or in addition to sanitary sewage (water-carried wastes from toilet, kitchen, laundry, bathing, or other facilities that are used for household purposes) is nondomestic wastewater. If you discharge to a POTW, see Chapter 3.2.1 “Publicly Owned Treatment Works” and 3.2.1.a “Industrial Pretreatment Program (IPP).”

If your wastewater is not discharged to a POTW through a sewer system but rather collected and transported to a POTW, see Chapter 3.2.2 “Hazardous Waste and Liquid Industrial By-Product Transportation.”

5. If your facility discharges wastewater to surface waters of the state, you are required to obtain a NPDES permit from the DEQ.

There are three categories of NPDES permit coverage; an individual permit, a "permit by rule” and a Certificate of Coverage (COC) issued under a general permit. The industrial stormwater permit is an example of a general permit; it is not facility specific. In order to obtain coverage under the general permit, facilities must obtain a facility specific COC. See Chapter 3.2.3 “Surface Water Discharge.”

Storm water (rain and snow-melt runoff and drainage) is regulated when associated with certain industrial, municipal, and construction activities. NPDES industrial storm water permit coverage is probably required if you discharge into a separate (non-combined) storm sewer system or directly into surface water (see Chapter 3.2.3.d). Also, construction activities that disturb more than one acre and discharge storm water to surface waters of the state are required to comply with the NPDES storm water permit by rule. The term construction includes clearing, grading, and excavating activities. It does not include the practices of clearing, plowing, tilling soil, and harvesting for the purpose of crop production.

Some common discharge violations and frequently asked questions can be found in Chapter 3.3, namely:

- Air Compressor Condensate
- Cleaning Equipment and Floors
- Cooling Water
- Floor Drains
- Restrooms and Breakrooms
- Pit or Trench Drain Sludge

- Power Washing
- Water Treatment Additives
- Programs that Help Fund the Upgrade of Wastewater Treatment Systems
- Transferring ownership for an NPDES or Groundwater wastewater discharge permit

3.1.1 Permit Applications, Requests and Reports under MiWaters

The DEQ's Water Resources Division (WRD) launched a permit application and information system called MiWaters. MiWaters is a Web-based permitting and compliance database. The system consolidates over 25 water-related applications and databases into a single online tool where permittees and permit applicants submit and retrieve all of their information. MiWaters is fully operational and permit applications related to water programs under this chapter and Chapter 8 are submitted electronically through that system.

In addition to an electronic permitting process, MiWaters is the interface for federal electronic reporting, and it expands online access to public information. The focus of MiWaters is permitting and compliance, including NPDES, storm water, groundwater discharge, aquatic nuisance control, Part 41 (sanitary sewer) construction, and land and water interface permits such as wetlands, lakes, streams, floodplains, Great Lakes, dunes, and more. It will also include electronic reporting of untreated or partially treated sanitary wastewater.

To learn about how to file permit applications, reports, and requests in MiWaters, go to the online guidance at **www.michigan.gov/miwaters**. You may also enter the MiWaters system directly at and sign up as a user at **miwaters.deq.state.mi.us**.

Below is a list of some of the functions and features that MiWaters provides:

- Electronic submittal of permit applications.
- The Electronic Environmental Discharge Monitoring Reporting (e-DMR) system is replaced with a more sophisticated system that will provide additional validation and feedback to permittees and help detect and prevent errors prior to submittal.
- Electronic submittal of all permit-required reports and materials.
- Those with a MiWaters account can manage permissions, deciding who can view, edit, and submit applications or submittals.
- POTWs can manage biosolids application sites online. Requests may be submitted through MiWaters with notification sent upon approval.
- Near real-time notifications, to the permittee, of any violations determined by the system or by staff, providing permittees with an early "heads up" and opportunity to correct problems.
- Anyone can search the system for over 600,000 sites in Michigan with DEQ permits and permit applications – active and inactive.

3.2 Disposal Options

Your disposal options depend on the type of wastewater your business generates and the location of your company. These options include:

- Publicly owned treatment works (POTWs), also known as municipal wastewater treatment plants.
- Permitted and registered hazardous waste or liquid industrial by-product transporters (for wastewaters without permitted onsite POTW, NPDES, or groundwater discharge options).
- Surface water discharge (includes direct discharges to a river, stream, drain, storm sewer, or ditch).
- Groundwater discharge (includes seepage lagoons, septic tank/tile field systems, irrigation systems, and application of oil field brine for ice or dust control).

3.2.1 Publicly Owned Treatment Works

Wastewater discharges to a Part 31 permitted POTW are regulated by the local municipality or sewer authority. The discharge from a POTW is regulated by the DEQ. There are variations in the design and operation of POTWs that determine the capabilities of the plant to accept and treat certain wastes. Contact your local sewer authority for a copy of the local sewer use and pretreatment ordinances to determine if your waste can be accepted by its facility. Also, review with your local sewer authority any requirements for discharge such as monitoring, record keeping, sampling, and whether industrial pretreatment regulations apply.

Most POTWs require businesses to be connected to their system for sanitary wastewater treatment and disposal. If you are constructing a new building, you will need to obtain a local permit to hook up to the POTW. Sanitary wastewater discharged directly to the POTW does not generally require pretreatment.

Many POTWs will accept some types and quantities of wastewater from non-domestic sources, including commercial, industrial and contaminated storm water, with prior approval. Discharges of some wastes to the POTW are prohibited in any amount. In general, a POTW (under the local sewer authority) will require an application be completed to request permission to discharge. POTW staff will review the application and notify you if the waste can or cannot be discharged. In some cases, wastewater must be pretreated before it can be discharged to the sewer. A POTW accepting nondomestic wastewater may be required to develop an industrial pretreatment program (IPP) in order to accept your waste if they do not already have one. The IPP is discussed in more detail in Chapter 3.2.1.a.

If the POTW cannot accept your wastewater, then investigate disposal options through the Liquid Industrial By-product or Hazardous Waste transporter programs (see Chapters 3.2.2, 2.3 and 2.4). You may also want to explore pollution prevention approaches (see Chapter 12).

3.2.1a Industrial Pretreatment Program (IPP)

Foam at a treatment plant because of industrial discharge.

A permit or authorization from the local sewer authority may need to be obtained to discharge nondomestic wastewater to a POTW. The POTW may also determine pretreatment requirements tailored specifically to each wastewater discharge.

The purpose of the pretreatment regulations is to prevent discharge of pollutants to the POTW that would:

- Interfere with the operation of the treatment plant.
- Pass through the plant untreated.
- Create problems with disposal of sludge from the treatment plant.
- Cause health and safety problems for treatment plant workers.
- Damage or cause blockage to the sewer system.

Pretreatment standards fall into the following three categories:

1. Categorical standards are the requirements that apply to specific categories of industry. The U.S. EPA has developed these standards.
2. Individual requirements based on specific industrial or commercial activities. They are affected by the treatment capabilities and capacity of the POTW. The local sewer authority will specify these requirements.
3. General requirements apply to all facilities discharging to a POTW. This includes complying with the POTWs' pretreatment requirements. It also includes prohibitions against discharging certain pollutants to the POTW, along with reporting and record keeping requirements.

General Prohibitions:

You cannot discharge any of the following into a POTW:

- Pollutants that cause pass-through or interfere with the POTW.
- Pollutants that create a fire or explosion hazard in the POTW.
- Pollutants that corrode sewer conveyance or the POTW (specifically any wastewater with a pH less than 5).
- Solid or viscous pollutants that could interfere with wastewater flow.
- Pollutants that result in toxic gases, vapors, or fumes within the POTW at levels that may cause worker safety or health problems.
- Any trucked or hauled pollutants except POTW approved wastes at discharge points designated by the local sewer authority.

Reporting and Record Keeping:

The local sewer authority must know what is being discharged to its treatment system by every industrial or commercial user on the system. The sewer authority also needs to know about any spills or other problems flowing toward the treatment plant via the sewer. You must notify the POTW immediately of any discharge or release, including "slug loading," that could cause problems at the plant. A slug loading is defined as 1) any relatively large release of a pollutant that you might ordinarily release in smaller quantities, or 2) a release of a chemical you aren't permitted to discharge. You must notify the sewer authority in advance of any substantial change in the amount or type of pollutants in your discharge.

If you are required to sample your wastewater, you must report results and keep records on all the sampling information. Records for all samples must include:

- The date, exact place, method, time of, and name(s) of person(s) taking the samples.
- The dates analyses were performed.
- The laboratory that performed the analyses.
- The analytical techniques or methods used including detection limit.
- The results of the analyses.

Results of required sampling must be reported to the sewer authority. The report must include a certification statement and authorized signature of a company representative.

Records of any additional monitoring must also be kept when you use test methods found in Title 40, Part 136 of the Code of Federal Regulations (40 CFR 136), even if the local sewer authority does not require it. All of these records must be kept for a minimum of three years.

Hazardous Waste Notification:

The U.S. EPA added a provision to the pretreatment standards in 1990 to assure that businesses are not avoiding hazardous waste regulation by discharging hazardous waste directly to the sanitary sewer (40 CFR 403.12). Prior authorization from the local sewer authority must be received to discharge any substance that would be classified as hazardous waste under the federal Resource Conservation and Recovery Act (RCRA) and Part 111 (Hazardous Waste Management) of Act 451. In addition, the U.S. EPA and the DEQ must be notified within 180 days of any discharge of hazardous waste to the POTW.

This includes any waste:

- On the acutely hazardous waste list and any amount that is discharged; or
- Any other type of listed hazardous waste if more than 15 kilograms are discharged in a calendar month.

Refer to Chapter 2 for an explanation of listed and acutely hazardous waste.

If a new substance is added to the RCRA list and your business discharges that substance, the sewer authority, the DEQ, and the U.S. EPA Region 5, should be notified within 90 days of the new listing. Some sewer authorities have written notification forms. If not, then you can submit the required information in a letter. For the DEQ and U.S. EPA the submission goes to:

DEQ Management & Tracking Unit P.O. Box 30038 Lansing, MI 48909	U.S. EPA Region 5 Waste Management Division 77 West Jackson Boulevard Chicago, IL 60604

The notification must include:

- Company name, address, and U.S. EPA identification number (if one has been issued).
- The name of the hazardous waste as listed in 40 CFR 261.
- The U.S. EPA hazardous waste code number.
- The type of discharge (continuous, batch, other).

If you discharge more than 100 kilograms of hazardous waste per month to the POTW, you must also include the following in the notification:

- The hazardous waste constituents contained in the waste.
- An estimate of the quantity (mass and concentration) of hazardous constituents discharged during that month.
- An estimate of quantity of discharge for the next 12 months.

This notification only has to be submitted once, unless the discharge changes. If notification of hazardous waste discharge is required, you must also certify that a program has been developed to reduce the amount and toxicity of the hazardous waste generated to the degree that you are economically able. Discuss these requirements with the local sewer authority.

3.2.2 Hazardous Waste, Liquid Industrial By-products, and Septage Transportation – Pump and Haul

Most wastewater, when pumped and hauled for disposal (e.g. not direct piped to a receiving facility nor authorized for on-site disposal via Part 31 discharge permit or permit by rule), are generally subject to hazardous waste, liquid industrial by-product or septage waste regulation. Only if a material is specifically excluded from regulations is it excluded. The following details the transporter permitting, registration and licensing that applies to materials that must be pumped and hauled for recycling or disposal. For additional details, see Chapters 2 and 4.

3.2.2a Hazardous Waste and Liquid Industrial By-products Transportation

Wastewater, excluding septage waste, which is not discharged to a POTW nor permitted to be discharged to surface or groundwater, must be transported to a recycling or disposal facility authorized to accept the wastewater. Wastewater subject to hazardous waste regulation must be documented on a Uniform Hazardous Waste Manifest and transported by an Act 138 permitted and registered hazardous waste transporter. If the wastewater is not subject to

hazardous waste regulation or septage regulation, a company may haul its own wastewater without a permit and registration from the DEQ under Act 138 if it was generated on or by equipment in which the generator held an ownership interest. A company may also hire an Act 138 permitted and registered liquid industrial by-products transporter. The shipment of liquid industrial by-products can be documented on a Uniform Hazardous Waste Manifest or other shipping record that meets the Part 121 liquid industrial by-products regulations. See Chapters 2.4.4 and 2.4.5 for details on the specific documentation requirements. See Chapter 4 for the transporter permitting and registration, or the DEQ Hazardous Materials Transportation Program web page at **www.michigan.gov/deqwaste** and selecting the "Transporters" tab on the left.

3.2.2b Septage Transportation

Septage waste must be hauled by licensed septage waste transporters authorized under Part 117. Septage waste haulers seeking to commingle septage waste with liquid industrial by-product generally require dual licensing under both Part 117 and Act 138 and they are prohibited from land application of materials. However, Part 117 includes an allowance for the blending of grease trap waste with domestic septage to be managed as septage and allowed to be land applied. For more information about septag Wastewater, excluding septage waste, which is not discharged to a POTW nor permitted to be discharged to surface or groundwater, must be transported to a recycling or disposal facility authorized to accept the wastewater. Wastewater subject to hazardous waste regulation must be documented on a Uniform Hazardous Waste Manifest and transported by an Act 138 permitted and registered hazardous waste transporter. If the wastewater is not subject to hazardous waste regulation or septage regulation, a company may haul its own wastewater without a permit and registration from the DEQ under Act 138 if it was generated on or from property or equipment in which he or she owns an interest. A company may also hire an Act 138 permitted and registered liquid industrial by-products transporter. The shipment of liquid industrial by-products can be documented on a Uniform Hazardous Waste Manifest or other shipping record that meets the Part 121 liquid industrial by-products regulations. See Chapters 2.4.4 and 2.4.5 for details on the specific documentation requirements, Chapter 4 for the transporter permitting and registration, or the DEQ, WMRPD, Hazardous Materials Transportation Program Web page by going to **www.michigan.gov/deqwaste** and selecting the "Transporters" tab on the left.

3.2.2b Septage Transportation

Septage waste must be hauled by licensed septage waste transporters authorized under Part 117. Septage waste haulers seeking to commingle septage waste with liquid industrial by-product generally require dual licensing under both Part 117 and Act 138 and they are prohibited from land application of materials. However, Part 117 includes an allowance for the blending of grease trap waste with domestic septage to be managed as septage and allowed to be land applied. For more information about septage or dual licensing, see the Septage Program Web page at **www.michigan.gov/deqseptage**, select the Staff Contacts List and contact the Septage Program Coordinator.

3.2.3 Surface Water Discharge

Applications for discharge permits are completed and submitted online through the MiWaters system (Chapter 3.1.1). Guidance for the system is available at www.michigan.gov/miwaters.

3.2.3a Individual Permits

An individual NPDES permit is site specific. The limitations and requirements in an individual permit are based on the permittee's discharge type, the amount of discharge, facility operations (if applicable), and receiving stream characteristics.

3.2.3b Permit-by-Rule: Construction Stormwater Runoff

Construction sites of one acre or greater of earth disturbance are covered by a "permit-by-rule." "Permit-by-rule" (Rule) means that permit requirements are stated in an administrative rule formally promulgated by the Water Resource Division. A facility requiring coverage under the Rule must abide by the provisions written in the Rule.

Owners or recorded easement holders of earth change (construction) sites of five acres or more must go through MiWaters (Chap 3.1.1) to submit a form called a *Notice of Coverage* (NOC) to apply for their NPDES permit coverage to discharge stormwater runoff. In order to submit an NOC, the applicant must first obtain permit coverage under a local Soil Erosion and Sedimentation Control (SESC) Program (see Part 91 in Chapter 8). Authorization to discharge stormwater runoff under the Rule is automatically granted upon submittal of a complete NOC and an application fee.

Earth change sites that disturb one to five acres are provided automatic coverage so long as the site has coverage under the local SESC Program. Even though there is no application requirement or permit fee for one- to five-acre sites, construction site owners must comply with the Rule requirements. A site disturbing less than one acre must also follow the Rule if the site is part of a larger common plan of development that exceeds one acre of disturbance, or if it has the potential for adverse impacts on water quality.

The Rule requires an owner of a construction site to provide for weekly inspections of the soil erosion and sedimentation control practices identified in their SESC Permit. In addition, the site shall be inspected after any rain event that causes a discharge from the site. These inspections shall be conducted by a Storm Water Certified Operator and recorded by the Operator in an inspection log. The certification materials and testing to become a Storm Water Certified Operator are available in each of the DEQ District Offices (see Appendix C).

Construction site inspection by a Certified Storm Water Operator

For more information on Permit-by-Rule, including application materials, certified operator exam training materials and exam schedules, or storm water program contact information, contact any DEQ District Office or go to **www.michigan.gov/soilerosion**.

3.2.3.c General Permits

A general permit may be available to permittees with certain similar operations and/or types of discharge. Coverage under a general permit will only be granted when the general permit conditions provide the needed level of protection for the receiving water. Wastewater discharges at some locations may require an individual permit based upon site-specific concerns. Facilities determined to be eligible for coverage under a general permit receive a *Certificate of Coverage* (COC) from the NPDES Permit Program usually within four to six weeks of submitting a

complete application. Some general permits include: Storm Water from Industrial Activities (discussed below), Wastewater from Cleanup of Water Contaminated by Gasoline and Related Petroleum Products, NonContact Cooling Water, and Hydrostatic Pressure Test Water.

For a full list of general permits, and permit copies, go to **www.michigan.gov/deqnpdes** ("General NPDES Permits").

3.2.3.d Storm Water from Industrial Activities General Permit

There are two types of general storm water permits available in Michigan: a baseline general permit and a general permit for storm water discharges associated with special-use areas. Facilities may also receive coverage for industrial storm water discharges through a site-specific individual permit.

If your facility's storm water discharges directly to surface waters of the state or to a separate storm sewer system (to help with this determination see Question 2 in this Chapter's Key, Page 3-3), two steps are required to determine if storm water permit coverage is necessary.

Step one is to determine if the industry is identified in the federal storm water regulations. Standard Industrial Classification (SIC) codes prepared by the federal Office of Management and Budget, or narrative descriptions, are used to identify regulated facilities. SIC codes describe the primary nature of business in which a facility is engaged. In general, the following industrial categories are regulated:

- Manufacturing (SIC 20— through 39—)
- Public Warehousing (SIC 422-)
- Transportation (SIC 40— through 45—)
- Mining (SIC 10— through 14—)
- Open Landfills
- Steam Electric Power Plants
- Recycling Facilities
- Waste Water Treatment
- Hazardous Waste Storage and Treatment

You can find your four digit SIC code in your corporate tax return under Schedule K listed as either "Business Activity Code" or "Manufacturers Identity Code." You may also call Michigan's Unemployment Insurance Agency at 800-638-3994 and provide your federal identification number to get your official SIC code. A more complete listing of SIC codes can be found on the industrial storm water program Web site.

The second step is to determine whether storm water could come into contact with industrial materials or activities at the site. Basically, if you store or transport ANYTHING related to your industrial activity outside without permanent covering (exempting final products manufactured for use outside such as a completed automobile), it can come into contact with storm water and the quality of the storm water runoff could be affected. The term "exposure" is used in the storm

water program to indicate the potential for contact between storm water and your industrial materials. This includes outside storage of scrap dumpsters and any raw materials associated with your industrial activity.

If your facility's industrial activity is regulated and storm water from the property discharges to surface waters of the state, then you must either certify that you have no exposure or obtain permit coverage. The action you take will be dependent upon exposure at the site. Guidance as to whether you have exposure can be found on the Industrial Storm Water Program Web Site. Documents to review include: "Determining if a Facility is Required to Obtain Permit Coverage" and "No Exposure Certification (NEC) Compliance Assistance"

If after reviewing the no exposure assistance document, you find that you do not have exposure at the site, you can submit a "No Exposure Certification" form in the MiWaters system (See Chapter 3.1.1) instead of obtaining coverage under the general permit. If you chose to operate your facility without exposure, you may still want to have storm water certified operators among your housekeeping team to help recognize practice changes that could cause you to need coverage (such as moving equipment outside).

In summary, if you answer "yes" to all the following questions, you need an industrial storm water permit:

1. Do I have a storm water discharge to surface waters of the state?
2. Is my company regulated by the storm water program?
3. Do I store or transport industrial materials outside that could come in contact with storm water?

To apply for coverage, submit a **"***Notice of Intent (NOI)***"** through the MiWaters system (See Chapter 3.1.1**)**. If coverage under the Storm Water from Industrial Activities General Permit is appropriate, a Certificate of Coverage (COC) will be issued once a complete NOI has been received by the department. There is an annual storm water permit fee of $260. Before obtaining a COC, you must:

- Have a storm water certified operator who has control over the storm water structures at the facility and has the authority to change operations to minimize or eliminate impacts to storm water (see Chapter 3.5).
- Eliminated any unauthorized non-storm water discharges to the storm sewer system and waters of the state.
- Have a Storm Water Pollution Prevention Plan (SWPPP) developed and implemented for existing facilities or have a SWPPP developed and ready for implementation at new facilities (see Chapter 6.2.4).

3.2.4 Groundwater Discharge

The Part 22 rules of Part 31 (Water Resources Protection) of Act 451 govern authorization to discharge to the groundwater in the State of Michigan. There is an annual fee for groundwater permit coverage. The discharge authorizations in the rules are established in order of relative threat to the environment, and the program's annual fees are set in the same manner. The annual fee can be $200, $250, $1500 or $3650, depending on the type of permit appropriate for your facility.

Certain activities are exempt from obtaining permits; these are listed in Rule 323.2210; while discharge authorizations are issued under:

- Rule 323.2210(y) (site-specific low volume discharge)
- Rule 323.2211 (notification only)
- Rule 323.2213 (notification with certification)
- Rule 323.2215 (general permit)
- Rule 323.2216 (permit with specific treatment system requirements)
- Rule 323.2218 (full permit)

The following sections discuss the types of available groundwater discharge authorizations.

Groundwater Discharge Application

Instructions for the groundwater discharge permit application are organized to assist the applicant in determining the type of permit required and how to obtain it. The instructions list reference materials such as applicable laws, rules and guidesheets, and how to access them. Many of the discharges require supporting documentation in addition to the application form. The guidesheets describe how to gather and report the information in a manner that is acceptable to the DEQ. This does not preclude the use of alternative methods; only that if the guidance is followed, the methodology for collecting and reporting the information will be acceptable. Separate application forms incorporate the requirements of each rule.

Each application is a complete stand-alone process with two parts. The first part consists of general information. The second part is tailored to the specific rule covering the discharge type. Certain applications cover multiple types of discharges. Complete the sections that apply to the particular discharge.

The application instructions can be accessed at **www.michigan.gov/groundwaterdischarge** under “Permits and Fees.”

The applications are located in the MiWaters system at **https://miwaters.deq.state.mi.us**. There are also links to MiWaters at **www.michigan.gov/deqwater**. All applications must now be submitted through the MiWaters site.

Applicants new to the groundwater program and MiWaters must create an account. Those seeking reissuance of a previous permit should have received information about becoming associated with an existing account; now in MiWaters.

Creating an account is a two-step process. Upon accessing the MiWaters site, choose “Create an Account” located in the upper-right section of the page. Complete the information requested on the page and download the Certifier Agreement Form you will need for step two. Once you create an account you will receive an emailed acknowledgement with further instructions for logging in. With this access you can view and begin filling out an application. In step two, complete the downloaded Certifier Agreement Form and mail it as instructed. Once the certifier status has been approved your e-mail address will identify your security status, enabling you to submit the application.

If you have questions, call the Groundwater Discharge Unit at 517-284-5570 or your local DEQ District Office (see Appendix C) for assistance.

Groundwater Discharge Permit Renewal

Renewal of a groundwater discharge permit can be divided into two categories. The first is for the same quantity and characterization of discharge(s), and the same treatment process as the previous permit. The second is for effluent quantity, characterization or treatment processes that are different from the previous authorization. In both cases the applicant must submit a complete permit application, but the information to be included with the permit application will be more detailed if the discharge or treatment system is different.

Groundwater Discharge Permit Renewal: No Change in Discharge

The applicant must submit a complete permit application, as described above, and the following information:

- A certification by the discharger that the discharge will consist of the same quantity, effluent characterization, and treatment process as previously permitted.
- A narrative description of the facility's compliance history with effluent and groundwater permit limits and sampling frequency.
- If permit limits were exceeded, describe the steps taken to bring the facility into compliance.
- An evaluation of whether there are general trends in the effluent or groundwater sampling data that may indicate the discharge is approaching permit limits if the renewal is under Rule 2218.
- A current groundwater contour map, if one was previously required, a narrative evaluation of whether changes to the existing groundwater monitoring system are warranted and the rationale for any proposed change.
- The most recent effluent quality results.
- For existing monitoring wells, the most recent groundwater quality results.
- For existing monitoring wells, the most recent static water levels and groundwater elevations.

Groundwater Discharge Permit Renewal: Modified Discharge - Reissuance

A permittee may request a modification of their discharge at any time, either during the life of the permit, or at reissuance.

For a discharge where the applicant changes the effluent quantity, characterization or treatment process at the time of reissuance, the complete application must include:

- Updated information for areas modified including (where appropriate):
  - The basis of design as required by Rule 2218(2).
  - An evaluation of the feasibility of alternatives to discharge to the groundwater in accordance with R 323.2219.
  - The wastewater characterization as required by R 323.2220.
  - The hydrogeologic report as required by R 323.2221.

  - If a standard applicable to the discharge is to be determined under R 323.2222(5), the information necessary to determine that standard, including whether a substance is a hazardous substance under Part 201.
  - If applicable, the monitoring plan as specified by R 323.2223.
  - If applicable, a description of the discharge methods and information that demonstrate that the requirements of R 323.2233 will be met.
  - If applicable, information that demonstrates that the requirements of R 323.2237 will be met.
- A narrative description of the facility's history of compliance with effluent and groundwater permit limits and sampling frequency.
- If permit limits were exceeded, the steps taken to bring the facility into compliance.
- An evaluation of whether there are general trends in the effluent or groundwater sampling data indicating that the discharge is approaching permit limits if the renewal is under Rule 2218.
- A current groundwater contour map, if one was previously required, and a narrative evaluation of whether changes to the existing groundwater monitoring system are warranted and the rationale for any proposed change.
- The most recent effluent quality results.
- For existing monitoring wells, the most recent groundwater quality results.
- For existing monitoring wells, the most recent static water levels and groundwater elevations.

Groundwater Discharge Permit Renewal: Modified Discharge – In Effect Permit

For a discharge where the applicant changes the effluent quantity, characterization, or treatment process during the period when the permit is "In Effect," the following process will apply:

- A discharger who proposes to modify the quantity or effluent characteristics of a discharge shall notify the DEQ of the proposed modification before it occurs. If the DEQ determines the proposed modification is minor based on the quantity or quality of the discharge, then the DEQ may modify the permit as requested and include new terms or conditions that may be necessary to ensure that the terms of R 323.2204 are met. If the DEQ determines that the proposed modification is significant based on the quantity or quality of the discharge, then the discharger shall submit a complete permit application for reissuance of the permit similar to (b) above.
- A discharger who proposes to modify the treatment process of a discharge shall notify the DEQ of the proposed modification before it occurs. Unless the DEQ notifies the discharger within 30 calendar days that the proposed modification may affect compliance with limitations on the quality or quantity of the discharge, the discharger may make the modification. If the DEQ notifies the discharger and determines that the proposed modification is minor based on the quantity or quality of the discharge, then the DEQ may modify the permit as requested and include new terms or conditions that may be necessary to ensure that terms of R 323.2204 are met. If the DEQ notifies the discharger and determines that the proposed modification is significant based on the quantity or quality of

the discharge, then the discharger shall submit a complete permit application for reissuance of the permit similar to (b) above.

3.2.4.a Exemptions, Rule 2210

Certain discharges to the ground are exempt from needing authorization from the DEQ, such as sanitary sewage that is discharged at less than 6,000 gallons per day when the discharge is under the jurisdiction of the local county health department. There are other examples of exempt discharges including:

- Potable water used for domestic or domestic equivalent activities (Rule 2210(i)).
- Sanitary sewage less than 6,000 gallons per day, through a septic tank and tile field system, approved by the local health department. (Rule 2210(a)).
- Controlled application of certain dust suppressants (Rule 2210(b)).
- Temporary well dewatering water at construction sites (Rule 2210(e)).
- Swimming pool drainage and backwash if done in accordance with Act 368. (Rule 2210(n)).
- Confined animal feeding operations less than 5,000 animal units (Rule 2110(f)(g)).
- Monitoring well observation or evacuation water (Rule 2210(h)).
- Step test or pump test water from various sources (Rule 2210(j)).
- Heat pump wastewater where systems are rated as less than 300,000 BTU's per hour if there are no chemical additives (Rule 2210(l)).
- Portable Power Washer wastewater **that use no additives** from domestic sources or commercial operators (Rule 2210(m)).
- Non-contact cooling water **that has no additives** where there is less than 10,000 gallons per day, and where the source water was from a municipal water supply (or alternate approved source) (Rule 2210(q)).

A more complete list of these discharges can be found in the appendix and in the groundwater discharge authorization application. While the law and rules provide that a person does not need a permit for the discharge of the above discharges, the law also does not waive liability for causing injury to the waters of the state. This means the discharge cannot cause waters of the state to lose their usefulness for drinking, agriculture, recreation, industry, or other protected uses. Even though these activities do not require a permit, there are certain conditions that must be met according to the law, including the following:

- A prohibition against causing physical damage to neighboring properties or creating nuisance conditions (i.e. runoff onto adjacent properties, ponding or flooding of adjacent properties, odors, etc.).
- A prohibition against creating a site of environmental contamination that would need to be cleaned up.

For these discharges an application does not have to be submitted. In addition, some discharges to the ground or groundwater, which are not specifically addressed under Rule 2210, may be authorized on a case-by-case basis under Rule 2210(y). Such is the case if the applicant demonstrates to the DEQ's satisfaction that the discharge will not have a significant potential to

be injurious based on volume and constituents of the discharge. In order for the DEQ to determine if a particular discharge exemption will be allowed, a discharger must submit an application that includes a narrative description justifying the request for the Rule 2210(y) authorization with the permit application. These discharges are assessed an annual fee of $1,500, except for the following discharge types, which are $250:

- Coin operated laundromat
- Car wash or vehicle wash open to the public
- Subsurface sanitary discharge of fewer than 10,000 gallons per day that does not meet the terms of authorization under Rule 2211(a)
- Seasonal sanitary wastewater facility from a park, campground, or camp

3.2.4.b Notification, Rule 2211

Some wastewater dischargers may be able to obtain an authorization to discharge by notification. These include:

Wastewater Type	Daily Maximum Discharge, Gallons
Sanitary Sewage, septic tank/drain field	6,000 – 10,000
Laundromat	< 500
Non-contact Cooling Water, no additives	>10, 000
Fruit & Vegetable Wash water	<50,000
Portable Power Washer, no additives Pump Test Water Hydrostatic Test Water Commercial Animal Care	Varies by discharge type

To obtain this type of authorization a facility must complete a groundwater discharge authorization application. A facility is authorized to discharge once an adequate and complete application is received by the DEQ. As long as the discharger certifies that they meet the individual rule criteria a facility will be authorized to discharge at the time an adequate and complete application is received by the DEQ. If the application is complete and meets the requirement of the rule, the DEQ will authorize the discharge via a permit. If the application is deficient, the DEQ will notify the applicant and any deficiencies must be corrected before the discharge is authorized. The annual fee for this type of authorization is $200.

Groundwater Infiltration Bed

3.2.4.c Notification with Certification, Rule 2213

A notification with certification is required for specific discharges. These discharges include:

Wastewater Type	Daily Maximum Discharge, Gallons
Non-contact cooling water, with additives	< 10,000
Egg washing wastewater, may contain additives	< 10,000
Cooling water, may contain additives Groundwater remediation, outside plume	< 5,000

To obtain this type of authorization a facility must complete a groundwater discharge authorization application. Within 60 calendar days of receiving a complete application, the DEQ will issue a permit verifying that the discharge is authorized or will indicate why the discharge cannot be authorized under the rule. The annual fee for this type of authorization is $200.

3.2.4.d General Permit, Rule 2215

An authorization for certain discharges can be granted by the DEQ under a general permit.

Wastewater Type	Daily Maximum Discharge, Gallons
Above ground sewage disposal	< 10,000 (annual average)
Vehicle wash, not open to the public	< 2,000
Meat processing that does not include slaughter	< 2,000 (annual average)
Gravel, sand, limestone, or dolomite mining, no additives Application of oil field brine Vehicle wash, open to public Hydro-demolition	< 2,000 for vehicle wash

To apply for coverage, submit the permit application to the DEQ along with information that demonstrates conditions required by the general permit. A facility is authorized to discharge to the ground or groundwater once they receive a Certificate of Coverage from the DEQ that verifies the discharge is authorized under this rule. The annual permit fee for Rule 2215 authorization is $1,500, except for seasonal above ground sewage disposal discharges from campgrounds and camps which have an annual fee of $250.

Sanitary Sewage Treatment Lagoon

3.2.4.e Permit for a Specific Discharge, Rule 2216

This type of authorization is granted for very specific discharges and treatment components, including:

Wastewater Type	Daily Maximum Discharge, Gallons
Sanitary Sewage, Constructed Wetland	less than 20,000
Sanitary wastewater, Alternative Treatment System	less than 20,000
Sanitary Sewage, Rule 2216 Design	less than 50,000
Laundromat Wastewater, Rule 2216 Design	less than 20,000

To apply for authorization, the application for groundwater discharge authorization must be submitted to the DEQ. As part of the application process, the applicant must certify in the application that they provided public notice of the project in accordance with Rule 2217(2). Typically, facilities should obtain assistance from an environmental consultant for this type of coverage. The annual permit fee for this coverage is $1,500.

3.2.4.f Discharge Permit, Rule 2218

Large volume or complex discharges that are not covered above must obtain authorization under Rule 2218. The following are some examples of discharges that require a 2218 permit.

- ✓ Sanitary sewage (greater than 50,000 gallons per day).
- ✓ Process wastewater.
- ✓ Cooling water at greater than 5,000 gallons per day with additives.
- ✓ Non-contact cooling without additives at greater than 10,000 gallons per day, source water not approved by the DEQ.
- ✓ Non-contact cooling water with additives at greater than 10,000 gallons per day.

Application for this permit include submittal of the following types of information along with the permit application: a basis of design for the wastewater treatment system, discussion of alternatives to a groundwater discharge, wastewater characterization, a hydro-geological study and groundwater monitoring and a discharge management plan. Facilities are strongly urged to obtain assistance from environmental consultants for completion of these items. The DEQ has prepared Guidesheets I-VII that provide assistance to the applicant on the types and format of information that are required for this additional information. The annual permit fee for Rule 2218 authorization is $3,650.00.

Guidance information on groundwater discharge permit and application requirements (Part 22 Guidesheets) are available on the Internet at **www.michigan.gov/groundwaterdischarge**.

3.2.5 Deep Injection Well Disposal

Class I injection wells dispose of industrial hazardous, industrial non-hazardous and municipal (non-hazardous) waste.

Class I injection wells are sited and constructed such that they are protective of drinking water. Fluid disposal is below all underground source of drinking water and must include confining zone(s) above the injection zone. Injection zone reservoirs typically range in depth from 1,700 to over 10,000 feet below the surface. Typical costs associated with constructing a deep injection well are around a million dollars.

Class I injection well disposals in Michigan are regulated both by the U.S. EPA, and the DEQ's Oil, Gas and Minerals Division (OGMD). A permit must be obtained from both the DEQ and the U.S. EPA for this wastewater disposal option and consultants are typically utilized for permitting, construction and testing of these wells. The timeline associated with permit issuance would be six months to a year for both agencies. For more information, contact the DEQ, Lansing Office at 517-284-6826, or appropriate District Office (See Appendix C).

UIC Branch (WU-16J)
US EPA Region 5
77 W. Jackson Blvd.
Chicago, IL 60604-3590
312-886-1493
Fax: 312-886-4235

There are some general operating requirements for operation of a deep injection well including regular testing to demonstrate mechanical integrity of the well. There is a monthly reporting requirement for volumes of fluid injected and operating pressures. Finally, for the state program there is a $2,500 fee per disposal well.

In those instances where the waste is considered hazardous and the processor is storing and or treating the waste prior to discharge, the facility is subject to the Treatment, Storage, and Disposal Facilities permit. Discuss the requirements with the DEQ Hazardous Waste Program.

3.3 Common Non-Compliance and Frequently Asked Questions

There are several issues that are commonly associated with non-compliance or areas where staff receive many questions. The following section discusses some of these.

3.3.1 Water Treatment Additives

Water Treatment Additives (WTAs) include any material that is added to water used at a facility or to a wastewater generated by the facility to condition or treat the water. Biocides, algaecides, herbicides, sanitizers, flocculants, and lubricants are examples of water treatment additives that can be found in the wastewater of facilities. WTAs that are discharged to surface waters of the state from a National Pollutant Discharge Elimination System (NPDES) permitted discharge or a groundwater discharge permit require prior review and approval by the Water Resources Division (WRD). Permittees should check their NPDES permit and/or groundwater discharge permit requirements to determine if they need to apply prior to using a WTA. As such, these WTA products must be included in the application for wastewater discharge, or requested during the permit cycle. WTAs must be reviewed whenever they are changed; the use of the new WTA could change the characteristics of the wastewater effluent. Both groundwater and NPDES permits require prior review and approval before new WTA's can be used.

For NPDES Permits:

In the event a permittee proposes to discharge water treatment additives (WTAs) at a facility with a NPDES permit, the permittee must submit a request through MiWaters (Chapter 3.1.1) to discharge WTAs. Instructions to submit a request through MiWaters are available via the internet (**www.michigan.gov/deqnpdes**; then click on either non-select or select water treatment additives discharge application instructions under the heading of Water Treatment

Additives). Written approval from the Department to discharge such WTAs at specified levels shall be obtained prior to discharge by the permittee. Failure to obtain approval prior to discharging any WTA is a violation of the permit. Additional monitoring and reporting may be required as a condition for the approval to discharge the WTA.

The request to discharge WTAs must contain the following information. If any of this information is missing the request cannot be processed:

1. The WTA Safety Data Sheet (SDS).
2. Ingredient information: Name of each ingredient, CAS number for each ingredient, and fractional content by weight for each ingredient.
3. The proposed WTA discharge concentration including calculations to explain the discharge concentration.
4. The discharge frequency (i.e., number of hours per day, week, etc.).
5. The outfall(s) from which the WTA is to be discharged.
6. The type of removal treatment, if any, that the WTA receives prior to discharge.
7. The WTA function (i.e., microbiocide, flocculant, etc.).
8. A 48-hour LC_{50} or EC_{50} for a North American freshwater planktonic crustacean (either Ceriodaphnia sp., Daphnia sp., or Simocephalus sp.).
9. The results of a toxicity test for one other North American freshwater aquatic species (other than a planktonic crustacean) that meets a minimum requirement of Rule 323.1057(2)(a) of the Water Quality Standards. Examples of tests that would meet this requirement include a 96-hour LC_{50} for a rainbow trout, bluegill, or fathead minnow.

More information on obtaining authorization to discharge water treatment additives can be obtained at **www.michigan.gov/deqnpdes** (click on either non-select or select water treatment additives discharge application instructions).

For Groundwater Discharge Permits:

In the event a permittee proposes to discharge water treatment additives (WTAs) to groundwater, the permittee shall submit a request through MiWaters to discharge WTAs. Instructions to submit a request through MiWaters at (http://www.michigan.gov/deqnpdes; then click on either non-select or select water treatment additives discharge application instructions under the heading of Water Treatment Additives). Written approval from the Department to discharge such WTAs at specified levels shall be obtained prior to discharge by the permittee. Failure to obtain approval prior to discharging any WTA is a violation of this permit. Additional monitoring and reporting may be required as a condition for the approval to discharge the WTA. WTAs include such chemicals as herbicides used to kill weeds and grasses as part of lagoon maintenance.

A request to discharge WTAs to groundwater shall include all of the following:

1. Product Information:
    a. Name of the product;
    b. Product Safety Data Sheet (SDS);

   c. Product function (i.e. microbiocide, flocculants, etc.);
   d. Specific gravity if the product is a liquid; and
   e. Annual product use rate (liquids in gallons per year and solids in pounds per year).
2. Ingredient information:
   a. Name of each ingredient;
   b. CAS number for each ingredient; and
   c. Fractional content by weight for each product;
3. The monitoring point from which the WTA is to be discharged;
4. The proposed WTA discharge concentration, including calculations to explain the discharge concentration.
5. The discharge frequency (i.e., number of hours per day and number of days per year);
6. The type of removal treatment, if any, that the WTA receives prior to discharge;
7. Relevant mammalian toxicity studies for the product or all of its constituents (if product toxicity data are submitted, the applicant shall provide information showing that the product tested has the same composition as the product listed under Item “a” above. Preferred studies are subchronic or chronic in duration, use the oral route of exposure, examine a wide array of endpoints and identify a no-observable-adverse-effect-level. Applicants are strongly encouraged to provide the preferred data. If preferred data are not available, then the minimum information needed is an oral rat LD50 study. In addition, an environmental fate analysis that predicts the mobility of the product/ingredients and their potential to migrate to groundwater may be provided.
8. If the discharge of the WTA to groundwater is within 1,000 feet of a surface water body, the following information shall also be provided:
   a. A 48-hour LC50 or EC50 for a North American freshwater planktonic crustacean (either Ceriodaphnia sp., Daphnia sp., or Simocephalus sp.); and
   b. The results of a toxicity test for one other North American freshwater aquatic species (other than a planktonic crustacean) that meets a minimum requirement of Rule 323.1057(2) of the Water Quality Standards. Examples of tests that would meet this requirement include a 96-hour LC_{50} for a rainbow trout, bluegill, or fathead minnow.

Prior to submitting the request, the permittee may contact the Permits Section by telephone at 517-284-5568 with any questions.

> **Note:** The availability of toxicity information for a water treatment additive does not constitute approval to discharge the water treatment additive. **You must receive facility-specific and written approval.**

For Discharges to a POTW

If you discharge to a POTW, then check with the local sewer authority to see what is required to change additives or products, as there may be similar restrictions. Some communities might have local requirements for cleaning solutions. For example, some communities require that low or no phosphate detergents and additives be used. It is generally recommended that low or no

phosphate detergents and additives be used in all areas. Calling the POTW before discharging is especially important for products associated with boiler blow down activities and other sanitizers.

3.3.2 Cleaning Equipment and Floors

Cleansers used for industrial cleaning, even if they are the same formula as standard household cleaners, are considered non-domestic wastewater if generated from cleaning industrial equipment or the area around it. The reason is that the area being cleaned has the potential of introducing contaminants to the wastewater that are not typically found in household wastewater, such as machine lubricants, etc. Therefore, substances that may be in the cleaning water, and the solutions or detergents used for cleaning, must be included in the application for wastewater discharge. It is unlikely that this discharge would be authorized to go directly into surface water or groundwater without treatment.

Some management practices for consideration include:

- Keep water use to a minimum when cleaning floors. Hoses should not be used to “wash down” the floors. Mop floors with biodegradable floor detergent according to the manufacturer’s directions. Any accumulation should be recovered by a wet vacuum or mop.
- Minimize or eliminate the use of degreasers and solvents where possible. Degreasers put oil into a solution, which makes it nearly impossible to remove the oil from the wastewater by conventional methods. Overuse of degreasers will make oil/water separators ineffective. Degreasers could also contain volatile organic compounds, which can be toxic and are highly mobile.
- Pressure washers use less water volume and generate much less wastewater per minute of use than a standard hose. They also provide better cleaning, reducing the need for chemical cleaning agents.

3.3.3 Cooling Water

Water used for machine cooling; solvent coolers and stills; condensers; or in heating, ventilation, and air conditioning (HVAC) systems is considered non-domestic wastewater. This water cannot be discharged to the surface water without a permit. A discharge to the ground or groundwater requires an exemption, notification, or permit. To discharge water used for cooling to the publicly owned treatment works, you should have authorization from the local treatment authority. These disposal options are discussed further in Chapter 3.2. Chemicals and/or biocides or algaecides are sometimes used to prevent scale build-up, freezing, or slime growth. If additives are being proposed, then review Chapter 3.3.1.

3.3.4 Floor Drains

Many manufacturing facilities have floor drains and trench drains that are connected to their wastewater treatment system and are authorized under their facility's discharge permit. However, an inspection of the facility should be conducted to assure that all floor drains are properly connected to the wastewater system and are authorized under a permit instead of discharging to the environment, either directly or through a separate storm sewer system.

Except for discharges authorized under a discharge permit program, it is unlikely that a groundwater or surface water discharge permit will be issued for floor drain waste as most of these built-in connections and conveyances are prohibited in local building and plumbing codes.

Sections 701.2 and 1104.3 of the Michigan Plumbing Code (R 408.30701 et seq.) require floor drain discharges go to an available sanitary sewer system or an approved private system and prohibit connections of floor drains to storm sewers. Many fluids are prohibited from discharge entirely due to the hazardous chemicals in them. Some POTWs will accept waste from floor drains, such as antifreeze, engine wash down water, small quantities of oily substances, etc., at specific rates and times. Wastewater that is not authorized for discharge must be managed and disposed of as a liquid industrial by-product or hazardous waste depending on its classification. See Chapter 2.4.2 for information on how to determine waste and by-product classification.

To get a copy of the Michigan Plumbing Code contact the Department of Licensing and Regulatory Affairs, Bureau of Construction Codes, Plumbing Division, at 517-241-9330 or go to **www.michigan.gov/lara** (select "Construction Codes," "Divisions," then "Plumbing Division").

Currently, waste entering floor drains is legal only if the discharge goes to one of the following:

- To the facility's wastewater collection system that treats the wastewater and has authorization through the Groundwater Discharge Permit Program or NPDES (Chapters 3.2.3 and 3.2.4).
- POTWs, if in accordance with local ordinances (3.2.2)
- Holding tanks, which the wastewater and sludge is later pumped out and hauled to an approved facility (See Chapter 3.2.2). Holding tanks should be located to allow for easy access for cleaning and repair. If a facility wants to dry the materials out on-site to save on transportation and disposal costs, see Chapter 3.3.5.

Any floor drains that do NOT discharge to any of the above must be closed off or rerouted to an authorized destination. Plugging the drainpipe that connects to the storm sewer/drain with concrete can eliminate the discharge. However, if the discharge access is a direct manhole into a storm sewer or drain, a concrete contractor can prevent future access to the manhole by installing a lock-down concrete cap or bolt down cover. Be careful not to block drainage in an existing storm drain with concrete.

For holding tanks, aboveground storage tanks (AST) are recommended. These allow the prompt detection and correction of any leaks. ASTs must be constructed with a material that is compatible with the waste liquids. It is recommended all ASTs have secondary containment that is designed to allow easy access for cleaning and regular inspections (See Chapter 4.1 and Chapter 6.2.2). The secondary containment structure should be equipped with a sump pump to allow easy removal of collected precipitation or any waste liquids in the event of a leak. If there is a sump pump it should not activate automatically. Instead, it should only allow manual activation after verification that the liquid is precipitation or waste water. If precipitation needs to be removed from the containment area, it must meet the DEQ wastewater discharge requirements to be discharged on-site. If wastewater is being removed, the liquid should be pumped into a disposal container and managed appropriately (see Chapter 2.3 and 2.4). Check for the cause of any waste water leak and repair the AST if necessary. Concrete vaults can be used as secondary containment if the structure is constructed with a water-stop-joint design and the concrete is coated with an impermeable material compatible with the waste. Concrete vaults may not be used as primary containment due to the potential to crack.

Although not recommended because of the difficulty to inspect for leaks, underground storage tanks (USTs) can also be used for holding tanks. If made of steel, USTs should be equipped with secondary containment and cathodic protection. Double-walled tanks are recommended. They should also have spill and overfill protection, plus leak detection and a high-level alarm to alert over flows or leaks. If the wastewater contains UST regulated substances, you must call the Department of Licensing and Regulatory Affairs (LARA) Storage Tank Unit at 517-335-7211 to discuss if you need to meet the requirements in Chapter 4.3.1.

All piping leading from the floor drains to the holding tank should be double-walled. Buried pipe should also have some type of leak detection system.

3.3.5 Restrooms and Breakrooms

Standard domestic wastewater may be discharged to a POTW, privately-owned sanitary treatment system, or septic system. Pouring non-domestic wastes down the drain or in the toilet is illegal unless the toilet drains to a municipal treatment system AND the discharge is in compliance with the local sewer authority regulations.

3.3.6 Air Compressor Condensate

The regulations related to air compressor condensate will be based upon the wastewater destination, volume and pollutant characterization of the condensate. This issue is site specific because air compressor condensate contains pollutants that exist in the ambient air surrounding the air intake. For example, certain deicing and dry cleaning chemical storage areas have been found to cause pollutant concentrations in air compressor condensate that required control to reduce pollutant concentrations in the wastewater. The most common destination of air compressor condensate for manufacturers is to a POTW and the discharge is usually regulated by the local sewer authority.

Discharges to surface waters and groundwater would be evaluated on a site specific basis in terms of the NPDES and Groundwater Discharge permit programs.

A few site-specific management practices can be considered:

- Consider use of a pollutant-compatible filter fitted over the air intake of the air compressor to capture pollutants preventing them from ending up in the condensate.
- If the POTW will accept the wastewater, then re-route the discharge or capture and then release the condensate to the POTW.
- If the wastewater cannot be accepted by the local sewer authority, then capture the wastewater and arrange disposal in accordance with liquid industrial by-product or hazardous waste requirements.
- Assure proper housekeeping and storage of materials to prevent their release into the air. This will benefit both employee health and prevent the capture of the pollutant in the air compressor intake.

3.3.7 Pit or Trench Drain Sludge

This type of material is the semi liquid residue that accumulates in the bottom of trench drains or holding tanks that receive non-domestic wastewater. This is not the same as residues and water

collected in storm sewer catch basins. Trench drains or holding tanks are typically located inside buildings where loading or unloading may occur; they may also be located so they are convenient to receive vehicle wash water or other types of non-domestic wastewater. The liquid portion of this wastewater is directed to the facility's wastewater disposal system or a holding tank. This type of wastewater cannot be discharged to surface waters such as through storm sewers, the ground, the groundwater, or to a septic system, nor can it be discharged to a POTW without prior approval. The waste or residue that collects on the bottom may contain oil, antifreeze, heavy metals, degreasers, or other contaminants. This type of waste cannot be disposed in your facility's solid waste containers and must be treated as a liquid industrial by-product unless the material is known to have been impacted by hazardous waste, in which case it would have to be handled as hazardous waste and according to procedures outlined in Chapter 2.4

If the waste is not hazardous there are three options for handling the sludge, depending on its water content.

1. Check to see if your POTW will allow you to pump this liquid into the sanitary sewer system. You may be required to pretreat the liquid portion before disposal to a POTW. A common method of pretreatment is to pass the liquid through a grit chamber and an oil/water separator.

   If your facility has either a grit chamber or an oil water separator you need to have an inspection and maintenance program in place to ensure that the chamber/separator continues to operate effectively. Check with your local POTW and the building/zoning authority for local requirements (See Chapter 36). The cleaning frequency is often based on the size of the separator and the volume and contents of the wastewater that flow through it. Your program should include:

   - Regular inspections.
   - Recycling or disposal of separated oil (see Chapter 2.4.9.a).
   - Sludge analysis to determine proper disposal options.
   - Cleaning/removing sludge and refilling the chamber with water (to ensure proper oil water separation).

2. Drying the sludge on-site. If you choose this option, you must be able to dry the material in a container of some type. You cannot dry the material in a manner that any liquid can impact the ground, or if not authorized, the on-site sewer system. If you can dry the material in an appropriate manner, the dried sludge can then be disposed in facility solid waste containers, which are subsequently directed to a licensed landfill. There cannot be any free liquid left in the sludge. Discuss this option with your local DEQ District Office (see Appendix C). See Chapter 2.2 for more information on solid waste disposal.

3. Have the sludge pumped from the holding tank by a permitted and registered liquid waste transporter (see Chapter 3.2.2) for appropriate disposal at an approved facility. Under no circumstance should wastewater or pit sludge from trenches be directed into a facility's septic tank and/or tile field.

3.3.8 Power Washing

Regulations for power washing wastewater discharges depend on where the discharge goes. Options for this wastewater are described in the following.

Power Washing Discharges to Ground (Groundwater Discharge Permit Program)

The DEQ may authorize a discharge to the ground or groundwater from a power washing operation by an exemption, notification, or permit, depending on the type of discharge.

A groundwater discharge is exempt if the washing is done by a commercial operator or performed in an industrial setting to remove non-polluting substances from vehicles and surfaces, and only clean water with no additives is used for the cleaning. In this instance, discharges must go into the groundwater; they may not be directed to a storm drain or surface water.

If a commercial operator is using an additive for the cleaning, a notification permit is required under Rule 323.2211. In this case, a groundwater discharge permit application must be submitted. The application instructions can be accessed at **www.michigan.gov/groundwaterdischarge** under "Permits and Fees." The applications are in MiWaters, **miwaters.deq.state.mi.us**. There are also links to MiWaters at **www.michigan.gov/deqwater**. All applications must now be submitted through MiWaters.

Power washing operations that do not qualify for an exemption or authorization via notification may be able to obtain a site-specific exemption or a groundwater discharge permit. It will depend on the quality and quantity of the wastewater and discharge location. Interior washing of vehicles does not qualify for permit by notification process.

Power Washing Discharges to Surface Water (NPDES)

The discharge of power washing wastewater directly to a creek, river or other water body, directly or through a storm sewer, or other conveyance, is illegal without first obtaining a NPDES permit (Chapter 3.2.3) from the DEQ. An NPDES permit would be necessary for each job site where there will be power washing discharge from vehicles or equipment. Applying for an NPDES permit for each site will likely not be a practical option for mobile power washing operations. However, if no detergents or other compounds are used and the discharge will only be from routine building wash-down or pavement washing an NPDES permit is generally not required assuming there have not been spills or leaks of toxic or hazardous materials that would contaminate the wash water. For anything other than routine building wash down (use of power washing to remove paint is not routine building wash down), you should discuss your options with an NPDES or Groundwater Discharge Permit program staff in the appropriate DEQ District Office (see Appendix C for contacts).

Power Wash Hazardous Waste Characterization

If you do not have authorization from the DEQ to dispose of the wash water as discussed above, it will be necessary to determine if the wastewater or other wastes from power washing are hazardous waste before shipping it off-site. For example, if your company is power washing old paint off a building, paint chips need to be collected, evaluated, and disposed of properly. Paint chips cannot be left on the ground at the job site. Old paint stripped off commercial buildings may contain high enough concentrations of metals (such as lead, chromium, cadmium, and mercury) to be regulated hazardous waste. Another example is the wastewater

containing solvents as degreasing agents; such wastewater should be considered hazardous waste unless sampling proves otherwise.

There may be additional requirements at contaminated job sites. See Chapter 2.3 and 2.4 for more waste management information. Contact your local DEQ District Office, Hazardous Waste Program (see Appendix C) for questions about evaluating wastes and what requirements may apply.

Power Wash - More Information

For more information on power washing see the guidance document titled "*Mobile Power Washing*,**"** which may be obtained via the DEQ's publication center at **www.deq.state.mi.us/pubcenter** (select "Key Topics," and "Publications" then search by keywords "mobile power washing").

3.3.9 Transferring Permit Ownership

Transferring ownership under the National Pollutant Discharge Elimination System (NPDES) and Groundwater Discharge permit programs requires the permittee to submit a request through the MiWaters system (Chapter 3.1.1). Guidance about the MiWaters system is available at **www.michigan.gov/miwaters**.

Groundwater discharge and NPDES permits both contain specific permit conditions related to transfer of ownership or control that are to be followed by the permittee prior to the transfer. The permits state the following:

> "In the event of any change in control or ownership of facilities from which the authorized discharge emanates, the permittee shall submit to the DEQ 30 days prior to the actual transfer of ownership or control a written agreement between the current permittee and the new permittee containing:
>
> 1) the legal name and address of the new owner;
> 2) a specific date for the effective transfer of permit responsibility, coverage and liability; and
> 3) a certification of the continuity of or any changes in operations, wastewater discharge, or wastewater treatment.
>
> If the new permittee is proposing changes in operations, wastewater discharge, or wastewater treatment, the DEQ may propose modification of this permit in accordance with applicable laws and rules."

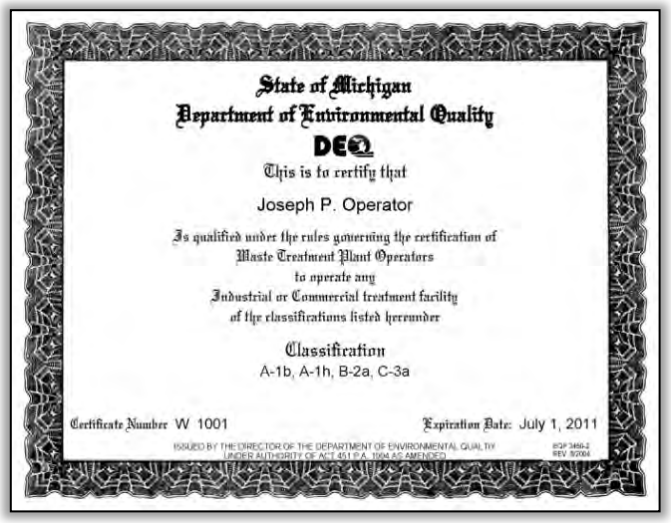
To notify the Department of the ownership change, the current permittee must complete a form in the MiWaters database. The permittee can find the form by logging into MiWaters, clicking on All Sites, selecting the appropriate site, then click on 'Apps, Requests and Reports', choose Permit Change Forms. From this screen, the permittee can find the form by typing in "Transfer" into the Form Name filter. One form appears for groundwater permittees. Two forms appear for NPDES: one for industrial storm water certificate of coverage (COC) permittees and the other form is for all other NPDES permittees. The permittee will then click Begin Submission for the appropriate form, complete, and submit the form. The form requires that the permittee include the written agreement as described above.

The new permittee will use the MiWaters system to report facility or operational changes requiring a permit modification.

The DEQ will not modify the permit documents until after the change in ownership has been completed. Change in ownership is a minor modification that does not require payment of a fee.

3.4 Wastewater Treatment Operator Training and Certifications

Technical assistance, operator training and certification for POTW operators are offered by the Operator Certification Program of the DEQ. Industrial/commercial wastewater certification exams are offered twice a year in February and August. Certification is offered in a variety of classifications each relating to a different process of wastewater treatment.


State of Michigan
Department of Environmental Quality
DEQ
This is to certify that
Joseph P. Operator
Is qualified under the rules governing the certification of
Waste Treatment Plant Operators
to operate any
Industrial or Commercial treatment facility
of the classifications listed hereunder
Classification
A-1b, A-1h, B-2a, C-3a
Certificate Number W 1001
Expiration Date: July 1, 2011
ISSUED BY THE DIRECTOR OF THE DEPARTMENT OF ENVIRONMENTAL QUALITY
UNDER AUTHORITY OF ACT 451 P.A. 1994 AS AMENDED

Operator certifications required under Permit-by-Rule and the Storm Water from Industrial Activities General Permit are offered at the DEQ District Offices (see Appendix C), usually on a regularly-scheduled basis. Schedules for certification and recertification training classes are located online at **www.michigan.gov/deqstormwater** under the “Construction Site” and “Industrial” programs. To register for training, contact the Registration Contacts listed on the training schedules, by phone or email. More information can be found at **www.michigan.gov/deqoperatortraining.**

WHERE TO GO FOR HELP

SUBJECT: **Wastewater discharge permitting**

CONTACT: DEQ, NPDES Permit Section, Water Resources Division (See Appendix C)
www.michigan.gov/deqwater

SUBJECT: **Industrial pretreatment (questions not answered by local POTW)**

CONTACT: DEQ, Industrial Pretreatment Program
586-601-7985 | **www.michigan.gov/ipp**

SUBJECT: **Storm Water Discharge Permits**

CONTACT: DEQ, NPDES Storm Water Program
517-284-5588 | **www.michigan.gov/deqstormwater**

PUBLICATIONS:
1. Scrap Metal Bins and Roll Off Boxes – Guidance Publication
2. Guidebook of BMPs for Michigan Watershed Nonpoint Sources
3. Sample Storm Water Pollution Prevention Plans
4. Michigan's Permit-by-Rule for Construction Activities Rule 323.2190
5. Industrial Storm Water Operator Training Manual
6. Construction Site Storm Water Certified Training Manual

SUBJECT: **Wastewater discharges to groundwater, including septic/tile field systems with more than 10,000 gallons per day discharge**

CONTACT: DEQ, Groundwater Discharge Permit Program
517-284-5570 | **www.michigan.gov/groundwaterdischarge**

PUBLICATIONS:
1. Part 22 Groundwater Discharge Authorization Application

SUBJECT: **Septic tank/field systems with <10,000 gallons/day discharge**

CONTACT: Local Health Department: **www.malph.org**

DEQ, Land Division and Local Health Program
517-284-6528 | **www.michigan.gov/deqonsitewastewater**

SUBJECT: **Lists of permitted and registered hazardous waste and liquid industrial by-product transporters**

CONTACT: DEQ, Hazardous and Liquid Industrial By-Products Transporter Program
www.michigan.gov/deqwaste (under "Transporters")

SUBJECT: **Lists of licensed septage waste transporters**

CONTACT: DEQ, Septage Waste Program
www.michigan.gov/deqseptage

SUBJECT: **Wastewater operator certification and training**

CONTACT: DEQ, Operator Training Program
517-284-5487 | **www.michigan.gov/deqoperatortraining**

Michigan Guide to Environmental, Health, and Safety Regulations

Chapter 4

Material Storage and Transportation

SECTION ONE – ENVIRONMENTAL REGULATIONS

CHAPTER 4: Material Storage and Transportation

IN THIS CHAPTER

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Purpose and Applicability of Regulations

The potential to adversely affect human health and the environment is always present when using, storing, and transporting regulated materials. Consequently, numerous regulations have been created to prevent accidents and reduce the risk of exposure to regulated materials. Complying with these regulations will minimize your liability and protect your employees, the community, and the environment. This chapter provides only a summary of the requirements. You must refer to the regulations for more specific detail on the requirements.

*Note: There are many regulations pertaining to the storage, use, and transportation of materials. Each regulation targets a specific group of materials that exhibit certain characteristics. Appendix B, which can be found in the back of this book, contains definitions of the various regulated groups of materials found in the material storage, use, and transportation regulations. These defined terms appear throughout this chapter in bold lettering. In some instances, multiple agencies use the same term to describe a regulated group of materials; however, its definition differs. Such terms will be followed by a dash and the acronym of the defining agency or regulation. For example, the Michigan Department of Environmental Quality (DEQ), the U.S. Department of Transportation (U.S. DOT), and The Department of Licensing and Regulatory Affairs all have differing definitions for the term "hazardous material." Therefore, the DEQ, U.S. DOT, AND Act 207 definitions of hazardous material will appear as "**hazardous material-DEQ,**" "**hazardous material-U.S. DOT**," and "**hazardous material-Act 207**," respectively.*

Agencies and Their Laws and Rules

The state, federal, and local agencies that enforce the regulations that apply to the storage, use, or transportation of regulated materials are listed below. Identify the regulations that apply and contact the appropriate agency if you have any material storage, use, or handling questions.

State Agencies

The Department of Environmental Quality (DEQ) regulates material storage and transportation under the following parts of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451) or other regulations that are covered in this chapter:

- Liquefied petroleum gases under the Act 207 and the Act 207 Liquefied Petroleum Gas Rules (see Chapter 4.3.2) (see Chapter 4.3.2)
- Compressed natural gases under Act 207 and the (see Chapter 4.3.2)
- Hydrogen under Act 207 and the Act 207 Storage and Handling of Gaseous and Liquefied Hydrogen Systems Rules (see Chapter 4.3.2)

The DEQ also regulates material storage and/or transportation under a number of other regulations that are not summarized in this chapter but are instead covered under the chapters referenced below:

- Air emissions from storage tanks under Part 55 (Air Pollution Control) of Act 451, the Part 55 Rules, and the Federal Clean Air Act (see Chapter 1.4)
- **Hazardous waste** under Part 111 (Hazardous Waste Management) of Act 451 and the Part 111 rules (see Chapter 2) and the Hazardous Materials Transportation Act (Public Act 138 of 1998) (**hazardous material-DEQ**) (see Chapter 4.4.11)
- Solid waste under Part 115 (Solid Waste Management) of Act 451 and the Part 115 rules (see Chapter 2)
- **Liquid industrial by-products** under Part 121 (Liquid Industrial By-products) of Act 451 (see Chapter 2), and the Hazardous Materials Transportation Act (Public Act 138 of 1998); (**hazardous material-DEQ**) (see Chapter 4.4.11)
- Scrap tires under Part 169 (Scrap Tires) of Act 451 (see Chapter 2)
- Medical waste under Part 138 (Medical Waste Regulatory Act) of the Public Health Code, Act 368 of 1978, as amended (Act 368) and the Part 138 rules. (see Chapter 2)
- Radioactive materials and radioactive waste (see Chapter 10)
- Storage and use areas for **oil-DEQ**, **salt**, and other **polluting materials** under the Part 31 (Water Resource Protection) of Act 451, Part 5 administrative rules “Spillage of Oil and Polluting Materials” (Part 5 Rules) (see Chapter 4.2 and 6.2.2)
- Outdoor storage and use areas at facilities subject to storm water permits (see Chapter 6.2.4)

The Michigan Department of Licensing and Regulatory Affairs (LARA) regulates:

- Underground storage tanks under Part 211 (Underground Storage Tanks Regulations) of Act 451, the Part 211 Rules, Part 213 (Leaking Underground Storage Tank) of Act 451, , the Fire Prevention Code, Public Act 207 of 1941 as amended (Act 207), and the Act 207 Storage and Handling of Flammable and Combustible Liquids Rules (see Chapter 4.3.1).
- Aboveground storage tanks and containers holding **flammable and combustible liquids-Act 207** under Act 207 and the Act 207 Storage and Handling of Flammable and Combustible Liquids Rules (see Chapter 4.3.2)
- Material storage and use, pursuant to the Michigan Occupational Safety and Health Act (MIOSHA), Public Act 154 of 1974, as amended (Act 154). See Chapter 13 "Hazard Communication/Employee Right-To-Know" and Chapter 34 "Flammable and Combustible Liquids" for more information.
- Requirements for building or remodeling a business under the Michigan Construction Code, Plumbing Code, and other codes including requirements for high-hazard materials storage areas (see Chapter 36).

The design, construction, installation and maintenance of underground storage tanks storing regulated substances. The regulatory authority is under Part 211, Underground Storage Tank Regulations, of Act 451 of 1994, as amended, and the Michigan Underground Storage Tank Rules (MUSTR).

The Michigan State Police, Commercial Vehicle Enforcement Division regulates:

- The transportation of **hazardous materials-U.S. DOT**, including motor carriers, shippers, drivers, and cargo tank facilities. The **hazardous material-U.S. DOT** regulations are adopted into state law under Public Act 181 of 1963, as amended (Act 181) and are enforced by Motor Carrier Officers of the Michigan State Police.

Federal Agencies

The U.S. Environmental Protection Agency (U.S. EPA) regulates:

- **Oil-EPA** storage under the Spill Prevention, Control, and Countermeasure (SPCC) requirements (see Chapter 6.2.3).
- Title III of the Superfund Amendments and Reauthorization Act (SARA), which requires that hazardous material inventory information be submitted to state and local agencies (see Chapter 5).
- Polychlorinated biphenyls (PCB) clean-up, storage, disposal and use under the Toxic Substances Control Act and the regulations found in Title 40, Part 761 of the Federal Code of Regulations (40 CFR Part 761).
- Hazardous waste under the federal Resource Conservation and Recovery Act (RCRA) are contained in Title 40, Parts 260-279, of the Code of Federal Regulations (40 CFR 260-279) (see Chapter 2).
- Wastewater under the federal Clean Water Act. (see Chapter 3)

The U.S. DOT regulates:

- Inter- and intra-state transportation of **hazardous materials-U.S. DOT** under authority of the Federal Hazardous Materials Transportation Act and Title 49 of the Code of Federal Regulations, the Pipeline and Hazardous Materials Safety Administration, and Federal Motor Carrier Safety Administration (PHMSA), in conjunction with the Michigan State Police.

Local Agencies

- Local ordinances overseen by local authorities. Contact your local building official and fire department for questions concerning the fire code, specific secondary containment requirements, and local reporting requirements. Contact county or city clerk regarding local business licenses. See Chapters 36 and 37 for more information.

4.1 Secondary Containment

One way to reduce the damage caused by chemical releases is to control their impact to air, groundwater, surface water, and drains. This can be done by rapid excavating or using items such as sorbents and devices to block drains. Some regulations require secondary containment structures to control releases, depending on what is being stored. See Appendix 4-A at the end of this chapter for a summary of many of these regulations but be advised there are some industry sectors that may have containment requirements not addressed in the guidebook. The DEQ's document **"**The Guide to Understanding Secondary Containment Requirements in Michigan**"** provides additional information on calculating and designing secondary containment structures.

Even if you are not required by law to have secondary containment, you are encouraged to use it for all materials that may pose a risk to human health and the environment if released. You can consider purchasing pre-fabricated containment units or fabricated units built to your specifications. Many environmental regulations do not specify how these structures must be built; only that they keep the material from reaching surface water and groundwater or the regulations provide general conditions like the containment must be compatible with, and impervious to, the contained material.

The volume that secondary containment structures must be able to hold varies with the type of substance stored. If the regulations do not specify a greater amount, it is generally acceptable that the containment area be designed to hold, at a minimum, the greater volume of either ten percent of all the container volumes, or 100 percent of the largest container volume, plus any precipitation that may accumulate in the area. Discuss secondary containment volume requirements about:

- ✓ Hazardous waste with the DEQ, District Office, Hazardous Waste Program (see Chapter 2.4.7 and Appendix C).
- ✓ Flammable and combustible liquids with the Storage Tank Program on any storage that falls within the scope of the Act 207 Storage and Handling of Flammable and Combustible Liquids (FL/CL) Rules (R 29.5601 to 5917). The requirements of these rules supersede local requirements if different than what is required in Act 207 or the FL/CL Rules (see Chapter 4.3).

- ✓ Polluting materials as defined by the Part 5 Rules with the DEQ, District Office, Water Resources Program (see Chapter 4.2).
- ✓ Flammable and combustible liquids with LARA MIOSHA when subject to those regulations (see Chapter 34).
- ✓ Oils storage when have 1,320 gallons or more storage capacity with the U.S. EPA, Region 5 (see Chapter 6.2.3).

Local authorities may have containment requirements. Jurisdiction varies between communities but may be with the waste water treatment plant, county health department environmental health section, and fire department.

Also check if your insurance company has any additional requirements pertaining to your coverage policy. Your chemical distributor/manufacturer may also have services to help design or construct storage areas.

If the materials you have on hand are affected by other regulations, follow the more stringent requirements. Examples of secondary containment structures include:

- ✓ Curbing
- ✓ Dikes, berms, or retaining walls
- ✓ Drip pans
- ✓ Enclosed cabinets with sealed flooring
- ✓ Portable containment units
- ✓ Spill diversion and lined detention ponds for larger areas
- ✓ Weirs, booms, or other barriers

Consider the following when selecting or designing a structure:

- *Structural strength* so the containment is capable of supporting the weight of the loads placed on it, including the materials and equipment that will enter the area.
- *Impermeability* so the containment is resistant to penetration of the materials contained in the structure. For example, a solid concrete structure with a linter that prevents the material from penetrating the concrete and infiltrating into the ground.
- *Compatibility* of the construction materials with the substances contained in the structure, and the structure's design should provide separation areas for incompatible substances. Look at the MSDS for storage recommendations and search Web sites about material compatibility.
- *Integrity* to avoid having any drains, other piping, or openings of any kind where liquids may escape. Seal all joints and cracks and do not include floor drains in the area or use cinder blocks in the construction. Have a regular maintenance schedule to locate and repair any cracks.
- *Security* to prevent vandalism and the entry of unauthorized persons to the area. The containment must allow emergency personnel and equipment to enter. Sumps included in the design should be manually controlled.
- *Protection* from extreme temperatures including ignition sources.

- *Squirt distance control* to contain any liquids spurting from containers if a leak occurred.
- C*apacity* so the containment meets the regulatory minimum holding capacity. Consider the amount of precipitation, such as snow and rainfall that may accumulate in the containment structure. Generally, areas in Michigan receive an average of 3.9 inches in a 24-hour rainfall. A record 24-hour precipitation in Michigan was nearly 10 inches.

Some other things to consider when designing your secondary containment area include:

- Avoid creating confined spaces. See MIOSHA confined space information in Chapter 18.
- Provide adequate lighting and ventilation. Consider if explosion proof equipment is needed.
- Adhere to required isolation distances from property lines, public ways, buildings, etc.
- Consider how employees will move materials in and out of the storage and use area and the loading and unloading dock area.
- Consider using alternative materials that are less hazardous and have fewer regulatory requirements
- Keep valves and piping inside the secondary containment

Any collected liquids from secondary containment structures must be characterized to determine if it is a regulated **hazardous waste** or **liquid industrial by-product**. If hauled off site, the applicable waste regulations must be followed (see Chapter 2). If it is discharged on site, it must be in accordance with the rules associated with Part 31 (Water Resources Protection) of Act 451 (i.e., Part 4 - Water Quality Standards, Part 5 - Spillage of Oil and Polluting Materials, and Part 22 - Groundwater Quality). The Part 5 and Part 22 rules allow discharges of captured precipitation from secondary containment to the ground if the discharge does not contain released materials and meets the conditions listed in R 324.2005(2) and the water quality standards overseen by the Water Resource Division. The discharge cannot be, or become, injurious; and cannot cause runoff to, ponding on, or flooding of adjacent property. It also can not cause erosion or nuisance conditions.

When doing a visual inspection before discharging, look for odor, color, turbidity, floatable matter, deposits, or stains. See the U.S. EPA Storm Water Management Fact Sheet **"***Visual Inspection***"** for more information and discuss discharge requirements with the DEQ, District Office, Water Resource Division (see Appendix C). If your facility is also subject to the Storm Water Discharge Permit Program (see Chapter 3.2.3), you will need to meet the sampling and monitoring requirements explained in your permit.

4.2 Use and Storage Area

Facilities must review their permits and determine if they are subject to any regulations that have requirements regarding use and storage areas, including loading and unloading areas. Many of the regulations are written to allow the facility flexibility in meeting requirements to keep materials out of the environment. In addition, a facility may be subject to MIOSHA housekeeping and other requirements (see Section Two of the Guidebook). See Chapter 2 for the requirements that apply to the storage and transportation of waste.

Manufacturers with **polluting materials** as defined in the Part 5 Rules have requirements for their use and storage areas beyond the secondary containment requirements for liquid **polluting materials** discussed in the previous section, if they meet or exceed the listed threshold management quantities and don't meet any of the listed exemptions in R 324.2003.

Salt: Solid form 5 tons
Liquid form 1,000 gallons

Oil: 660-gallon tank storage capacity, or
1,320-gallon total above ground storage capacity

Other **polluting materials** listed in R 324.2009 in discrete use or storage areas:

Outdoors 440 pounds

Indoors 2,200 pounds

Polluting materials *include mixtures of the materials listed to the left if they contain one percent or more, by weight, of the materials listed to the left.*

Facilities subject to the Part 5 Rules are required to have adequate surveillance of the facility to detect releases and implement procedures to prevent the **polluting materials** from reaching the surface water or groundwater. Each facility needs to determine how to meet this requirement, as it depends on what and how much **polluting material** is involved, how it is stored and used, how close it is to surface water or drains leading to surface water, what soil characteristics and other conditions could impact groundwater exposure, and the availability of pollution prevention and emergency response equipment, etc.

All use areas and indoor storage areas are required to be designed, constructed, maintained, and operated to prevent releases of **polluting materials** into a public sewer system or to surface water or groundwater.

Solid **polluting materials**, including salt storage and use areas, must meet the following requirements:

- Be managed to prevent releases to public sewer systems or to surface water or groundwater.
- Not be stored within 50 feet of a designated wetland or shore or bank of any lake or stream.
- Be designed and constructed to remain effective during a 100-year flood if located within a 100-year floodplain.

Discuss your use and storage area requirements for **polluting materials** with the DEQ, District Office, Water Resource Division (see Appendix C).

Some **polluting materials** may also have requirements in other regulations. For example:

- **Highly hazardous chemicals**, toxics, and reactives; see Chapter 17 “Process Safety Management of Highly Hazardous Chemicals”
- **Flammable and combustible liquids-Act 207/MIOSHA** or a **hazardous substance-CERCLA**; see Chapter 4.3 “Storage Tanks” and Chapter 34 “Flammable and Combustible Liquids”. **Polluting materials** exceeding the threshold management quantities in tanks that are exempted from the storage tank regulations, such as process tanks, are subject to the Part 5 Rules.
- Oils under U.S. EPA Spill Prevention Control and Measures regulations; see Chapter 6.2.3.
- Chemicals of interest under the US Department of Homeland Security’s Chemical Facility Anti-Terrorism Standards (CFATS); see Chapter 6.2.9

If a facility is subject to the storm water permit as required in Chapter 3, it is necessary to also include storage procedures and procedures for removing storm water from the containment in the Storm Water Pollution Prevention Plan.

4.3 Storage Tanks

Many businesses utilize underground storage tanks (USTs), aboveground storage tanks (ASTs), or both in their day-to-day operations. The storage and handling of products such as gasoline, diesel fuel, fuel oils, and other liquid chemicals can have environmental and safety consequences if the tanks are not properly installed and maintained. Also, the product transfer operations must be properly managed to minimize the possibility of releases and possible fire hazards. Storage tank regulations were designed to promote the safe storage and handling of flammable and combustible liquids such as petroleum products and other hazardous substances. Following the regulations will promote safer storage and handling practices and result in economic benefits to manufacturers and consumers.

4.3.1 Underground Storage Tanks

Prior to December 22, 1988, USTs containing **flammable and combustible liquids-Act 207** were solely regulated under the authority of the Act 207 and the FL/CL Rules. These rules adopted by reference some of the National Fire Protection Association codes and standards and provided a significant number of state additions and amendments. The FL/CL Rules applied not only to USTs but to ASTs as well. The last update of these rules took effect in October 2014.
On December 22, 1988, the federal UST Rules were promulgated by the U.S. EPA. Following the promulgation of the federal rules, the MUSTR were promulgated under the authority of Part 211 (Underground Storage Tanks Regulations) of the Natural Resources and Environment Protection Act, Public Act 451 of 1994, as amended. The MUSTR adopted by reference the federal rules with state specific additions and amendments and incorporated by reference the relevant language of the Storage and Handling of FL/CL Rules. The last update of these rules took effect in October of 2015 and called for increased emphasis on environmental protection.

The Underground Storage Tank Program implements the regulations under Part 211 (4.3.1 Storage Tank Regulations [MUSTR]).

Background

Michigan has approximately **17,500** USTs installed at **6,700** facilities. An underground storage tank system is defined as a UST or combination of USTs and underground connected piping that have at least 10 percent of their volume underground and are, were, or may have been used to contain a regulated substance. Many of these USTs have released or will release petroleum and other regulated chemicals into the environment through spills, overfills, or failures in the tank and piping system. The extensive contamination of soils and groundwater due to LUSTs is a serious problem nationwide.

UST facility locations that fit one or more of the following conditions must be plan reviewed and certified by the Storage Tank Program:

- A business or commercial facility that stores petroleum-based products, a **CAA Section 112(r) substance**; or any chemical included on the **hazardous substance-CERCLA** list in the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), in amounts greater than 110 gallons (**MUSTR-UST**).
- A facility that supplies **flammable liquid or combustible liquid-Act 207** that has an individual aboveground tank storage capacity of more than 1,100 gallons.
- A farm or residential location that stores motor fuel for non-commercial purposes in amounts greater than 1,100 gallons.
- A facility that supplies gaseous or liquefied hydrogen or a facility that stores gaseous or liquefied hydrogen in a container(s).
- A facility that stores liquefied petroleum gas (LPG) in a tank larger than 2,000 gallons individual or 4,000 gallons aggregate, or any size tank that is used for dispensing into either tanks or vehicles.
- A facility or residence that uses an UST to store heating oil for consumptive use on the premises where the tank is located does not require a plan review or yearly fees plus certification.

Registration

All regulated USTs must be properly registered with the Storage Tank Program. You must complete a **"***Registration for Underground Storage Tanks*" (BFS 3821). A UST discovered during tank removal and renovation must also be registered with the Storage Tank Program. You must send an amended form to the Storage Tank Program any time the registration information changes. The registration form must be submitted within 30 days from the date of the change.

Financial Responsibility

You must have pollution liability insurance or demonstrate financial responsibility to cover the costs of cleanups, property damage, and third-party compensation for bodily injury resulting from leaking underground storage tanks. You will be required to show proof of financial responsibility when you register the tanks. For further information regarding financial responsibility requirements, visit the *Financial Responsibility for Underground Storage Tanks* on the Storage Tank Program Web site at **www.michigan.gov/storagetanks** (select "Underground Storage Tanks").

The Michigan Underground Storage Tank Authority (MUSTA) was created by Public Act 416 on December 30, 2014. The Michigan Underground Storage Tank Authority (MUSTA) serves Michigan's petroleum underground storage tank owners and operators, local units of government, and country road commissions by managing the Underground Storage Tank Cleanup Fund, Legacy Release Program, and Public Highway Cleanup Program on a sound fiscal basis. MUSTA assists stakeholders in meeting their financial responsibility requirements and providing financial assistance to remediate contamination caused by releases from petroleum underground storage tanks.

For further information visit the *Michigan Underground Storage Tank Authority* Web site at **www.michigan.gov/deqmusta**.

Existing Installations

The UST system must be protected from potential releases and monitored. Since June 27, 2008; new UST systems are required to have approved secondary containment. Without these safeguards in place, the UST is more likely to leak, damage the environment, and leave you with costly cleanups. USTs that are not in compliance with the December 22, 1988, upgrade requirements of corrosion protection, overfill prevention, release detection, and spill prevention must have been closed by December 22, 1999. Closure may occur by removing the UST or filling the UST with inert material if removal threatens a structure.

For more information on release detection, spill protection, overfill prevention, and corrosion protection, call the Storage Tank Program at 517-241-8847 or visit **www.michigan.gov/storagetanks**.

New Installations

The requirements for secondary containment, spill protection, overfill prevention, corrosion protection, and release detection must be met at the time of installation. A **"***Notice of Proposed Installation of Underground Storage Tanks*" (BFS 3820) must be completed, detailing the materials and part numbers used on the UST installation as appropriate, and submitted with the site diagram.

At least 30 days before you install or use a UST system in Michigan, you must submit installation plans for review to the Storage Tank Program. The plans submitted for installation approval must include: a site diagram detailing the location of USTs, dispensers, other storage tank systems, property lines, buildings, and drinking water wells; and a list of materials used for the UST installation as described in MUSTR. R 29.2109 (Rule 9) of MUSTR also has specific requirements concerning secondary containment and the placement of UST systems near drinking water wells and wellhead protection zones. UST systems with pressurized piping, placed after January 2, 1999, must be installed with secondary containment piping.

The plans are reviewed within 45 days, and then an approval or deficiency letter is sent to you. After approval of the plans, you must notify the Storage Tank Program of the installation date of the UST system seven days prior to the installation. The Storage Tank Program field staff will inspect the installation within two working days following this notification. Following inspection of the site and prior to use of the UST system, a registration form must be sent to the Storage Tank Program. A certificate will then be mailed to the owner/operator to be displayed at the facility location.

Any person who installs or removes a regulated UST system in Michigan must obtain $1 million of pollution liability insurance. This insurance should not be confused with the financial responsibility requirements found previously in this chapter.

Tank Removal, Closure, and Changes of Stored Material

There are two types of closures for UST systems that are allowed: temporary and permanent. A temporary closure is allowed for up to a 12-month period, only if it is intended to bring the UST back into service. To temporarily close a UST system, you must submit an "*Intent of Removal, Closure, or Change-in-Service of Underground Storage Tanks*" (BFS 3824) form notifying the Storage Tank Program of the temporary closure. You must also continue operating the corrosion protection and release detection systems. Release detection is not required if the UST system is empty. A temporarily closed UST system may not be brought back into service unless it is fully upgraded for corrosion protection, overfill prevention, release detection, and spill protection. The UST system must also pass tank and line tightness testing.

A UST system is considered permanently closed when the UST system is empty for 30 days or more and does not meet the requirements for temporary closure or change-in-service. A permanently closed UST system must be emptied and cleaned by removing all liquids and accumulated sludge and purging all vapors.

When materials are removed from tanks, it is necessary to characterize those materials and sludges to determine if they are subject to waste regulations:

- Material that will be **used as is,** either by the generator or another company, is not considered a waste. This exclusion does not apply if the material has to be filtered or altered in any way before use. If the material is classified as a US Department of Transportation hazardous material, transportation of that material must meet that agency's requirements (see Chapter 4.4).
- Waste gasoline, diesel fuel, or other fuels that are being sent to a fuel blender are not considered hazardous waste because they were originally a fuel and are being recycled into a fuel. These would have to be shipped to the blender as a liquid industrial by-product.
- Contaminated soils, groundwater, or other debris generated as the result of contamination from leaking underground storage tanks are exempted from the hazardous waste regulations only if they:
  - exhibit benzene or other D019 to D043 constituents;
  - the site is being cleaned up under storage tank regulations; AND
  - The tank is an underground storage tank.

  This exemption does not apply to aboveground storage tank cleanups or from contamination associated with a UST due to overfilling or other causes besides leaking.

Removed materials may be characteristic or listed hazardous waste if the above situations do not apply. The tank must also be verified as empty. Discuss any waste determination questions with your consultant or DEQ, District Office, Hazardous Waste Program.

To determine whether you have a solid waste, liquid industrial by-product, or hazardous waste, view the DEQ recorded waste characterization and generator status webinar available at **www.michigan.gov/deqwaste** under the "Hazardous Waste and Liquid Industrial By-products Webinar Series" link on the "Announcement" tab or see Chapter 2.4.

If waste is generated from the tank cleanout, it may affect a facility's hazardous waste generator status because of the increased waste generation in that month. See Chapter 2.4.4 for more information about re-notifying or obtaining a Site Identification Number if the facility has not previously shipped hazardous waste off-site. It will also be necessary to use permitted and registered transporter, complete and submit copies of hazardous waste manifests, and meet other hazardous waste requirements when shipping hazardous waste off-site. There are different requirements for shipping liquid industrial by-products. To ensure properly handling of waste generated from tank closures. See Chapter 2 which discusses the management standards for both hazardous waste and liquid industrial by-product in detail.

Tanks not being reused must be emptied, inerted, cleaned, and rendered unusable by cutting holes in the tank heads and shell. Before the tank is cut up for scrap or disposal, the atmosphere in the tank must be tested to ensure its safety. If it is a steel tank, it can be sent to a recycler. Check the yellow pages under the scrap metal heading or go to the Recycled Material Market Directory at **www.michigan.gov/deqrmmd**. If it is a fiberglass tank, it can be disposed as a solid waste. Contact the landfill for specific requirements.

As detailed above, materials removed from inside the tank must be characterized. Generally, any materials removed from a tank will be subject to hazardous waste or liquid industrial by-product regulation upon removal. The handling requirements vary based on the character, composition, volume and ultimate disposition of the waste (recycling or disposal). Only when contaminated fuel is shipped directly to a fuel blender for recycling and reuse as fuel are the materials not subject to waste regulation. In that case, the contaminated fuel may be shipped using a bill of lading in accordance with the U.S. DOT regulations. For questions about the waste regulations that apply to the tank contents, see the resources above and contact the DEQ, District Office, Hazardous Waste Program staff for assistance.

All permanently closed UST systems must be removed from the ground and the Storage Tank Program must be notified of the pending removal by submitting an "*Intent of Removal, Closure, or Change-in-Service of Underground Storage Tanks*" (BFS 3824) 30 days prior to the pending removal date. A site assessment must be performed as described on page 4-13. In cases where a permanent structure is above or near the UST, the UST system may be closed in-place. A closed in-place UST must be filled with an inert solid material such as concrete or pea gravel. A site assessment must be performed. Once the UST is closed, you must submit an amended "*Registration for Underground Storage Tanks*" (BFS 3821) to the Storage Tank Program within 30 days of the closure. In place of an amended BFS 3821, the **"***Underground Storage Tank System Site Assessment Report and Closure or Change-In-Service Registration*" (BFS 3881) can be submitted within 45 days of permanent closure or change-in-service.

To facilitate UST removal and unrestricted closure of former UST sites, the state and federal hazardous waste regulations exclude petroleum contaminated media and debris that are D018-D043 characteristically toxic and not ignitable from being a hazardous waste if the site is being cleaned up under the storage tank regulations.

When the material stored in a UST is changed from a regulated substance to a non-regulated substance (such as water or heating oil), follow the same procedures as though you permanently closed the UST system.

Record Keeping Requirements

It is important to keep records of your daily operations, purchases of equipment, and other information relating to the operation of your UST system. These records are needed by the inspector and might also help you obtain cheaper insurance rates. Records must be kept on routine maintenance of the UST system, release detection, inventory control, site assessment results, reporting of releases, and corrective actions. These records should be kept on site and be immediately available upon request. If the records are kept at an alternative site, they must be available for inspection. It is recommended you keep these records indefinitely.

Releases, Reporting, and Investigation

Any time a non-emergency release is suspected or confirmed, you must report the release within 24 hours to the Storage Tank Program. See Chapter 6 for instructions and regulations on how to properly report a non-emergency spill. Once a suspected release has been reported, you have 14 days to investigate the release and either confirm the release or cancel the suspected release report. If a suspected release is upgraded to a confirmed release, or if you initially know that you have a confirmed release, you must begin corrective action as described on page 4-14.

All emergency spills or releases must be reported immediately to the Pollution Emergency Alerting System (PEAS) at 800-292-4706 in Michigan or 517-373-7660 if outside Michigan.

To report a confirmed release from a UST call 517-335-7279, fax the release report to 517-332-1428, or use the online form 'BFS 3826' located at **www.deq.state.mi.us/sid-web/Forms_Docs.aspx?strId=FORMS**.

Site Assessments

When a UST system is closed or a change-in-service occurs, the UST site must be assessed for past releases where contamination is most likely to be present. A proper site assessment requires sampling of soil and/or water. A laboratory using U.S. EPA or state acceptable methods must analyze these samples. R 29.2155 (Rule 55) of MUSTR lists the proper sampling guidelines for site assessments. The site assessment results must be submitted to the Storage Tank Program on the **"***Underground Storage Tank System Site Assessment Report and Closure or Change-in-Service Registration*" (BFS 3881). Also, Storage Tank Program's Informational Memoranda "*Test Methodology for Site Assessments*" (IM-3), succinctly lists the site assessment sampling requirements.

A site assessment is not required if contaminated soils, groundwater, or free product are discovered. If you find one of the following indicators of a release of regulated product, you must report a confirmed release to the Storage Tank Program within 24 hours of discovery: visible or olfactory evidence of contamination at the UST site during excavation, if field screening

instrumentation (e.g., a photo ionization meter [PID]) indicates the presence of contamination, or if your site assessment shows contamination. You must then follow the Remediation Division's (RD) guidelines for further testing and clean up the contamination as described on page 4-13.

Corrective Action

You must hire a qualified underground storage tank consultant (QC) to perform corrective action at your site. The QC must have $1 million coverage in pollution liability insurance. Be aware that even though you must hire a QC, you are ultimately liable for assuring that corrective actions are performed at your site.

After a release has been reported, you or your QC must immediately begin to perform initial response actions. If the corrective action is not completed after performing the initial response activities, then the QC must determine the extent of the contamination, conduct a risk-based corrective action (RBCA) assessment, and prepare a Corrective Action Plan (CAP) to further address the contamination at the site. You can find more information on CAPs and related reporting requirements in Part 213 (Leaking Underground Storage Tanks [LUST]) of Act 451. In addition to the above requirements, the QC must submit the following reports to the RD: initial assessment report, final assessment report, and the closure report.

FOLLOW-UP REPORTS FOR LUST

Forms required by regulation, due within:

90 days ---------- LUST Initial Assessment Report (BFS 3841)

365 days ---------- LUST Final Assessment Report (BFS 3842)

Submitted within 30 days after the completion of the Corrective Action ------- LUST Closure Report (BFS 3843)

Miscellaneous reports that are required (as applicable to the site) ----------
- Free Product Fax Transmittal (BFS 3800)
- Notice of Migration of Contamination (BFS 4482)
- Notice Regarding Discarded or Abandoned Containers (BFS 4476)
- Notice to Impacted Parties of Corrective Action (BFS 3852)

Each site must be evaluated and cleaned up based on the current cleanup criteria and the level of risk that the site poses to public health and the environment as determined by the QC performing the corrective action. The American Society of Testing and Materials' document entitled "*Standard Guide for Risk Based Corrective Action (RBCA) Applied at Petroleum Release Sites*" (E-1739-95) has been adopted by reference and is effective for all UST releases. This standard allows for a more streamlined approach to cleanups in Michigan. The RD has the necessary tables and guidance documents to implement RBCA.

Baseline Environmental Assessment (BEA)

Please see Chapter 7 for information on the BEA process and how to avoid liability for existing contamination when purchasing/leasing/operating at a site of contamination.

4.3.2 Aboveground Storage Tanks

Aboveground storage tanks (ASTs) are often used for the same purposes as USTs. An AST system has less than 10 percent of the volume of the storage tank system underground. While AST systems do not pose the same environmental or human health risks as USTs, the impacts may be significant if their contents are accidentally released. One advantage of ASTs is that they are highly visible, so any leaks or defects can be detected early.

The Storage Tank Program regulates ASTs that are used to store **flammable and combustible liquids-Act 207** with a flashpoint of less than 200 degrees Fahrenheit. The aboveground storage of **flammable and combustible liquids-MIOSHA** with a flashpoint greater than 200 degrees Fahrenheit can be regulated under the MIOSHA General Industry Safety Standards - Part 75, Flammable and Combustible Liquids and/or the fire prevention code adopted by the local municipality. See Chapters 34 and 37 for more information.

Aboveground storage locations that fit one or more of the following conditions must be plan reviewed and certified by the Storage Tank Program:

- A facility that supplies gaseous or liquefied hydrogen or a facility that stores gaseous or liquefied hydrogen in a container(s).
- Any flammable compressed gas or liquefied petroleum gas container filling location.
- A facility that supplies flammable compressed gas or any liquefied petroleum gas that has a tank with a water capacity of more than 2,000 gallons, two or more tanks with an aggregate water capacity of more than 4,000 gallons, or any tank used to fill other tanks or cylinders.
- A facility that supplies **flammable liquid or combustible liquid-Act 207** that has an individual tank storage capacity of more than 1,100 gallons.

Installation

The plan review form, "*Application for Installation of Aboveground Storage Tanks"* (BFS 3859), gives you a complete list of what must be submitted with your application, including the plan review fee of $203 for each AST being installed (exemption from fee exists for any tank storing a refined petroleum product). Plans are reviewed within 45 days after receipt. Following review of the plans, you will receive a letter indicating approval or denial of the plan. For a denial, the deficiencies are listed. The deficiencies need to be corrected before approval can be granted. Once the plan review is approved, a Storage Tank Program Hazardous Materials Storage Inspector will inspect your facility after the installation is complete and prior to placing an AST in service.

A certification fee of $61.50 is assessed annually per year/per tank, for any tank storing non-refined petroleum products. The billing period is October 1 of year X through September 30 of the following year. The certification fee for hydrogen and CNG tanks is based on standard cubic feet per minute (SCFM) storage capacity. One CNG tank is considered to be 18,500 SCFM, and one hydrogen tank is considered to be 36,000 SCFM.

To request the applicable plan review form, **"***Application for Installation of Aboveground Storage Tanks*" (BFS 3859) and get assistance completing it, call the Storage Tank Program at 517-241-8847 or go to **www.michigan.gov/storagetanks** (select "Aboveground Storage Tanks").

ASTs storing **flammable and combustible liquids-Act 207** that do not have to be plan reviewed are still subject to the following requirements found in the Storage and Handling of FL/CL Rules.

Secondary Containment

Most ASTs must have secondary containment. Several containment systems are acceptable to the Storage Tank Program: tanks with built in secondary containment, vaulted systems, concrete encasement, and lightweight thermal insulated tanks. For information on secondary containment, call the Storage Tank Program directly at 517-241-8847. There are also alternative methods of secondary containment, which must be approved during the plan review conducted by the Storage Tank Program. For more information about secondary containment, see Chapter 4.1.

Spill and Overfill Protection

Since August 12, 2008; all new or existing ASTs must have spill and overfill protection.

Corrosion Protection

ASTs must have a type of approved corrosion protection. A single- or double-bottom shop manufactured tank that has an external mastic-coated bottom can only be installed on a concrete or asphalt pad that is higher than the surrounding dike floor. Cathodic protection that is properly engineered and maintained must be used for the exterior of single- or double-bottom tanks that are installed on earth and gravel. Also, cathodic protection can be used on single- or double-bottom tanks that are installed on a concrete or asphalt pad at the same level as the rest of the dike floor. Additional requirements and guidelines can be found in the Storage and Handling of FL/CL Rules.

Control of Ignition Sources

ASTs, as regulated by the Storage Tank Program, have fire hazards. Precautions should be taken to prevent the ignition of flammable vapors. Sources of ignition include but are not limited to: open flames, cutting and welding, thermal heat, spontaneous ignition, stray currents, smoking, etc. All equipment such as tanks, machinery, and piping must be bonded or otherwise connected to the ground to prevent static electricity.

AST System Out-of-Service

An AST system that is going to be out-of-service for more than 12 months must follow the proper procedures. The AST system owner/operator is required to have the tank and related piping completely emptied and cleaned (professionally) to a vapor free condition. The piping must be disconnected from the AST system. The AST system must also be safeguarded against trespass. The owner/operator has the option of removing the tank system from the property. All tanks removed from the property must be disposed of properly. The facility owner/operator must submit the "*Change of Information Form*" (BFS 3858) for ASTs to notify the Storage Tank Program that the AST system is out-of-service or of the AST removal. See Section 4.3.1 above for details on emptying the tank and manage any wastes requiring removal.

Releases, Reporting, and Investigation

Releases or suspected releases of a regulated substance from flammable and combustible liquid ASTs and heating oil ASTs must be reported to the appropriate Remediation Division District Office (see Appendix C) and the local fire department having jurisdiction, or PEAS at 800-292-4706 within Michigan or 517-373-7660 if outside Michigan. Some signs that a release has occurred are visibly stained soils, holes in the AST, and odoriferous soils. For more information about handling media and debris from an AST release, see section *Tank Removal, Closure and*

Changes of Stored Material related to USTs. However, note that there is no exclusion from the state and federal regulations for petroleum contaminated media from an AST.

Emergency Planning and Training

You need to know what to do in case of a fire, spill, or any on-site emergency. An emergency action plan must be available and made known to employees to respond to fire or other emergencies. (Alternate fire safety measures on-site must be in place while any fire safety equipment is shut down.) This emergency plan should be coordinated with your local emergency response agencies, such as fire, police, etc. In most cases, your local agencies will respond to your alarm or call. Additional requirements for release prevention and response planning are found in Chapter 6. Without a proper emergency plan in place, you are likely to lose more products, increase your costs of cleanup, and endanger the environment and human lives.

Baseline Environmental Assessment (BEA)

Please see **Chapter 7** for information on the BEA process and to avoid liability for existing contamination when purchasing/leasing/operating at a site of contamination.

4.4 Hazardous Material-U.S. DOT Transportation, Shipping, and Receiving

The transportation of **hazardous material-U.S. DOT** is regulated by the U.S. Department of Transportation. The U.S. DOT operates under the authority of the Hazardous Materials Transportation Act and the Federal Hazardous Materials Regulations (FHMR) contained in Title 49, Parts 100-185 of the Code of Federal Regulations, administered by the Pipeline and Hazardous Materials Safety Administrations (PHMSA). Within U.S. DOT, the Federal Motor Carrier Safety Administration (FMCSA) is responsible for enforcing the FHMR as it applies to highway transportation. At the state level, the Michigan State Police (MSP) Commercial Vehicle Enforcement Division is responsible for enforcing the FHMR and the Federal Motor Carrier Safety Regulations, both of which have been adopted into state law under Michigan's Motor Carrier Safety Act, Public Act 181 of 1963, as amended (Act 181).

> ***Note: Hazardous materials –DEQ*** *are defined to include only hazardous waste and liquid industrial waste.*
> ***Hazardous materialS – U.S. DOT*** *includes products and waste that pose a hazard during transport.*

4.4.1 Hazardous Material-U.S. DOT Transporters

The U.S. DOT defines a **hazardous material-U.S. DOT** as "a substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, which includes hazardous waste." **Hazardous material-U.S. DOT** may pose varying degrees of risk in transportation, depending on the type of substance. Transporters of **hazardous material-U.S. DOT** must be aware of how these materials are classified to ensure compliance with packaging, handling, marking, labeling, placarding, shipping paper, and training requirements. **Hazardous material-U.S. DOT** may be classified as any of the following: explosives, gases, flammable liquids, flammable solids, oxidizers, poisons and infectious substances, radioactive material, corrosives, miscellaneous goods, and other regulated materials (ORM).

A table of **hazardous material-U.S. DOT** classes and an index to their class definition are included in Title 49, Part 173.2 of the Code of Federal Regulations. If the commodity you are transporting is included in one of the classifications identified, you are subject to the U.S. DOT's Hazardous Materials Regulations. Another table of **hazardous materials-U.S. DOT** is contained in Title 49, Part 172.101 of the Code of Federal Regulations. This table is more detailed, lists proper descriptions for the materials, and provides guidance for the packaging and handling of specific **hazardous materials-U.S. DOT**. This table can be downloaded off the Internet at **www.phmsa.dot.gov/hazmat** (Select "Hazardous Materials Regulations" then "Part 172").

4.4.2 Liability of Improper Shipments of Hazardous Material-U.S. DOT

Compliance with the hazardous materials regulations is the responsibility of both the shipper and carrier. General shipper responsibilities are contained in Title 49, Part 173 of the Code of Federal Regulations. In many cases, shipper and carrier responsibilities overlap. Although both the shipper and the carrier can perform the task, the carrier is ultimately responsible for the shipment during transportation. Title 49, Part 387 of the Code of Federal Regulations sets the insurance requirements for vehicles transporting certain amounts of **hazardous materials-U.S. DOT**.

Both Michigan and federal law require the carrier to maintain proof of financial responsibility on the federal form, "*Endorsement for Motor Carrier Policies of Insurance for Public Liability Under Sections 29 and 30 of the Motor Carrier Act of 1980*" (MCS-90). Additionally, both carriers and shippers must properly train their employees as required in Title 49, Part 172 of the Code of Federal Regulations. Table 4.2 summarizes shipper and carrier responsibilities.

TABLE 4.2 SHIPPER AND CARRIER RESPONSIBILITIES

Party	Responsibilities
Shipper Responsibilities (49 CFR 171.1, Pre-transport functions)	• Determine whether the material meets the definition of a **hazardous material-U.S. DOT**. • Determine class/division. • Prepare shipping papers. • Apply hazard warning labels. • Properly package, mark, and placard materials and vehicle. • Ensure compatibility between materials. • Properly block and brace cargo. • Identify and maintain 24-hour emergency response telephone number and emergency response information. • Ensure all employees handling **hazardous materials-U.S. DOT** are properly trained.
Carrier Responsibilities (49 CFR 171.1, Transport functions)	• Meet shipper's requirements when performing shipper's functions. • Ensure vehicle is properly marked and placarded. • Ensure compatibility between materials. • Ensure that the cargo is properly blocked and braced.

4.4.3 Hazardous Material-U.S. DOT Registration Program

The hazardous materials regulations require registration for each person that offers or transports any shipment of hazardous materials that requires placarding (with an exception for farmers offering or transporting hazardous materials in direct support of their farming activities). Each person subject to the requirements of this subpart must pay an annual fee. Registrants must maintain a copy of the application statement and the Certificate of Registration at their principal place of business for a period of three years from the date of issuance.

Each motor carrier subject to the registration must carry a copy of its current Certificate of Registration or another document bearing the registration number identified as the "US DOT Hazmat Reg. No." This document must be on board each truck and truck tractor (not including trailers and semi-trailers) used to transport hazardous materials subject to registration. It must be made available, upon request, to enforcement personnel.

Information about the U.S. DOT's Hazardous Materials Registration Program including the registration statement (**DOT F 5800.2**) and instruction booklet can be found at **www.phmsa.dot.gov/registration/registration-overview.** You can also call the Hazardous Materials Registration Program at 202-366-4109 or 1-800-942-6990 to receive instructions on how to register and obtain the "*Hazardous Materials Registration Statement*" (DOT F 5800.2).

4.4.4 Hazardous Material-U.S. DOT Shipping Papers

Stipulations for **hazardous material-U.S. DOT** shipping papers are contained in 49 CFR 172, Subpart C. According to the Hazardous Materials Regulations, a shipping paper is any shipping document that communicates a hazard and conforms to the requirements contained in the subpart. Essentially, all shipping papers must have four elements referred to as a basic shipping description:

1. identification number (4-digit number proceeded by "NA" or "UN"))
2. proper shipping name
3. hazard class/division;
4. packaging group in Roman numerals as designated for the hazardous material in column (5) of Sec. 172.101 table.

When preparing shipping papers, the basic shipping description must be entered in the order shown above. The requirement for this sequence went in to effect on January 1, 2013, and is commonly referred to as "ISHP" given the acronym follows the required order:

1. **I** for ID #;
2. **S** for Shipping Name
3. **H** for Hazard Class, and
4. **P** for Packing Group, if applicable.

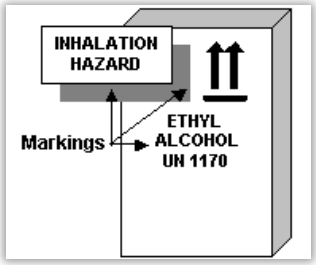
In addition to the basic shipping description, shipping papers must also contain the following:

- The total quantity transported,
- The number and type of packages,
- Shipper certification - certifies materials being transported are in compliance with regulations,
- Emergency response telephone number, and
- Emergency response information – specific requirements pertaining to this information are outlined in 49 CFR 172.602,604.

Note: The North American Emergency Response Guidebook is a reference guide that identifies the proper response procedures that should be taken in the event of a hazardous materials spill or accident. It also lists specific and generic hazards associated with a particular material. The guidebook can be accessed from the Internet at **www.phmsa.dot.gov/hazmat/erg/emergency-response-guidebook-erg**. A free ERG App can be downloaded from this site.

Shippers are required to retain shipping papers for a period of 3 years for hazardous waste and 2 years for all other hazardous material shipments after the material is accepted by the carrier. The carrier is required to retain shipping papers for a period of 3 years for hazardous waste and 1 year for all other hazardous materials. Depending on the material being transported, there may be additional requirements contained in 49 CFR 172.203. For more information, review the MSP, Commercial Vehicle Enforcement Division Hazardous Materials Bulletin on Shipping Papers, which can be accessed at **www.michigan.gov/documents/V01N01_115476_7.pdf**.

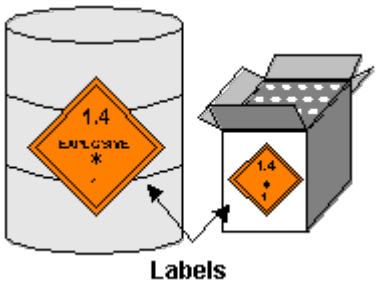
4.4.5 Hazardous Material-U.S. DOT Marking



Markings are placed directly on the outer packaging of **hazardous material-U.S. DOT** to identify the contents inside. The marking will provide a descriptive name, identification number (4-digit number proceeded by "UN" or "NA"), specifications, plus any required instructions and/or cautions. The provisions for marking packages are contained in 49 CFR 172, Subpart D. The basic marking requirement consists of the proper shipping name (e.g., Ethyl Alcohol) and the identification number (e.g., UN 1170) of the **hazardous material-U.S. DOT** contained in the package. This information is provided in the Hazardous Materials Table contained in 49 CFR 172.101, which can be downloaded off the Internet at **www.phmsa.dot.gov**. Select "Hazardous Materials Regulations, then select Part 172 Subpart C. Depending on the material, there may be additional marking requirements. Empty container exceptions as well as information on authorized abbreviations; bulk packaging; liquid hazardous materials; and marking requirements for explosives, poisonous, and ORM-D materials can all be found in 49 CFR 172, Subpart D.

For more information, review the MSP, Commercial Vehicle Enforcement Division Hazardous Materials Bulletin on Marking Requirements for Bulk and Non-Bulk Packages at **www.michigan.gov/documents/msp/Hazardous_Materials_Bulletins_212350_7.pdf**.

4.4.6 Hazardous Material-U.S. DOT Container Labeling



A label is a prescribed hazard warning notice that is applied to the outside of shipping containers of **hazardous material-U.S. DOT**. Labels identify the primary and subsidiary hazards specific to materials and may give information about handling precautions and prohibitions as well.

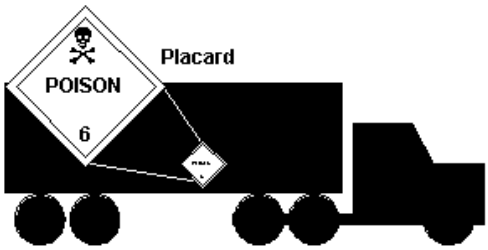
If you are transporting **hazardous material-U.S. DOT**, the containers must be labeled accordingly. General labeling requirements are contained in 49 CFR 172, Subpart E. A table that identifies proper labeling specifications for each **hazardous material-U.S. DOT** class and division can be found in 49 CFR 172.400. Other sections in Subpart E address authorized label

modifications, label placement, and specifications. Title 49, Part 172, Subpart E of the Code of Federal Regulations provides a separate section for each authorized label and gives a description and an example of the label. It is recommended that for specific information on labeling requirements, you refer directly to 49 CFR 172, Subpart E.

For more information, review the MSP, Commercial Vehicle Enforcement Division Hazardous Materials Bulletin on Labeling Requirements at **www.michigan.gov/documents/msp/Hazardous_Materials_Bulletins_212350_7.pdf.**

4.4.7 Hazardous Material-U.S. DOT Placarding of Carriers

Placards are displayed on each end and each side of a vehicle and are used to communicate the hazard to industry personnel, the public, and first responders. Unless the regulations tell you differently, each person who offers or transports a regulated **hazardous material-U.S. DOT** must comply with the placarding requirements.



General placarding requirements are contained in 49 CFR 172, Subpart F. Placard specifications for each **hazardous material-U.S. DOT** class and division are found in 49 CFR 172.500-560.

When evaluating placarding requirements, you should be familiar with two classification tables, referred to as “Table 1” and “Table 2”, located in 49 CFR 172.504. These tables identify when a carrier must be placarded. According to the regulations, the following **hazardous material-U.S. DOT** classes must be placarded regardless of quantity:

CLASS	DIVISION
Explosives	1.1, 1.2, 1.3
Poisonous Gas	2.3
Dangerous When Wet	4.3
Organic Peroxide	5.2*
Poison/Toxic	6.1**
Radioactive	7

* Type B, liquid or solid, temperature controlled
** PG1, Inhalation Hazard, Zone A and B

Except for the materials listed above, a placard is not required for materials if the individual package does not exceed 450 liters for liquid, 400 kilograms for solid, and 454 kilograms for gas and the aggregate gross weight of the total load of hazardous materials does not exceed 1,001 pounds. If the cargo exceeds these limits, they require placards. If a single container exceeds these limits, they are a “bulk package” and must also be placarded. Some materials have mandatory subsidiary hazard placard requirement (see 49 CFR 172.505). Subsidiary hazards that require a placard include: (1) Poison Inhalation Hazards (PIH); (2) Dangerous When Wet (4.3); (3) Radioactive materials with a corrosive subsidiary and poison subsidiary for Uranium Hexafluoride. All other subsidiary hazards may be placarded, but it is not required.

Empty, non-bulk packages containing only the residue of a **hazardous material-U.S. DOT** do not have to be placarded. Neither do containers that are cleaned and purged or refilled with a non-hazardous material.

Additional information on placard applicability, placement, specifications, and other requirements can be found in 49 CFR 172, Subpart F. Also, review the MSP, Commercial Vehicle Enforcement Division Hazardous Materials Bulletin on Placarding at **www.michigan.gov/documents/msp/Hazardous_Materials_Bulletins_212350_7.pdf.**

4.4.8 Materials of Trade Exclusion from Hazardous Material-U.S. DOT

Materials of Trade (MOTs) are hazardous materials that are carried on a motor vehicle for at least one of the following purposes:

- To protect the health and safety of the motor vehicle operator or passengers (e.g., insect repellant, self-contained breathing apparatus, and fire extinguishers).
- To support the operation or maintenance of a motor vehicle or auxiliary equipment (e.g., engine starting fluid, spare battery, and gasoline).
- When carried by a private motor carrier to directly support a principal business that is not transportation (e.g., lawn care, pest control, plumbing, welding, painting, and door-to-door sales).

Since MOTs are transported in small quantities, usually as part of a business, they are subject to less regulation. Title 49, Part 173.6 of the Code of Federal Regulations identifies the rules that apply to MOTs, the exceptions, and qualifying factors.

Basically, MOTs do not require shipping papers, emergency response information, placarding, formal training, or record keeping. However, if you operate a vehicle containing MOTs, you must know the materials are hazardous and you must be aware of the requirements for MOTs. There are some packaging and marking requirements that apply to certain MOTs that are explained in 49 CFR 173.6.

If you would like more information about MOTs, download a copy of the publication “What are Materials of Trade, and What Regulations Apply?” at **www.phmsa.dot.gov/hazmat/library**. Also, review the MSP, Commercial Vehicle Enforcement Division Hazardous Materials Bulletins at **www.michigan.gov/documents/msp/Hazardous_Materials_Bulletins_212350_7.pdf.**

You can also call the U.S. DOT’s Hazardous Materials INFO-LINE at 800-467-4922 for more information about Materials of Trade.

4.4.9 Loading and Unloading, Compatibility, and Packaging of Hazardous Material-U.S. DOT

Regulations pertaining to the loading and unloading of **hazardous material-U.S. DOT** to and from a motor carrier are contained in Title 49, Part 177, Subpart B of the Code of Federal Regulations. 49 CFR 177, Subpart B identifies the general unloading and loading regulations that apply to all **hazardous material-U.S. DOT** transportation and specific regulations that pertain to the unloading and loading of a particular class or division of **hazardous material-U.S. DOT**. Since there are so many regulations that refer to specific materials, it is best to find them in the

regulations cited above. In addition to these federal regulations, specific unloading and loading instructions for **flammable and combustible liquids-Act 207** are provided in administrative rules R 29.2201-2234, promulgated under the Michigan Fire Prevention Code, Public Act 207 of 1941, as amended.

Both shippers and carriers are responsible for compatibility. The requirement for shippers to comply with compatibility considerations is contained in 49 CFR 173.22. These provisions are to ensure that incompatible substances are segregated during transport. In order to determine compatibility for shipments by highway, shippers and carriers should refer to 49 CFR 177.848, Segregation of Hazardous Materials.

General requirements for packaging and packages are contained in 49 CFR 173.24. This section addresses topics like applicability, specifications, compatibility, closures, and venting. Empty packages are regulated under 49 CFR 173.29. Except where otherwise stated, empty packaging that contains only the residue of a **hazardous material-U.S. DOT** shall be offered for transportation and transported in the same manner as when it previously contained a greater quantity of that **hazardous material-U.S. DOT**.

4.4.10 Hazardous Material-U.S. DOT Employee Training

The **hazardous material-U.S. DOT** employee training requirements can be found in 49 CFR Part 172, Subpart H (Sections 172.700-704) and applies to intrastate and interstate transportation, and to both shippers and motor carriers. Transportation training modules and other training resources are available at **www.phmsa.dot.gov/training**.

The training standard requires training in the following five areas for both the shipper and carrier: (1) General Awareness/ Familiarization; (2) Function Specific; (3) Safety; (4) Security Awareness; and in certain circumstances, (5) In-depth Security Training.

The General Awareness/Familiarization Training requires each hazmat employee to be provided general awareness/familiarization training with the FHMR, and to enable the employee to recognize and identify hazardous materials consistent with the hazard communication standards (markings, labels, placards, etc.).

Function-Specific Training specifies that employees must receive training concerning the regulations that are specifically applicable to the functions the employee performs. The specific training provided will vary depending on the individual's involvement in the transportation system. For example, a shipping clerk would need training in the regulations applicable to shipping papers, whereas a dock employee would need loading and unloading, outage standards and package integrity, segregation and separation training, etc. This also includes hazardous waste manifest training.

Safety Training must cover the emergency response information required in 49 CFR 172, Subpart G, measures to protect the employee from the hazards associated with materials to which they may be exposed to in the workplace, and methods and procedures for avoiding accidents. One exception to this portion of the training requirement are employees who repair, modify, recondition, or test hazardous materials packaging, and who do not perform any other function subject to the regulations, do not have to receive safety training.

Security Awareness Training was added to the safety training requirements and must be done as part of the regular hazmat training. As part of the required training, a hazmat employee must receive training on recognizing and responding to possible security threats and an awareness of security risks associated with hazardous material transportation. All safety training was required to include a security awareness training component provided to shippers and carriers as of March 24, 2006.

In-depth Security Training is required of hazmat employees or persons who are required to have a Security Plan in accordance with 49 CFR Part 172, Subpart I (see Chapter 6.2.7). This training must include company security objectives, specific security procedures, employee responsibilities, actions to take in the event of a security breech and the organizational security structure.

In addition to the above training, carriers are required to meet the mode-specific training requirements for highway transportation found in 49 CFR 177.816. This section requires training on the Federal Motor Carrier Safety Regulations (FMCSR); the safe operation of the vehicle (backing, braking, parking, etc.); pre-trip safety inspections; use of vehicle's controls and equipment, including emergency equipment; effects of braking and curves, speed on vehicle control; hazardous weather or road conditions; operations in tunnels, bridges, and railroad crossings; vehicle attendance, parking, smoking, routing, and incident reporting; segregation of cargo; loading and unloading, load securement; and specialized training for cargo tank and portable tank operations, and other specific requirements. The Commercial Driver License (CDL) testing requirements may be used for compliance with this portion of the training for person with a hazardous materials or tank vehicle endorsement.

Other training standards may be substituted for portions of the U.S. DOT training requirements, if they meet the standards outlined in 49 CFR Part 172, Subpart H. For example, OSHA or U.S. U.S. EPA training may cover portions of the training required by U.S. DOT, and would not have to be repeated. If the training differs in any technical areas, like definitions, then the employee must be trained in those areas. Additionally, training completed by previous employers may also be used, if documented.

The training for a hazmat employee must be completed within 90 days after employment. Employees who change hazardous materials job functions must complete training in the new job

"**Hazmat employee**" means a person who is employed by a hazmat employer and who in the course of employment directly affects hazardous materials transportation safety. This term includes an owner-operator of a motor vehicle which transports hazardous materials in commerce. This term includes an individual, including a self-employed individual, employed by a hazmat employer who, during the course of employment: (1) Loads, unloads, or handles hazardous materials; (2) Manufactures, tests, reconditions, repairs, modifies, marks, or otherwise represents containers, drums, or packagings as qualified for use in the transportation of hazardous materials; (3) Prepares hazardous materials for transportation; (4) Is responsible for safety of transporting hazardous materials; or (5) Operates a vehicle used to transport hazardous materials.

"**Hazmat employer**" means a person who uses one or more of its employees in connection with: transporting hazardous materials in commerce; causing hazardous materials to be transported or shipped in commerce; or representing, marking, certifying, selling, offering, manufacturing, reconditioning, testing, repairing, or modifying containers, drums, or packaging as qualified for use in the transportation of hazardous materials. This term includes an owner-operator of a motor vehicle which transports hazardous materials in commerce. This term also includes any department, agency, or instrumentality of the United States, a State, a political subdivision of a State, or an Indian

function(s) within 90 days after the change. A hazmat employee may perform new hazardous materials job functions before completing training if he does so under the supervision of a properly trained and knowledgeable hazmat employee.

Training must be done every three years. However, assumed in that requirement is the fact that any time the regulations change affecting a particular job function, the employee(s) responsible for that function must be trained on the changes. The training may be done within the company or through other public or private sources.

A record of current training, inclusive of the preceding three years, must be created and retained by the employer for each hazmat employee for as long as they are employed as a hazmat employee and for 90 days thereafter. The record must include the employee's name; the most recent training completion date; a description, copy, or the location of the training materials used to meet the requirements; the name and address of the instructor(s); and a certification that the hazmat employee has been trained and tested.

There are no exceptions to the training standards for any quantities or classes of hazardous materials, unless a particular operation or material is excepted from the entire subchapter. While the regulations provide great flexibility in the details of the training supplied (i.e., no minimum number of hours or test questions), inherent in that flexibility is a large amount of liability should a hazardous materials incident occur, especially if employee error is a causative factor. Employers are cautioned to thoroughly examine the training program their employee receives, particularly if the training is offered through an outside source.

Additionally, Section 49 CFR 172.606(a), requires carriers to instruct drivers to contact the carrier in the event of a hazardous materials incident.

As soon as practical but no later than 12 hours after the occurrence of any reportable incident as defined in CFR 49 Part 171.15 requires each person in physical possession of a hazardous material shall provide notice by telephone to the National Response Center (NRC) on 800-424-8802. A more detailed incident report must be submitted on DOT Form F 5800.1 within 30 days of discovery of the incident. The report shall be submitted to the Information System Manager, at the Pipeline and Hazardous Materials Safety Administration, Dept. of Transportation, East Building, 1200 New Jersey Ave., SE, Washington, DC, 20590-0001.

4.4.11 Michigan Transportation Requirements

Michigan's Motor Carrier Safety Act, Public Act 181 of 1963, as amended, adopted the Federal Hazardous Materials Regulations into state law. Aside from these regulations, there are some additional requirements that have been implemented by the state to further regulate the transportation of materials.

Permits and Registration

Michigan's Hazardous Materials Transportation Act, Public Act 138 of 1998 (Act 138), regulates transporters hauling hazardous materials as defined by Act 138 **(hazardous materials-DEQ).** Act 138 defines **hazardous materials-DEQ** to include **hazardous waste** and **liquid industrial by-products.** Transporters of **hazardous materials-DEQ** in Michigan must be registered and permitted as part of the Alliance for Uniform Hazmat Transportation. Transporters of liquid industrial by-products are also required to be permitted and registered under Act 138. Registrations must be renewed annually, and the permits are effective for three years. In

Michigan, this program is administered by the DEQ, Hazardous Waste Program, Southeast Michigan District Office (see Appendix C).

The registration and permit application and instructions for hazardous waste transportation can be found at **www.hazmatalliance.org**. Hazardous waste applications must be completed online and require the Attachment A fee worksheet (EQP 5122A) if authorization to transport liquid industrial by-products is also desired. For transporting only liquid industrial by-products, applications can be downloaded off the Internet at **www.michigan.gov/deqwaste** by selecting "Transporters" and "Liquid industrial By-product Permits and Registration Forms & Instructions" or calling 586-494-5091 or 586-753-3850.

License Requirements

In Michigan, you are required to obtain a commercial driver's license (CDL) to operate a commercial vehicle. In addition to this certification, special endorsements on your CDL are required to transport certain cargo. A Hazardous Materials Endorsement ("H") is necessary for any vehicle, regardless of gross vehicle weight rating (GVWR) that needs to be placarded under the Federal Hazardous Materials Regulations. A Tank Endorsement ("N") is required for anyone operating a tank vehicle, according to the Michigan Vehicle Code, Public Act 300 of 1949, as amended.

4.5 Storage of Polychlorinated Biphenyls (PCBs)

Polychlorinated Biphenyls (PCBs) are subject to state and federal regulations. However, in December 2012, the state rescinded Part 147 of the Natural Resource and Environmental Protection Act, Act 451 of 1994, and the corresponding Part 147 rules. Michigan now defers to U.S. EPA's implementation of the federal Toxic Substances Control Act (TSCA) to oversee the handling and disposal of PCB containing materials in Michigan.

PCBs, and oils and other compounds or products containing 1% or more, by weight, of PCBs, are a **polluting material** under the state Part 5 Rules (Spillage of Oil and Polluting Material) promulgated under Part 31 of Act 451 except if it is in active installations of oil containing electrical equipment such as transformers and capacitors. The DEQ oversees the state rules, which includes secondary containment, Pollution Incident Prevention Plan (PIPP), and release reporting requirements if the manufacturer meets the facility definitions and threshold management quantities listed in these rules for all other PCBs and **polluting materials** on-site. See Chapters 4.2 and 6 for more information about those Part 5 Rule requirements.

The U.S. EPA carries out the requirements of the federal Toxic Substances Control Act (TSCA) and its implementing regulations found at Chapter 40 of the Code of Federal Regulations Part 761 (40 CFR) Part 761). The U.S. EPA's regulations apply to the manufacture, processing, distribution in commerce, marking, use, storage, cleanup, and disposal of PCBs. There are different requirements based on the following PCB concentration levels:

- $<$ 50 ppm (or $\leq$10 micrograms/100 cm^2 for certain contaminated surfaces)
- $\geq$ 50 ppm to < 500 ppm (or > 10 micrograms/100 cm^2 but < 100 micrograms/100 cm^2 for certain contaminated surfaces)
- $\geq$ 500 ppm (or $\geq$ 100 micrograms/100 cm^2 for certain contaminated surfaces)

Since the rules are too numerous to include in this publication, the following only summarizes how to identify PCBs and mentions a few requirements. Go to **www.epa.gov/pcbs** for more information on the PCB regulations, approved disposal facilities, and guidance documents. U.S. EPA's PCB Question and Answer Manual is a good place to start when researching U.S. EPA policy and guidance on PCB regulations. It covers the breadth of the PCB regulations, including the use, cleanup, and disposal of PCBs. The PCB Question and Answer Manual can be found on-line at www.epa.gov/pcbs/polychlorinated-biphenyl-pcb-question-and-answer-manual-and-response-comment-documents.

If you have questions about PCBs, call the U.S. EPA, Region 5 PCB Coordinator at 312-886-7890.

4.5.1 Identifying PCBs

PCBs can be found in liquid, non-liquid, and a combination of liquid and non-liquid forms. Usually this chemical can be found in electrical equipment such as transformers, circuit breakers, light ballasts, switches, large capacitors, etc.; or other equipment like air compressors; or may be a byproduct of the manufacturing process. See the definitions for "excluded manufacturing process" and "excluded PCB products" in the regulations to determine if any exclusions apply to your PCB waste (40 CFR 761.3). PCBs may be found in dielectric fluids, solvents, oils, hydraulic fluids or other heat transfer fluids, paints, caulks, or coatings, sludges, slurries, and other chemical substances.

See **www.epa.gov/pcbs/learn-about-polychlorinated-biphenyls-pcbs** for information about identifying PCB wastes. PCBs were marketed under various trade names. These include:

- Abestol
- Inerteen
- Aroclor
- Kennechlor
- Askarel
- No-Flamol
- Chlophen
- Phenoclor
- Chlorextol
- Pyralene
- DK
- Pyranol
- EEC-18
- Saf-T-Kuhl
- Fenclor
- Solvol

You can do any of the following to determine if you have regulated PCB concentrations:

- Look at the equipment label or nameplate for the words "No PCBs" or "PCBs" or any of the PCB trade names. If the nameplate is not readable, you may want to check with the equipment manufacturer for documentation as to the PCB concentration.
- Review service records or other documentation that indicates the PCB concentration of all fluids used since the article was first manufactured. You may need to check with your utility company to see if they have any records regarding the PCB concentration.
- Have the equipment tested.

  If you do not have documentation or have not had tests conducted that identify the PCB level, you may use the following assumptions regarding PCB concentrations for use or

storage for reuse. You will need to know the actual concentration at the time of disposal. See also 40 CFR 761.2 for the PCB concentration assumptions for use.

- Transformers and capacitors with less than 3 pounds of fluids, circuit breakers, reclosers, oil-filled cable, and rectifiers can be assumed to contain less than 50 ppm.

If you don't know how much dielectric fluid is present in the capacitor, the TSCA regulations provides the following assumptions:

- ✓ If the capacitor total volume is less than 100 cubic inches, assume it has less than three (3) pounds of dielectric fluid.
- ✓ If the capacitor total volume is more than 200 cubic inches, assume it has more than three (3) pounds of dielectric fluid.
- ✓ If the capacitor volume is between 100 and 200 cubic inches, and if the total weight is less than nine (9) pounds, assume it has less than three (3) pounds of dielectric fluid.
    - Mineral oil-filled electrical equipment manufactured before July 2, 1979, contains ≥ 50 ppm to < 500 ppm. If the date of manufacture is unknown, assume it is PCB-contaminated.
    - Transformers manufactured before July 2, 1979, that contain 3 pounds or more of fluid other than mineral oil contain ≥ 500 ppm. If the date of manufacture is unknown, assume it is a PCB-transformer.
    - Capacitors manufactured before July 2, 1979, contain ≥ 500 ppm. Assume any capacitors manufactured after that date are non-PCB. If the date of manufacture is unknown, assume it contains ≥ 500 ppm.
- For any electrical equipment manufactured after July 2, 1979, assume it is non-PCB.

You must label specific items with the applicable mark that identifies them as containing PCBs. See 40 CFR Part 761, Subpart C regarding these marking requirements. To prevent PCB contamination in used oil and be able to identify the source if you find they are present, follow the best management practices recommended by U.S. EPA in their the Preventing and Detecting PCB Contamination in Used Oil Fact Sheet.

4.5.2 General Record Keeping and Reporting Requirements

As of February 5, 1990, owners or operators of the following facilities must maintain annual records (manifests, certificates of disposal, and inspection and cleanup records) and prepare an annual document log:

- Facilities that do not commercially store or dispose of PCBs and that use or store at any one time at least:
    - 45 kilograms (99.4 pounds) of PCBs contained in PCB containers; or
    - one or more PCB transformers; or
    - 50 or more PCB large high- or low-voltage capacitors.
- Commercial storage and disposal facilities of PCBs and PCB Items.

The log must be prepared by July 1 and must include specific information for bulk PCB, PCB articles, PCB containers, and PCB article containers for the previous calendar year (January through December). All these records must be kept at least three years after the facility ceases use or storage of the PCBs (20 years for PCB landfills).

Keep a copy of all manifests (with the transporter's signature) that your facility generated or received. For manifests used to ship PCB wastes to storage or disposal facilities, keep the manifest until you receive signed copies back from the storage or disposal facility. You should receive this copy within 30 days of delivery of the PCB waste. Keep the copy signed by the receiving facility for at least three years from the date of shipment, unless it is part of the annual records discussed above. Use the manifest required by the state where the storage or disposal facility is located. See 40 CFR § 761, Subparts J & K for more details and Chapter 2.4.9.f for codes used on Michigan manifests.

In addition, commercial storage and disposal facilities must prepare an annual report summarizing the records *and* annual document log and submit it to U.S. EPA each year by July 15 for the previous calendar year (January through December).

4.5.3 Notification Requirements

All transporters, commercial storage and disposal companies, and companies conducting research and development activities must notify the U.S. EPA when handling regulated PCBs. A generator with a regulated PCB storage area as per 40 CFR Part 761.65(b) must notify the U.S. EPA. See also 40 CFR 761.205. A generator that keeps PCBs longer than 30 days must notify. The U.S. EPA has two notification forms on the Internet—a "*Notification of PCB Activity*" (Form 7710-53) and a "*PCB Transformer Registration*" (Form 7720-12).

To notify, complete and submit the "*Notification of PCB Activity Form*" (U.S. EPA Form 7710-53) if one has not already been sent to the U.S. EPA or if your PCB activities have changed since it was last submitted. A facility will then obtain an identification number from the U.S. EPA if they don't already have one. If the facility already has a Site Identification Number also known as a U.S. EPA Identification number assigned under the hazardous waste program (see Chapter 2), the U.S. EPA will confirm the use of this number under the TSCA program. If facilities do not have a Site Identification Number, also known as a U.S. EPA Identification Number assigned under another program, the U.S. EPA will issue an EPA-PCB identification number under the TSCA program. Do NOT use the "*Michigan Site Identification Form*" (EQP 5150) to request an EPA-PCB identification number for handling PCBs under the TSCA program.

If a facility has a PCB transformer (i.e. ≥ 500 ppm), it must fill out the "*PCB Transformer Registration*" (Form 7720-12). Both of these forms are found on-line at **www.epa.gov/pcbs/disposal-and-storage-polychlorinated-biphenyl-pcb-waste#notifications**.

4.5.4 Storing PCB Articles

Different regulations apply to storing PCBs for reuse (see 40 CFR § 761.35) and storing PCB waste prior to disposal (see 40 CFR § 761.65). PCB articles such as capacitors, transformers, electric motors, pumps, and other manufactured items can be stored in non-permitted areas for reuse by the owner or facility operator, under specific conditions. For example, combustible materials such as paints, solvents, plastics, paper, wood, etc.) must be stored at least 16.4 feet away from PCB transformers. There are also requirements to have markings or signs that state PCBs are in the area. PCB articles can be stored for reuse no more than five years after being removed from use or five years after August 28, 1998, whichever is later. If necessary to store longer, you must request an extension period from the U.S. EPA or place the article in an area that meets specific design requirements or has a RCRA permit. Articles may be stored for use indefinitely if kept in an area that meets specific design requirements under 40 CFR §761.65(b), such as having a roof, walls, and diking, or has a RCRA permit for managing hazardous waste. Discuss the specific storage design requirements with the U.S. EPA. Call the DEQ, Hazardous Waste Program, Permit Unit at 517-284-6838 to discuss RCRA permit requirements. Any PCB article stored for reuse must be authorized for use and follow the requirements under 40 CFR § 761.30 or it must be disposed of under 40 CFR 761 Subpart D. Storage for reuse must comply with the federal regulations found at 40 CFR § 761.35

PCBs being stored for disposal must comply with the regulations found at 40 CFR § 761.65, including storage area design requirements and the one-year limit on storage for disposal. In addition, commercial storage facilities that store more than 500 gallons at one time of regulated PCBs generated by others must have a PCB storage approval (permit) from U.S. EPA.

Use areas and indoor storage areas for PCB containing materials must be designed, constructed, maintained, and operated to prevent releases of polluting materials through sewers, drains, or to a public sewer system or to surface water or groundwater. If the PCB material is stored outdoors and is in liquid form, there are secondary containment requirements under Part 31 of Act 451 administrative rule R 324.2005 if the facility meets those regulatory threshold planning quantities.

PCB wastes can also be sent to an approved storage facility with a manifest before being disposed. The U.S. EPA has a list of these facilities on the Internet. Be sure to allow enough time to transport the PCB waste from the storage facility to the disposal company, and have the waste disposed of within the allowable one year time frame.

4.5.5 PCB Disposal

Contact the U.S. EPA Region 5 for disposal requirements if the facility manufactured PCB equipment at any time. Disposal of PCB waste is regulated by the U.S. EPA. If the PCB waste is liquid, it is also subject to Part 121 of Act 451. Any regulated PCB waste under TSCA must be disposed of within one year from the date it was determined to be a waste, unless the U.S. EPA granted an extension. See also 40 CFR 761 Subpart D for more details.

Identification Numbers

See Chapter 4.5.3 for information on notification and obtaining an EPA-PCB identification number. Consider the following for documenting PCB containing wastes for disposal:

- **Waste contains PCB concentration of 50 ppm or greater:** Generator may use the Site Identification Number, also known as the EPA Identification Number, issued by the DEQ. If the facility does not have a Site Identification Number, the generator may use the generic identification number "40 CFR Part 761" on the waste manifest if the generator meets the TSCA exemption in 40 CFR 761.205.
- **Solid waste containing PCB concentrations less than 50 ppm**: Check with municipal solid waste landfill if they will accept. Under the federal PCB regulations, the generator must provide written notice, including the quantity to be shipped and highest concentration of PCBs at least 15 days before the first shipment of bulk PCB remediation waste and/or PCB bulk product waste as defined in 40 CFR 761.3 from each cleanup site by the generator, to each off-site facility where the waste is destined (40 CFR 761.61 and 761.62(b)(4))). If they do, it is not necessary to obtain a Site Identification Number or use a Uniform Manifest for hazardous waste disposal. If landfill won't accept the waste, contact a PCB disposal company to determine what they require.

Manifests and Disposal Records

Regulated PCBs must be manifested on a uniform hazardous waste manifest form and disposed of at a U.S. EPA approved facility. See Chapter 2.4.5 to learn more about uniform manifest requirements for shipping hazardous waste and shipping document requirements for shipping discarded liquids. For manifesting waste containing PCBs, check with the waste disposal company about which waste code(s) to use for manifesting the different types of PCB wastes. For more information on uniform manifests, go to **www.michigan.gov/deqwaste,** select the "Hazardous Waste" tab on the left, then select "Uniform Manifest Information" under the "Forms" heading.

You should receive a "*Certificate of Disposal*" from the disposal facility within 30 days of the disposal completion date, unless a different time frame is identified in a contractual agreement between the generator and disposal facility.

Refer to the definition of PCB bulk product waste found under 40 CFR § 761.3 and the manifesting and disposal requirements for PCB bulk product waste prescribed under 40 CFR § 761.62). Bulk product waste generally includes waste derived from manufactured products that are in a non-liquid state and have PCB concentrations greater than or equal to 50 ppm and not contaminated by spills from regulated PCBs like debris from building demolition and other manmade structures manufactured, coated, or serviced with PCBs; applied dried paint, caulking, etc. Refer to the definition of PCB bulk remediation waste found in 40 CFR 761 and the clean-up, manifesting and disposal requirements for PCB bulk remediation waste prescribed under 40 CFR 761.61. PCB bulk remediation waste generally includes the following materials: soil, gravel, dredge materials, sewage sludge, and spill clean-up materials like buildings and other man-made structures (such as concrete floors, wood floors, or walls) contaminated from a release of PCB. See the definition for additional materials that may be managed as PCB bulk remediation waste.

For a summary of requirements for small capacitors and ballasts in fluorescent light fixtures, see Chapter 2.7.f. For information about PCB soil cleanup criteria, see Chapter 6.4.3.d.

WHERE TO GO FOR HELP

SUBJECT: **Secondary containment of flammable and combustible liquids-Act 207**

CONTACT: LARA, Storage Tank Program
517-241-8847 | **www.michigan.gov/storagetanks**

SUBJECT: **Secondary containment of flammable and combustible liquids-MIOSHA**

CONTACT: MIOSHA, Consultation Education & Training Division
517-322-1809 | **www.michigan.gov/miosha**

PUBLICATIONS: 1. Onsite Consultation Abatement Method Advice For: Flammable & Combustible Liquids (OSC-113)

SUBJECT: **Secondary containment of hazardous waste-DEQ**

CONTACT: DEQ, District Office, Hazardous Waste Program
See Appendix C for phone numbers
www.michigan.gov/deqwaste

PUBLICATIONS: 1. The Guide to Understanding Secondary Containment Requirements in Michigan

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SUBJECT: **Secondary containment for polluting materials (DEQ)**

CONTACT: DEQ, District Office, Part 5 Rules Staff
See Appendix C for phone numbers
www.michigan.gov/deqwater and select "Part 5 Rules: Spillage of Oil/Polluting Materials" from the Quick Links box on the right

PUBLICATIONS:
1. Pollution Incident Prevention Plan (PIPP) and Part 5 Rules and Information Packet
2. Salt and Brine Storage Guidance
3. U.S. EPA Bulk Storage Container Inspection Fact Sheet

SUBJECT: **ASTs and USTs Regulations**

CONTACT: LARA, Storage Tank Program
517-241-8847 | **www.michigan.gov/storagetanks**

PUBLICATIONS:

Informational Charts:
1. Owner's Responsibility - Life of an Underground Storage Tank
2. Owner's Responsibility - Closure of an UST

Forms:

1. Notice of Proposed Installation of Underground Storage Tanks (EQP3820)
2. Application for Installation of Aboveground Storage Tanks (EQP3859)
3. Application for Installation of Liquefied Petroleum Gas Facilities (EQP3861)
4. Application for Installation of Compressed Natural Gas Fueling Facilities (EQP 3860)
5. Registration for Underground Storage Tanks (EQP 3821)
6. Release Report (EQP 3826)
7. Intent of Removal, Closure, or Change-In-Service of USTs (EQP 3824)
8. UST System Site Assessment Report and Closure or Change-In-Service Registration Form (EQP 3881)
9. Change of Information Form Aboveground Storage Tanks Only (EQP 3858)
10. LUST Initial Assessment Report (EQP 3841)
11. LUST Final Assessment Report (EQP 3842)
12. LUST Closure Report (EQP 3843)
13. Free Product Fax Transmittal (EQP 3800)
14. Notice of Migration of Contamination (EQP 4482)
15. Notice Regarding Discarded or Abandoned Containers (EQP 4476)
16. Notice to Impacted Parties of Corrective Action (EQP 3852)

Informational Brochures:

1. The Aboveground Storage Tank Program - An Overview
2. Michigan-Straight Talk on Tanks: Leak Detection Methods for Petroleum USTs & Piping
3. Michigan Dollars and Sense - Financial Responsibility Requirements for Michigan USTs
4. Causes of UST Leaks and Recommendations
5. Operating and Maintaining Underground Storage Tank Systems in Michigan
6. Tips for Underground Storage Tank Owners and Operators

Storage Tank Program Informational Memoranda:

1. Test Methodology for Site Assessments (IM-3)
2. Enforcement of Financial Responsibility (IM-6)
3. Site Assessment at Closure or Change-In-Service After a Leaking Underground Storage Tank Closure (IM-10)
4. Monthly Monitoring Requirements for Release Detection (IM-11)
5. Storage of Compressed Natural Gas for Vehicle Fueling (IM-12)
6. Storage of Liquefied Petroleum Gases (IM-14)
7. Storage of Flammable and Combustible Liquids in AST Systems (IM-15)
8. Reporting Releases (IM-18)
9. Repairs to Cathodically Protected Underground Storage Tanks (IM-20)
10. Ten-Year Inspection of Lined Underground Storage Tank Systems (IM-21)

Storage Tank Program Operational Memoranda:

1. Alternate Methods of Secondary Containment for AST Systems (15)
2. Manual Tank Gauging as the Sole Method of Release Detection for
3. Tanks with a Nominal Capacity of 550 Gallons or Less (16)
4. Criteria for the Installation of Belowground, Partly Belowground, or
5. Mounded Liquefied Petroleum Gas Storage Containers (17)
6. Cathodic Protection Testing Criteria (18)

SUBJECT: **Underground Storage Tank Cleanup Fund, Legacy Release Program, and Public Highway Cleanup Program**

CONTACT: Michigan Underground Storage Tank Authority (MUSTA)
517-284-6537 |**www.michigan.gov/deqmusta**

SUBJECT: **Risk Based Corrective Action (RBCA)**

CONTACT: American Society for Testing and Materials (ASTM)
610-832-9585 | **www.astm.org**

PUBLICATIONS: Standard Guide for RBCA Applied at Petroleum Release Sites (E-1739-95)

SUBJECT: **National Fire Protection Association (NFPA) Publications**

CONTACT: National Fire Protection Association (NFPA)
800-344-3555 | **www.nfpa.org/codesonline**

PUBLICATIONS:
1. Flammable and Combustible Liquids Code (NFPA 30 [2012 edition])
2. Automotive and Marine Service Station Code (NFPA 30A [2012 edition])
3. Standard for the Installation of Oil-Burning Equipment (NFPA 31 [2011 edition])
4. Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines (NFPA 37 [2010 edition])
5. Compressed Natural Gas (CNG) Vehicular Fuel Systems Code (NFPA 52 [2013 edition])
6. Liquefied Petroleum Gases Code (NFPA 58 [2014 edition])

SUBJECT: **PCB storage**

CONTACT: U.S. EPA Region 5
312-886-7890 or 800-621-8431 | **www.epa.gov/pcbs**

PUBLICATIONS: PCB Transformer Registration (Form 7720-12)

SUBJECT: **Transportation of hazardous material-U.S. DOT**

CONTACT: Michigan State Police, Commercial Vehicle Enforcement Division
517-241-0506 | **www.michigan.gov/motorcarrier**

SUBJECT: **Transportation of hazardous material-U.S. DOT**

CONTACT: U.S. Department of Transportation
800-467-4922 or 517-853-5990 | **http://phmsa.dot.gov/hazmat**

SUBJECT: **Transportation of hazardous material-DEQ (hazardous waste and liquid industrial by-products)**

CONTACT: DEQ, Hazardous Waste Program
586-753-3850 or 586-494-5091 | **www.michigan.gov/deqwaste**
("Transporters") / noechelj@michigan.gov or rays1@michigan.gov

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APPENDIX 4-A: SUMMARY OF SECONDARY CONTAINMENT REGULATIONS

The material that you store at your facility may be regulated by more than one agency and, therefore, listed in more than one row of this table. Due to limited space, not all of the requirements are explained. If you have questions on how materials are regulated, go to the chapter of the guidebook that is referenced under the "Regulation References" column. The bolded words that appear in the table are defined in Appendix B, "Definitions of Regulated Materials." The bullets in the individual columns do not correspond with bulleted information in the other columns of that row. The bullets are only used as an indicator for another point.

Regulated Substance	Regulated Storage Volumes	Required Containment Volumes	Regulations References	Agency with Regulatory Responsibility
Cyanide	All surface coating operations	Dikes or other arrangements must be provided to prevent the possibility of intermixing of cyanide and acid in the event of tank rupture.	MIOSHA[1] General Industry Health Standards – Part 526 R 3320(10), Open Surface Tanks	LARA, General Industry Safety and Health Division Consultation, Education & Training Division 517-322-1809
Flammable and Combustible Liquids-MIOSHA	Varies with container type and class of material and whether material is stored indoors or outside. Limits how much material can be kept in storage cabinets.	• Storage room size varies with amount stored and fire protection rating (see MIOSHA document ***"OSC-113"*** and MIOSHA General Industry Safety Standards – Part 75). • At least 6" outdoor curb height. • At least 4" sill height or sunken floor for inside storage room.	MIOSHA General Industry Safety Standards – Part 75, Flammable and Combustible Liquids (see Chapter 34)	LARA, General Industry Safety and Health Division Consultation, Education & Training Division 517-322-1809
Flammable and Combustible Liquids-MIOSHA associated with coating, finishing, treating, or similar processes	1. Dip tanks of over 150 gallons in capacity or 10 square feet in liquid surface area 2. Dip tanks over 500 gallons in liquid capacity	1. Equipped with trapped overflow pipes which prevent passage of vapors and which lead to a safe location outside buildings. Smaller dip tanks shall also be so equipped, where practical. 2. Have trapped drain which is discharged to a closed properly vented salvage tank or to a safe location outside which will not endanger property. Note: capacity must be able to handle fire suppression water	MIOSHA General Industry Safety and Health Standards – Part 76 Spray Finishing and Dip Tanks	LARA, General Industry Safety and Health Division Consultation, Education & Training Division 517-322-1809

Regulated Substance	Regulated Storage Volumes	Required Containment Volumes	Regulations References	Agency with Regulatory Responsibility
Flammable and Combustible Liquids-Act 207 **Hazardous Materials-Act 207**	Aboveground Storage • AST[2] 60 gallons or larger capacity. • Any size container holding flammable liquids requires means of preventing flow into adjacent building area. • Any container less than 660 gallons capacity if secondary containment is determined to be necessary by authorities. • Loading/unloading areas	• Volume varies with amount stored and fire protection level; indoor/outdoor restriction; distance requirements between tanks, buildings, and property lines; aisle width between containers; etc. • Tanks must be in an area capable of containing 100% volume of the largest tank, plus the volume occupied by other tanks in the same area measured from the height of the dike wall. • At least 4" sill height or sunken floor for inside storage room or use of open-grated trench. • At least 6" curb height for outside storage area or sloped away from building. • Capacity to hold release and water from fire protection system to prevent release from reaching surface water, ground water, and subsurface soils. • Storage cabinet may be required for containers.	• Michigan Fire Prevention Code, Public Act 207 of 1941 • FL/CL Rules R 29.5601 – R 29.5917 and adopted NFPA Standards (see Chapter 4.3.2)	LARA, Storage Tank Program 517-241-8847 **www.michigan.gov/storagetanks**
• **Hazardous Substance-CERCLA** • Petroleum products (oil, gasoline, diesel fuel) • A substance listed in Section 112 of part A of title I of the clean air act, chapter 360, 84 Stat. 1685, 42 U.S.C. 7412	Underground Storage Regulated underground storage tank located in an exclusion zone or secondary containment zone.	• Requires double-walled tanks or integral secondary containment tanks.	• Part 211 (Underground Storage Tanks) of Public Act 451 of 1994 • UST Rules R 29.2101 – 29.2172 • FL/CL Rules R 29.5601 – R 29.5917 • 40 CFR 302.4 • Clean Air Act Section 112 (see Chapter 4.1)	LARA, Storage Tank Program 517-241-8847 **www.michigan.gov/storagetanks**

Regulated Substance	Regulated Storage Volumes	Required Containment Volumes	Regulations References	Agency with Regulatory Responsibility
Highly Hazardous Chemicals	At or above the threshold quantity specified in the MIOSHA General Industry Safety and Health Standards – Part 91 and 591	Varies with physical and chemical characteristics of the hazardous chemical. Standard requires equipment in a covered process to comply with generally accepted good engineering practices (secondary containment is a good engineering practice).	MIOSHA General Industry Safety and Health Standards – Part 91 and 591, Process Safety Management of Highly Hazardous Chemicals (see Chapter 17)	LARA, General Industry Safety and Health Division Consultation, Education & Training Division 517-322-1809
Hazardous Waste-DEQ and U.S. EPA	SQGs[3] accumulating more than 2,200 lbs. of liquid hazardous waste. LQGs[4] accumulating any amount of hazardous waste. SQGs or LQGs accumulating any waste with codes F020, F021, F022, F023, F026, and F027. Anyone accumulating more than 2.2 lbs. of acute or severely toxic waste. Generators with regulated waste tanks. Conditionally exempt small quantity generators are not required to have secondary containment unless they accumulate greater than 2,200 lbs., but they must manage the waste so there is no release into the environment, sewers, or drains. There are specific requirements for treatment, storage, and disposal facilities; and transporters. If in regulated storage tanks and has flashpoint below 200 degrees Fahrenheit, also meet **Flammable and Combustible Liquids-Act 207** requirements	Capacity must be able to contain 100% of the largest container or 10% of the volume of all the containers in the system, whichever is larger, of liquid hazardous waste or those identified "F" code wastes plus any precipitation that gets in the accumulation area. NOTE: Spill pallets do not provide adequate squirt protection and are not acceptable for liquid hazardous waste containment. NOTE: Even if secondary containment is not required, it is recommended for all hazardous waste accumulation areas.	• Part 111 (Hazardous Waste) of Public Act 451 of 1994. • R 299.9101 - 299.11107 • Federal Resource and Conservation Act (RCRA) • 40 CFR 260-279 NOTE: If you handle hazardous waste, you will also need to meet emergency notification and planning requirements. (see Chapters 2.3 and 5.2)	DEQ, District Office **www.michigan.gov/deqwaste** U.S. Environmental Protection Agency **www.epa.gov**
Universal waste	• Contain if waste or package is leaking, spilled, or damaged	Place damaged package into another container or replace container	• Hazardous waste rule R 299.9228 • 40 CFR 273	DEQ, District Office **www.michigan.gov/deqwaste**

Regulated Substance	Regulated Storage Volumes	Required Containment Volumes	Regulations References	Agency with Regulatory Responsibility
Oil-U.S. EPA, if any discharge can reach navigable water	• If total storage capacity is more than 1,320 gallons (count containers 55 gal and larger). • If underground storage capacity is more than 42,000 gallons. • See 40 CFR 112 for exemptions.	• 100% of the largest single container plus sufficient freeboard to allow precipitation. • Constructed to prevent release from escaping containment system before cleanup occurs.	• The Clean Water Act (CWA) • 40 CFR 112 NOTE: If your storage capacity is regulated under these federal regulations, a Spill Prevention, Control, and Countermeasures (SPCC) plan is required (see Chapter 6.2).	U.S. Environmental Protection Agency Oil Program 312-353-8200 **www.epa.gov/oilspill**
• Salt • Polluting Materials listed in R324.2009	• Salt Solid form is more than 5 tons. Liquid form is more than 1,000 gallons. • Listed polluting materials – Outdoor use and storage areas 440 pounds. – Indoor use and storage areas 2,200 pounds. – Includes mixtures of above materials if their concentration is 1% or more by weight based on the MSDS information. • Sites where DEQ determines necessary to protect surface water and groundwater.	Capacity for LIQUID polluting materials stored OUTDOORS must be able to contain not less than 10% of total volume of the tanks or containers, or 100% of the largest container within the containment structure, whichever volume is higher. Storage of solid materials must be contained to prevent releases through drains, sewers, etc. into wastewater treatment plants, surface water or groundwater NOTE: If subject to SPCC, meet federal oil containment requirements.	• Part 31 (Water Resource Protection) of Public Act 451 of 1994 • R 324.2001-R324.2009 *NOTE: If you have chemicals or salt stored, a Pollution Incident Prevention Plan (PIPP) is required (see Chapter 6.2).*	DEQ, District Office **www.michigan.gov/deqwater**

[1]MIOSHA – Michigan Occupational Safety and Health Administration
[2] AST – Aboveground Storage Tank
[3]SQGs – Small Quantity Generators
[4]LQGs – Large Quantity Generators

Michigan Guide to Environmental, Health, and Safety Regulations

Chapter 5

Emergency Planning and Community Right-to-Know Act

SECTION ONE – ENVIRONMENTAL REGULATIONS

CHAPTER 5: SARA Title III – Emergency Planning and Community Right-to-Know Act

IN THIS CHAPTER

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Purpose and Applicability of Regulations

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) was enacted by Congress in 1980 to clean up the nation's hazardous waste sites and to provide for emergency response to releases of hazardous substances into the environment. CERCLA is also called Superfund, and the hazardous waste sites are known as Superfund sites. In response to community concern regarding hazardous materials and chemical release tragedies, a reauthorization and expansion of Superfund was signed into law in 1986. It is known as the Superfund Amendments and Reauthorization Act (SARA). Title III of SARA ("SARA Title III") is the Emergency Planning and Community Right-To-Know Act (EPCRA).

SARA Title III establishes requirements for federal, state, and local governments, Indian tribes, and industry regarding emergency planning and "Community Right-to-Know" reporting on hazardous and toxic chemicals. The Community Right-to-Know provisions help increase the public's knowledge and access to information on chemicals at individual facilities, their uses, and releases into the environment. States and communities, working with facilities, can use the information to improve chemical safety and protect public health and the environment.

Agencies and Their Laws and Rules

Federal Agencies: The U.S. Environmental Protection Agency (U.S. EPA) enforces SARA Title III in Michigan. The regulations implementing SARA Title III are codified in Title 40 of the Code of Federal Regulations, Parts 350 through 372.

State Agencies: SARA Title III is a federal act that is implemented in Michigan under an executive order from the Governor. Executive Order 2007-18 created the Michigan Citizen-Community Emergency Response Coordinating Council as an advisory body within the Michigan Department of State Police (MSP). This council is responsible for developing and implementing citizen volunteer emergency response plans and hazard mitigation plans, and it acts as the *State Emergency Response Commission* (SERC) as required by SARA Title III. The MSP Emergency Management and Homeland Security Division (EMHSD) oversees the emergency planning requirements in SARA Title III. The **Michigan SARA Title III Program** in the Department of Environmental Quality (DEQ) handles the reporting requirements in SARA Title III and **receives all reports on behalf of the SERC.**

Local Agencies: SARA Title III requires that the SERC establish Local Emergency Planning Committees (LEPCs). There are 87 LEPCs in Michigan – one for each of the 83 counties, as well as LEPCs for the cities of Ann Arbor, Detroit, Romulus, and Wayne. Data collected pursuant to SARA Title III are used by LEPCs and local fire departments.

5.1 What Does SARA Title III Cover?

SARA Title III has four major components:

- Emergency planning (Sections 302 & 303)
- Emergency release notification (Section 304)
- Hazardous chemical inventory (Sections 311 & 312)
- Toxic chemical release inventory (Section 313)

Information gleaned from these four requirements helps states and communities develop a broad perspective of chemical hazards for the entire community as well as for individual facilities. Regulations implementing SARA Title III are codified in Title 40 of the Code of Federal Regulations (CFR), Parts 350 to 372. The chemicals covered by each of the sections are different, as are the quantities that trigger reporting.

The reporting requirements for each of these sections are outlined in Table 5.1. The chemicals covered by each of the sections are different, as are the quantities that trigger reporting. Summaries of these reporting requirements are covered in the discussion below and in the flow charts at the end of this chapter. For a detailed discussion of the SARA Title III requirements, see the "*Michigan Facilities' Guide to SARA Title III, Emergency Planning, and Release Reporting*" at **www.michigan.gov/sara** (select the "SARA Title III" link).

TABLE 5.1 SARA TITLE III REPORTING REQUIREMENTS

SARA TITLE III SECTION	REPORT REQUIREMENT	REPORT FORM	REPORT DUE	AGENCIES TO RECEIVE REPORT
302	Emergency Planning Notification	Emergency Planning Notification online in Tier II Manager™.	Within 60 days after threshold reached	Michigan SARA Title III Program LEPC
304	Emergency Chemical Release – Initial Notification		Within 15 minutes after discovery	Pollution Emergency Alerting System (PEAS) at 800-292-4706 or MDARD Hotline at 800-405-0101 All LEPCs potentially affected by the release U.S. Coast Guard National Response Center at 800-424-8802
304	Emergency Chemical Release – written follow-up	Spill or Release Report	Within 30 days after the release	Michigan SARA Title III Program All LEPCs affected by the release
311	Initial Hazardous Chemical Inventory	Online in Tier II Manager™	Within 3 months after threshold reached	Michigan SARA Title III Program LEPC Local fire department
312	Tier II – Emergency & Hazardous Chemical Inventory	Tier II online in Tier II Manager™	Annually, by March 1	Michigan SARA Title III Program LEPC Local fire department
313	Toxic Chemical Release Inventory	Form R online in *TRI-MEweb*	Annually, by July 1	Michigan SARA Title III Program U.S. EPA TRI Data Processing Center

There are **no fees** associated with reporting under SARA Title III in Michigan.

5.2 Emergency Planning (Sections 302 & 303)

Off-site emergency response plans contain information that community officials can use at the time of a chemical accident. These plans are developed under Section 303 by the Local Emergency Planning Committee (LEPC) for the protection of the community. The plans address the off-site response to emergency releases of Extremely Hazardous Substances (EHSs) from certain facilities in the LEPC planning district. The plans must:

- Identify facilities subject to Section 302.
- Identify routes likely to be used for the transportation of EHS'.
- Identify facilities contributing to the risk due to their proximity to facilities subject to Section 302 such as natural gas facilities.

- Identify facilities subjected to additional risk due to their proximity to facilities subject to Section 302, such as hospitals.
- Describe emergency response procedures, on and off site.
- Designate a community coordinator and facility coordinator(s) to implement the plan.
- Outline emergency notification procedures.
- Describe how to determine the occurrence of a release, and the area or population likely to be affected by such release.
- Describe local emergency equipment and facilities, and identify the persons responsible for such.
- Outline evacuation plans.
- Include training programs, including schedules for training local emergency response and medical personnel.
- Provide methods and schedules for exercising the emergency plan.

5.3 Emergency Release Notification (Section 304)

Facilities must immediately notify the LEPC and SERC if there is a release into the environment of a hazardous substance that is equal to or exceeds the minimum reportable quantity set in the regulations. This requirement covers the 355 EHSs as well as over 770 listed hazardous substances subject to the emergency release notification requirements under CERCLA Section 103(a) (40 CFR 302.4). Some chemicals are common to both lists. Emergency release notification requirements involving transportation incidents can be met by dialing 911.

A written follow-up notice must be submitted to the SERC and the LEPC as soon as practicable after the release. The follow-up notice must update information included in the initial notice and provide information on the actual response actions taken and advice regarding medical attention necessary for citizens exposed to the released chemical.

Section 304 is only one of 27 state and federal regulations that have release reporting requirements that apply in Michigan. Additional release reporting requirements and a release reporting form that can be used to report releases under Section 304 is available on the Internet at **www.michigan.gov/chemrelease.**

The emergency release notification should include:

- The chemical name.
- An indication of whether the substance is extremely hazardous.
- An estimate of the quantity released into the environment.
- The time and duration of the release;
- Whether the release occurred into air, water, and/or land.
- Any known or anticipated acute or chronic health risks associated with the emergency and, where necessary, advice regarding medical attention for exposed individuals.
- Proper precautions, such as evacuation or sheltering in place.
- Name and phone number of contact person.

5.4 Hazardous Chemical Inventory (Sections 311 & 312)

Under the Occupational Safety and Health Administration (OSHA) regulations, employers must maintain a Safety Data Sheet (SDS) for any hazardous chemicals stored or used in the work place. Over 650,000 products have SDSs.

Note: *The Hazard Communication Standard requires chemical manufacturers, distributors, or importers to provide SDSs (formerly known as Material Safety Data Sheets or MSDSs) to communicate the hazards of hazardous chemical products. As of June 1, 2015, new SDSs must be in a uniform format.*

Section 311 of SARA Title III requires facilities that have SDSs for chemicals held above certain quantities to submit either copies of their SDSs or a list of these hazardous chemicals to the SERC, LEPC, and local fire department within three months after they exceed the threshold. If the facility owner or operator chooses to submit a list of hazardous chemicals, the list must include the chemical or common name of each substance and identify the applicable hazard categories. These hazard categories are:

Physical Hazards

- Combustible dust
- Corrosive to metal
- Explosive
- Flammable (gases, aerosols, liquids, or solids)
- Gas under pressure
- Hazard not Otherwise Classified (HNOC)
- In contact with water emits flammable gas
- Organic peroxide
- Oxidizer (liquid, solid or gas)
- Pyrophoric (liquid or solid)
- Pyrophoric gas
- Self-heating
- Self-reactive

Health Hazards

- Acute toxicity (any route of exposure)
- Aspiration hazard
- Carcinogenicity
- Germ cell mutagenicity
- Hazard Not Otherwise Classified (HNOC)
- Reproductive toxicity
- Respiratory or skin sensitization
- Serious eye damage or eye irritation
- Simple asphyxiant
- Skin corrosion or irritation
- Specific target organ toxicity (single or repeated exposure)

Facilities covered by Section 311 must, under Section 312, submit annually an emergency and hazardous chemical inventory form to the LEPC, the SERC, and the local fire department. Facilities provide either a Tier l or Tier II form. Tier l forms include aggregate information for each applicable hazard category. The Tier II report contains basically the same information as the Tier l, but it must name the specific chemicals. **Most states, including Michigan, require Tier II information.** Tier II forms provide the following information for each substance:

- The chemical name or common name as indicated on the SDS.
- An estimate of the maximum amount of the chemical present at any time during the preceding calendar year and the average daily amount.
- A brief description of the manner of storage of the chemical.
- The location of the chemical at the facility.
- An indication of whether the owner elects to withhold location information from disclosure to the public.

Because many states have added requirements or incorporated the Federal contents in their own forms, Tier l or Tier II forms should be obtained from the state SERC. Section 312 information must be submitted on or before March 1 each year.

In 1999, the U.S. EPA excluded gasoline held at most retail gas stations from Section 311/312 reporting. The U.S. EPA estimates that about 550,000 facilities, including approximately 6,000 facilities in Michigan, are now covered by SARA Title III Section 311/312 requirements.

The information submitted under Sections 311 and 312 is available to the public from LEPCs and SERCs. The hazardous chemical inventory reports are not available to the public on the Internet

5.5 Online Reporting (Sections 302, 311, 312)

The online reporting program for sections 302, 311, and 312 is called Tier II Manager™ and can be accessed by going to **www.michigan.gov/sara** and selecting the "SARA Title III Hazardous Chemical Inventory" link. See Chapter 3 in the *"Michigan Facilities' Guide to SARA Title III, Emergency Planning, and Release Reporting"* for instructions.

Reports required by sections 302, 311, and 312 must be submitted online to the Michigan SARA Title III Program. The fire departments and LEPCs in the counties of Ann Arbor, Bay, Calhoun, Crawford, Genesee, Grand Traverse, Ingham, Kent, Monroe, Montcalm, Oakland, Otsego, Ottawa, Saginaw, Washtenaw, Wayne, Wexford can receive your reports online. If your facility is not in one of these seven participating counties, then a paper copy of the report can be printed from the online program to submit to your fire department and LEPC. Reports can also be emailed from the program to LEPCs and fire departments that wish to receive them in this way.

The online reporting program was updated in 2014 and the reports required under sections 302 and 311 are now part of the Tier II report required under section 312. The Tier II report should be updated every time there are significant changes, such as adding or removing chemicals, so that a current inventory is always available to the LEPC and fire department.

5.6 Toxic Chemical Release Inventory (Section 313)

Section 313, commonly referred to as the Toxic Chemical Release Inventory or TRI, requires certain facilities to annually report toxic chemical releases and waste management activities to the U.S. EPA and the state by July 1. Facilities also must report information on source reduction, recycling, and treatment under the Pollution Prevention Act of 1990.

The TRI reporting requirement applies to facilities that have 10 or more full-time employees (or the equivalent), that manufacture (including import), process, or otherwise use a listed toxic chemical above threshold quantities, and that are in certain industry sectors. These sectors include manufacturing, metal mining, coal mining, electric utilities, hazardous waste treatment and disposal facilities, chemical distributors, petroleum bulk plants, solvent recovery services, and federal facilities. A complete list of covered facilities is available online at **www.epa.gov/tri**.

One purpose of this reporting requirement is to inform the public and communities surrounding covered facilities about toxic chemicals at individual facilities, their uses, and releases into the environment. The data can also be used to:

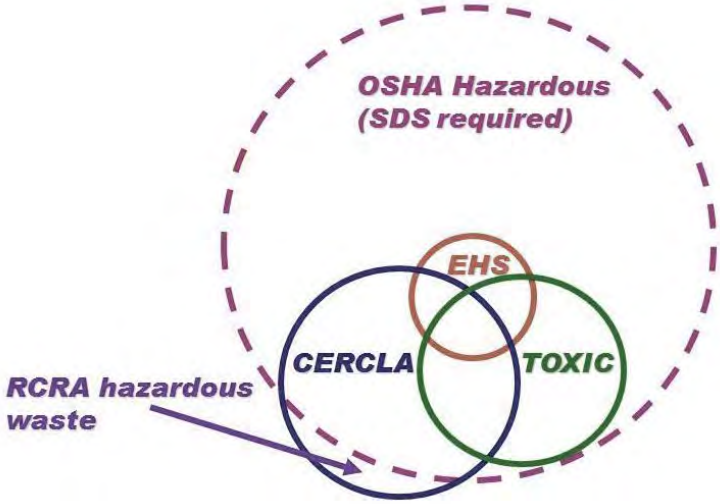
- Identify sources of toxic chemical releases.
- Help analyze potential toxic chemical hazards to human health and the environment.
- Encourage pollution prevention at facilities.

The following information is required on the form:

- The name, location and type of business.
- Whether the chemical is manufactured (including imported), processed or otherwise used and the general categories of use of the chemical.
- An estimate of the maximum amount of the toxic chemical present at the facility at any one time during the preceding year.
- Quantity of the chemical entering the air, land, and water during the preceding year.
- Off-site locations to which the facility transfers toxic chemicals in waste for recycling, energy recovery, treatment or disposal, and the amount transferred.
- Waste treatment methods and efficiency of methods for each waste stream.

The U.S. EPA maintains the TRI information in a national database that is available to the public on the Internet. Michigan maintains historic state-specific TRI data on the Internet.

Summary of Chemicals Covered by SARA Title III Requirements



On the diagram above, the large circle with the dashed line represents the universe of over 650,000 **OSHA hazardous chemicals**. These chemicals are potentially subject to Emergency and Hazardous Chemical Inventory reporting under Sections 311 and 312 (Tier ll report) of SARA Title III. The line is dashed because there is **no list** of these chemicals.

The **Extremely Hazardous Substances** (EHS on the diagram) are listed, so the circle has a solid line. Each of the 355 EHS' has an associated threshold planning quantity for emergency planning pursuant to SARA Title III Sections 302 and 303, and a reportable quantity for release reporting under SARA Title III Section 304. The EHSs are also subject to Emergency and Hazardous Chemical Inventory reporting unless an exemption applies (see Chapter 3, *What Chemicals Are Excluded*).

The **EHS'** are listed and have associated reportable quantities for release reporting under CERCLA Section 103 and SARA Title III Section 304. There are over 770 CERCLA hazardous substances that include hazardous waste that is subject to RCRA regulations. Part of the CERCLA group falls outside of the OSHA group. This is because OSHA does not require that an SDS be maintained for hazardous waste. Therefore, RCRA hazardous waste is not reportable on the Tier ll report, but a release that is above the listed reportable quantity must be reported.

The U.S. EPA published a list of approximately 650 **toxic chemicals** and chemical categories (Toxic on the diagram). Pursuant to SARA Title III Section 313, "subject facilities" must submit a TRI report for each toxic chemical that exceeds an activity threshold.

5.7 Other SARA Title III Requirements

5.7.1 Trade Secrets

SARA Title III Section 322 addresses trade secrets as they apply to SARA Title III Sections 303, 311, 312, and 313 reporting; a facility cannot claim trade secrets under Section 304 of this statute. Only the chemical identity may be claimed as a trade secret, though a generic class for the chemical must be provided. The criteria a facility must meet to claim a chemical identity as a trade secret is in 40 CFR Part 350. In practice, less than one percent of facilities have filed such claims.

Even if chemical identity information can be legally withheld from the public, SARA Title III Section 323 allows the information to be disclosed to health professionals who need the information for diagnostic and treatment purposes or local health officials who need the information for prevention and treatment activities. In non-emergency cases, the health professional must sign a confidentiality agreement with the facility and provide a written statement of need. In medical emergencies, the health professional, if requested by the facility, provides these documents as soon as circumstances permit.

Any person may challenge trade secret claims by petitioning the U.S. EPA. The Agency must review the claim and rule on its validity.

5.7.2 Penalties

SARA Title III Section 325 allows criminal penalties as follows:

- Criminal penalties up to $50,000 or five years in prison apply to any person who knowingly and willfully fails to provide emergency release notification.
- Penalties of not more than $20,000 and/or up to one year in prison apply to any person who knowingly and willfully discloses any information entitled to protection as a trade secret.
- SARA Title III does not provide for criminal sanctions for violations of Section 313. However, 18 U.S.C. §1001 makes it a criminal offense to falsify information submitted to the U.S. Government.

SARA Title III Section 325 and the Debt Collection Improvement Act of 1996 and its implementing regulations at 40 CFR 19 allow civil and administrative penalties as follows:

- Any person that fails to comply with emergency release notification requirements in CERCLA Section 103 or SARA Title III Section 304 shall be liable for civil penalties of up to $53,907 per day per violation. The penalty for subsequent or repeat violations is $161,721 per violation per day.
- Any person that violates hazardous chemical inventory reporting requirements in Section 311 of SARA Title III shall be liable for civil and administrative penalties of not more than $21,563 per day per violation.

- Any person that violates hazardous chemical inventory reporting requirements in Section 312 of SARA Title III shall be liable for civil and administrative penalties of not more than $53,907 per day per violation.
- Any person that violates toxic chemical release inventory reporting requirements in Section 313 of SARA Title III shall be liable for civil penalties not to exceed $53,907 for each day that each chemical is not reported or incorrectly reported.

Note: The U.S. EPA has adjusted its SARA Title lll Civil Penalties. This action is mandated by the Federal Civil Penalties Inflation Adjustment Act of 1990, as amended through 2015, which prescribes a formula for adjusting statutory civil penalties to reflect inflation, maintain the deterrent effect of statutory civil penalties, and promote compliance with the law. For additional information see the Civil Monetary Penalty Inflation Adjustment Rule at **www.federalregister.gov/articles/2016/07/01/2016-15411/civil-monetary-penalty-inflation-adjustment-rule**.

5.7.3 Citizens' Suits

SARA Title III Section 326 allows citizens to initiate civil actions against the U.S. EPA, SERCs, and the owner or operator of a facility for failure to meet the SARA Title III requirements. A SERC, LEPC, and state or local government may institute actions against facility owner/operators for failure to comply with SARA Title III requirements. In addition, states may sue the U.S. EPA for failure to provide trade secret information.

Release Reporting
SARA Title III – Section 304

Title III of the Superfund Amendments & Reauthorization Act ("SARA Title III") is the Emergency Planning and Community Right-to-Know Act (EPCRA)

Did you have an unpermitted release to the environment?

No → **STOP** — No release report required under SARA Title III

Yes ↓

Was a CERCLA hazardous substance and/or SARA Title III EHS released?

Refer to *"List of Lists*" (available on the Internet).

No → **STOP** — No release report required under SARA Title III

Yes ↓

Was the reportable quantity (RQ) of the substance potentially released to the environment?

Refer to "*List of Lists*."

No → **STOP** — No release report required under SARA Title III

Yes ↓

Immediately (within 15 minutes) report the release to:

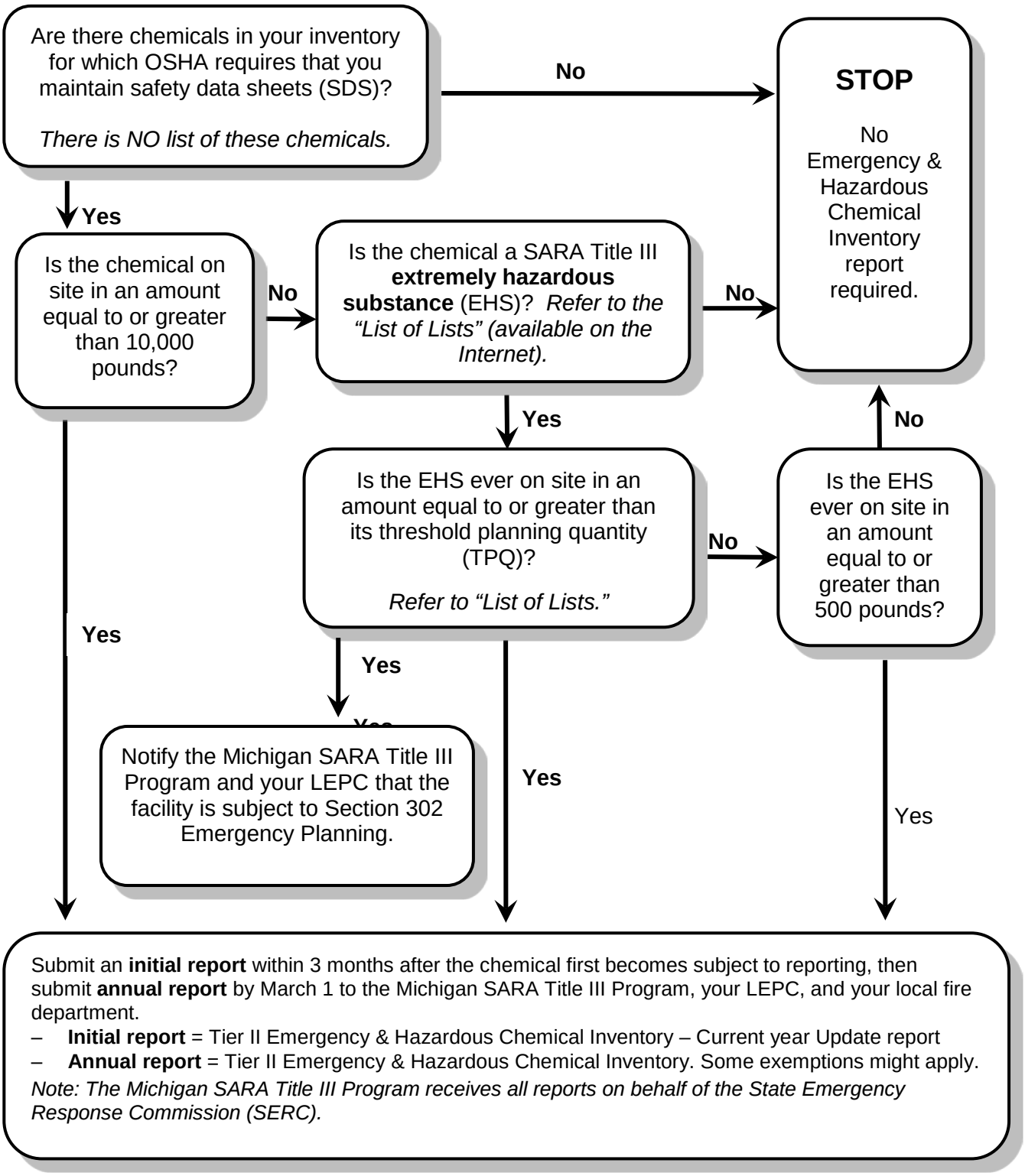
1. Local Emergency Planning Committee (LEPC) in area(s) potentially affected by the release.
2. DEQ Pollution Emergency Alerting System (**PEAS**)
   800-292-4706
3. U.S. Coast Guard National Response Center (**NRC**) if a CERCLA hazardous substance is released.
   800-424-8802

Submit a written follow-up report within 30 days after the release to the LEPC and the Michigan SARA Title III Program.

Note: The Michigan SARA Title III Program receives reports on behalf of the SERC.

Emergency and Hazardous Chemical Inventory Reporting
SARA Title III – Sections 311 and 312

Title III of the Superfund Amendments & Reauthorization Act ("SARA Title III") is the Emergency Planning and Community Right-to-Know Act (EPCRA)



Toxic Chemical Release Inventory Reporting
SARA Title III – Section 313

Title III of the Superfund Amendments & Reauthorization Act ("SARA Title III") is the Emergency Planning and Community Right-to-Know Act (EPCRA)

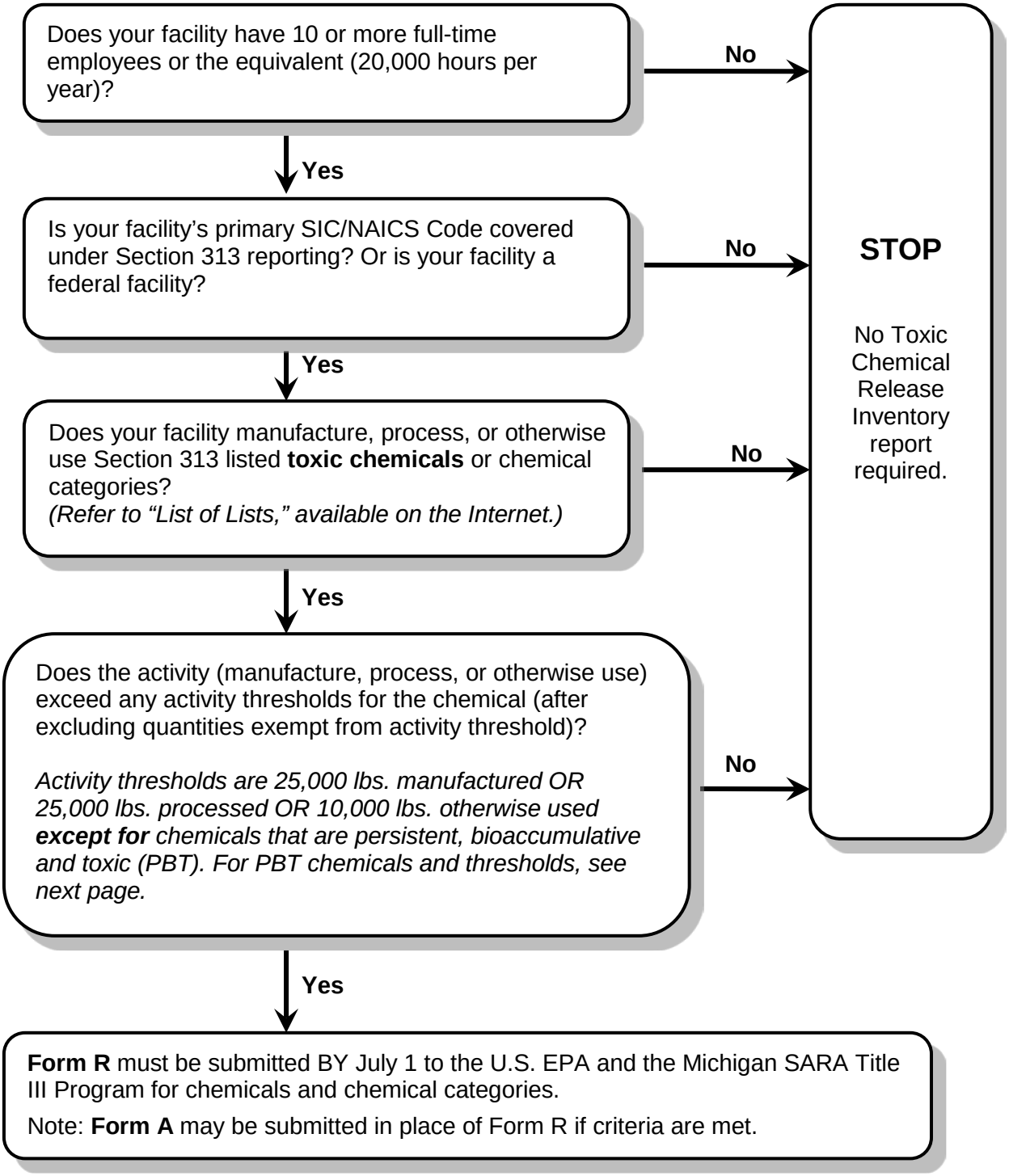


Table 5.2. TRI Covered Industries by Industry Classification

Industry	SIC Codes	NAICS
Manufacturing	20-39	311-339
Metal Mining	10 (except 1011, 1081, and 1094)	21222, 21223, 21229
Coal Mining	12 (except 1241)	21211
Electrical utilities	4911, 4931, and 4939 (limited to facilities that combust coal and/or oil for purpose of generating electricity for distribution in commerce)	22111, 22112
Treatment, storage and disposal facilities	4953 (limited to RCRA Subtitle C permitted or interim status facilities)	56221
Chemical distributors	5169	42469
Petroleum bulk terminals	5171	42471
Solvent recovery services	7389 (limited to facilities primarily engaged in services on a contract or fee basis)	32599
Federal facilities	Must report by Executive Order 13148.	

Note: Beginning with Report Year 2006, facilities report the six-digit North American Industry Classification System (**NAICS**) code that corresponds to the SIC code in the regulation.

Table 5.3. EPCRA Section 313 Listed PBT Chemicals and Activity Thresholds

Chemical	Threshold *(in pounds unless otherwise noted)*
ALDRIN	100
BENZO(G,H,I)PERYLENE ♦	10
CHLORDANE	10
DIOXIN AND DIOXIN-LIKE COMPOUNDS ♦	0.1 grams
HEPTACHLOR	10
HEXACHLOROBENZENE	10
ISODRIN	10
LEAD* (not contained in stainless steel, bronze, or brass alloy)	100
LEAD COMPOUNDS *	100
MERCURY	10
MERCURY COMPOUNDS	10
METHOXYCHLOR	100
OCTACHLOROSTYRENE ♦	10
PENDIMETHALIN	100
PENTACHLOROBENZENE ♦	10
POLYCHLORINATED BIPHENYLS	10
POLYCYCLIC AROMATIC COMPOUNDS +	100
TETRABROMOBISPHENOL A (TBBPA) ♦	100
TOXAPHENE	10
TRIFLURALIN	100

Note: PBT chemical reporting effective for 2000 report year, except lead and lead compounds, which were effective for 2001.

♦ Chemicals subject to EPCRA Section 313 reporting beginning in 2000.

\+ 21 chemicals included in PAC category.

* Thresholds effective for 2001 reporting year.

WHERE TO GO FOR HELP

SUBJECT: **SARA Title III Reporting**

CONTACT: DEQ, Michigan SARA Title III Program
517-284-7272
deq-sara@michigan.gov
www.michigan.gov/sara
www.michigan.gov/chemrelease
www.michigan.gov/deqemergencyplan

PUBLICATION: Michigan Facilities' Guide to SARA Title III, Emergency Planning and Release Reporting

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SUBJECT: **LEPCs and Community Emergency Plans**

CONTACT: Michigan State Police, Emergency Management & Homeland Security Division (EMHSD)
517-284-3727
hartnerb@michigan.gov
www.michigan.gov/emhsd

PUBLICATION: LEPCs: Organizing for Success

SUBJECT: **SARA Title III**

CONTACT: U.S. EPA's Superfund, TRI, EPCRA, RMP, and Oil Information Center
800-424-9346
www.epa.gov/emergencies/content/epcra

SUBJECT: **SARA Title III Toxic Chemical Release Inventory**

CONTACT: U.S. Environmental Protection Agency, Toxics Release Inventory (TRI) Program
www.epa.gov/tri

Michigan Guide to Environmental, Health, and Safety Regulations

Chapter 6

Environmental Emergencies

SECTION ONE – ENVIRONMENTAL REGULATIONS

CHAPTER 6: Environmental Emergencies

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Purpose and Applicability of Regulations

U.S. Environmental Protection Agency Time Critical Removal Action in Detroit, Michigan

There are many regulations pertaining to release planning, reporting, employee training, and response. The intent is to protect public health and welfare and the environment from spills or releases of regulated materials. Each regulation targets a specific group of materials that exhibit certain characteristics. Appendix B contains definitions of the various regulated groups of materials referenced in this chapter. These defined terms appear throughout this chapter in bold lettering.

In some instances, multiple agencies use the same term to describe a different regulated group. Such terms will be followed by a dash and the acronym of the defining agency or regulation. For example, the U.S. Department of Transportation (U.S. DOT) and the Michigan Fire Prevention Code, Public Act 207 of 1941, as amended (Act 207) have differing definitions for the term "hazardous material." Therefore, the U.S. DOT and Act 207 definitions of hazardous material will appear as "**hazardous material-U.S. DOT**" and "**hazardous material-Act 207**" respectively.

Agencies and Their Laws and Rules

Due to the numerous environmental federal and state regulations that apply to this chapter, please refer to the Release Notification Requirements Table on pages 6-22 through 6-30 and the Summary of Common Environmental Release Prevention and Response Plans in Appendix 6-A. This table is a tool to identify the laws and regulations applicable to this chapter and the agencies that implement them.

6.1 Release Prevention Tips

Releases can usually be prevented by using common sense and care when storing, transferring, and transporting regulated materials. Tips include:

- Train all personnel in spill prevention techniques. Some regulations indicate who, at a minimum, must be trained for handling regulated material and waste.
- Practice safe loading and unloading procedures.
- Have inventory control procedures track material from receipt to disposal.
- Post warning and instructional signs in appropriate places.
- Adequately label all containers.
- Use pumps or funnels to transfer liquids.
- Keep lids and covers on containers to control spills and evaporation.
- Use seal-less pumps.
- Install spill basins or dikes in storage areas.
- Install splash guards and drip boards on tanks and faucets.
- Use drip buckets under liquid spigots.
- Prohibit outside draining or replacement of fluids over the ground or on pavement not designed for containment.

You might also reduce the damage caused by spills if you notice them quickly. Routinely check your material handling equipment for deterioration, leaks and spills. This will help to ensure timely repair to prevent a material release and quick response to mitigate damages and clean-up liabilities. Some of the regulations specify how often you must monitor your business. Watch for strange odors and discoloration or corrosion of walls, work surfaces, ceilings, and pipes. Also note if anyone has irritation of the eyes, nose, or throat. All of these can indicate the presence of leaks or poorly maintained equipment.

6.2 Release Prevention and Response Planning

While environmental regulations do not require all businesses to develop release prevention and response plans, having one is recommended to minimize your liability and protect human health and the environment. Depending on your activities, you may be subject to multiple planning regulations and you're encouraged to develop one plan, an Integrated Contingency Plan (ICP) as described in Chapter 6.2.8, that includes each individual plan's specific requirements as identified in the different federal or state laws.

Even if you are not required to have a written plan under the regulations described in this section, you are responsible for any release on or from your property. You may be required to report the release to different agencies (see Chapter 6.3) and will be required to clean up the release (see Chapter 6.4). Release notifications and cleanup procedures would be included in plans developed voluntarily or as required by regulation. In addition, staff must be properly trained for their role in responding to releases. Information about secondary containment and other material storage requirements discussed in Chapters 2 and 4 should also be included in emergency plans.

Besides plans discussed in this chapter, facilities may have other planning related requirements in:

- ✓ Permits issued to the facility.
- ✓ Worker safety and health related requirements including Chapter 17 “Process Safety Management” and Chapter 23 “Emergency Response/HAZWOPER.”
- ✓ Community Emergency Response Plan required by Section 302 of SARA Title III (see Chapter 5.3).

Firefighter Right-to-Know requires that you provide to your local fire department information about the hazardous materials kept on site (see Chapter 37). It is recommended that you invite your local fire department to tour your facility, so they can be adequately trained and have the necessary equipment available to respond to an emergency at your facility. Some fire departments encourage the practice of having a lock box or emergency tube available somewhere outside of the facility building(s) that protects the contents of facility emergency contacts, basic facility information, facility maps, and either MSDSs or a description of potentially harmful materials on site. Talk to your fire department about this practice. They can provide recommendations regarding what they want to have immediately available if called to the site and where they would like to have the information located. However, due to terrorism concerns, be cautious about the placement of information in case of potential sabotage.

The U.S. DOT regulations require each person in physical possession of the **hazardous material-US DOT** at the time of a reportable incident as defined in 49 CFR 171.15 to provide notice by telephone to the National Response Center (NRC) at 800-424-8802. The notice must be provided as soon as practical but no later than 12 hours after the reportable incident occurs, and a more detailed incident report must follow on DOT Form F 5800.1 within 30 days of discovery of the incident. For more details on incident reporting and training related to **hazardous materials-U.S. DOT**, see Chapter 4 and the Release Notification Requirements Table found in this chapter.

Consider what needs to be done in case of an emergency and prepare a response plan to protect your company, employees, and the environment. Consider the following in case emergency responders are contacted for assistance to the facility:

- The fire department’s response is based on the information you give them. Provide as much detail as possible when calling for help. Have your emergency information readily available and let them know what hazardous materials are involved, how much if known, the location of the spill, if people are inside the facility or taking some response actions, wind direction, etc.
- Have a key contact person (who is knowledgeable about the whole facility and the incident) meet the responders.
- Make sure everyone is accounted for, including both employees and visitors at the facility.
- Keep everyone upwind of the situation and, if necessary, have people move to a different location.
- Have a knowledgeable public relations person from the facility available to address media if they arrive at the scene.
- Follow the emergency responders’ directions.

The following are common environmental release prevention and response plans that a manufacturer may be required to develop:

- Hazardous Waste Contingency Plan: Part 111 (Hazardous Waste Management) of Act 451 if you have regulated amounts of **hazardous waste** (see Chapter 6.2.1).
- Pollution Incident Prevention Plan (PIPP): Part 31 (Water Resources Protection) of Act 451 if you have regulated amounts of **oil**, **salt** or **polluting materials** that are listed in R 324.2009, Table 1 in the Part 5 Rules. (see Chapter 6.2.2)
- Spill Prevention, Control, and Countermeasures (SPCC) Plan: federal Clean Water Act if you have regulated storage capacity of **oils** and a release could potentially reach navigable waters, or you have PCB articles regulated under the Toxic Substances Control Act (TSCA) that requires a SPCC Plan. (see Chapter 6.2.3)
- Storm Water Pollution Prevention Plan (SWPPP): Part 31 (Water Resources Protection) of Act 451 if you are subject to a storm water discharge permit. (see Chapter 6.2.4)
- Risk Management Program (RMP): Section 112(r) of the 1990 Clean Air Act Amendments if you have regulated amounts of **CAA Section 112(r) Substances**. (see Chapter 6.2.5)
- Emergency Action Plan: National Fire Protection Association (NFPA) pamphlet 30 if you have flammable and combustible liquids stored aboveground in containers and drums 60 gallons and larger and tanks 660 gallons and larger. (see Chapter 6.2.6)
- HAZMAT Security Plan if you are shipping **hazardous materials-U.S.DOT**, including shipments of hazardous waste requiring placards in excess of 1000 pounds (see Chapter 6.2.7)
- Integrated Contingency Plan (ICP) if you choose to prepare one plan that covers multiple regulatory requirements instead of developing an individual plan under each regulation. (see Chapter 6.2.8)
- Federal Site Security Plan if you have met the threshold amounts for the Chemicals of Interest (see Chapter 6.2.9)

Are you subject to the above planning requirements? First it is necessary to determine if there are regulated materials on site, and then determine if the facility meets other conditions that require planning. Ask yourself the following questions:

1. Are there regulated materials on site? Use your material safety data sheets [MSDS], hazardous waste manifests, waste survey information gathered as described in Chapter 2.1, and information about polluting materials and PCBs in Chapter 4 to answer the following questions.
    - Is the material on any list of regulated substances?
    - Is the material a product or raw material designated as a **polluting material**?
    - Is the material a **hazardous waste**?
    - Is any of it **salt** (sodium chloride, potassium chloride, calcium chloride, and magnesium chloride)?

- Is any material a flammable or combustible liquid (flashpoint below 200 degrees Fahrenheit)?
- Is the material an **oil** (this includes vegetable oils, animal fats, synthetic oils, and petroleum products, and derivatives like mineral spirits, gasoline, diesel fuel, etc.)? Do you have 1,320 or more gallons total storage capacity, or do you have a single container with a capacity of more than 660 gallons?
- Are there regulated PCB articles on site in temporary storage or stationary bulk storage tanks (see Chapter 4.5)?

2. If there are regulated materials or other regulated conditions, do you meet those conditions that would require planning? Information to consider includes:
   - How much is on site?
   - How much is stored outdoors or indoors?
   - How long is it kept on site?
   - Is any material stored in regulated aboveground or underground storage tanks?
   - Can a release reach navigable waters of the state either by direct discharge or via a conveyance system such as drains, ditches, etc.?
   - What is the facility's hazardous waste generator status (see Chapter 2.4.3)?
   - Does the facility have a hazardous waste treatment, storage, and disposal facility permit?
   - Is the facility required to have a storm water discharge permit (see Chapter 3.2.3)?
   - What is the facility's Standard Industrial Classification (SIC) code (see Chapter 3.2.3)?
   - If a release occurred, is there a potential for a significant impact on the waters of the state (i.e., rivers, lakes, drains)?
   - Are hazardous materials as defined under U.S. DOT, NFPA, or Act 138 regulations being shipped off-site (see Chapter 4.4)?

Now use your answers while reviewing the planning requirements found in this chapter, reporting requirements found in Appendix 6-A, and the referenced regulations to see which requirements apply to your company. An overview of the various emergency plans and planning resources are discussed in more detail in the sections to follow within this chapter.

Where can you find additional site specific and general emergency planning resources?

- See if your facility has any existing emergency plans? If yes, determine if the facility is still subject to the same regulations that require those plans. Then look at current requirements to determine what needs to be updated. Maintain a plan even if it is not specifically required by the regulations to limit your liabilities.
- Go to the DEQ Emergency Planning Web site (**www.michigan.gov/deqemergencyplan)** for planning information and Web links.
- The Michigan State Police (MSP), Emergency Management and Homeland Security Division, offers HAZMAT training and has publications to help companies and communities prepare for hazardous materials incidents, including the:

- ✓ "Emergency Management and Homeland Security Publications Web page" that details hazard mitigation planning and success stories, and the
- ✓ *"Critical Incident Protocol — A Public and Private Partnership"* for community and facility joint planning information.

- The Federal Emergency Management Agency has information at **www.fema.gov** for prevention and preparation.
- The Center for Disease Control (**www.cdc.gov**) (select Emergency Preparedness and Response) has public health emergency preparedness guidance for specific chemical information, including Chemical Safety Cards, along with information about anthrax or other bioterrorism threats.
- The U.S. Coast Guard National Response Center at **www.nrc.uscg.mil/default.aspx** provides information about transportation accidents, oil spills, chemical releases, and more.
- The National Oceanic and Atmospheric Administration's Office of Response and Restoration provides numerous links to chemical databases, MSDS databases, and chemical fact sheets developed by ATSDR highlighting toxicity, exposure information, and more at **response.restoration.noaa.gov**.
- The National Fire Protection Association (**www.nfpa.org**) has published the *Standard for Site Security Services for Fire Loss Prevention*, (NFPA – 601)
- The Agency for Toxic Substances and Disease Registry (**www.atsdr.cdc.gov**) provides a 10-step procedure to analyze, mitigate, and prevent public health hazards resulting from terrorism involving industrial chemicals.
- The American Society for Industrial Security (**www.securitymanagement.com**) develops educational programs and materials that address security concerns, including an online version of its magazine.
- The Center for Chemical Process Safety (**www.aiche.org/ccps**) develops engineering and management practices to prevent and mitigate consequences of catastrophic events involving chemical releases.
- The National Safety Council (**www.nsc.org**) provides general safety information on chemical and environmental issues.

6.2.1 Contingency Plans for Hazardous Waste Generators

The DEQ oversees the hazardous waste regulations that require Large Quantity and Small Quantity Generators to be prepared in case of a fire, explosion, or release of **hazardous waste**, and to maintain and operate their businesses in a way that minimizes these risks. Conditionally Exempt Small Quantity Generators are highly encouraged to also be prepared and to consider meeting the Small Quantity Generator planning conditions even though it is not required by the waste regulations. See Chapter 2.4.3 for an explanation of the generator status levels.

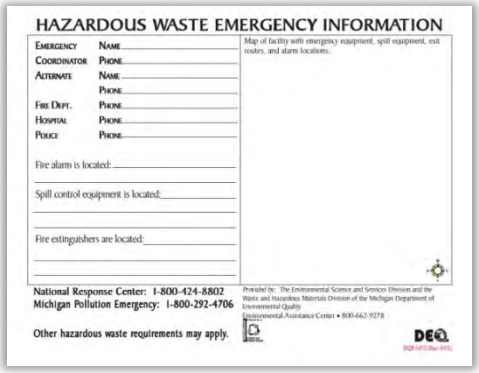
Basically, generators of **hazardous waste** are required to comply with the following:

1. Have proper emergency equipment available:
   - Communication devices (e.g., phones, radios, intercom, etc.).
   - Portable fire extinguishers.
   - Spill control equipment (e.g., absorbents, containers, kits).
   - Water for fire control in sufficient volumes.
   - Test and maintain equipment as necessary.
   - Have immediate access to an internal alarm system. This means personnel can activate an alarm within seconds, not minutes.
   - Provide and maintain sufficient aisle space in the **hazardous waste** handling areas to ensure access of emergency equipment and emergency personnel.
2. Meet applicable planning requirements as outlined below.

***Small Quantity Generators* Must:**

a. Identify one employee who is on site or on call and has the responsibility to coordinate all emergency response activities. It is recommended that you identify alternative coordinators to cover when the primary person is on vacation or otherwise not available.

b. Post the following next to their telephones:
   - Name and telephone number(s) of the emergency coordinator and alternates.
   - Locations of fire extinguishers, alarms, and spill control material.
   - Location of fire alarms if direct to fire department, or the telephone number of the local fire department.
   - The DEQ has an optional **"Hazardous Waste Emergency Information" (EQP3472)** form you can use to post the required information next to telephones. You are not required to use this particular form; however, failure to have the information posted is a common violation found during **hazardous waste** inspections. There are other requirements outlined on the back of the self-sticking form that can be obtained by calling the Environmental Assistance Center at 800-662-9278. See also the DEQ's **"Small Quantity Generator Requirements"** fact sheet.


HAZARDOUS WASTE EMERGENCY INFORMATION

EMERGENCY COORDINATOR NAME ____ PHONE ____
ALTERNATE NAME ____ PHONE ____
FIRE DEPT. PHONE ____
HOSPITAL PHONE ____
POLICE PHONE ____

Fire alarm is located: ____

Spill control equipment is located: ____

Fire extinguishers are located: ____

Map of facility with emergency equipment, spill equipment, exit routes, and alarm locations.

National Response Center: 1-800-424-8802
Michigan Pollution Emergency: 1-800-292-4706

Other hazardous waste requirements may apply.

Provided by: The Environmental Science and Services Division and the Waste and Hazardous Materials Division of the Michigan Department of Environmental Quality
Environmental Assistance Center • 800-662-9278

DEQ

c. Send a diagram or discuss the layout of their facility, access roads, and evacuation routes with the local response agencies. Have arrangements in place with authorities that respond to the types of emergencies regarding the waste handled at your business. Invite police, fire departments, and emergency response teams to tour your business. If local or state authorities decline your arrangement, you must have written documentation of that refusal. If you use outside contractors to respond to emergencies, you must make arrangements with emergency response contractors and suppliers. Keep documentation of any visits by emergency response people, agreements, etc.

d. Submit to local hospitals a listing of possible injuries or illnesses that might result from the **hazardous waste** at their businesses.

***Large Quantity Generators* Must:**

a. Have a written contingency plan. This plan describes what staff will do in case of a fire, explosion, or release of **hazardous waste**. The contingency plan must include:

- Name, telephone number, and address (both home and work) for your primary and secondary emergency coordinators. These coordinators must either be on the premises or on call and able to reach the facility within a short amount of time.
- Written procedures to follow in the event of a **hazardous waste** release that relates to the type of wastes kept on site. It must include spill and fire response, monitoring actions, and reporting sequence to emergency response organizations.
- A list of emergency equipment at the facility, where it is located, physical description, and brief outline of its capabilities. It is recommended that you develop a floor plan and make it available to staff. The map should show location of fire extinguishing equipment (e.g., fire extinguishers, sprinklers, hoses, fire hydrants); communication or alarm systems (e.g., alarm boxes or phones, etc.); and spill control equipment (e.g., absorbents, spill kits, shovels) using easy-to-understand symbols.
- A written evacuation plan that includes a diagram of the layout of your business, access roads, and primary and alternative evacuation routes. The plan must also describe the signals to be used to begin evacuation. These routes can be shown on the same floor plan as the emergency response equipment. It is recommended that routes include two outside areas where employees should assemble (using the one upwind of the facility).

b. Keep a copy of the hazardous waste contingency plan at the facility.

Do NOT submit a copy of the Hazardous Waste Contingency Plan to the DEQ or to the State Emergency Response Commission (SERC) unless requested.

c. Provide a copy of the contingency plan to *local* police and fire departments, hospitals, emergency response teams, and any emergency response contractors and suppliers you may have hired. Have proof that the plan was distributed (e.g. keep copy of a written cover letter). In the letter briefly explain why a copy of the plan is being sent, identify a contact person who answers questions, and outline any emergency response you expect from the recipient of the letter. Michigan does not have a state emergency response team that would receive a copy. If local or state authorities decline your arrangement, you must have written documentation of that refusal. If you use outside contractors to respond to emergencies, you must make arrangements with emergency response contractors and suppliers.

d. Submit to local hospitals a listing of possible injuries or illnesses that might result from the **hazardous waste** at their businesses.

e. Distribute the contingency plan to your employees as part of their hazardous waste training and keep documentation of an annual review.

f. Update the plan whenever emergency coordinators or equipment change, or when the plan fails during an emergency. In addition, updates must be made if the facility makes any changes to its design, construction, operations, etc., that increase the potential for fires, explosions, or releases of **hazardous waste**, or that change the necessary response actions.

If you are required to prepare another release prevention and response plan or are preparing an integrated contingency plan (Chapter 6.2.8), you only need to add the **hazardous waste** management provisions necessary to make your existing plan comply with these additional requirements. You do not need separate plans to meet the requirements described in the hazardous waste regulations.

Not all of the specific requirements have been outlined above. See the DEQ's "Contingency Plan and Emergency Procedures" and "Personnel Training Requirements for Fully Regulated Generators of Hazardous Waste," contact your local DEQ District Office Hazardous Waste Program (see Appendix C), or refer to the regulations for more information.

6.2.2 Part 5 Rules and Pollution Incident Prevention Plans (PIPP)

The DEQ Water Resources Division's Part 5 Rules Program oversees the Part 5 Rules (Spillage of Oil and Polluting Materials) promulgated under Part 31 (Water Resources Protection) of Act 451. A facility is regulated under the Part 5 Rules and is required to have a Pollution Incident Prevention Plan (PIPP) if it:

- Meets the definition of an on-land or oil storage facility, AND
- Does not meet any of the listed conditional exemptions, AND
- Has polluting materials that meet or exceed the associated threshold management quantities,

  OR
- The DEQ determines a release from the facility could cause substantial harm to the surface or ground waters of the state.

Polluting materials include oil, salt, or any material specified in table 1 (R 324.2009) in the Part 5 Rules. Mixtures that contain one percent or more by weight of a polluting material are included.

Threshold management quantity (TMQ) means any of the following:

For **salt** used, stored, or otherwise managed on the contiguous property:

- Solid form - 5 tons
- Liquid form - 1,000 gallons

For **polluting materials** listed in table 1 of the Part 5 Rules at a discrete use or storage area:

- Outdoors - 440 pounds
- Indoors - 2,200 pounds

For oil:

- Single container or tank having a capacity of more than 660 gallons; or
- Total capacity of 1,320 gallons in above ground tanks

The Part 5 Rules have *conditional exemptions* that exempt facilities from regulation under the Part 5 Rules. Many of these exemptions apply if the facility is meeting the requirements in certain other regulations:

- If flammable or combustible liquids (flash point less than 200 degrees Fahrenheit) are **polluting materials** that exceed the TMQ, and if the facility is subject to 1941 PA 207 (Michigan's fire prevention code), then it must be in compliance with the fire prevention code for flammable and combustible liquids. Regulation under Part 5 Rules would only be required if it also had other polluting materials that exceeded the TMQ.
- If the **polluting materials** exceed the TMQ and are contained in underground storage tanks that are subject to Parts 211 and 213 of Act 451 (underground storage tanks and leaking underground storage tanks), then the facility must be in compliance with these regulations. Regulation under the Part 5 Rules is only required if it had polluting materials that exceeded the TMQ that were not contained in underground storage tanks.
- If hazardous wastes are **polluting materials** that exceed the TMQ and if the facility is subject to Part 111 of Act 451 (hazardous waste management), then it must be in compliance with the Part 111 requirements. Regulation under the Part 5 Rules would only be required if it also had other polluting materials that exceeded the TMQ.
- If oil exceeds the TMQ and if the facility is subject to Part 615 of Act 451 (oil and gas production fields) then it must be in compliance with the Part 615 requirements. Regulation under the Part 5 Rules would only be required if the facility also had other polluting materials that exceeded the TMQ.
- A federal oil pollution prevention exemption in Rule 3 [R 324.2003(1)(b)] is no longer applicable due to revisions to federal regulations that occurred since the last revision of the Part 5 Rules. Therefore, the DEQ has developed a guidance document, DEQ POG #2, which outlines Part 5 Rule responsibilities for facilities with oil storage that previously fell under this exemption.
- A facility is exempt from the Part 5 Rules if all polluting materials in excess of TMQ are stored in containers that do not individually exceed 10 gallons or 100 lbs in capacity and are located indoors at a facility that is designed, constructed, maintained, and operated to prevent any spilled polluting materials from being released directly or indirectly to the surface or ground waters of the State.

The DEQ can require that a facility be regulated under the Part 5 Rules even if the polluting materials do not exceed the TMQ. A facility that receives, uses, processes, manufactures, stores, or ships polluting materials in amounts less than the applicable TMQ could be required to comply with the Part 5 Rules if it is determined that a release could be reasonably expected to result in substantial harm to the surface or groundwaters of the state.

Both on-land and oil storage facilities, as defined by the Part 5 Rules, are subject to the following:

- Surveillance to detect releases and procedures implemented to prevent any polluting materials from reaching waters of state.
- Use and indoor storage must be designed, constructed, maintained and operated to prevent releases from reaching sewers, drains, or reaching waters of the state.
- Release reporting.

On-land facilities, as defined by the Part 5 Rules, also have other requirements that must be met, including outdoor secondary containment and the development of a PIPP. The main components of a PIPP include the following:

- Facility information including emergency contacts.
- Spill control and cleanup procedures.
- Inventory of polluting materials exceeding TMQs.
- Site plan.
- Description of outdoor secondary containment for liquid polluting materials.
- Other spill control measures.
- General facility physical security methods.
- **Emergency notification procedures** that include release reporting. See Chapter 6.3 for a description of the release reporting requirements in the Part 5 Rules.

New, or existing facilities that are changing operations, so they will be meeting threshold management quantities, should have a PIPP completed before beginning those operations. Plans must be reviewed every three years or after any release that required implementation of the plan.

Within 30 days after the completion or modification of a PIPP, the owner or operator must notify the following agencies:

- Local emergency planning committee.
- Local health department.
- DEQ District Office Part 5 Rules Program. A certification stating the facility is in compliance with all the Part 5 Rules must also be submitted to the DEQ.

When submitting the certification to the DEQ, a specific form is not required. Following is sample certification language that may be used:

> *"Under penalty of law, this certifies that (company name) at (site address) is in full compliance with the Part 5 administrative rules pursuant to Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). A copy of the Pollution Incident Prevention Plan (PIPP) [or Integrated Contingency Plan (ICP) if prepared] may be requested by [include who and how to contact to request a copy]. The facility has met the threshold management quantity for (indicate what polluting materials you have)." Include a signature, title, date, phone number, and mailing address if different than the site address.*

Although not required by the rules, facilities are being asked to voluntarily identify the category of polluting material (i.e., salt, Table 1 material, or oil) that is on-site. That information may help the agency decide if they want to request a copy of your PIPP.

Send a letter to the local agencies explaining that you are notifying them that your company has completed a PIPP or ICP and that it is available to them upon request. You must provide a copy the plan within 30 days after receiving a request.

PIPPs may be combined with other plans into an Integrated Contingency Plan (ICP) as long as all of the information required to be in the PIPP is included. More details and a checklist are in the "PIPP and Part 5 Rules Informational Packet" (under revision) available under the Part 5 Rules Guidance Documents on the DEQ's Part 5 Rules Web site at **www.michigan.gov/part5**.

> Keep a copy of the PIPP on site. Do not submit a copy to the DEQ or local authorities unless requested.

6.2.3 Spill Prevention, Control, and Countermeasure (SPCC) Plan and Facility Response Plan (FRP)

The U.S. EPA, not the DEQ, oversees the federal Spill Prevention, Control, and Countermeasure (SPCC) and Facility Response Plan (FRP) requirements for oils contained in Title 40, Part 112 of the Code of Federal Regulations (40 CFR 112).

The Oil Pollution Prevention regulation (40 CFR 112) specifies requirements for prevention of, preparedness for, and response to oil discharges. It includes requirements for Facility Response Plans. The requirements help prevent oil discharges from reaching navigable waters or adjoining shorelines. Certain facilities are required to develop SPCC plans that describe equipment, workforce, procedures, and training to prevent, control, and provide adequate countermeasures to a discharge of oil.

Oils include synthetic oils, petroleum, and refined products such as mineral spirits, gasoline, diesel fuel, kerosene, vegetable oils, animal fats, etc. Other examples of oils are at this U.S. Coast Guard web site: **www.uscg.mil/vrp/faq/oil.shtml**.

The SPCC rule has undergone numerous amendments and revisions since it was first implemented in 1973. The most recent amendments were effective January 14, 2010, and required compliance by November 10, 2010 (facilities located offshore or with an offshore component or an onshore facility that is required to have a FRP) and November 10, 2011 (onshore facilities not required to have a FRP). Because this rule changes so frequently, it is recommended that you review the current regulations on the U.S. EPA's Web site.

> The SPCC regulations and guidance, FRP guidance, sample SPCC plans, and more information can be accessed at **www.epa.gov/emergencies/content/spcc/index.htm.**
>
> Contact U.S. EPA Region 5 at 312-886-9497 with questions regarding the SPCC. Call 312-886-0622 if you have questions regarding the FRP.

Owners or operators of non-transportation related facilities subject to this regulation must prepare and implement an SPCC plan and meet other requirements regarding storage and secondary containment. In addition to the federal release reporting requirements, the SPCC plan should also include the Part 5 Rules (Spillage of Oil and Polluting Materials) release reporting requirements as discussed in Chapter 6.2.2.

You might be subject to SPCC regulation if

1. A release from your facility could potentially reach navigable waters or adjoining shorelines. Most of Michigan meets this condition. Discuss with the U.S. EPA Region 5 if a site might be exempted. The exemption determination is based on geographical aspects of the facility such as proximity to navigable waters, land contour or topography, drainage, and soil conditions. If any **oil-EPA** could reach a sewer line, drainage ditch, intermittent stream bed, or similar structure that discharges into navigable waters, either directly or indirectly, then the facility would be subject to SPCC regulations if they have threshold amounts.

   AND

2. The storage capacity for **oil-EPA** at your facility meets any of the following:
   - Aboveground storage capacity exceeds 1,320 gallons.
   - Underground storage capacity exceeds 42,000 gallons.

   OR

3. The U.S. EPA determines the facility needs an SPCC based on other concerns.

Note that the applicability of the SPCC regulation is based on the facility's storage capacity for **oil-EPA** and not on the actual amount stored. Containers less than 55 gallons are not included. See the U.S. EPA information about other situations where oil capacity is not required to be counted.

Compliance Dates for all Facilities

A facility starting operation…	Must…
On or before August 16, 2002	• Maintain its existing SPCC plan • Amend and implement the SPCC plan no later than November 10, 2011 (farms have until May 10, 2013)
After August 16, 2002 through November 10, 2010	Prepare and implement the SPCC plan no later than November 10, 2011 (farms have until May 10, 2013)
After November 10, 2010	Prepare and implement a SPCC plan before beginning operations. (Owners or operators of new oil production facilities must prepare and implement and SPCC plan six months after the start of operations.)

You must complete a review and evaluation of the SPCC plan at least once every 5 years from the date the facility became subject to the requirement. See 40 CFR 112.5(b) for more information.

Three areas that must be addressed in the Plan are:

1. Operating procedures the facility implements to prevent oil spills.
2. Control measures installed to prevent oil from entering navigable waters or adjoining shorelines.
3. Countermeasures to contain, cleanup, and mitigate the effects of an oil spill that has an impact on navigable waters or adjoining shorelines.

Some other important elements of an SPCC plan include the following:

- Professional Engineer certification (unless facility meets one of the exemptions)
- Facility diagram
- Oil spill predictions

- Release reporting
- Facility drainage
- Facility inspections
- Site security
- Five-year Plan review
- Management approval
- Appropriate secondary containment or diversionary structures
- Loading/unloading requirements and procedures for tank car and tank trucks
- Personnel training and oil discharge prevention briefings
- Brittle fracture evaluations
- Bulk storage container compliance, inspection, and integrity testing
- Transfer procedures and equipment (including piping)

> Keep a copy of the SPCC plan on site. SPCC plans are not submitted to the local health department, LEPC, DEQ or the U.S. EPA unless requested.

If you are combining a SPCC plan with other plans, be sure to include a detailed cross reference to requirements in 40 CFR 112.7 that clearly indicates where SPCC information is located. See the ICP guidance materials discussed in Chapter 6.2.8.

See the U.S. EPA Web site for **Facility Response Plan (FRP)** requirements for "substantial harm" facilities. A "substantial harm" facility is a facility that, because of its location, could reasonably be expected to cause substantial harm to the environment by discharging oil into or on navigable waters or adjoining shorelines. A facility may pose "substantial harm" according to the Facility Response Plan (FRP) rule if it:

1. Has a total oil storage capacity greater than or equal to 42,000 gallons and it transfers oil over water to/from vessels; or
2. Has a total oil storage capacity greater than or equal to one million gallons and meets one of the following conditions:
   - Does not have sufficient secondary containment for each aboveground storage area
   - Is located at a distance such that a discharge from the facility could cause "injury" to fish, wildlife, and sensitive environments
   - Is located at a distance such that a discharge from the facility would shut down a public drinking water intake
   - Has had, within the past five years, a reportable discharge greater than or equal to 10,000 gallons

6.2.4 Storm Water Pollution Prevention Plan (SWPPP)

If your facility is required to obtain a permit for the discharge of storm water associated with industrial activity (see Chapter 3.2.3) you will be required to obtain the services of a certified storm water operator and develop a Storm Water Pollution Prevention Plan (SWPPP). The DEQ Water Resources Division has many materials to help you prepare a SWPPP. Materials include:

- Guidance documents,
- Training videos,
- Certified operator training materials, and
- Sample SWPPP and visual assessment written procedures templates.

These materials can be found at the "Industrial Program" link on the DEQ stormwater Web site (**www.michigan.gov/deqstormwater**) or from a DEQ District Office (see Appendix C).

The SWPPP must be:

- Signed by the certified storm water operator and either the permittee or an authorized agent.
- Kept on-site.
- Reviewed annually to assure that it adequately details the current personal and industrial activity.
- An annual certification report must be submitted by January 10th of each year.

Written documentation that is required to be maintained for 3 years with the SWPPP includes:

- Routine preventive maintenance inspection reports
- Routine good housekeeping inspection reports
- Comprehensive site inspection reports
- Discharge visual assessment reports
- Employee training records
- Written summaries of the annual SWPPP review, and
- Any other documents relevant to the storm water program at the facility.

After the plan is completed, send notification that the plan was completed to the DEQ District Office. Another requirement is to update the SWPPP whenever there are changes or releases at the facility that have the potential to increase the risk of material contact with storm water.

Do not submit a copy of the SWPPP to the DEQ unless requested.
Do submit an annual compliance report by January 10 of each year.

6.2.5 Risk Management Program

When Congress passed the Clean Air Act Amendments of 1990, Section 112(r) required EPA to publish regulations and guidance for chemical accident prevention at facilities using substances that posed the greatest risk of harm from accidental releases. These regulations require companies of all sizes that use certain listed regulated flammable and toxic substances to develop a Risk Management Program that includes:

- Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases scenarios;

- Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and
- Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g., the fire department) should an accident occur.

A summary of the facility's risk management program (known as a "Risk Management Plan" or "RMP") was to be submitted to EPA by June 21, 1999, *for existing facilities*. The plans must be revised and resubmitted every five years. There are other circumstances described in the RMP regulations that might require a more frequent submission. New facilities, afeter June 21, 1999, must submit a completed RMP as soon as they have a covered chemical above the threshold quantity.

Owners and operators of a facility (stationary source) that manufactures, uses, stores, or otherwise handles more than a threshold quantity of a listed regulated substance in a process, must implement a risk management program and submit a single RMP for all covered processes at the facility. “Process” means any activity involving a listed regulated substance, including any use, storage, manufacturing, handling, or onsite movement of such substances, or combination of these activities. The regulations do not apply to transportation, including storage incident to transportation. However, transportation containers used for storage not incident to transportation and transportation containers connected to equipment at a stationary source are considered part of the stationary source and are potentially covered by the regulations. See the *General Guidance on Risk Management Program for Chemical Accident Prevention (40 CFR Part 68)* at: **www.epa.gov/osweroe1/content/rmp/rmp_guidance.htm#General**, or one of the industry-specific guidance documents at: **www.epa.gov/emergencies/guidance.htm** for more information on regulatory coverage.

The regulation includes a list of 140 toxic and flammable substances, including threshold quantities (in pounds), to help assess if a process is subject to the Risk Management Program requirements **or the general duty clause**.

The U.S. EPA’s “List of Lists” identifies the **Clean Air Act (CAA) 112(r) substances** and is available at **www.michigan.gov/deqemergencyplan** under “Quick Links” in the upper right corner.

The RMPs must be submitted to the U.S. EPA using the Web-based software RMP*eSubmit. For software or submittal questions, contact the RMP Reporting Center at 703-227-7650.

The General Duty Clause (GDC), section 112(r)(1), applies to any facility were extremely hazardous substances are present. There is no list of these substances and no minimal threshold. In this case, the term “extremely hazardous substance” means any substance “which may or may not be listed or otherwise identified by any Government agency which may as the result of short-term exposures associated with releases to the air cause death, injury or property damage due to its toxicity, reactivity, flammability, volatility, or corrosivity.” The GDC requires that owners and operators of stationary sources producing, processing, handling or storing extremely hazardous substances identify hazards associated with an accidental release, design and maintain a safe facility, and minimize consequences of accidental releases that occur.

Access the software and additional information at: **www.michigan.gov/deqemergencyplan** (select "Risk Management Plan").

6.2.6 Emergency Action Plan

Don't confuse this Emergency Action Plan with the plan required by MIOSHA discussed in Chapter 23.

Written Emergency Action Plans are required when a facility has flammable and combustible liquids on site in aboveground containers if the following exemptions do not apply:

- Liquids are used solely for onsite consumption as fuels.
- Operations where Class II liquids (flashpoint of 100 degrees and below 140 degrees Fahrenheit) or Class III liquids (flashpoint of 140 degrees Fahrenheit or higher) are stored in atmospheric tanks or transferred at temperatures below their flash points.
- Mercantile occupancies, crude petroleum exploration, drillings and well servicing operations, and normally unoccupied facilities in remote locations. Mercantile occupations include the use of a building or structure for the wholesale or retail display, storage and merchandising of goods or wares.

This planning requirement is included in Chapter 5 of the National Fire Protection Association (NFPA) pamphlet number 30, 2000 edition, Section 5.12, which is adopted by the state Flammable and Combustible Liquid Rules. This pamphlet can be ordered from the NFPA at **www.nfpa.org**. The facility needs to evaluate site specific conditions and risks of fire hazards, including the emergency response capabilities of local emergency services. The plan needs to include the following:

- Procedures to follow in case of fire, such as sounding the alarm, notifying fire department, evacuating people, controlling and extinguishing the fire.
- Procedures and schedules for having drills of these procedures.
- Identifying and training employees to carry out assigned duties.
- Maintenance of fire protection equipment.
- Procedures for shutting down or isolating equipment to reduce the release of liquid.
- Identifying alternate measures for safety of employees.

See Chapter 4.3 for plan requirements for underground storage tanks and for more information on storage of flammable and combustible liquids. Contact the DLARA, Storage Tank Program at 517-241-8847 for questions or go to **www.michigan.gov/storagetanks**.

Keep a copy of the plan on site. Do not submit to the DEQ unless requested.

6.2.7 HAZMAT Security Plan

The U.S. DOT transportation regulations (Subpart I Part 172 (49 CFR 172.800) require shippers of any of the following hazardous materials to develop a hazardous materials security plan:

- Highway route-controlled quantities of Class 7 (radioactive) materials as defined in 49 CFR173.403 in a motor vehicle, rail car, or freight container
- More than 25 kg (55 lb) of Division 1.1, 1.2, or 1.3 (explosive) materials in a motor vehicle, rail car, or freight container
- More than 1 L (1.06 qt) per package of any material that is extremely toxic by inhalation, as defined by 49 CFR 171.8, that meets criteria for Hazard Zone A, as specified in 49 CFR 173.116(a), or 49 CFR 173.133(a)
- Hazardous materials in bulk packaging having a capacity of 13,248 L (3,500 gal) or more for liquids or gases, or 13.24 cubic meters (468 cubic feet) or more for solids
- Hazardous materials, not in a bulk package, of 2,268 kg (5,000 lb) gross weight or more of a class of hazardous materials for which placarding of the vehicle, rail car, or freight container is required for that class under the provisions of 49 CFR 172 subpart F
- Any quantity of hazardous material that requires placarding under 49 CFR 172 subpart F, including hazardous waste. Placards are required when the shipment is in excess of 1000 pounds.
- Select agents or toxins regulated by the Centers for Disease Control and Prevention under 42 CFR 73

A written security plan must contain the following sections:

- Personnel Security
- Unauthorized Access
- En Route Security

Go to **www.fmcsa.dot.gov/safety-security/safety-security.htm** for resources regarding safety and security for highway transport of hazardous materials. Many of the other emergency planning requirements cover some components required within the security plan.

The plan must be made available to the employees responsible for implementing it. Unlike other contingency plans, the security plan contents should be shared only with those employees whose responsibilities involve the shipment and handling of hazardous materials. Typically, this could include plant security, EHS representatives, maintenance, and shipping/receiving personnel. An appropriate list of personnel who require disclosure of the plan contents should be developed.

Keep the security plan as long as it remains in effect and any updates or changes must be communicated to the affected employees.

Every hazmat facility needs security training (see Chapter 4.4) and must keep training records. Even if you don't ship any of the above hazardous materials requiring a security plan, your employees must receive hazmat security awareness training if you ship any hazardous materials. This training can be combined with other required training sessions.

Call the U.S. Department of Transportation's Hazardous Materials INFO-LINE at 800-467-4922 for more information.

6.2.8 Integrated Contingency Plan (ICP)

Many facilities are required to maintain more than one emergency response plan. If you are subject to plan requirements under multiple regulations, you may combine all the required components into one plan called an Integrated Contingency Plan (ICP). The National Response Team's ICP Guidance provides a format for a comprehensive emergency response plan. This one-plan guidance is intended to be used by facilities to prepare emergency response plans for responding to releases of oil and non-radiological hazardous substances. It can be used by *any* facility, whether or not the facility is subject to specific planning requirements under federal and/or state regulations. The guidance was published in 1996 and is available on the DEQ's Emergency Planning Web site (**www.michigan.gov/deqemergencyplan**).

Use of the ICP format by facilities is supported by federal agencies (U.S. EPA, U.S. DOT, Department of the Interior, and Department of Labor) and state agencies (Michigan Citizen-Community Emergency Response Coordinating Council, State Police, DEQ, Department of Agriculture and Rural Development, and Department of Licensing and Regulatory Affairs). Michigan agencies strongly encourage facilities to use the ICP format.

There are three main sections of an ICP as described below:

Plan Introduction. This section is designed to provide facility response personnel, outside responders, and regulatory officials with basic information about the plan and the entity it covers. It includes:

- Purpose and Scope of Plan Coverage
- Table of Contents
- Current Revision Date
- General Facility Identification Information

Core Plan. This section is intended to reflect the essential steps necessary to initiate, conduct, and terminate an emergency response action. It should be concise, easy to follow, reference annexes that provide more detailed information, and fit into the glove-box of a response vehicle. It includes:

- Discovery
- Initial Response Procedures
- Sustained Actions
- Termination and Follow-Up Actions

Supporting Annexes. The annexes are designed to provide key supporting information for conducting an emergency response under the core plan as well as document compliance with regulatory requirements not addressed elsewhere in the ICP. They should augment, not duplicate, core plan information. Annexes include:

- Facility and Locality Information
- Notification Requirements
- Response Management System
- Incident Documentation
- Training and Exercises/Drills
- Response Critique and Plan Review and Modification Process
- Prevention
- Regulatory Compliance and Cross-Reference Matrices

In addition to the ICP guidance, information on many of the plans that can be integrated into the ICP, such as SPCC, RMP, PIPP, and SWPPP, are available on the DEQ's Emergency Planning Web site. This site includes guidance specific to the inclusion of federal and state plan requirements into the ICP, contacts for help regarding requirements of specific plans, emergency planning information and workbooks for facilities that are not subject to specific planning requirements, and plan submittal guidance.

> Not all plans are required to be submitted to the DEQ. *Please read about where you should submit your plan* ***before*** *you submit a copy.*

6.2.9 Federal Site Security Plan (SSP)

A regulated facility under this federal site security planning requirement is any establishment that possesses or plans to possess, at any relevant point in time, a quantity of a chemical substance determined to be potentially dangerous or that meets other risk-related criteria identified by the U.S. Department of Homeland Security (DHS). Review the Appendix A "Chemicals of Interest List" and site security planning information available at **www.dhs.gov/critical-infrastructure-chemical-security**. Appendix A includes approximately 300 chemicals of interest. Some of these chemicals are also listed as polluting materials under the state's Part 5 Rules as discussed in Chapter 6.2.2.

The DHS oversees the Chemical Facility Anti-Terrorism Standards (CFATS) that require facilities to prepare vulnerability assessments and develop and implement Site Security Plans if they are considered high risk. In some specified circumstances, a facility may be able to submit an alternate security program.

Owners of facilities with chemicals above the threshold quantities should have completed a preliminary online assessment to determine the level of risk associated with their facility by January 19, 2008. After this step, the DHS will determine if the facility presents a security risk and is subject to the Chemical Facility and Anti-Terrorism Standards. Submissions will be validated through audits and site inspections. The DHS will provide technical assistance to facility owners and operators as needed. Security standards will be required to achieve specific outcomes, such as securing the perimeter and critical targets, controlling access, deterring theft of potentially dangerous chemicals, and preventing internal sabotage.

If you have questions about CFATS go to **csat-help.dhs.gov** or call the CFATS Help Desk at 866-323-2957.

6.3 Release Notification Requirements in Michigan

While diligent efforts have been made to assure that the information provided in the table provided in this chapter is accurate and complete as of January 1, 2018, there is no guarantee that it covers all of the regulatory requirements for release notification and reporting in Michigan.

Chemical releases in Michigan are potentially reportable under one *or more* of twenty-seven different **state and federal regulations**. Determining which regulations apply to a specific release can be an overwhelming task. The "Release Notification Requirements in Michigan" table was compiled by the Michigan SARA Title III Program in the DEQ to help owners and operators of facilities in Michigan, including vehicles and farms, determine their potential notification and reporting requirements in the event of a chemical release.

Check your permits, licenses, registrations, pollution prevention plans, and local ordinances for *additional* release reporting requirements. In particular, all NPDES permits and most air permits have release reporting requirements in them that are not included on this table.

This table should be used as a tool to identify potential reporting requirements *before* a release occurs, and to identify follow-up reporting requirements based on the release. The table outlines **what** releases must be reported, **when** they must be reported, and **to whom** they must be reported.

6.3.1 What is a Chemical Release?

The term "release" means spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing. "Chemical" includes substances considered to be toxic or hazardous as well as substances as seemingly harmless as salad oil.

6.3.2 Chemical Lists

The U.S. EPA published a consolidated list of chemicals subject to SARA Title III, CERCLA, and section 112(r) of the Clean Air Act called the "List of Lists." The List of Lists (March 2015) is available at **www.epa.gov/epcra/epcracerclacaa-ss112r-consolidated-list-lists-march-2015-version** and includes:

- **Hazardous substances-CERCLA** including RCRA waste streams and unlisted hazardous wastes, with reportable quantities (RQ) for releases (originally published in 40 CFR 302, Table 302.4).
- SARA Title III section 304 **Extremely Hazardous Substances** (EHS) with RQs for releases (originally published in 40 CFR 355, Appendix A).
- SARA Title III Section 313 **Toxic chemicals** (originally published in 40 CFR 372 Subpart D).

The Part 5 Rules, Spillage of Oil and Polluting Materials, were promulgated pursuant to Part 31 of Act 451. These rules include a list of "**polluting materials**" with threshold reporting quantities for releases.

NOx Exemption in CERCLA and SARA Title III

The U.S. EPA finalized an exemption for certain releases of emissions of NO and NO_2 (collectively NOx) to air from CERCLA and SARA Title III reporting requirements (71 FR 58525). The exemption was effective November 3, 2006, and applies to releases to the air of less than 1,000 pounds of NOx in 24 hours that are the result of combustion. The exemption also applies to emissions from combustion-related activities such as detonation or processes that include both combustion and non-combustion operations, such as nitric acid production.

Petroleum Exclusion in CERCLA

Petroleum, including crude oil or any fraction thereof is excluded from the definitions of "hazardous substance," and "pollutant or contaminant" under CERCLA. Petroleum releases, accordingly, must generally be addressed under the authority of other law such as the underground storage tank (UST) provisions of RCRA, or the Clean Water Act (CWA). This exception, which has become known as the "***petroleum exclusion***," plays a significant role in CERCLA because many sites contain petroleum contamination. Petroleum frequently contains specific listed hazardous substances, the most common of which are benzene, toluene and xylenes. In general, such substances are not treated as CERCLA hazardous substances as long as they are found in refined petroleum fractions and are not present at levels that exceed those normally found in such fractions. Substances present in petroleum as a result of contamination during use or from mixing or combining are not within the petroleum exclusion and in such cases the substances are considered **hazardous substances-CERCLA**.

Part 201 of Act 451, Environmental Remediation, section 20114(1)(b) states that the requirements to report a release under this regulation apply to “reportable quantities of hazardous substances established pursuant to 40 CFR 302.4 and 302.6 (2012)….” This regulation references the listed hazardous substances published in the Code of Federal Regulations. It does not adopt the petroleum exclusion that applies to federal regulation of releases of **hazardous substances-CERCLA**. As a result, petroleum constituents, including component substances such as benzene, toluene, and xylenes, plus any additives (e.g., MTBE, lead) are all reportable under Part 201 based on the reportable quantities in the 2012 version of the CERCLA list of hazardous substances published in 40 CFR 302.4 and 302.6. (See the release calculation example in Chapter 6.3.1.)

Initial Notification: There is NO PENALTY for over-reporting!

When there is a release, determining if, when, and to whom it should be reported can be a daunting task even if you are familiar with the table. It is therefore recommended that **if there is a release, immediately call** the following three numbers even if the content or quantity of the released material has not yet been determined:

Post These Numbers by Every Phone

1. **911** to notify Local authorities
2. **800-292-4706** (PEAS) to notify State authorities
3. **800-424-8802** (NRC) to notify Federal authorities

You can then respond to the release, reassess the situation, and make additional notifications as required (e.g. as specified in the table or in your permits). Your follow-up report will provide details that explain why a release was *or was not* reportable.

SARA Title III section 304 requires that the LEPC be notified immediately of a release. Many LEPCs accept the call to 911 as notification. Others require direct notification. Contact your LEPC in advance to find out their requirements.

Written Follow-up Report

Written follow-up report forms that are specified in the table are required by regulation. The DEQ has developed a generic written report form called "Spill or Release Report" (EQP 3465) that can be used to report releases of:

- **Hazardous substances-CERCLA** and **extremely hazardous substances** under SARA Title III.
- **Hazardous waste** under Part 111 of Act 451.
- **Liquid industrial by-products** under Part 121 of Act 451.
- **Hazardous substances** under Part 201 of Act 451.
- **Polluting materials** under Part 31 of Act 451, Part 5 Rules.

Hot Tip!

Use the generic Spill or Release Report form to record *initial* notifications.

Links to the release reporting forms and chemical lists referenced in the table are available on the DEQ's Release Reporting Web site at **www.michigan.gov/chemrelease**. Visit this site for updated versions of this table, as well as updated DEQ and LEPC contact information.

NOTE: Executive Order 2012-14 transferred the DEQ storage tank program to the Bureau of Fire Services in LARA effective December 2, 2012. Phone numbers and email addresses associated with the storage tank program and staff have not changed.

For information regarding a specific regulation, contact the agency specified in the "notes" column of the table. If this is a DEQ division, contact the *district* division office.

General questions or comments regarding this table should be directed to the Michigan SARA Title III Program at 517-284-SARA (284-7272) or **deq-sara@michigan.gov**.

DEQ Release Reporting Web site:
www.michigan.gov/chemrelease

Acronyms are defined at the end of the table.

Release Notification Requirements in Michigan*

Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
SARA Title III Section 304 40 CFR 355.40 (**EHS & Hazardous Substances**)	Release of a CERCLA **hazardous** substance (40 CFR 302, Table 302.4) or **Extremely Hazardous** Substance (EHS) (40 CFR 355, Appendix A) from a facility (all buildings, equipment, etc. located on a single site or adjacent sites owned or operated by the same person) at which a hazardous chemical (as defined under 29 CFR 1910.1200(c)) is used, produced or stored (including motor vehicles, rolling stock, and aircraft) in a quantity equal to or greater than its corresponding reportable quantity in any 24-hr period that migrates beyond the facility boundaries. Includes continuous release reportable under CERCLA Section 103. Excludes release that is federally permitted or that results in exposure to persons solely within the boundaries of the facility. See 67 FR 18899 (4/17/02) for guidance on the CERCLA federally permitted release definition for certain air emissions. Does not apply to the application, handling, and storage by an agricultural producer of a pesticide product registered under FIFRA. Excludes release < 1000 lbs of NOx released to the air from combustion or combustion-related activities.	Immediate (within 15 minutes after discovery) to: LEPC(s) of any area(s) potentially affected, and SERC *(DEQ PEAS line accepts notification on behalf of SERC)* by owner or operator. Continuous releases must be identified as such and are reported initially and when there is a significant change in the release. See 73 FR 76948 (12/18/08): Only CAFOs are required to report continuous releases to the air from animal waste. Transportation related releases can be reported to 911.	As soon as practicable (within 30 days) after release: to LEPC(s) and SERC. Not required for releases that occur during transportation or from storage incident to transportation. For continuous releases: Initial written within 30 days after initial telephone notification: to LEPC(s) and SERC. Michigan SARA Title III Program accepts reports on behalf of the SERC.	PEAS: 800-292-4706 Contact your LEPC for a phone number to report releases. Call 911 if your LEPC is not active. For further information & LEPC contact information, contact Michigan SARA Title III Program 517-284-7272
CERCLA Section 103 40 CFR 302 (**Hazardous Substances**)	Release into the environment of a CERCLA **hazardous** substance (40 CFR 302, Table 302.4) or hazardous constituent in a mixture or solution (including hazardous waste streams) from a vessel or facility (any building, structure, etc. including motor vehicles, rolling stock, aircraft, pipe, pipeline, well, pond, lagoon, impoundment, ditch, landfill, or site where a hazardous substance has come to be located) in a quantity equal to or greater than its corresponding reportable quantity in any 24-hour period. Excludes petroleum, including oil, or any fraction thereof. See 40 CFR 302.6 for notification requirements for radionuclide releases. Includes continuous release: occurs without interruption or abatement or that is routine, anticipated, and intermittent and incidental to normal operations or treatment processes. See 67 FR 18899 (4/17/02) for guidance on the CERCLA federally permitted release definition for certain air emissions. See 71 FR 58525 (10/4/06) re Exemption for NOx releases to the air of < 1000 lbs from combustion or combustion-related activities. Does not apply to the application, handling, and storage by an agricultural producer of a pesticide product registered under FIFRA.	Immediate (within 15 minutes after discovery) to: NRC by person in charge of vessel or offshore or onshore facility. Continuous releases must be identified as such and are reported initially and when there is a significant change in the release. See 73 FR 76948 (12/18/08) re Exemption from reporting continuous releases to the air from animal waste.	For continuous releases only: Initial written within 30 days after initial telephone notification & Follow-up within 30 days of first anniversary of initial written notification to: U.S. EPA Region 5.	NRC 800-424-8802 or online at www.nrc.uscg.mil For further information contact Michigan SARA Title III Program 517-284-7272 or U.S. EPA's Superfund, TRI, EPCRA, RMP, and Oil Information Center 800-424-9346

NOTE: If the release is a **THREAT TO HUMAN HEALTH or SAFETY**, call 911 or your local fire department.
***This table covers only those reporting requirements found in rules and regulations that apply in Michigan as of January 2016. **Releases may be reportable under multiple regulations**.
Additional reporting requirements might be found **in permits**, licenses, registrations, **contingency and pollution prevention plans**, and local ordinances.

Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
NREPA 1994 PA 451 Part 201, **Environmental Remediation**	(i) Unpermitted release into the environment over a 24-hour period of a **hazardous** substance (*July 1, 2012, edition* of the CERCLA list, 40 CFR 302, Table 302.4) in a quantity equal to or greater than its corresponding reportable quantity. Does not include release solely from UST systems regulated under Part 213, and release solely from disposal area licensed under Part 115 and discovered through disposal area's hydrogeological monitoring plan. Release of substance regulated by Michigan Department of Agriculture & Rural Development (MDARD) (fertilizer, soil conditioner, or pesticide) excluding normal agricultural practices: *also* report to MDARD. (ii) The owner or operator has reason to believe that one or more **hazardous** substances are migrating or have migrated from his or her property and are present beyond the property boundary at a concentration in excess of cleanup criteria for unrestricted residential use. (iii) The release is a result of an activity that is subject to permitting under NREPA Part 615 and the owner or operator is not the owner of the surface property and the release results in **hazardous** substance concentrations in excess of cleanup criteria for unrestricted residential use. Hazardous substance means a hazardous substance defined in CERCLA (40 CFR 302), hazardous waste as defined in NREPA part 111, petroleum as defined in NREPA part 213, or any substance demonstrated to pose an unacceptable risk to public health, safety, welfare, or the environment. Cleanup criteria for unrestricted residential use means criteria that satisfy the requirements in section 20120a(1)(a) or (16); or as defined under NREPA part 213.	Within 24 hours after discovery: to DEQ-RRD district office (PEAS after hours) by owner or operator or person holding easement interest. Report agricultural release to MDARD. Within 30 days after discovery: to DEQ-RRD district office and owners of property to which hazardous substances migrated or owner of surface property by owner or operator of property where release occurred. Specific form required for: "Notice of Migration of Contamination" (Form EQP4482).	Upon request: Provide a response activity plan to DEQ-RRD district supervisor.	PEAS: 800-292-4706 MDARD Agriculture Pollution Emergency Hotline: 800-405-0101 For further information contact DEQ-RRD

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Additional reporting requirements might be found **in permits**, licenses, registrations, **contingency and pollution prevention plans**, and local ordinances.

Release Notification Requirements in Michigan*

Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
NREPA 1994 PA 451 Part 83, Pesticide Control Regulation 640, Commercial Pesticide Bulk Storage (**Agricultural**)	Release to the environment of a commercial **pesticide** >5 gallons or 100 pounds. Reportable agrichemical spills as defined in the provisions of SARA Title III section 304 and CERCLA section 103 shall be immediately reported to PEAS and the NRC. The term "release" excludes normal agricultural practices.	Immediate: to PEAS* Also notify NRC for spills reportable under SARA Title III & CERCLA. *MDARD prefers direct notification to their hotline. PEAS forwards all agriculture calls to MDARD.	Within 90 days: to MDARD Pesticide and Plant Pest Management Division a revised site plan.	MDARD Agriculture Pollution Emergency Hotline: 800-405-0101 PEAS: 800-292-4706 NRC: 800-424-8802 or online at www.nrc.uscg.mil For further information contact MDARD: 517-284-5644
NREPA 1994 PA 451 Part 83, Pesticide Control Regulation 640, Commercial Pesticide Bulk Storage (**Agricultural**)	Release to the environment of a commercial **pesticide** >5 gallons or 100 pounds. Reportable agrichemical spills as defined in the provisions of SARA Title III section 304 and CERCLA section 103 shall be immediately reported to PEAS and the NRC. The term "release" excludes normal agricultural practices.	Immediate: to PEAS* Also notify NRC for spills reportable under SARA Title III & CERCLA. *MDARD prefers direct notification to their hotline. PEAS forwards all agriculture calls to MDARD.	Within 90 days: to MDARD Pesticide and Plant Pest Management Div. a revised site plan.	MDARD Agriculture Pollution Emergency Hotline: 800-405-0101 PEAS: 800-292-4706 NRC: 800-424-8802 or online at www.nrc.uscg.mil For further information contact MDARD: 517-284-5644
NREPA 1994 PA 451 Part 85, Fertilizers Regulation 641 Commercial Fertilizer Bulk Storage Regulation 642, On Farm Fertilizer Bulk Storage (**Agricultural**)	Release to the environment of a commercial **fertilizer** >55 gallons liquid or 650 pounds dry, or tank overfills; or an on farm fertilizer > 55 gallons liquid. For storage tank with bladder system instead of diking: also report all overfills and internal spills. The term "release" excludes normal agricultural practices. The term "liquid fertilizer" excludes anhydrous ammonia.	Immediate: to MDARD by commercial bulk storage facility personnel (For farms, the regulation does not specify who makes the report.)	Not required.	MDARD Agriculture Pollution Emergency Hotline: 800-405-0101 For further information contact MDARD 517-284-5644

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Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
Fire Prevention Code 1941 PA 207 Section 29.5g	A fire, explosion, spill, leak, accident, or related occurrence that involves the transportation, storage, handling, sale, use, or processing of hazardous material by a firm, person, or vehicle. **Hazardous** material = explosives, pyrotechnics, flammable gas, flammable compressed gas, flammable liquid, nonflammable compressed gas, combustible liquid, oxidizing material, poisonous gas or liquid, LPG, or irritating, etiologic, radioactive, or corrosive material. Act 207 amended 6/19/2006. The State Fire Marshall is in LARA, Bureau of Fire Services.	Immediately following incident, report known details regarding incident to: LARA Bureau of Fire Services *and* organized local fire department By owner of firm or vehicle or the person *and* the chief of first police or organized fire department upon scene of incident.	Not required.	Contact LARA Bureau of Fire Services by calling the MSP HazMat hotline: 800-525-5555 For further information: contact local fire department
Fire Prevention Code 1941 PA 207 Part 2 of Storage and Handling of Flammable and Combustible Liquids rules (FL/CL code)	A release from an **AST** system of > 55 gal of any **flammable or combustible liquid** (flash point < 200°F) to the ground or within a secondary containment area during any 24 hour period. Note: Many liquid pesticides are combustible (flash point between 100 and 200°F).	As soon as practicable after detection of release: to PEAS by owner or operator.	Within 10 days after release: to LARA Bureau of Fire Services, Storage Tank Division, outlining cause, discovery, response to prevent recurrence.	PEAS: 800-292-4706 For further information: contact LARA Bureau of Fire Services, Storage Tank Division 517-335-7211
49 CFR 171 (**Transportation of Hazardous Materials**)	**Initial verbal notice:** Incident during transportation (including loading, unloading, temporary storage) involving (1) **hazardous** material and resulting in death, injury requiring hospitalization, public evacuation ≥ 1 hour, major transportation artery or facility closure ≥ 1 hour, or flight pattern alteration; (2) fire, breakage, spillage, or suspected radioactive contamination occurs involving a **radioactive** material; (3) fire, breakage, spillage or suspected contamination involving an **infectious** substance other than a regulated medical waste; (4) **marine pollutant** release exceeding 450 L (119 gal) liquid or 400 kg (882 lbs) solid; (5) other per judgment of person in possession of the hazardous material (e.g., continuing danger to life exists at scene of incident); (6) during transportation by aircraft, a fire, violent rupture, explosion or dangerous evolution of heat occurs as a direct result of a battery or battery-powered device. Hazardous material = CERCLA hazardous substance (40 CFR 302, Table 302.4), hazardous waste (40 CFR 262), marine pollutant (49 CFR 172.101 Appendix B), elevated temperature material, listed on Hazardous Materials Table (49 CFR 172.101), or meets criteria for hazard class/division in 49 CFR 173. **Written follow-up report:** Required for all of above, plus any unintentional release of hazardous material from a package (including tank); or any quantity of hazardous waste discharged during transportation; or structural damage to lading retention system, even if no release, on specification cargo tank with ≥ 1000 gal capacity containing hazardous material; or undeclared hazardous material discovered.	As soon as practical but no later than 12 hours after occurrence of the incident: to NRC by each person in physical possession of the hazardous material. (A reportable incident *must* be reported by telephone, not online.) For infectious substances, notice may be given to the Director, Centers for Disease Control and Prevention, U.S. Public Health Service instead of NRC.	Within 30 days after discovery: to US DOT on DOT Form F 5800.1 (01-2004) "Hazardous Materials Incident Report." Report online at https://hazmatonline.phmsa.dot.gov/incident/ Report must be updated within 1 year of incident if: Death results from injury; hazardous material or package info on prior report misidentified; damage, loss or cost not known on prior report becomes known or changes by $25,000 or 10%. See regulation for exceptions to written report.	NRC 800-424-8802 or online at www.nrc.uscg.mil U.S. Public Health Service 800-232-0124 For further information contact US DOT Hazardous Materials Information Center at 800-467-4922 or online at www.phmsa.dot.gov/hazmat

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Release Notification Requirements in Michigan*

Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
NREPA 1994 PA 451 Part 31, Water Resources Protection (Release to **surface of ground**, **surface water, groundwater** or **public sewer system**)	Unpermitted release directly or indirectly to public sewer system, surface of ground, surface water or groundwater from an oil storage facility or on-land facility of a "**polluting material**" (**oil**, **salt**, or any material specified in table 1 in R 324.2009) in excess of its threshold reporting quantity during any 24-hour period. See Part 5 rules, effective 8/31/01, for details and exemptions. HB 5586 effective 6/15/04 amended the reporting requirements. *Rule revisions pending.*	As soon as practicable after detection: to PEAS *and* 911 by owner, operator or manager. State agencies call 911 if release reported to them by another state or Canada.	Within 10 days after release: to DEQ-WRD district supervisor *and* to the local health department where the release occurred, outlining cause, discovery, response & prevention of recurrence.	PEAS: 800-292-4706 For further information contact DEQ-WRD
CWA Section 311 33 CFR 153 (**Navigable waters** – Coast Guard/DOT) Control of Pollution by **Oil** and **Hazardous** Substances, Discharge Removal	Discharge of a harmful quantity of **oil** or a **hazardous** substance from a vessel or onshore or offshore facility into or upon navigable **waters** of the United States or adjoining **shorelines**. Harmful quantity = oil discharge that violates applicable water quality standards, or causes a film or sheen upon or discoloration of the surface of the water or adjoining shorelines, or causes a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines; or a CERCLA hazardous substance (40 CFR 302, Table 302.4) in a quantity equal to or greater than its corresponding reportable quantity. Oil = oil of any kind or in any form including petroleum, crude oil, petroleum refined products, sludge, oil refuse, oil mixed with wastes, etc., as well as vegetable and animal oils.	Immediate: to NRC by person in charge of vessel or facility. If direct reporting to NRC not practicable, may report to district Coast Guard or EPA predesignated OSC.	Not required.	NRC: 800-424-8802 or online at www.nrc.uscg.mil District 9 Coast Guard 216-902-6117 U.S. EPA Region 5 for predesignated OSC 312-353-2318 For further information contact U.S. EPA Region 5 at 312-353-8200 or District 9 Coast Guard at 216-902-6045
CWA Section 311 40 CFR 110 (**Discharge of Oil**)	Discharges of **oil** that violate applicable **water** quality standards, or cause a film or sheen upon or discoloration of the surface of the water or adjoining **shorelines**, or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines. Oil = oil of any kind or in any form including petroleum, crude oil, petroleum refined products, sludge, oil refuse, oil mixed with wastes, etc., as well as vegetable and animal oils.	Immediate: to NRC by person in charge of vessel or facility.	Not required.	NRC: 800-424-8802 or online at www.nrc.uscg.mil For further information contact DEQ-WRD
NREPA 1994 PA 451 Part 31, Water Resources Protection (**Sewer Systems**)	Discharge of untreated sewage or partially treated sewage from a **sewer system** onto land or into the waters of the state. "Sewer system" means a sewer system designed and used to convey sanitary sewage or storm water, or both.	Immediate (within 24 hours): to DEQ-WRD district office (PEAS after hours); Local health departments; Daily newspaper circulated in source & affected counties; & Affected municipalities.	At end of discharge: to same parties notified initially on Form EQP 5857 (Rev. 12/2011) "Report of Discharges of Untreated or Partially Treated Sewage." Includes results of E. coli testing.	PEAS: 800-292-4706 For further information contact DEQ-WRD

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Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
NREPA 1994 PA 451 Part 41, **Sewerage Systems**	Discharges of pollutants from **sewerage systems** (which can include combined sewers) in excess of those authorized by a discharge permit issued by the DEQ to surface water or groundwater as a result of a facility breakdown or emergency. Sewerage systems handle sanitary sewage or other industrial liquid wastes.	Promptly: to DEQ-WRD district office (PEAS after hours) by owner.	Within 72 hours: to DEQ-WRD district supervisor, outlining cause, discovery, corrective actions taken to minimize impact, restore operations, and eliminate future unpermitted discharges.	PEAS: 800-292-4706 For further information contact DEQ-WRD
NREPA 1994 PA 451 Part 211, **Underground Storage Tanks** Part 213, Leaking Underground Storage Tanks	Releases of a **regulated substance** of any amount from underground storage tank (UST) systems (includes the emergency shutoff valve on down) subject to registration; overfill from UST fillpipe or vent onto ground; release from aboveground pipe attached to UST system. Regulated substance = petroleum or CERCLA hazardous substance (40 CFR 302, Table 302.4) or substance listed in CAA title 1 part A sect 112. Petroleum includes, but is not limited to, crude oil, motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, and petroleum solvents.	(Part 211) Within 24 hours after discovery: to LARA Bureau of Fire Services, Storage Tank Division by email or fax on Form EQP 3826 (Rev. 4/12) If free product, Form EQP 3800 (Rev 02/2003) required by UST owner or operator, or employee of owner or operator. Includes releases discovered years after UST system removed	(Part 213) At 180 days: Initial Assessment Report on Form EQP3841 (Rev. 02/2003) if not closed; at 365 days: Final Assessment Report on Form EQP3842 (Rev. 11/2006) if still not closed; at closure: Closure Report on Form EQP3843 (Rev. 02/2003) to DEQ-RRD district project manager.	Email: deq-std-tanks@michigan.gov Fax: 517-335-2245 For further information contact DEQ-RRD or phone 800-MICHUST
NREPA 1994 PA 451 Part 111, **Hazardous Waste** Management (Generators; Treatment, Storage & Disposal Facilities (TSDF); Transporters)	Any amount of characteristic **hazardous waste** or listed hazardous waste (as defined in R 299.9203 "Hazardous Waste Rule 203") reaches the surface water or groundwater, or A fire, explosion, or other release of hazardous waste or hazardous waste constituent occurs that could threaten human health or the environment. or A release of >1lb (or ≤1lb if not immediately cleaned up) hazardous waste to the environment from a tank system or associated secondary containment system. Additional hazardous waste reporting requirements under NREPA Part 201 and CERCLA. NREPA Part 111 requires transporters to comply with 49 CFR 171 and 33 CFR 153.	Immediate: to PEAS (or for Tank systems/secondary containment, within 24 hours of discovery to DEQ-OWMRP) and to NRC if threat to human health or environment outside facility by generator, or owner or operator of TSDF, or transporter.	For large quantity generators and TSDF: Within 15 days after incident IF the contingency plan had to be implemented to: DEQ-OWMRP. For tank/secondary containment systems: Within 30 days of discovery to: DEQ-OWMRP. For transporters: to US DOT if required per 49 CFR 171.	PEAS: 800-292-4706 NRC 800-424-8802 or online at www.nrc.uscg.mil For further information contact DEQ-OWMRP

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Release Notification Requirements in Michigan*

Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
NREPA 1994 PA 451 Part 121, **Liquid Industrial By-Product**	The **liquid industrial by-product** spill could threaten public health, safety, welfare, or the environment, or has reached surface water or groundwater. Liquid industrial by-product includes nonhazardous brine, by-product, industrial wastewater, leachate, off-spec commercial chemical product, sludge, sanitary or storm sewer clean-out residue, grease trap clean-out residue, spill residue, used oil, or other liquid by-product not regulated by other laws.	Immediate: to PEAS and local authorities by generator, transporter, or owner or operator of facility. Refer to MCL 324.12111(1) for required report elements	Prepare within 30 days after incident. Submit upon request to: DEQ-OWMRP district supervisor. Refer to MCL 324.12111(1) for required report elements	PEAS: 800-292-4706 For further information contact DEQ-OWMRP
NREPA 1994 PA 451 Part 55, **Air Pollution** Control	Abnormal condition, start-up, shutdown, or malfunction that results in emissions exceeding permissible (in rule, permit or order) levels of **hazardous air pollutants** (HAPs) (CAA Sect. 112(b)) or **toxic air contaminants** (as specified in permit) for > 1 hour, or any air contaminant for > 2 hours. Written follow-up report only required for emission exceedences lasting > 2 hours.	As soon as possible, but not later than 2 business days after discovery to: DEQ-AQD district office (PEAS after hours) by owner or operator.	Within 10 days after start-up, shutdown, or abnormal condition, malfunction corrected. Or within 30 days of abnormal condition, malfunction discovery- whichever first: to DEQ-AQD district supervisor.	PEAS: 800-292-4706 For further information contact DEQ-AQD
NREPA 1994 PA 451 Part 55, **Air Pollution** Control (Permit to Install Exemptions)	Emergency venting of **natural gas** from transmission and distributions systems or **field gas** from gathering lines in amounts > 1,000,000 standard cubic feet per event. Emergency = unforeseen event that disrupts normal operating conditions and poses a threat to human life, health, property or the environment if not controlled immediately. See R 336.1285(mm), effective 6/20/2008, for details.	Within 24 hours of the event: to PEAS by owner or operator.	Not required.	PEAS: 800-292-4706 For further information contact DEQ-AQD
Public Health Code 1978 PA 368 Part 133, **Dry Cleaning**	Condition or incident presents a threat or hazard to **public health** or safety.	Immediate to: DEQ-AQD district office (PEAS after hours) by owner or operator.	Within 30 days after incident: To DEQ-AQD district supervisor.	PEAS: 800-292-4706 For further information contact DEQ-AQD

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Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
NREPA 1994 PA 451 Part 615, Supervisor of Wells (**oil and gas production fields**)	A loss, spill or release of (1) any amount of **brine**, **crude oil**, or **oil or gas field waste** *unless* it is less than 42 gallons and occurs while an authorized representative is on site and is completely contained and cleaned up within 1 hour, or (2) any unpermitted amount of **natural gas**, or (3) **chemicals** used in association with oil and gas activities.	Within 8 hours after discovery of: 42 gallons or more of brine, crude oil, or oil or gas field waste, or any amount of chemical or natural gas, or; less than 42 gallons if the spill contacts surface water, groundwater, or other environmentally sensitive resources, or is not completely contained and cleaned up within 48 hours to: DEQ-OGMD district office (PEAS after hours) by permittee.	Within 10 days after discovery of loss or spill to: DEQ-OGMD district supervisor on Form EQP-7233 (Rev 1/2012) "Report of Loss or Spill" by permittee Written report only for less than 42 gallons of brine, crude oil, or oil and gas field waste if spill does not contact surface water, groundwater, or other environmentally sensitive resources, and is completely contained and cleaned up within 48 hours.	PEAS: 800-292-4706 For further information contact DEQ-OGMD
49 CFR 191 Transportation of Natural and Other **Gas by Pipeline**	An incident, meaning: (1) Event that involves a release of **gas** from a pipeline, or of liquefied natural gas, liquefied petroleum gas, refrigerant gas, or gas from an LNG facility that results in: Death or hospitalization; or Property damage ≥ $50,000; or estimated gas loss of ≥ three million cubic feet. (2) Event that results in emergency shutdown of LNG facility. (3) Significant event per operator. Written Incident reports not required for LNG facilities. Applies to pipeline systems and the transportation of gas through those systems in or affecting interstate or foreign commerce. (See 49 CFR 191.3 for details.)	Earliest practicable moment following discovery to: NRC by operator. Notification must electronic unless there is a safety-related condition to report.	As soon as practicable, and within 30 days after discovery to: US DOT on DOT Form PHMSA F 7100.1 "Incident Report – Gas Distribution System." or PHMAS F 7100.2 "Incident Report – Gas Transmission and Gathering Systems" or PHMSA F 7100.3 "Incident Report – Liquefied Natural Gas (LNG) Facilities" Supplemental report filed as necessary as soon as practicable.	NRC: 800-424-8802 www.nrc.uscg.mil For further information contact US DOT Pipeline Safety Information Center at 202-366-4595 or online at http://ops.dot.gov
49 CFR 195 Transportation of **Hazardous Liquids by Pipeline**	Release of hazardous liquid (**petroleum**, **petroleum products**, or **anhydrous ammonia**) or **carbon dioxide** from a pipeline system that results in any of the following: (a) Explosion or fire; (b) Release of ≥ 5 gallons (except if < 5 barrels released due to maintenance and release not otherwise reportable, confined to property, does not pollute water, and cleaned up promptly); (c) Death of any person; (d) Injury requiring hospitalization; or (e) Property damage > $50,000. (See 49 CFR 195.50, revised 1/8/02, for details) Applies to pipeline facilities and the transportation of hazardous liquids associated with those facilities in or affecting interstate or foreign commerce. (See 49 CFR 195.1 for details.)	Earliest practicable moment following discovery: to NRC by operator if Release caused: Death or hospitalization; Fire or explosion; Property damage; Water pollution; or was Significant per the operator.	As soon as practicable, and within 30 days after discovery to: U.S. DOT on DOT Form PHMSA F 7000-1 "Accident Report – Hazardous Liquid Pipeline Systems" Supplemental report must be filed within 30 days after operator receives changes or additions to original report.	NRC: 800-424-8802 www.nrc.uscg.mil For further information contact US DOT Pipeline Safety Information Center at 202-366-4595 or online at http://ops.dot.gov

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Release Notification Requirements in Michigan*

Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
1978 PA 368 Part 135, **Radiation** Control	For any emergency. Or for incident involving naturally occurring or accelerator produced **radioactive material**- *Immediate notice if:* Incident may have caused or threatens to cause: dose to body 25 rems, to skin 150 rems, to extremities 375 rems (per rule 247); 24 hour concentration exceeds 5000 times limits specified in table II of rules 261 to 269; contamination causes operation shut down for 1 week, or property damage >$100,000. *Notice within 24 hours if:* Incident may have caused or threatens to cause: dose to body 5 rems, to skin 30 rems, to extremities 75 rems (per rule 247); 24 hour concentration exceeds 500 times limits specified in table II of rules 261 to 269; contamination causes operation shut down for 1 day, or property damage >$1000.	Immediate or within 24 hours (see reporting criteria): to DEQ Radiological Program (PEAS after hours) or MSP Operations Division for all **Power Plant** related incidents (day or night). By licensee or registrant.	Within 30 days after release: to DEQ Radiological Program by licensee or registrant. Written report also required if level of radiation or concentration of radioactive material in unrestricted area >10 times any applicable limit. See Rule 250 (R 325.5250) for required report content.	DEQ Radiological Program 517-284-5185 MSP Operations Div 517-241-8000 PEAS: 800-292-4706 For further information contact DEQ Radiological Program
10 CFR 20 (Standards for Protection Against **Radiation**)	For incident involving source, by-product, or special nuclear **radioactive material**- ***Immediate notice if:*** Event that may have caused or threatens to cause: effective dose equivalent to individual 25 rems, lens dose equivalent 75 rems, shallow-dose equivalent to skin or extremities 250 rads; individual could receive 5 times annual limit on intake in 24 hours. OR Any lost, stolen, or missing licensed material in an aggregate quantity equal to or greater than 1000 times the quantity specified in appendix C to part 20 under such circumstances that it appears to the licensee that an exposure could result to persons in unrestricted areas. ***Notice within 24 hours if:*** Event that may have caused or threatens to cause: an individual in 24 hours to receive effective dose equivalent >5 rems, lens dose equivalent >15 rems, shallow-dose equivalent to skin or extremities >50 rems; individual could receive >1 times annual limit on intake in 24 hours.	Immediate or within 24 hours (see reporting criteria): to USNRC by USNRC Licensee responsible for the incident.	Within 30 days of incident: to USNRC by licensee. Report content specified in 10 CFR 20.2003 Written report also required for occurrences as specified in 10 CFR 20 Section 20.2203 and after the occurrence of any lost, stolen, or missing licensed material becomes known to the licensee, and if at the time the report is filed all licensed material in a quantity greater than 10 times the quantity specified in appendix C to part 20 is still missing.	US Nuclear Regulatory Commission (USNRC) 301-816-5100 For further information contact DEQ Radiological Program 517-284-5185
MIOSHA 1974 PA 154 Section 61, Records & Reports; Notice of **Fatalities or Hospitalization**	A release that results in a **fatality** within 30 days of the incident or in-patient **hospitalization** within 24 hours of the incident. Note: the OSHA amendment to require employers to report all work-related hospitalization s within 24 hours becomes effective Jan 1, 2015. Michigan intends to adopt the new rules by reference within 6 months of the Sept 18, 2014 FR publication.	Within 8 hours for a fatality or Within 24 hours for hospitalization to: MIOSHA Hotline by Employer.	Not required.	MIOSHA Fatality or Catastrophe Hotline 800-858-0397 For further information contact LARA-MIOSHA 517-322-1831

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Act & Regulation	Reporting Criteria	Initial Notification	Written Follow-up Report	Notes
TSCA 40 CFR 761.125 (**PCBs**)	Spills of **PCB**s at concentrations of 50 ppm or more and subject to decontamination requirements under TSCA that: contaminate surface water, sewers, drinking water supplies, grazing lands or vegetable gardens, or exceed 10 pounds. (TSCA specifies that these requirements are in addition to any under CWA or CERCLA. e.g. CERCLA requires spills of 1 pound or more to be reported to NRC.)	As soon as possible after discovery, and within 24 hours: to EPA Region 5.	Not required to be submitted. Records of cleanup and certification of decontamination shall be documented.	EPA Region 5 Corrective Action Section 312-886-7890 For further information contact EPA Region 5 Corrective Action Section
SARA Title III Section 313 40 CFR 372 (**Toxic chemical** release reporting)	Covered facilities as defined in 40 CFR 372 subpart B are subject to **toxic** chemical release reporting for toxic chemicals and chemical categories listed in 40 CFR 372 subpart D.	Not applicable.	Annually by July 1: to EPA & SERC on EPA's Form R "Toxic Chemical Release Inventory Reporting Form" (EPA Form 9350-1, Rev.10/2011) Report aggregate releases (permitted & unpermitted)	Michigan SARA Title III Program accepts reports on behalf of SERC For further information contact Michigan SARA Title III Program 517-284-7272

Acronyms used in table:

AQD = Air Quality Division
HazMat = Hazardous Materials
PA = Public Act (Michigan)
AST = Above Ground Storage Tank
HB = House Bill
PCB = Polychlorinated biphenyl
CAA = Clean Air Act
LARA = Michigan Department of Licensing & Regulatory Affairs
PEAS = Pollution Emergency Alerting System
CAFO = Concentrated Animal Feeding Operation
LEPC = Local Emergency Planning Committee
PHMSA = Pipeline & Hazardous Materials Safety Administration
CERCLA = Comprehensive Environmental Response, Compensation
LNG = Liquefied Natural Gas
RMP = Risk Management Program and Liability Act of 1980
LPG = Liquefied Petroleum Gas
RRD = Remediation and Redevelopment Division
CFR = Code of Federal Regulations
MCL = Michigan Compiled Laws
SARA = Superfund Amendments and Reauthorization Act of 1986
CWA = Clean Water Act
MDARD = Michigan Dept of Agriculture & Rural Development
SERC = State Emergency Response Commission
DEQ = Michigan Department of Environmental Quality
MIOSHA = Michigan Occupational Safety and Health Administration
TRI = Toxic Chemical Release Inventory
DOT = Department of Transportation
MSP = Michigan Department of State Police
TSCA = Toxic Substance Control Act
EHS = Extremely Hazardous Substance
NRC = National Response Center (U.S. Coast Guard)
TSDF = Treatment, Storage & Disposal Facility
EPA = U. S. Environmental Protection Agency
NREPA = Natural Resources & Environmental Protection Act
US DOT = U.S. Department of Transportation
EPCRA = Emergency Planning & Community Right-to-Know Act
ODWMA = Office of Drinking Water & Municipal Assistance
USNRC = U. S. Nuclear Regulatory Commission
FIFRA = Federal Insecticide, Fungicide, & Rodenticide Act
OGMD = Oil, Gas, and Minerals Division
UST = Underground Storage Tank
FL/CL = Flammable and combustible liquids
OPS = Office of Pipeline Safety (US DOT)
WRD = Water Resources Division
FR = Federal Register
OSC = On Scene Coordinator
HAP = Hazardous Air Pollutant
WMRPD = Waste Management & Radiological Protection Division

NOTE: If the release is a **THREAT TO HUMAN HEALTH or SAFETY**, call 911 or your local fire department.
*****This table covers only those reporting requirements found in rules and regulations that apply in Michigan as of January 2016. **Releases may be reportable under multiple regulations**.
Additional reporting requirements might be found **in permits**, licenses, registrations, **contingency and pollution prevention plans**, and local ordinances.

6.3.1 Release Calculations

How to determine the reportable quantity of a product based on the reportable quantity of an ingredient.

Example Calculation: When is a release of gasoline reportable?
Under Part 201 of Act 451, releases of **hazardous substances-CERCLA** published in the 2012 version of 40 CFR 302, Table 302.4 must be reported. Gasoline is not a **hazardous substance-CERCLA**. However, some of the ingredients in gasoline are **hazardous substances-CERCLA** and are reportable under this regulation.

This example shows you how to determine when a release of gasoline *in gallons* is reportable under Part 201 of Act 451 based on reportable quantities *in pounds* of the ingredients.

1. **Identify the hazardous ingredients, reportable quantities, and weight percents.**

   Look at a Safety Data Sheet (SDS) for gasoline to find the hazardous ingredients and the weight percents of those ingredients. This is from Section 3 in an SDS for "Gasoline, Unleaded."

CAS #	Component	Weight %
8006-61-9	Gasoline, natural	10-30
108-88-3	Toluene	10-30
106-97-8	Butane	1-20
1330-20-7	Xylenes (o-, m-, p- isomers)	10-30
64-17-5	Ethanol; Ethyl alcohol	0-8.2
100-41-4	Ethylbenzene	1-5
71-43-2	Benzene	<5
110-54-3	N-Hexane	0.5-0.75

   Look at the "List of Lists" to find the reportable quantity of an ingredient that is a **hazardous substance-CERCLA**.

   Benzene (CAS number 71-43-2) is a **hazardous substance-CERCLA** listed in the "List of Lists." The reportable quantity (RQ) for benzene under CERCLA is 10 pounds. That means that a release of 10 pounds or more of benzene to the environment must be reported to the DEQ Remediation and Redevelopment Division district office (or PEAS after hours). The weight percent of benzene in the example gasoline is 0.4 to 5%. When calculating a reportable release, use the higher, weight percent.

2. **Calculate the weight of the gasoline.**

   Because the gasoline is a liquid measured in gallons, and the reportable quantity of benzene is in pounds, we must calculate the weight of a gallon of gasoline. The formula is as follows:

Specific gravity of the product x 8.34 lb/gal (weight of water) = weight of the product in lb/gal

The specific gravity, also called the relative density, can be found in the "Physical & Chemical Properties" section of the SDS. It is a unit-less number that tells how much the substance weighs relative to the weight of water. If the specific gravity is 1, the substance weighs the same as water. If it is less than 1, then the substance weighs less than water. If you think about this logically, you know that gasoline floats on water (thus the sheen you see on water at boat launches), so you can conclude that gasoline must weigh less than water. The specific gravity is often reported as a range. In this example, the specific gravity is reported on the SDS as a range of 0.72 to 0.75. If you plug these values into the calculation, this gasoline can weigh anywhere from 6.0 lb/gal to 6.3 lb/gal. When calculating a reportable release, use the higher, more conservative, value. The weight we will use for our example gasoline is 6.3 lb/gal.

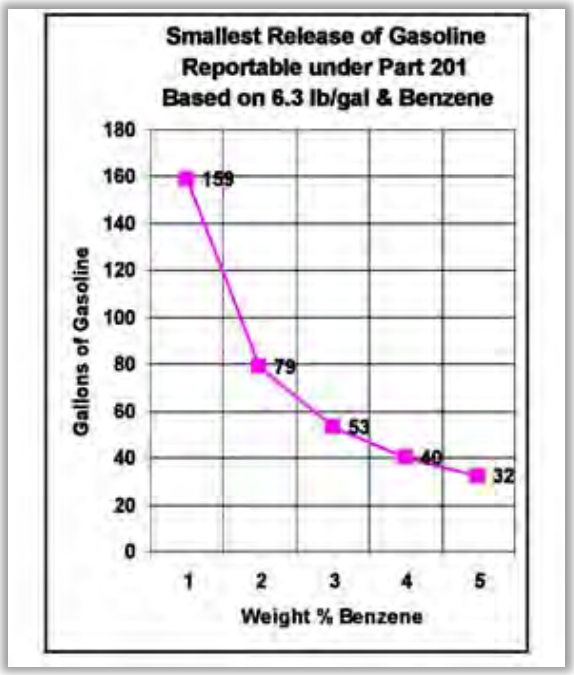
3. **Calculate the smallest reportable release of gasoline** under Part 201 of Act 451 based on the ingredient benzene. Here is the formula:

RQ of ingredient (lbs) ÷ weight of product (lb/gal) ÷ weight % of ingredient = reportable gallons of product

Using the numbers we determined above, we get:

10 lb (RQ benzene) ÷ **6.3** lb/gal gasoline ÷ **0.05** (wt. % benzene) = **32 gal of gasoline** (reportable if released to the environment).

The graph below shows how the reportable quantity of gasoline varies with the weight percent of benzene.



There would be a smaller reportable quantity (the line would shift down) for "heavier" gasoline. Look at all hazardous ingredients to determine which one would "control" the reportable quantity. The controlling ingredient is the one that results in the smallest reportable quantity. For gasoline, the controlling ingredient is benzene.

In real life, this is not an exact science. Use this as a way to come up with educated guesstimates for when to report. For gasoline, report any release that looks like it is approaching 30 gallons or more.

Keep in mind that smaller releases of gasoline are potentially reportable under other regulations (e.g. if the release reaches surface or groundwater). Also remember that **all releases must be cleaned up** to the extent specified in the regulations. This includes releases that are not reportable under any regulation.

In summary: When determining reportable releases, it is important to realize that it is sometimes the ingredients in a given product that make the release of the product reportable. There are three main steps in the process for determining when a release of a product is subject to reporting based on the reportable quantities of the ingredients:

1. Identify the hazardous ingredients, corresponding reportable quantities, and weight percents. This depends on the regulation!
2. If the product is a liquid and the reportable quantity of the ingredient is given in pounds, calculate the weight of the product in pounds per gallon. If the product is a solid, skip this step.
3. Calculate the smallest reportable release using the formula above. If the product is a solid, the formula is simply:

RQ of ingredient (lbs) ÷ weight % of ingredient in solid product = reportable pounds of solid product.

6.4 Release Response and Cleanup

Response and cleanup of a spill or release of hazardous and/or toxic substance can be very costly and detrimental to the health of your employees and environment. To become more efficient and effective in release response and cleanup, make it a priority to integrate pollution prevention planning activities into all aspects of your operations, including the prevention of spills and reduction or minimization of waste during response and cleanup.

In addition to the release reporting requirements described in Chapter 6.3, you must be ready to immediately respond whenever a release occurs. Whether you are legally required to prepare an environmental release prevention and response plan (described in Chapter 6.2) or voluntarily decide to prepare one, it needs to be in effect with personnel who are adequately trained to implement it. This helps to ensure that when a release occurs, appropriate response is taken without delay. At least one person trained in release control and cleanup procedures, equipment use, and disposal methods of recovered materials should be on duty or on call at all times. It is important to remember that you are obligated to respond and clean up all contamination, and failure to do so may result in escalated enforcement, including but not limited to the imposition of civil penalties. If your release involves a regulated underground storage tank, see Chapter 4 for information on how to respond and clean up the release. Some excellent Internet resource links for environmental emergency operations and response are the Computer Aided Management of Emergency Operations (CAMEO) Web site at **response.restoration.noaa.gov** and the National Institute for Occupational Safety and Health (NIOSH) pocket guide Web site at **www.cdc.gov/niosh/npg**.

Post DEQ's Pollution Emergency Alerting System number and *use* it: **800-292-4706**

All hazardous and/or toxic chemical release responders need to consider the following actions:

- ✓ Immediately **assess** the nature of the release; chemicals and exposure pathways of concern; toxicity; safety; type of personal protection equipment (PPE) needed; and take appropriate response and cleanup actions to protect the health and safety of those in the affected area, when and where possible. See Chapter 6.3 "Release Notification Requirements in Michigan."
- ✓ If possible, quickly work to **contain** the release to prevent the spread of contamination. For example, cover floor drains to prevent the release from reaching the sewer, and dike the release with absorbents such as spill pillows or cat litter and dirt as necessary to prevent it from spreading. Staff responding to the release must be trained in wearing the appropriate PPE. Most facilities managing hazardous and/or toxic chemicals are required to have an environmental release prevention and response plan in the event of a release. These plans need to be practical, efficient, and provide useful instructions to trained facility personnel that can be easily followed to clean up a release.
- ✓ **Clean up** contamination quickly to prevent impacts to human health and the environment. Release prevention planning (i.e., rapid containment, response, and cleanup) may minimize the environmental impacts as well as decrease the overall cost of cleanup. This can be as simple as quickly positioning an absorbent to contain a release to protect a natural resource, or as complex as purging and treating groundwater for years under an approved state remedial action plan or state/federal enforcement order. Waste generated from a cleanup must be properly characterized, managed, and disposed in accordance with applicable state and federal regulations. Most importantly, communicate with the environmental regulatory agencies in your area during the planning phase or in advance of any release. Your DEQ District Office (see Appendix C) can provide additional guidance to help assure your response is appropriate and cost-effective.

Some released hazardous or toxic substances and cleanup wastes may pose a serious health threat to personnel. Have appropriate PPE available and personnel trained in its proper use. Depending on the hazardous and/or toxic nature of the release, PPE may include the appropriate chemical resistant suits, gloves, boots, respirators, self-contained breathing apparatus, and eye protection such as goggles or face shields. Safety Data Sheets (SDSs) or the NIOSH Pocket Guide to Chemical Hazards contain valuable information for selecting the appropriate PPE. These resources can be accessed at the following Web sites:

- **www.cdc.gov/niosh/homepage.html**
- **www.cdc.gov/niosh/npptl**
- **http://phmsa.dot.gov/hazmat/training/publications** (look under "Other Publications" for the Hazmat Emergency Response Guidebook).

Persons responding to hazardous releases must be *trained* in accordance with the Hazardous Waste Operations and Emergency Response (HAZWOPER) procedures (see Chapter 23 for more information). Another option is to have previously procured professional assistance. Look under the headings "Environmental and Ecological Services," "Spill Control Service," or "Waste Reduction, Disposal, and Recycling Service" in the yellow pages of your telephone directory for companies offering environmental cleanup services in your area.

Release planning will help to identify environmental response equipment (e.g., spill cleanup kits, PPE, etc.) specific to a company's needs to quickly contain and cleanup releases. Many products are used to contain and clean up released chemicals and waste. Absorbent pads, booms, or portable dikes are often used to control, contain, and cleanup large liquid releases. Commercially available absorbent powders and granular clay (like cat litter) are examples of items used to absorb and contain free-phase liquids during release response and cleanup.

If a release cannot be cleaned up by trained personnel, hiring an experienced environmental cleanup contractor is recommended. Depending on the severity of a release, a contractor may provide more efficient and cost-effective response and cleanup solutions. Environmental contractors who work on leaking underground storage tank facilities regulated by the DEQ must be knowledgeable in Part 213 (Leaking Underground Storage Tanks) of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451). Environmental contractors performing work at leaking or underground storage tank sites must be qualified per Part 215 (Michigan Underground Storage Tank Financial Assurance Act) of Act 451 (Section 324.21542). Your DEQ District Office can verify that your state notification and reporting obligations have been satisfied and that your response and cleanup is being conducted properly. If you need further information or assistance about response and cleanup procedures, please contact your District Office (see Appendix C).

6.4.1 Environmental Investigation Requirements

Under Part 201(Environmental Remediation) of Act 451, Section 324.20126, the property is considered a "Facility" or site of environmental contamination if environmental data shows hazardous and/or toxic substances are present on the property at levels that exceed the Part 201 generic residential criteria. A person who owns or operates a "Facility" and who is liable under Part 201 of Act 451, shall do all of the following:

a) Immediately stop or prevent the release at the source.
b) Immediately implement source control or removal measures to remove or contain hazardous substances.
c) Immediately identify and eliminate any threat of fire or explosion or any direct contact hazards;
d) Report the release to the department within 24 hours.
e) Immediately initiate removal of a hazardous substance that is in a liquid phase that is not dissolved in water.
f) Determine the nature and extent of the release at the facility.
g) Diligently pursue response activities to achieve the cleanup criteria.

If the owner or operator of an environmentally contaminated property is not liable, then he or she may still have certain **Due Care** obligations to address as specified under R 299.51001, et. seq. Due Care protects persons on the contaminated property from exposure to hazardous and toxic substances.

In cases where the release is large or where there have been documented adverse environmental effects (i.e., fish kills, other resource impacts, etc.), a **Natural Resources Damage Assessment** (NRDA) to evaluate and assess natural resource damage(s) and cost(s) may be required. A NRDA is usually difficult and expensive to do. A request from the DEQ for a NRDA

may be avoided by either good pollution prevention planning and by responding to releases soon after they occur on a property. If the activity that resulted in a release is regulated under Part 213 (Leaking Underground Storage Tanks), Part 111 (Hazardous Waste Management), or other specific authority, those laws may require other specific requirements for environmental investigations, cleanups, etc. For activities regulated under the regulations, contact the DEQ for assistance in determining the correct environmental investigation requirements.

An environmental investigation may need to be conducted to define the horizontal and vertical extent of environmental contamination so that appropriate remedial action or cleanup measures can be planned and implemented. This kind of environmental investigation, often referred to as a "**remedial investigation**" or "RI," may include testing of soil, sediment, groundwater, surface water, and air quality. The key to conducting an effective RI is to gather enough environmental information to make the necessary decisions about further cleanup needs. You will need the services of an experienced environmental professional to carry out an RI.

An RI is a different process than a **Baseline Environmental Assessment** (BEA), which is described in Chapter 7.3.2. A BEA is a state "liability" protection tool and is not designed to identify cleanup needs. Federal environmental investigation guidance documents may be obtained from the U.S. EPA Web site at **clu-in.org** and the American Society for Testing and Materials (ASTM) Web site at **www.astm.org**. The ASTM guidance includes information about Phase I and II Environmental Assessments (EAs). EAs are commonly performed on parcels of industrial or commercial properties to determine the extent of existing environmental contamination. The ASTM Phase I and II EA processes are often used to determine the environmental condition of a property to be purchased, but much of the ASTM guidance is useful for other site characterization purposes as well.

Information about cleanup requirements, applicable cleanup criteria, establishing "background" concentrations, and other technical issues is available at **www.michigan.gov/remediation** look under Operational Memoranda for Part 201 and Part 213).

6.4.2 Documenting Plans for Cleanup

If you are conducting a cleanup under Part 201 of Act 451, there may be other state/federal regulations to address. A **Remedial Action Plan** (RAP) is used to document how environmental contamination will be cleaned up. If cleanup actions will be conducted in phases, each phase is generally referred to as an **Interim Response** (IR). A series of IRs may go together to become a remedial action. A RAP is intended to comprehensively address all contamination problems at a "Facility," while IRs can be used to address individual releases of hazardous and/or toxic substances or aspects of those releases.

A RAP is generally prepared after a site IR is complete and a course of action can be developed to remediate or cleanup the site as a whole. In many instances, it is appropriate to conduct RAP activities in a phased approach. IR activities allow for time-critical actions to be planned and implemented addressing high-risk contamination areas first, with subsequent IRs to tackle more widespread contamination. Examples of IR activities include removing soil contamination "hot spots," or point sources and abandoned containers containing hazardous substances.

DEQ guidance regarding RAPs and IR activities are available at **www.michigan.gov/remediation** (select "Site Investigation and Cleanup" and "Cleanup Program Information").

6.4.3 Cleanup Criteria

The DEQ has adopted a risk-based or generic criteria approach to environmental cleanups. Risk-based cleanup criteria are based on the designated or allowable land-use, because land-use determines what type of site-specific activity and exposure will occur at each property. Cleanup criteria are integral in determining the scope and adequacy of remedial activities.

The DEQ has calculated "generic" cleanup criteria for soil and water media that apply to the following types of land use categories: residential, commercial, and industrial. Occasionally, the environmental consultant may find that it is more appropriate to use site specific cleanup criteria to address the contamination. The consultant can develop the site-specific variables with oversight from the DEQ. If the cleanup is based on site specific variables, then the property deed would have to be restricted. The deed restriction will inform the future property owners about land uses that are prohibited, and about the remaining contamination. DEQ approval is required for a cleanup that depends on land use restrictions. Please contact your District Office (see Appendix C) for assistance in determining which cleanup criteria to apply at your site.

The Cleanup Criteria Requirements for Response Activity are available on the DEQ's Web site at **www.michigan.gov/remediation** under the "Other Useful Information." Select "Cleanup Criteria Requirements for Response Activity." If you need further information or assistance, please contact your District Office to determine what cleanup criteria can be used at your site of environmental contamination or call 800-662-9278 for assistance.

6.4.3.a Ground Cleanup

Even if a release is not large enough to require reporting, it still must be cleaned up, regardless of the release volume or whether it occurred on a paved outdoor surface or dirt surface. Quick response to a release is important since contamination from the release can spread further, making the cleanup more difficult and expensive. Use an inert absorbent material, such as clay-based adsorbents (like cat litter), or specially formulated pads or powders, to soak up the liquid. Collect any released solid materials so they do not spread or get blown around. THE RELEASED MATERIAL SHOULD NEVER BE FLUSHED DOWN THE DRAIN OR ONTO THE GROUND. The act of flushing the release will spread the contamination into previously uncontaminated areas, increase the scope of the investigation, the time needed to clean up the contamination and exponentially increase the cost of the cleanup.

During the initial response to the spill and the cleanup, be very careful not to mix incompatible or reactive chemicals or wastes together (see Safety Data Sheets, or NIOSH at **www.siri.org/msds/index.php** and **phmsa.dot.gov/hazmat** for help). The containers used to store spent cleanup materials must be compatible with the released liquid and correctly capped and labeled. Once contained, the used cleanup materials must be disposed of properly based on the hazardous and/or toxic nature of the waste. If the used materials are going to a sanitary landfill, there can be no free-phase liquid present with the containerized materials. If the materials are characterized as hazardous and/or toxic waste, handle the waste in accordance with Chapter 2. For information about hazardous or solid waste characterization, please contact the DEQ, Hazardous Waste Program at 517-284-6562 or go to **www.michigan.gov/deqwaste**. For information about transporting requirements for hazardous materials including oils, gas, etc., please refer to the Michigan State Police, Commercial Vehicle Enforcement Division Web site at **www.michigan.gov/motorcarrier** and Chapter 4.4.

If a hazardous and/or toxic substance is released to the ground, you must determine if the affected soil is hazardous or solid waste. In either case, it must be properly characterized, removed, transported, treated, stored, or disposed of at the appropriate licensed landfill. If the soil is hazardous waste, you will need to meet the generator requirements discussed in Chapter 2.4. For small volumes of contaminated soil or waste, the easiest cleanup method is to excavate the soil and place it on polyethylene or put it into an acceptable container. The soil, either in the pile or container, must be covered to prevent precipitation from leaching through the soil and spreading contamination into the ground. Once contaminated soils are properly characterized and approved for disposal by the proper waste facility, it can be disposed of off-site. For larger volumes of contaminated soil, it may be cheaper to either treat the soil in place or dig it up for treatment on-site. There are regulatory restrictions on the movement of contaminated soils on or off property and persons dealing with such materials during cleanup activities at sites of environmental contamination. If you need further information or assistance, please contact your nearest DEQ District Office (see Appendix C).

The DEQ developed a guidance document entitled, **"***Statistics – Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria* (S3TM**)"** to help verify that soils containing hazardous and/or toxic substances are clean, or below the Part 201 of Act 451 generic residential cleanup criteria. The S3TM guidance has been:

- Applied to excavations to determine the number of samples needed to show that the remaining unexcavated soils are clean.
- Applied to waste piles that have undergone remediation technology.
- Used to characterize and verify that the waste soils have been remediated prior to placing the soils back into the excavation area(s) or landfilling.

If you need further information or assistance, please contact the DEQ Project Manager involved with your cleanup to determine whether S3TM can be applied to your environmental cleanup. The S3TM document is available from the DEQ's Web site at **www.michigan.gov/remediation** (select "Site Investigation and Cleanup" and "Cleanup Program Information").

6.4.3.b Groundwater Cleanup

If the groundwater becomes contaminated by a release, overfill, leaking underground storage tank, etc., you are required to clean up the contamination. You may need to hire a qualified environmental professional to complete a hydro geological investigation to determine the specific groundwater remedy needed to clean up your site. You should discuss all available treatment options and the timeframe for the cleanup with the environmental consultant to ensure that the most appropriate cleanup method is chosen.

Whenever environmental treatment systems are proposed to clean up contamination, the Best Available Technology (BAT) is required for remediation where treated groundwater will be discharged to groundwater or surface water. Best Available Control Technology for Toxics (T-BACT) is required to control the emission of toxic air contaminants. After the application of T-BACT, the emissions of any toxic air contaminants cannot result in maximum ambient concentrations which exceed the applicable health-based screening levels. For more information about T-BACT, see Chapter 1.2.4 "Air Toxics Regulations."

The DEQ encourages the use of innovative environmental treatment technologies or remedies that minimize waste; i.e., electrical power consumption, secondary waste material generation, etc. For pollution prevention information, go to **www.michigan.gov/deqp2**.

Permits may be required for air, groundwater, and surface water discharges from a cleanup site. Each permit has requirements for operation, maintenance, monitoring, testing and reporting on the discharge of the treatment system:

- If you use air stripping, you are subject to air quality regulations and may need to obtain a Permit to Install from the Air Quality Division (AQD) to meet T-BACT requirements prior to discharge. For further information or assistance, contact your AQD District Office (see Appendix C).
- If treated groundwater is discharged to surface water, you need to obtain a National Pollutant Discharge Elimination System (NPDES) Permit from the DEQ that meets BAT requirements prior to discharge (see Chapter 3.2.3).
- If treated groundwater will be discharged back to the groundwater, you may need to obtain a state groundwater discharge permit, or an exemption prior to discharge (see Chapter 3.2.4) from the DEQ. In some areas, the water will not infiltrate or seep back into the ground fast enough to make groundwater discharge a feasible option.

When contaminated groundwater is venting or discharging (i.e., flowing naturally) into surface water, the Part 201 of Act 451 groundwater/surface water interface (GSI) cleanup criteria or screening levels must be met. If the GSI criteria are exceeded, further investigation and possibly remediation of the surface water will likely be required. If groundwater contamination concentrations will exceed the GSI generic cleanup criteria at the point where contaminated groundwater vents to surface water, a more detailed site-specific evaluation will be required to determine if a “mixing zone” can be allowed or whether contaminated groundwater can be allowed to legally discharge into “waters of the state” (i.e., lakes, rivers, creeks, wetlands, drains, etc.) and still ensure protection of human health and the environment. Information about the “mixing zone” evaluation process can be found at **www.michigan.gov/remediation** (select Operational Memoranda, Cleanup Requirements, Forms, and Cleanup Program Information under “Other Useful Information.”) The GSI cleanup criteria apply to groundwater sampled from a GSI monitor well, and not to surface water. To view the Part 201 GSI cleanup criteria, go to the Web site above.

6.4.3.c Surface Water Cleanup

Cleanup procedures for releases to state waters may be difficult and may vary depending on the uses being made of the receiving waters. A discharge to water that causes impairment to any of the following is a violation of Section 3109 of Part 31 (Water Resources Protection) of Act 451:

1. Public health, safety, or welfare.
2. Domestic, commercial, industrial, agricultural, recreational, or other uses being made of the water.
3. The value of the riparian land.
4. Livestock, wild animals, birds, fish aquatic life, or plants and the value of fish and game.

Of these water uses, major public health concerns exist if the discharge could impact downstream recreational beaches or surface water drinking water supply intake systems.

The DEQ requires that all appropriate and reasonable steps be taken to clean up and prevent further pollution in consideration of existing conditions of state waters. Remember, in the event of a release to state waters, including releases to public storm sewers and drains, immediately contact:

- Your DEQ District Office (see Appendix C) or the Pollution Emergency Alerting System (PEAS) hotline at 800-292-4706 (in state) or 517-373-7660 (out-of-state).
- Your primary public answering service, or 911.

Release response is chemical-, location-, and action-specific. Some hazardous substances are water-soluble and mix immediately with the surface water. When water-soluble substances are released, a reasonable course of action may require large quantities of contaminated water to be captured, removed, contained, and properly treated and/or disposed. Large releases requiring the use of floating booms, skimmers, storm sewer plugs, etc. will likely require a release response contractor, whereas small releases may travel downstream before any response can contain them. The longer the released substance remains in the water, even if contained by booms, the more contamination diffuses or mixes with the surface water, which may result in increased environmental harm and liability. Therefore, release prevention instead of cleanup can yield tremendous cost savings.

Release prevention includes having a response plan in place, with trained responders and equipment easily available, for immediate containment of any release. Some generic release response equipment to keep on-site may include: absorbent booms and pads, thick plastic bags, sand bags, cat litter, portable emergency pumping and containment equipment, protective clothing, and safety gear suitable for on-site materials and hazardous chemical exposure conditions. It is also recommended that you know the route of your storm sewer system and appropriate areas (such as the last storm water catch basin on your site) to catch and contain releases. Consider how to respond if a spill should occur during either dry or wet weather, and how to divert storm water from a spill that occurs during wet weather. Talk with an environmental response consultant or the DEQ about which containment and cleanup methods may be best for your business. To research environmental innovative treatment technology options, go to EPA Clu-In at **http://clu-in.org/.**

When contaminated groundwater is venting or discharging (i.e., flowing naturally) into surface waters, the Part 201 of Act 451 GSI Cleanup Criteria must be applied (see Chapter 6.4.3.b - Groundwater Cleanup).

6.4.3.d PCB Clean Up

Polychlorinated biphenyls (PCBs) are **hazardous substances- Part 201** that must be addressed under the federal and/or state corrective or remedial action process and, in some cases, in coordination with the U.S. EPA Region 5. Part 201 of Act 451 Cleanup Criteria have been developed for PCBs on the basis of media (i.e., air, soil or water) exposure pathway, land-use-specific, and must be applied for corrective action, pursuant to R 299.9629 of Part 111 (Hazardous Waste Management) of Act 451. However, to address exposures via the soil direct-contact pathway, the applicability of the Toxic Substances Control Act (TSCA), at 40 CFR 761

must be determined and applied appropriately (see Part 201 of Act 451 Cleanup Criteria tables, footnote [T]). The Part 201 of Act 451 Cleanup Criteria can be found at **www.michigan.gov/remediation** under the “Other Useful Information” heading, select “Cleanup Criteria Requirements for Response Activity”. If TSCA is determined to apply to an area with PCB contamination, all TSCA obligations must be addressed in coordination with the U.S. EPA Region 5. A state Remedial Action Plan cannot be considered complete without a demonstration of compliance with all TSCA obligations. If you need further information or assistance, please contact the Remediation Division in your District Office (Appendix C). See Chapter 4.5 for specific details on TSCA obligation related to remediation waste

WHERE TO GO FOR HELP

SUBJECT: **SARA Title III requirements for Hazardous Chemical Release Reporting, Toxic Chemical Release Inventory, and Emergency Planning Notification**

CONTACT: DEQ, Michigan SARA Title III Program
517-284-SARA (284-7272) | deq-sara@michigan.gov
www.michigan.gov/sara
www.michigan.gov/chemrelease
www.michigan.gov/deqemergencyplan

PUBLICATIONS:
1. Michigan Facilities' Guide to SARA Title III, Emergency Planning and Release Reporting
2. Release Notification Requirements in Michigan - Table

SUBJECT: **Emergency response planning and training**

CONTACT: Michigan State Police, Emergency Management and Homeland Security Division
517-284-3727 | HartnerB@michigan.gov
www.michigan.gov/emhsd-training

PUBLICATIONS:
1. Critical Incident Protocol — A Public and Private Partnership

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SUBJECT: **Pollution Incident Prevention Plans (PIPP)**

CONTACT: DEQ, Part 5 Rules Program, District Staff
www.michigan.gov/part5

PUBLICATIONS:
1. PIPP and Part 5 Rules Informational Packet
2. PIPP Completion Checklist
3. Part 5 Rules Operational Guidance (POG) clarifying oil requirements
4. Salt and Brine Storage Guidance

SUBJECT: **Oil Pollution Prevention: Facility Response Plans (FRP) and Spill Prevention, Control, and Countermeasures (SPCC) Plans**

CONTACT:
FRP: U.S. EPA Region 5, Oil Planning & Response Section
312-886-0622 | **www.epa.gov/oilspill**
SPCC: U.S. EPA Region 5, Chemical Emergency Preparedness & Prevention Section
312-886-9497 | **www.epa.gov/emergencies/content/spcc**

SUBJECT: **Risk Management Plans**

CONTACT: U.S. EPA Region 5, Chemical Emergency Preparedness and Prevention Section
312-886-0181 | 800-424-9346 (Superfund, TRI, EPCRA, RMP and Oil Information Center)
www.epa.gov/emergencies/content/rmp

SUBJECT: **Storm water pollution prevention plans (SWPPP) and surface water cleanup**

CONTACT: DEQ, Storm Water Program
517-284-5567
www.michigan.gov/deqemergencyplan

PUBLICATIONS: SWPPP Sample Plans

SUBJECT: **Hazardous Waste Operations and Emergency Response (HAZWOPER) requirements**

CONTACT: Department of Licensing and Regulatory Affairs, Michigan Occupational Safety and Health Administration (MIOSHA)
517-322-1608
www.michigan.gov/miosha (See Chapter 23 for more information)

SUBJECT: **Hazardous/non-hazardous waste characterization and disposal information**

CONTACT: DEQ, Hazardous Waste Program
800-662-9278
DEQ, District Office (See Appendix C)
www.michigan.gov/deqwaste and select “Introduction to Hazardous Waste Webinars” or to view guidance documents and other resources select “Hazardous Waste” then “Hazardous Waste and Liquid Industrial By-products Management”

PUBLICATIONS:
1. Hazardous Waste Emergency Information (EQP 3472) poster for Small Quantity Generators
2. Contingency Plan and Emergency Procedures for Large Quantity Generators
3. Personnel Training Requirements for Fully Regulated Generators of Hazardous Waste

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SUBJECT: **Release of hazardous materials during transportation**

CONTACT: U.S. Department of Transportation (US DOT)
800-467-4922
phmsa.dot.gov/hazmat

PUBLICATIONS:
1. USDOT Hazardous Materials Incident Report (DOT F5800.1)
2. Incident Report - Gas Distribution System (RSPA F 7100.1)
3. Incident Report - Gas Transmission and Gathering Systems (RSPA F 7100.2)
4. Accident Report - Hazardous Liquid Pipeline Systems (DOT Form 7000-1)

SUBJECT: **Releases from oil and gas production fields**

CONTACT: DEQ, Oil, Gas, and Minerals Division
517-284-6823
www.michigan.gov/deqoilgasminerals

PUBLICATIONS:
1. Report of Loss or Spill (EQP 7233)

SUBJECT: **Report of discharge of untreated sewage**

CONTACT: DEQ, District Office (See Appendix C)
www.michigan.gov/chemrelease

PUBLICATIONS:
1. Report of Discharges of Untreated or Partially Treated Sewage (EQP 5857)

SUBJECT: **Releases from leaking underground storage tanks**

CONTACT: Storage Tank Program
517-241-8847
www.deq.state.mi.us/sid-web

PUBLICATIONS: All the forms listed in Chapter 6.4 can be found in the above Web site by selecting the 'Forms and Documents' tab.

SUBJECT: **Environmental investigation guidance, Remedial Action Plans (RAP), site cleanup requirements, and release reporting**

CONTACT: DEQ
517-284-5099
www.michigan.gov/remediation

PUBLICATIONS:
1. RRD Operational Memorandum #17
2. Notice of Migration of Contamination (EQP 4482)
3. Notice Regarding Discarded or Abandoned Containers (EQP 4476)
4. Spill or Release Report (EQP 3465)

SUBJECT: **Federal environmental investigation guidance including information about Phase I and II environmental site assessments (ESAs)**

CONTACT: U.S. Environmental Protection Agency | **http://clu-in.org**
CONTACT: American Society for Testing and Materials (ASTM) | **www.astm.org**

APPENDIX 6-A: SUMMARY OF COMMON ENVIRONMENTAL RELEASE PREVENTION AND RESPONSE PLANS

DETAIL	Hazardous Waste Contingency Plan For Generators See Chapter 6.2.1	PIPP[1] See Chapter 6.2.2	SPCC[2] See Chapter 6.2.3	SWPPP[3] See Chapter 6.2.4	EAP[4] See Chapter 6.2.6	RMP[5] See Chapter 6.2.5
Regulated Substance or Activity	**Hazardous waste**	**Salt** and **Polluting Materials** listed in R 324.2009 See SPCC for oils	**Oil-EPA** (PCBs see 6.2.3)	Companies with a storm water discharge permit	Flammable and combustible liquids	Substances listed in **Section 112(r)** of CAA[5]
Regulation	◆ 40 CFR 265.50-.56 ◆ Part 111 of Act 451[6] ◆ R 299.9306 (generators)	◆ Part 31 of Act 451 ◆ R 324.2001- 2009	◆ 40 CFR 112	◆ 40 CFR 122-124 ◆ Part 31 of Act 451 ◆ R 323.2161	• FL/CL Rules R 29.5201 - 29.5255 and adopted NFPA pamphlet number 30 2000 edition Chapter 5, Section 5.12	◆ Section 112(r) of CAA ◆ 40 CFR 68 (requirements vary depending on the program the company is subject to).
Administering Agency	◆ DEQ, HWP[7]	◆ DEQ, WB[8]	◆ U.S. EPA, Chemical Emergency Preparedness & Prevention Section	◆ DEQ, WB	DEQ	◆ U.S. EPA
Who Must Prepare	Large quantity generators (LQG) of hazardous waste must submit a written plan. Small Quantity generators (SQG) are to post information (see 6.2.1). Hazardous waste transporters and treatment, storage, & disposal facilities have other planning requirements.	◆ Companies with **salt** or other **polluting materials** that meet or exceed threshold planning quantities & don't meet listed exemptions. ◆ When DEQ deems necessary (see 6.2.2).	If a release could potentially reach navigable waters or shorelines *and* facility has capacity storage of oil that: ◆ exceeds 1,320 gal. for all above ground storage, or ◆ exceeds 42,000 gal. for UST.[9]	If your company is required to have a storm water discharge permit (see Chapter 3.2.3.d).	Companies that have flammable and combustible liquids that are not exempted	If your facility has a substance identified in **Section 112(r)** of the CAA at or above a specific threshold quantity. Listed substances are located on the "**List of Lists**" (see Chapter 6.2.5).

[1]PIPP – Pollution Incident Prevention Plan
[2]SPCC – Spill Prevention, Control, and Countermeasures Plan
[3]SWPPP – Storm Water Pollution Prevention Plan
[4]EAP – Emergency Action Plan
[5]RMP – Risk Management Plan
[5]CAA – The Clean Air Act

[6]Act 451 – Public Act 451 of 1994, as amended

[7]HWP – Hazardous Waste Program
[8]WB – Water Bureau
[9]UST – underground storage tank
[10]LQG – Large Quantity Generator
[11]SQG – Small Quantity Generator

MIOSHA also has regulations. See Chapters 17 and 23 which summarize the HAZWOPER and Process Safety Management of Highly Hazardous Chemicals requirements, respectively.

Michigan Guide to Environmental, Health, and Safety Regulations

Chapter 7

Sites of Environmental Contamination, Property Transfers, and Liability Issues

SECTION ONE – ENVIRONMENTAL REGULATIONS

CHAPTER 7: Sites of Environmental Contamination, Property Transfers, and Liability Issues

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Purpose and Applicability of Regulations

Michigan has long been a state of substantial industrial activity. While this industry provided the basis for much of Michigan's economic strength, the long-term environmental effects of many historical industrial processes and practices were not understood. Activities that we now know to cause environmental problems were unfortunately commonplace and many historical commercial and manufacturing facilities are sites of environmental contamination. Many of the sites of environmental contamination are abandoned, idle, or under-utilized industrial and commercial properties, often referred to as "Brownfields." Revitalization of Brownfields to achieve a healthier, cleaner, and more productive environment for Michigan's citizens is critically important. This chapter focuses on the obligations of new owners and operators of sites of environmental contamination, including the responsibilities for liability protection and obligations to assure the safe use of the property, commonly referred to as "Due Care."

Note: Appendix B contains definitions of the various regulated groups of material found in this chapter. These defined terms appear throughout this chapter in bold lettering. In some instances, multiple agencies use the same term to describe a regulated group of material; however, its definition differs. Such terms will be followed by a dash and the acronym of the defining agency or regulation (e.g., **hazardous substance-CERCLA** and **hazardous substance-Part 201**).

Agencies and Their Laws and Rules

The Department of Environmental Quality (DEQ) administers programs that involve the remediation and redevelopment of contaminated properties. The primary legislative authority for the state cleanup programs are Part 201 (Environmental Remediation) and Part 213 (Leaking Underground Storage Tanks) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). These state programs have a unique, causation-based liability scheme, land use-based requirements, and a strong emphasis on redevelopment and reuse of contaminated property. Part 201 and Part 213 of Act 451 and the Part 201 Administrative Rules are available at **www.michigan.gov/remediation**.

The DEQ also manages portions of the federal Superfund program, established under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Additional information regarding implementation of the Superfund program is available at **www.michigan.gov/remediation**.

If your facility is regulated under Part 111 (Hazardous Waste Management) of Act 451, contact the Waste and Hazardous Materials Division for guidance on the applicability of Part 201 and/or Part 213 of Act 451 provisions to your facility. For more information regarding the regulation of hazardous waste, see Chapter 2.4 “Hazardous Waste.”

If your facility includes oil, gas or mineral wells regulated under Part 615 or Part 625 of Act 451, contact the DEQ at 517-284-6828 for guidance on the applicability of Part 201 and/or Part 213 of Act 451 provisions to your facility.

7.1 Background

Earlier decades of industry and manufacturing practices have left some properties in Michigan environmentally degraded, contaminated with heavy metals, organic and inorganic chemicals, petroleum based hazardous substances, and containing dilapidated buildings and debris. Expansion or redevelopment of these properties is hindered or complicated by real or perceived environmental conditions. These properties present challenges to potential developers, whether contamination is discovered or suspected. Parts 201 and 213 of Act 451 encourage solutions to historical contamination while protecting human health with several incentives for redevelopment, including causation-based liability and liability protection for new owners.

Michigan’s pre-1995 environmental cleanup and redevelopment efforts were constrained by strict liability laws. Prior to 1995, if a person purchased contaminated property, they acquired liability for the contamination and the obligations to address the contamination. The June 5, 1995, amendments to Part 201 of Act 451 and the March 6, 1996 amendments to Part 213 of Act 451 substantially modified provisions of the law regarding liability for environmental contamination. An owner or operator of a site of environmental contamination is liable for remediation of the environmental contamination if the owner or operator is responsible for an activity causing a release or threat of release. If an owner or operator acquires a site of environmental contamination regulated under Part 201 after June 5, 1995, they may conduct and submit a baseline environmental assessment (BEA) to the DEQ to obtain liability protection for the contamination on the property at the time they become the owner or operator. Likewise, if an owner or operator acquires a site of environmental contamination regulated under Part 213 after March 6, 1996, a BEA may be conducted and submitted to the DEQ to obtain liability

protection. For both Part 201 and Part 213 sites of environmental contamination, regardless of liability, the owner or operator must exercise due care with respect to the contamination on the property. Owners and operators are defined by Part 201 and Part 213 of Act 451. A party leasing property would generally have control or be responsible for the property and be defined as an operator.

A BEA is an evaluation of environmental conditions that exist at a facility at the time of purchase or occupancy, that reasonably defines the existing conditions and circumstances at the facility. Compliance with due care obligations includes measures taken to ensure that existing contamination on a property does not cause unacceptable human health risks and is not exacerbated. Due Care and BEA obligations are described in 7.2 and 7.3.

Part 201 and Part 213 of Act 451 have disclosure requirements for property transfers. A person who has knowledge or information, or is on notice through a recorded instrument, that a parcel of real property is a Part 201 or Part 213 site of environmental contamination must provide written notice to a purchaser or other person to which the property is transferred. The notice must advise that the property is a Part 201 or Part 213 site of environmental contamination and disclose the general nature and extent of the contamination.

Information regarding the obligations of an owner or operator of a Part 201 of Act 451 site of environmental contamination is contained in Chapter 6.4 “Release Response and Cleanup.” Information regarding the obligations of an owner or operator of a Part 213 of Act 451 site of environmental contamination is contained in Chapter 4.3 “Storage Tanks.”

Information regarding financial incentives for Brownfield redevelopment is available at **www.michigan.gov/remediation**.

7.2 “Due Care” Obligations

Section 20107a of Part 201 and Section 21304c of Part 213 of Act 451 requires that owners and operators of contaminated property take measures to ensure that the existing contamination does not cause unacceptable human health risks and is not exacerbated. Such measures include evaluating the contamination and taking necessary response or corrective actions. Due care obligations are not related to the owner or operator’s liability for the contaminants; they apply to non-liable parties and liable parties alike. The due care obligations are designed so contaminated properties can be safely used.

An owner or operator of a site of environmental contamination must prevent exacerbation of the existing contamination. Exacerbation occurs when an activity undertaken by the person who owns or operates the property causes the existing contamination to migrate beyond the property boundaries, i.e., the mishandling of excavated contaminated soil such that contamination from the soil pile goes off-site from blowing winds; pumping contaminated water from footing drains into a nearby ditch; or creating a new migration pathway by putting a utility line through a zone of highly contaminated groundwater. An owner or operator can also exacerbate contamination by changing the facility conditions in a manner that would increase the response activity costs for the liable party. An example might be to place a building over the source of the existing contamination. A person that causes exacerbation would be liable for remediation of the contamination they caused or paying the increase in the response activity costs.

Owners and operators must exercise due care by undertaking response activities that are necessary to prevent unacceptable exposures to contamination. The existing contamination must be evaluated to determine if the people using, working, or visiting the property would be exposed to contamination at levels above the criteria appropriate for the property use. Criteria for differing land uses can be found in the Part 201 Administrative Rules (R 299.1-R 299.50). For example, if groundwater used for drinking is contaminated above the drinking water criteria, then the owner and operator must provide an alternative water supply. If soils are contaminated above the direct contact criteria for the appropriate land use at the surface of the property, then people must be prevented from coming into contact with those soils by restricting access, installing a protective barrier, or removing contaminated soil. Protective barriers may be clean soil, concrete, or paving. In some instances, remediation of the contamination may be the most cost-effective response actions. In addition, if there is a potential unacceptable risk due to the presence of contamination for utility workers or people conducting activities in an easement, then utility and/or easement holders must be notified in writing of the conditions by the owner or operator. If there is a fire and explosion hazard, the local fire department must be notified, and immediate actions taken to mitigate the situation.

An owner or operator must take reasonable precautions or steps needed to prevent exposure to an unacceptable risk for a third party. This might include notifying contractors of contamination, so they can take proper precautions; preventing trespass that would result in an unacceptable exposure (e.g., children playing in a vacant industrial yard that has direct contact hazards); or taking actions to secure abandoned containers so they do not get damaged by traffic.

Owners and operators must maintain documentation they have conducted an adequate evaluation to determine the need for response actions and that they have taken or conducted all necessary actions to assure the property is safe. If applicable, maintenance, repair, and monitoring of existing exposure barriers, vapor mitigation systems, etc. must be conducted and documentation maintained. The documentation does not need to be submitted to the DEQ but must be available for the DEQ to review upon request within eight months of becoming the owner or operator or of having knowledge that the property is contaminated. Documentation requirements are described in the Administrative Rules: Property Owner or Operator Obligations to Under Section 20107a of the Act (R 299.51007-R 299.51021). Both Part 201 and Part 213 allow an owner or operator to submit and request a DEQ review of a Documentation of Due Care Compliance (DDCC). A DDCC is a report, a point-in-time document, that contains sufficient information to demonstrate that an adequate evaluation of the risks was conducted, that any response actions to mitigate unacceptable exposures have been undertaken, that the response actions are effectively preventing unacceptable exposures, and all required notices were provided and received (see Appendix C).

The rules require notification to the DEQ and others in the following circumstances:

1. Notify the DEQ and adjacent property owners using the "*Notice of Migration of Contamination Form*" (EQP 4482) if contaminants are migrating off the property [Rule 1017].
2. Notify the DEQ using the "*Notice Regarding Discarded or Abandoned Containers Form*" (EQP 4476) if there are discarded or abandoned containers that contain hazardous substances-Part 201 on the property [Rule 1015]. Underground storage tanks regulated pursuant to Part 211, Underground Storage Tanks of Act 451 and aboveground storage tanks regulated pursuant to NREPA; and the Michigan Fire Prevention Code, 1941 PA 207, as amended, are not considered to be abandoned.

3. Notify the local fire department if there are fire or explosion hazards [Rule 1019].
4. Notify utility and easement holders if contaminants could cause unacceptable exposures and/or fire and explosion hazards [Rule 1013(6)].

The Notice of Migration of Contamination must be submitted by the liable party within 30 days of becoming owner or operator, or of having knowledge of the conditions. Notice 2 above must be made within 45 days of becoming the owner or operator, or of having knowledge of the conditions. Notice 3 is required to be made immediately to the local fire department and if the condition is not permanently abated, then, within 7 days after notice to the local fire department, the owner or operator shall provide written notice to the DEQ. Notice 4 is required to be provided as soon as the situation is known to exist. Persons required to provide notice under Section 21309a(3) of Act 451, but who have not yet made that notice in compliance with Part 213 should do so as soon as possible. Part 201 and the Part 10 Administrative Rules, Part 213 of Act 451, the notification forms, and additional guidance are available at **www.michigan.gov/deqduecare.**

Part 201 and Part 213 provide limited exemptions to the some of the due care obligations. For example, an owner or operator of contaminated property is exempt from complying with Section 20107a(1)(a-c) or Section 21304c(1)(a-c), when the sole source of the contamination on the property is from contamination migrating onto the property. This exemption does not include exacerbation caused by the owner or operator. While the exemption may be applicable, it may be in the owner or operator's best interest to ensure the property is safe for the intended use.

7.3 Due Diligence and Baseline Environmental Assessments

7.3.1 Due Diligence

Due Diligence is the act of making an appropriate inquiry as to whether environmental contamination is present on a piece of property. The prospective owner or operator of commercial and industrial properties should undertake all appropriate inquiry to determine how the property was used and whether/what activities involving the use of hazardous substances occurred. The initial step in demonstrating due diligence is to request disclosure from the seller or owner about any known environmental conditions. The next step is to conduct an environmental assessment of the property.

The federal All Appropriate Inquiry (AAI) standard or the American Society for Testing and Materials (ASTM), Phase I and II Environmental Site Assessment (ESA) (ASTM E1527-13 and E1903) standards or equivalent can be used as guidance (available at **www.astm.org**). The Phase I ESA involves physically inspecting the property, examining historical records such as deed and property tax records, a review of regulatory agency files (local and state), historical maps, and present/past property uses to evaluate the potential for contamination to exist. The Phase I ESA walk-through of the property can identify potential contamination sources such as abandoned containers, aboveground storage tanks or underground storage tanks. The AAI or the Phase I ESA report will conclude with a list of Recognized Environmental Conditions (REC). An environmental professional can assist in determining if it is necessary to proceed to a Phase II ESA investigation. The Phase II ESA involves further investigation into the RECs, including collecting soil and/or groundwater samples, and confirming if underground tanks are present,

The information gained in the AAI or Phase I and II ESAs is used to determine whether the property is a facility under Part 201 or a property under Part 213. The concentration of hazardous substances at the property is compared to the residential criteria, the state's most protective cleanup criteria, provided in R 299.1-R 299.50. If the contaminant concentrations do not exceed the residential criteria or risk-based screening levels (RBSLs), then the property is not a facility or a property as defined by Act 451. Documentation of this conclusion should be maintained by the new owner or operator to show that they have conducted due diligence in accordance with Section 20126(3)(h) or Section 21323a(3)(g) of Act 451. If the contaminant concentration does exceed one or more residential criteria or RBSLs, then the property is a facility or property. Potential owners or operators are strongly urged to discuss conducting and submitting a BEA with their environmental consultants and their attorneys. There may be other options for resolving potential liability in certain circumstances.

7.3.2 Baseline Environmental Assessments (BEAs)

The purpose of the BEA is to provide the new owner or operator liability protection for known and unknown contamination under specific Parts of Act 451:

- Part 201 (Environmental Remediation)
- Part 213 (Leaking Underground Storage Tanks)
- Part 31 (Water Resources Protection)
- Part 17 (Michigan Environmental Protection Act)
- Part 615 (Supervisor of Wells)
- Part 625 (Mineral Wells)

A BEA does not provide protection from liability under other state and federal laws, including:

- Landfills regulated under Part 115 of Act 451.
- Treatment, Storage, and Disposal facilities regulated by the federal Resource Conservation and Recovery Act and Part 111 (Hazardous Waste Management) of Act 451.
- Underground storage tank operational requirements under Part 211 of Act 451.
- Federal CERCLA and Superfund. The United States Environmental Protection Agency (U.S. EPA) and the DEQ have entered into an agreement that the U.S. EPA will not take action against a person who has done a BEA unless the facility is on the federal National Priority List, federal funds have been spent to respond to conditions at the facility, or there is an imminent danger to the public health, safety, welfare, or the environment.

Part 201 and Part 213 of Act 451 and BEA guidance are available at the DEQ District Offices (see Appendix C) and at **www.michigan.gov/bea**.

BEA General Information

The BEA report will consist of an All Appropriate Inquiry (AAI) in compliance with 40 CFR 312 (2014) or an ASTM Phase I ESA, sufficient sampling and analysis to confirm the property is a facility as defined by Section 20101(1)(r), or a site as defined by Section 21303(l) or a property as defined by Section 21303(d) and documentation of the property identification. The EPA has determined that the ASTM Phase I ESA is acceptable and complies with AAI. The AAI compliant report or ASTM Phase I ESA (E1527-13) is acceptable for the BEA process.

The former requirements to identify the future hazardous substance use and to provide a means to differentiate a new release of that hazardous substance from existing contamination have been eliminated from the BEA process. A person may still want to establish a means to distinguish a new release, but that will be a business decision rather than a BEA requirement. The contents of a BEA is included as the third page of the BEA submittal form, form EQP4025, but is not required to be submitted as part of the submittal form. The form is available at **www.michigan.gov/bea**.

BEA Time Frames

A BEA can be conducted and submitted to the DEQ any time prior to purchase but must be conducted not later than 45 days after becoming the owner or operator. Conducting means field work and sample analysis must be completed, conclusions drawn, and the BEA report written. The BEA must be submitted to the DEQ District office for the county in which the property is located. The submission must occur within six months of the date of becoming the owner, operator, or of the foreclosure. The map for RRD District offices is located at **www.michigan.gov/bea**. The BEA must also be submitted to subsequent purchasers or transferees, including lessees, prior to transfer of the interest in the property. The DEQ encourages early submittal of BEAs whenever possible.

Environmental Consultants

Environmental consultants can be located in the yellow pages of the telephone book under Environmental, Ecological, or Engineering; or by asking your financial institution for referrals. To increase the odds of hiring a good consulting firm; ask the consultant for prior job references, information concerning previous BEAs they have completed. The DEQ cannot give recommendations regarding environmental consultants.

7.4 Summary

This document provides a summary of due care obligations and the BEA process. A thorough review of the statutes, administrative rules and DEQ guidance should be completed before making site-specific decisions.

The field staff located at DEQ District Offices statewide (see Appendix C) are the first line of contact for prompt service about Part 201 and Part 213 of Act 451 programs.

Publications and forms are available from **www.michigan.gov/bea or www.michigan.gov/deqduecare**, by contacting the DEQ District Office (see Appendix C) or by contacting the DEQ Environmental Assistance Center at 800-662-9278.

If you need further information about liability, Due Care, or BEA requirements, please contact your local DEQ District Office (see Appendix C) at **www.michigan.gov/bea** or call the Environmental Assistance Center at 800-662-9278.

WHERE TO GO FOR HELP

SUBJECT: **Learn how to protect public water supply systems that use ground water from potential sources of contamination**

CONTACT: DEQ, Wellhead Protection Program
517-284-6519 | **www.michigan.gov/deqwhp**

SUBJECT: **Sites of contamination; property transfers, due care, and liability protection measures**

CONTACT: DEQ, District Offices (see Appendix C)

Part 201 (Environmental Remediation) and Part 213 (Leaking Underground Storage Tanks) - Jeanne Schlaufman, BEA/Due Care Specialist
586-753-3823 | **schlaufmanj1@michigan.gov**
www.michigan.gov/deqrrd
www.michigan.gov/bea
www.michigan.gov/deqduecare

PUBLICATIONS:

1. Environmental Cleanup Part 201 Citizen's Guide: What You Need to Know if you Own or Purchase Property with Environmental Contamination
2. DEQ-RRD BEA Guide
3. BEA Submittal Form (EQP4025)
4. DEQ-RRD Due Care Guide
5. Documentation of Due Care Compliance Submittal Form (EQP4402)
6. Response Activity Plan to Comply with 7a(1)(b) or 7a(2)(b) (EQ4382)
7. Notice of Migration Guidance (EQP4482)
8. Instructions for Notice Regarding Abandoned or Discarded Containers Notice Regarding Discarded or Abandoned Containers (EQP4476)
9. Q & A: BEAs, Foreclosures and Receiverships
10. Administrative Rules – Property Owner or Operator Obligations to Under Section 20107a of the Act Addresses for Submittals

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SUBJECT: **Superfund Program**

CONTACT: DEQ
517-284-6902
www.michigan.gov/deqrrd

Michigan Guide to Environmental, Health, and Safety Regulations

Chapter 8

Activities at or Near the Land/Water Interface

SECTION ONE – ENVIRONMENTAL REGULATIONS

CHAPTER 8: Activities at or Near the Land/Water Interface

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Purpose and Applicability of Regulations

Manufacturers often conduct activities at or near locations where the land meets the water, often referred to as the land/water interface. Many construction activities conducted in or near wetlands, ponds, inland lakes, streams, floodplains, Great Lakes, sand dunes, or other such environmental features are regulated by the state and require authorization by the Michigan Department of Environmental Quality (DEQ) prior to completion. Review of this chapter may be beneficial even if there are no site improvements currently under consideration in order to ensure that you are complying with state and federal laws regarding land/water interface resources.

Agencies and Their Laws and Rules

The DEQ, Water Resources Division (WRD), administers several parts of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451), that regulate activities that are on, within, or involve any of the following land/water features:

- A 100-year floodplain or floodway (Part 31)
- A stream, river, ditch, drain, channel, or canal (Part 301).
- An inland lake (Part 301)
- Land change activities that result in the creation or alteration of a canal, ditch, lagoon, pond, or lake within 500 feet of an existing inland lake or stream (Part 301).
- A wetland (Part 303).
- A dam (Part 315).
- A Great Lake (Part 325).
- High-risk erosion areas, critical dune areas, and environmental areas in coastal counties (parts 323 and 353).

The U.S. Army Corps of Engineers (USACE) also regulates some of the above activities at the federal level if they are located within a navigable water identified in Section 10 of the federal Rivers and Harbors Act and wetlands directly adjacent to these waters. To simplify the permit process for Michigan's residents, the WRD has developed a "MDEQ/USACE - Joint Permit Application" process with the USACE to jointly regulate activities at or near the land/water interface (Chapter 8.9).

The WRD also administers several other Parts of Act 451 that require a separate permitting process:

- Aquatic Nuisance Control (Part 33 of Act 451): regulates herbicide or pesticide application to lakes or ponds. This includes water treatment ponds for cooling or settling or ponds equipped with fountains for aesthetic purposes.
- Soil Erosion and Sedimentation Control (Part 91 of Act 451): requires a permit for all earth changes disturbing one or more acres, or for any size earth change within 500 feet of a lake or stream. This statute authorizes county and local enforcing agencies to issue the permits. The authorized permitting agencies for each county are available at **www.michigan.gov/soilerosion**. Authorized agencies have inspectors certified by the DEQ. Information on becoming a certified Soil Erosion and Sedimentation Control inspector is available on line at: **www.michigan.gov/documents/deq/deq-oea-faq-wrd-sesc-sw-certification_348141_7.pdf.**
- Earth changes of one or more acres also require federal NPDES permit coverage as described in Chapter 3.2.3.b
- Large Quantity Water Withdrawal (Part 327 of Act 451): This statute defines a large quantity water withdrawal as 70 gallons or more of total pump capacity and offers a tool to determine if your project requires a permit from the WRD. This is addressed more fully in Chapter 9.3.

8.1 Introduction

Historically the "MDEQ/USACE - Joint Permit Application" was used for activities regulated by the parts of Act 451 summarized in Chapter 8.2 through 8.10. Permit applicants would complete only the portions of the application applicable to their proposed activities. The DEQ is converting to electronic submittal for this form, through the new online permitting and compliance system called MiWaters. The Joint Permit Application may be submitted online through MiWaters. Required attachments and fee payment will also be handled electronically. Information on MiWaters is found in Chapter 3.1.1, or go directly to the MiWaters homepage at **https://miwaters.deq.state.mi.us** and then "about."

Pre-application meetings for proposed impacts to inland lakes, streams, wetlands, and critical dune areas are available upon request. This pre-application meeting with district permit staff ensures that a complete and accurate application is submitted that avoids and/or minimizes potential impacts and proposes mitigation when resource impacts are unavoidable. There is a fee for the pre-application meeting, with the exception of in-office meetings on single-family residential lots less than 1 acre size. See the online pre-application meeting form for a fee schedule.

The WRD district offices review permit applications, conduct site inspections, and issue permits for regulated activities covered on the DEQ/USACE - Joint Permit Application. Technical assistance and permit review negotiations conducted by field staff minimize negative impacts to natural resources from new development. District staff may make a site inspection, collect comments, or ask for modifications to the proposal. It may take ninety days or more to receive a decision on a permit application. District offices also respond to complaints and conduct compliance activities. District staff can answer questions regarding the application, MiWaters, and regulations.

Help is available online to assist you in submitting a complete MDEQ/USACE - Joint Permit Application. Go to **www.michigan.gov/jointpermit** for more information.

8.2 Part 31 of Act 451: Water Resources Protection, Floodplain Regulatory Authority

A Part 31 permit is required for any occupation, construction, filling, or grade change within the 100-year floodplain of a river, stream, or drain with a drainage area of two square miles or more. Bridges and culverts are considered an occupation of the floodplain, as are activities that involve storage of materials in the floodplain. A 100-year flood has a one (1) percent chance of occurring or being exceeded in any given year. These activities are regulated by a permit system with the purpose of ensuring that the channels and floodways are kept clear and uninhabited and that

structures placed outside the floodway are properly protected from flood damage. The floodway includes the stream channel and that portion of the floodplain that is required to convey the flow of floodwater. Structures that are placed outside of the floodway portion of the floodplain must be properly protected from flood damage. This can be accomplished by elevating structures above the 100-year floodplain elevation or by designing non-residential structures to be water tight without human intervention. The state Building Code requires residential structures to have the lowest floor elevation at least one foot above the 100-year floodplain elevation.

Flood Insurance Requirements

Many cities and townships within Michigan participate in the National Flood Insurance Program (NFIP). Those communities usually have a Flood Insurance Rate Map. If your site is located in the floodplain area (frequently designated as an “A Zone”), the requirements are that any new or substantially improved structure must have its first floor, including the basement, elevated above the 100-year floodplain elevation or flood-proofed to the elevation of the floodplain. Flood-proofing must be done in a manner that the building is water tight and able to withstand hydrostatic pressures up to the 100-year floodplain elevation.

8.3 Part 301 of Act 451: Inland Lakes and Streams

The intent of the Inland Lakes and Streams Protection Program is to protect the public trust in the inland waters of the state as well as the correlative rights of riparian owners. Activities that disturb land below the ordinary high water mark require a Part 301 permit. Examples of common projects that require a Part 301 permit are road and pedestrian crossings, utility crossings, stormwater outfalls, with or without streambank or streambed protection (riprap), stream relocations, and enclosures.

A Part 301 permit is required for the following activities below the ordinary high-water mark of all inland lakes and streams:

- Dredge or fill bottomlands.
- Construct, enlarge, extend, remove, or place a structure on bottomland.
- Construct, enlarge or expand a marina.
- Create, enlarge, or diminish an inland lake or stream.
- Structurally interfere with the natural flow of an inland lake or stream.
- Construct, dredge, commence, extend, or enlarge an artificial canal, ditch, lagoon, pond, lake, or similar waterway through which the purpose is ultimate connection with an existing inland lake or stream, or where any part of the artificial waterway is located within 500 feet of the ordinary high-water mark of an existing inland lake or stream.
- Connect any natural or artificially constructed waterway, canal, channel, ditch, lagoon, pond, lake, or wetland with an existing inland lake or stream for navigation or any other purpose.

Under Part 301, a stream is defined as a waterbody that has definite banks, a bed, and visible evidence of a continued occurrence of water. This Part does not include the Great Lakes, Lake St. Clair, or a lake or pond that has a surface area of less than 5 acres. An inland lake or stream can also be a natural or artificial feature, including drains or impoundments.

8.4 Part 303 of Act 451: Wetlands Protection

Part 303 is intended to protect the functions and values wetlands provide such as flood and storm control, wildlife habitat, clean subsurface water resources, pollution treatment, erosion control, nutrient cycling, and economic and educational services. The following activities are prohibited in wetlands unless a Part 303 permit has been obtained from the DEQ:

- Deposit or permit the placing of fill material in a wetland.
- Dredge, remove, or permit the removal of soil or minerals from a wetland.
- Construct, operate, or maintain any use or development in a wetland.
- Drain surface water from a wetland.

Regulated wetlands are defined in Part 303 and associated administrative rules. Part 303 defines a wetland as *"land characterized by the presence of water at a frequency and duration sufficient to support, and that under normal circumstances does support, wetland vegetation or aquatic life, and is commonly referred to as a bog, swamp, or marsh."* The definition applies to public and private lands regardless of zoning or ownership. In addition, wetlands regulated by the state are one of the following:

- Connected to, or located within 1,000 feet of, one of the Great Lakes or Lake St. Clair.
- Connected to, or located within 500 feet of, an inland lake, pond, river, or stream.
- Not connected to one of the Great Lakes or Lake St. Clair, or an inland lake, pond, stream, or river, but are more than 5 acres in size.
- Not connected to one of the Great Lakes or Lake St. Clair, or an inland lake, pond, stream, or river, and less than 5 acres in size, but the DEQ has determined that these wetlands are essential to the preservation of the state's natural resources and has notified the property owner.

Wetlands Identifications

While wetland inventory maps and other online tools are helpful in determining the potential for wetlands, an on-site investigation is required to identify wetlands on a property. The DEQ's WRD, Wetland Identification Program (WIP), is a fee-based program that offers two levels of service to identify wetland and upland areas on a property. For a Level 2 Identification, a Wetlands Specialist conducts an on-site review to determine the presence or absence of wetlands, and physically marks the wetland boundaries in the field. A Wetlands Specialist can also provide a Level 3 Identification, which is an on-site review to confirm specific wetland boundaries marked by a

wetland consultant. Both levels of service include a letter and map from the DEQ summarizing the findings, which is guaranteed for a period of three years. Individuals interested in WIP services must submit a WIP application to the WRD, Wetlands, Lakes and Streams Unit. The WIP application and a fee calculator can be downloaded at **www.michigan.gov/wetlands** or you may call 517-284-5543.

8.5 Part 315 of Act 451: Dam Safety

Permits are required for dams with a "height" of six feet or more and have an impounded surface area of five acres or more at the design flood elevation. A permit is required to construct a new dam, enlarge an existing dam or impoundment, repair or alter a dam, remove a dam, abandon a dam, or reconstruct a failed dam. A licensed professional engineer must prepare, sign, and seal the construction plans, except for minor projects as defined in Part 315 or for projects by non-profit organizations under certain circumstances as specified in Part 315.

8.6 Part 323 of Act 451: Shorelands Protection and Management

This program provides for the designation and proper management of environmental areas, high-risk erosion areas, and flood risk areas along the Great Lakes shoreline. These areas include coastal wetlands and the adjacent uplands that provide habitat and nursery for fish and wildlife. Information about this program may be found online at www.michigan.gov/shorelands.

A Part 323 permit is required for any of the following activities in a designated Environmental Area:

- Dredging, filling, grading, or other alterations of the soil.
- Alteration of natural drainage, but not including the reasonable care and maintenance of established drainage.
- Alteration of vegetation utilized for the preservation and maintenance of fish or wildlife, including identified colonial bird nesting areas.
- Placement of permanent structures.

The following counties have designated Environmental Areas:

Alcona	*Bay*	*Emmet*	*Monroe*
Alger	*Charlevoix*	*Houghton*	*Tuscola*
Alpena	*Cheboygan*	*Huron*	*Wayne*
Arenac	*Chippewa*	*Mackinac*	
Baraga	*Delta*	*Marquette*	

A Part 323 permit is required for the construction, installation, or moving of a permanent structure on a parcel of land where any portion is a designated High-Risk Erosion Area. Examples include homes, porches, septic systems, additions, substantial improvements of existing structures, and out buildings. The current counties with designated High-Risk Erosion Areas include:

Alger	*Berrien*	*Houghton*	*Mackinac*	*Ottawa*
Allegan	*Chippewa*	*Huron*	*Manistee*	*St. Clair*
Antrim	*Delta*	*Iosco*	*Mason*	*Sanilac*
Baraga	*Emmet*	*Keweenaw*	*Menominee*	*Schoolcraft*
Bay	*Gogebic*	*Leelanau*	*Muskegon*	*Van Buren*
Benzie	*Grand Traverse*	*Luce*	*Oceana*	

The flood risk area program requires new construction in the 100- year floodplain of the Great Lakes to be elevated to prevent property damage. Forty-one coastal communities have designated flood risk areas mapped and participate in the National Flood Insurance Program, the federal program providing the sole source of flood insurance. These designated communities have approved zoning ordinances and regulate construction in flood risk shorelands locally. Permits are issued by the local unit of government. The WRD oversees performance and provides technical assistance.

8.7 Part 325 of Act 451: Great Lakes Submerged Lands

A permit is required for all filling, dredging, and placement of structures (e.g., docks, piers, pilings, etc.) below the ordinary high-water mark and on all upland channels extending landward of the ordinary high-water mark of the Great Lakes, according to the 1985 International Great Lakes Datum. Part 325 also provides for the sale, lease, or exchange of state-owned bottomlands of the Great Lakes. Information about the program may be found online at **www.michigan.gov/deqgreatlakes**.

8.8 Part 353 of Act 451: Sand Dunes Protection and Management

The most unique and fragile sand dunes along the Great Lakes shoreline in Michigan are defined in the **"Atlas of Critical Dune Areas"** prepared by the DNR. A permit is required for activities which significantly alter the physical characteristics of a Critical Dune Area or for a contour change in a Critical Dune Area. Those activities include the construction of a house or garage, building a road or driveway, installing a septic system, installing retaining walls, and sand removal to name a few. Program information may be found online at **www.michigan.gov/criticaldunes**. The following counties have designated Critical Dune Areas:

Alger	*Charlevoix*	*Luce*	*Oceana*
Allegan	*Chippewa*	*Mackinac*	*Ottawa*
Antrim	*Emmet*	*Manistee*	*Schoolcraft*
Benzie	*Keweenaw*	*Mason*	*Van Buren*
Berrien	*Leelanau*	*Muskegon*	

Islands that have designated Critical Dune Areas include:

Beaver Island	*South Fox Island*	*North Manitou Island*
North Fox Island	*High Island*	*South Manitou Island*

8.9 Section 404 of the Federal Clean Water Act of 1977 and Section 10 of the Rivers and Harbors Act of 1899

Section 404 of the Clean Water Act (CWA) prohibits the discharge of dredged or fill material into waters of the United States, including inland lakes and streams, the Great Lakes, and wetlands, without a permit. Michigan was the first of only two states currently authorized to administer the permit program for the federal government through state law. In most areas of the state, issuance of a permit by DEQ's WRD in accordance with the CWA requirements also authorizes a project under Section 404, and no separate federal permit is required. However, since Section 10 does not provide for similar transfer to states, the U.S. Army Corps of Engineers (USACE) retains Section 404 jurisdiction within those waters that are navigable waters of the U.S. and their adjacent wetlands. Therefore, authorization is also required from the USACE for projects in traditionally navigable waters including the Great Lakes, connecting channels, other waters connected to the Great Lakes where navigational conditions are maintained, and wetlands directly adjacent to these waters. Submittal of a single, completed DEQ/USACE - Joint Permit Application to the WRD ensures that Section 404 permit applications will be processed by all appropriate agencies, including projects that require both DEQ and USACE authorization.

The discharge of any fill materials must comply with state water quality standards consistent with Sections 301, 307, and 401 of the Clean Water Act.

8.10 Fees

The fees for permit applications vary significantly between the various parts of Act 451 and will vary within a Part depending on the scope of the project. General permit and minor project categories are described on the WRD's Web site: **www.michigan.gov/jointpermit**. A current fee schedule is available at the same Web site or by calling the appropriate district office for the county in which the project will be located. Fees for the soil erosion and sedimentation control permits are established by the county or local agency issuing the permit.

WHERE TO GO FOR HELP

SUBJECT: **Permit application for chemical treatment to control nuisance aquatic plant or algae growth**

CONTACT: DEQ, Water Resources Division
Lakes Michigan and Superior Permits Unit
517-284-5593
www.michigan.gov/anc

SUBJECT: **Joint Permit application and instructions**

CONTACT: The appropriate DEQ, Water Resources Division, District Office for the county in which the project will be located (see Appendix C).

www.michigan.gov/jointpermit

PUBLICATIONS: DEQ/USACE - Joint Permit Application (EQP 2731)
DEQ/USACE - Joint Permit Application Information Sheet

SUBJECT: **MiWaters**

CONTACT: **https://miwaters.deq.state.mi.us** then "About" and "Who to Contact"

PUBLICATIONS: MiWaters Videos at **www.michigan.gov/miwaters**

1. Overview
2. Establishing an Account
3. Maintaining Your Profile
4. Inviting Another Person to View or Manage Your Site Information
5. Finding an Application or Request to Submit
6. Submitting an Application or Request
7. Viewing Information Related to Your Site
8. Submitting a Report Required by Your Permit
9. Submitting a Discharge Monitoring Report (DMR)

Other MiWaters Training and Guidance at **www.michigan.gov/miwaters**

1. Submitting a Stormwater Pollution Prevention Plan (SWPPP) Annual Report (webinar recording, 70 minutes)
2. Introduction to MiWaters for Facilities covered Under NPDES Permit (webinar recording, 80 min)
3. Introduction to MiWaters for Facilities Under an Industrial Storm Water General Permit (webinar recording, 58 min)
4. Introduction to MiWaters for Aquatic Nuisance Control Permitting (webinar recording 61 min)
5. Introduction to MiWaters for Facilities Covered Under a DEQ CAFO Permit (webinar recording 91 min)
6. Biosolids Annual Report: A Step by Step Guide to Submittal (ppt)
7. How to Complete a Floodplain Service Request

Michigan Guide to Environmental, Health, and Safety Regulations

Chapter 9

Drinking Water

SECTION ONE – ENVIRONMENTAL REGULATIONS

CHAPTER 9: Drinking Water

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Purpose and Applicability of Regulations

Manufacturers are required to supply a safe source of drinking water to their employees that is free from microbial and chemical contamination. Also, many manufacturing activities (such as in the food industry) require safe, potable water for their processes. Most manufacturers in Michigan are customers of a public water system through connection to a municipal or community water supply. However, those plants that supply their own water from a well or surface water source are public water systems (called noncommunity water supplies) and must meet certain drinking water standards. Additionally, these water supplies must meet construction, operational, and sampling requirements. They must also meet both state and local ordinances regarding cross-connection control measures.

Generally, customers who buy water from a community water supply (e.g. the City of Detroit or Grand Rapids) do not have sampling requirements; however, manufacturing complexes that inject chemicals into purchased water or use the water for certain purposes such as food manufacturing, may have additional requirements. Those requirements are the responsibility of the water supplier. The cross-connection section of this chapter is useful for the protection of your employees (Chapter 9.4). In addition, plumbing codes apply (see Chapter 36.4).

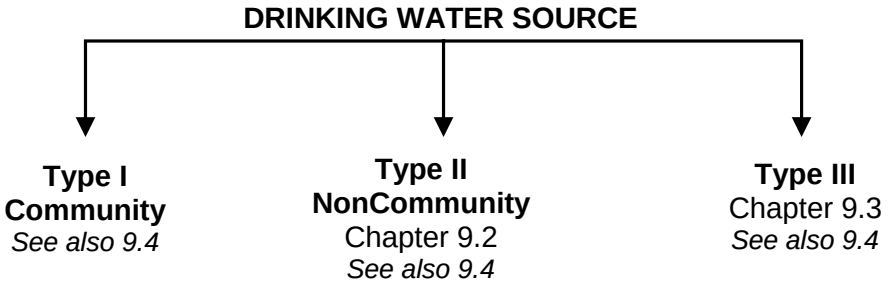
Agencies and Their Laws and Rules

In 1974, the U.S. Congress passed the Safe Drinking Water Act. This act gave the U.S. Environmental Protection Agency (U.S. EPA) responsibility for establishing and enforcing drinking water standards nationwide. The Michigan Safe Drinking Water Act, Public Act 399, as amended, (Act 399) was enacted in 1976 and enables the Michigan Department of Environmental Quality (DEQ) to maintain direct control over the public drinking water program in the state.

Community, or Type I, public water supplies serve 25 or more residents or 15 or more living units year-round. These water systems are regulated directly by DEQ staff. Noncommunity, or Type II, public water supplies serve 25 persons or more at least 60 days per year, at facilities such as factories, schools, restaurants, campgrounds, churches, etc. (A service connection is defined as “a direct connection from a distribution water main to a living unit or other site to provide water for drinking or household purposes.”) The DEQ contracts with local health departments to provide technical assistance and administer the noncommunity water supply regulations. Local health departments also provide services for public water supplies that serve less than 25 persons (Type III supplies).

In addition to requirements specific to public water supplies outlined in Act 399, water well construction standards are regulated by Part 127 (Water Supply and Sewer Systems) of the Public Health Code, Public Act 368 of 1978, as amended (Act 368), and Administrative Rules, as amended. Also, when a well is constructed to obtain water to be used solely in a manufacturing process and not for any drinking or sanitary purposes, it is regulated under Part 127. Some examples of this include non-contact cooling water, paper and pulp manufacturing, and certain fabrication operations.

9.1 Key to Chapter



What type of drinking water supply do you have at your facility?

There are three types of public water supplies defined in the state of Michigan:

- ☐ **Community (Type I) water supplies** provide year-round service to 15 or more LIVING units or 25 or more RESIDENTS. Examples include municipal water systems, apartment complexes, manufactured housing communities and subdivisions on their own water source. Source water for community supplies may be obtained from treating surface

water or from groundwater wells. Generally, manufacturers are customers of Type I community water supplies and as such, do not have jurisdiction over the supply itself, just their own distribution systems. A water quality report (Consumer Confidence Report) is prepared by community water supplies annually; contact your local water utility for a copy. A manufacturer that is a customer of a municipal or community water system may have obligations regarding cross-connection control. The supplier of water has local jurisdiction regarding this issue. More information on community water supply is available at **www.michigan.gov/deqwater** (select "Drinking Water" from the menu).

If your facility is a customer of a community water supply system, review Chapter 9.4 related to cross-connections.

☐ **Noncommunity (Type II) water supplies** provide service to 15 or more SERVICE CONNECTIONS or 25 or more INDIVIDUALS on an average daily basis of at least 60 DAYS OUT OF THE YEAR. Examples are schools, restaurants, industries, campgrounds, etc., which are on their own water supply, such as a well. Treated surface water meeting safe drinking water standards may also be a source of water for a noncommunity supply. Manufacturers may be Type II water supplies on their own supply or may be connected to a well serving more than one customer, such as a well that serves an industrial complex with more than one business in it.

If your facility has a Type II water supply, go to Chapters 9.2 and 9.4 related to cross-connections.

☐ **Type III water supplies** are not Type I or II; they serve less than 25 persons per day. Examples include small businesses and manufacturers, small apartment complexes, and wells serving only a few homes.

If your facility has a Type III water supply, go to Chapter 9.3.

9.2 Noncommunity (Type II) Water Supplies

The local health department performs sanitary surveys of Type II water supplies at least once every five years. Noncommunity supplies are required to sample routinely, meet drinking water standards, and maintain their water systems in a sanitary condition in accordance with Act 399. Type II noncommunity supplies fall under two categories:

Typical Commercial/ Industrial Well Head

- *A **transient noncommunity** water supply is one that serves at least 15 service connections or at least 25 people on an average daily basis for at least 60 days out of the year. Examples include campgrounds, highway rest areas, and churches.*
- *A **nontransient noncommunity** water supply is one that routinely serves the **same** 25 or more people daily at least six months out of the year. Examples include factories, schools, or other businesses that employ 25 persons or more.*

9.2.1 Permits & Permit Fees

Construction permits for Type II water supplies must be issued by the local health department for the county. Construction details and a site plan must be included in the application submittal. Permit fees for Type II noncommunity water supplies are set by the local health department issuing the permit. These fees vary.

9.2.2 Annual Fees & Laboratory Fees

Noncommunity supplies are required to pay an annual fee assessed by October 1 each year based upon their status as a transient or nontransient noncommunity public water supply. The fee is due by November 30 each year. The owner of the water supply is also responsible for payment of any laboratory fees for testing of required water samples.

9.2.3 Certified Operator Requirements

An operator must be certified in the classification designated by Act 399 if they are in charge of a treatment system necessary for public health reasons at any Type II noncommunity water supply, or a distribution system at a Type II nontransient noncommunity water supply. "Treatment" is defined as a technology that is employed by a public water supply for the control of the chemical, physical, biological, or radiological characteristics of the water supply. A "distribution system" is composed of components where water is distributed and used for drinking/household purposes. The components may include piping, fixtures, transmission mains, pumps, storage tanks, etc.

As of December 8, 2002, all nontransient noncommunity water systems are required to have a certified operator. The certification by the DEQ is based on the operator's qualifications, experience, a written examination, and a laboratory examination in some cases. Noncommunity water supply operators are certified based on a written or oral examination and may have to demonstrate knowledge of the operation of the treatment and monitoring equipment.

For more information about the Operator Training and Certification Program, visit **www.michigan.gov/deqoperatortraining.**

9.2.4 Sampling Requirements

Type II noncommunity water supplies must all sample for coliform bacteria and nitrates/nitrites; however, the nontransient supplies must also sample for metals, cyanide, arsenic, volatile organic compounds, synthetic organic compounds, lead, and copper. Other sampling requirements may apply if certain treatment technologies are used, such as corrosion control systems. Sampling requirements are based upon which category the water supply falls under, and the sampling frequency is determined by the local health department based on inspection results, water quality, population served, and sampling history. The laboratories used by the supply must be certified by the state for the components being tested.

9.3 Water Use Program – Great Lakes Protection

Part 327 of Michigan's Act 451 provides a regulatory structure for the principles of the Great Lakes-St. Lawrence River Basin Water Resources Compact. This Compact requires all Great Lakes states to implement a program to protect, conserve, and manage all waters and water dependent on the natural resources of the Great Lakes Basin. Part 327 provides an environmental baseline for managing water resources in a more integrated manner, and strengthens the legal basis for opposing unwarranted diversions of Great Lakes water. Preservation of local streamflow is the environmental standard by which Michigan manages its waters of the Great Lakes Basin. Each stream segment in the state has statutory limits of allowable streamflow reduction resulting from water withdrawals.

The Water Use Program is responsible for registering Large Quantity Withdrawals (LQW), collecting annual water use data, making determinations on the potential impacts to the water resources as a result of a proposed withdrawal, and issuing water withdrawal permits.
A facility with 70 gallons per minute or more in total pump capacity is a LQW and is subject to water use reporting requirements. Annual water use reports must be provided to the DEQ by April 1 of each year on a form provided by the DEQ. A $200 annual fee must accompany the report. New or increased withdrawals at a capacity of 70 gallons per minute or more must be registered and approved by the DEQ prior to beginning the withdrawal.

The Water Withdrawal Assessment Tool (**www.deq.state.mi.us/wwat**) is provided by the Water Use Program for property owners to apply for authorization of a new LQW. It is the first step in assessing the impact of a proposed withdrawal on nearby streams and rivers, and can either provide instant authorization, or if necessary, begin a site-specific review process by which the Water Use Program determines if the proposed withdrawal can comply with the law.

9.4 Type III Water Supplies

Type III public water supplies are regulated by local health departments under both Act 399 and Part 127 of Act 368. A Type III supplier must comply with all applicable state and local plumbing codes, as well as any local codes regarding water supplies. The supply must meet minimum construction standards outlined in Part 127 but may be required to meet more stringent construction and/or sampling requirements based upon site specific conditions, such as groundwater contamination, geologic conditions, etc.

Permits for Type III water supplies and those wells providing only process water for manufacturing are obtained from the local health department. Permit fees for Type III public water supplies, or wells providing processing water only, are set by the local health department or other agency having jurisdiction over issue of well permits in that county. The owner of the water supply is responsible for any sampling fees.

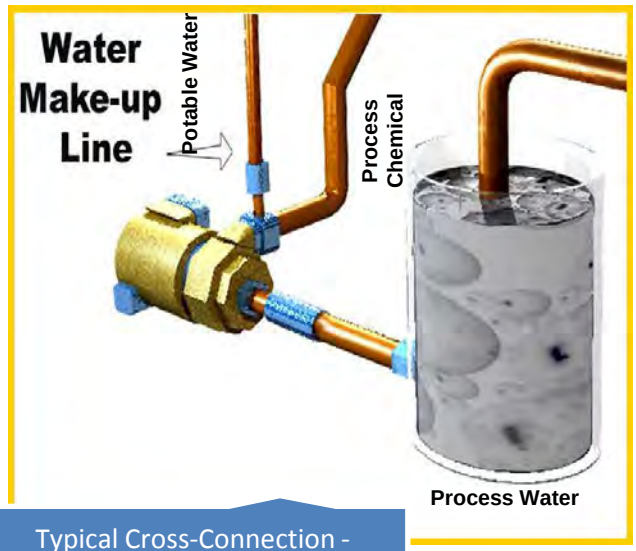
Unless otherwise specified by the local health department or other agency having jurisdiction, Type III water supplies and process water wells are not required to routinely submit water samples. Type III water supplies are not required to have a certified operator.

9.5 Cross-Connection Requirements

Typical Cross-Connection - Submerged Inlet

A cross-connection is a connection or arrangement of piping or appurtenances (fixtures, fittings, or equipment) through which a backflow into the potable water supply may occur. It is the responsibility of water utility customers or public water supply owners to comply with all cross-connection control regulations in their area or municipality. No cross-connections are allowed between a public water supply and a secondary water source, such as a well. Examples of cross-connections include submerged inlets, such as unapproved ball cock assemblies in toilet tanks; unprotected connections between the water supply and a boiler containing additives; or piping submerged in a tank or vessel which may contain a contaminant, such as a mixing or electroplating tank.

Act 399 states that "a connection with a public water supply system shall comply with existing laws, ordinances, and rules including: (a) The state plumbing act, 2002 PA 733, MCL 338-3511 to 338-3569, [and] (b) Local ordinances or rules providing acceptable protection against cross connections." Public water supplies are required to develop a comprehensive control program for the elimination and prevention of all cross-connections. The program should include a time scheduled for inspection and reinspection of all water utility customers' premises for possible connections, including manufacturing sites. This periodic inspection is to "ascertain if safe air gaps or required backflow preventers are in place." The inspection may include testing of certain backflow prevention devices, such as reduced pressure principle backflow devices, etc. A manufacturer or commercial establishment may be responsible for having such devices in its facility tested on a periodic basis. A user of a public water supply must also have written approval from the water utility or the agency having jurisdiction over the water supply of any proposed corrective action or protective device before using or installing it. During an inspection of the water supply, if cross-connections are identified, a compliance schedule may be established depending upon the degree of hazard and the time required to obtain and install equipment.



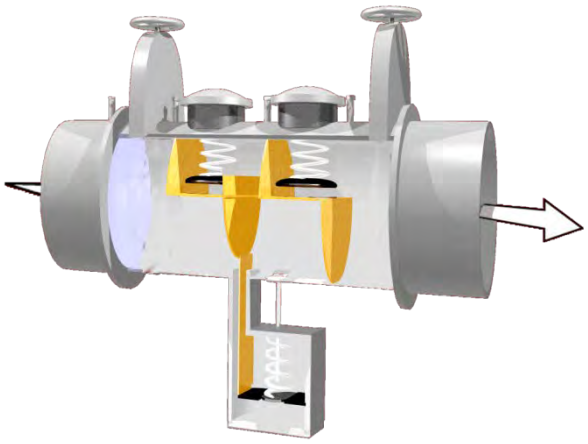
Typical Cross-Connection - Potable Line Into Process

If a cross-connection has not been corrected within a reasonable period, the distribution system of the customer may be disconnected from the public water supply in such a way that it cannot be connected by any unauthorized person. When a secondary water source is used in addition to a public water supply, any exposed public water supply and secondary water piping shall be identified by distinguishing colors or tags and maintained so that each pipe may be traced easily in its entirety. There can be no connections between the two distribution systems.

Reduced Pressure Principle Assembly (RP)

Type of Backflow Prevention

The reduced pressure principle backflow preventer is an arrangement of spring loaded check valves designed to prevent the backflow of water. If the pressure within the public water supply system becomes less than the in-plant system (that going in becomes less that the pressure going out), the normal direction of flow through the backflow preventer would tend to reverse, causing a series of two check valves to restrict the flow of any water back into the public water supply system.



Learn more about cross-connections, along with the methods and equipment used to eliminate them, by taking the DEQ's annual Cross-Connection Seminar offered through the Drinking Water Operator Training and Certification programs. Visit **www.michigan.gov/deqoperatortraining** or contact the Environmental Assistance Center at 800-662-9278.

WHERE TO GO FOR HELP

SUBJECT: **State and federal drinking water regulations or fees**

CONTACT: DEQ, Public Water Supply Programs
- Community: 517-284-6544
- Noncommunity: 517-284-6535

www.michigan.gov/deqwater

SUBJECT: **Federal drinking water program**

CONTACT: U.S. EPA Office of Groundwater and Drinking Water
www.epa.gov/learn-issues/water-resources#drinking-water

SUBJECT: **Permitting, change in ownership, and sampling requirements associated with Type II and III public water supplies**

CONTACT: Local Health Department
www.malph.org

SUBJECT: **Safe Drinking Water Act, Act 399 of 1976**

CONTACT: DEQ, Public Water Supply Program
517-284-6544
http://legislature.mi.gov/doc.aspx?mcl-act-399-of-1976

SUBJECT: **Training and certification of water supply operators**

CONTACT: DEQ, Water and Wastewater Operator Training Program
517-284-5424
www.michigan.gov/deqoperatortraining

SUBJECT: **Water use reporting and permitting**

CONTACT: DEQ, Water Use Program
517-284-5563
www.michigan.gov/wateruse

Michigan Guide to Environmental, Health, and Safety Regulations

Chapter 10

Radioactive Materials Regulations

SECTION ONE – ENVIRONMENTAL REGULATIONS

CHAPTER 10: Radioactive Materials Regulations

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Purpose and Applicability of Regulations

Many facilities use radioactive material (RAM) in diverse ways or have radioactive wastes. For example, exit signs may contain tritium and smoke detectors may contain americium. Other examples of industrial uses of RAM include devices to measure the density of concrete or blacktop, determine the thickness of paper and rolled steel as it is made, find cracks in pipes or airplane surfaces, test the amount of lead in paint, or monitor the flow of sludge through pipes at a sewage treatment plant. Research facilities and academic institutions use RAM during the development of new pharmaceuticals to "tag" certain molecules to follow their progress through chemical or biological processes and in other research activities. Medical facilities inject patients with RAM to diagnose medical conditions and for therapeutic treatments. Medical facilities also use large radiation sources for cancer treatment. Radium paint was once used on aircraft instruments, naval compasses, military vehicle instruments, and on clocks and watches to make the numbers and lines glow in the dark. Pictures of some radioactive devices are at **www.deq.state.mi.us/documents/deq-dwrpd-rad-radioactive_materials.pdf**.

Naturally occurring radioactive material is found as uranium in clay and bricks, granite, shale, or other rocks. It is also found as radium in soils or as radium sulfate scales on some pipes and fittings from the oil and gas industry and as the naturally radioactive constituent of potassium, potassium-40. Natural gas and products derived from natural gas, such as propane, contain radon-222. When radon-222 decays, lead-210 can plate out on the interior of pipes and process equipment.

Agencies and Their Laws and Rules

Several state and federal agencies regulate the possession, use, transport, transfer, and disposal of radioactive material. The purpose of these requirements is to ensure the safe use and disposal of radioactive material. Some of these requirements, including the applicable regulatory agencies include:

- The U.S. Nuclear Regulatory Commission (NRC) regulates the use of source, byproduct, and special nuclear material under the authority of the U.S. Atomic Energy Act. These regulations are published under Title 10, Parts 1 through 171 of the Code of Federal Regulations (10 CFR Parts 1 - 171).
- The Department of Environmental Quality (DEQ), Radiological Protection Program (RPP) registers the possession and use of certain diffuse forms of naturally occurring radioactive material (NORM) under the authority of Public Health Code, Public Act 368 of 1978, as amended (Act 368).
- The U.S. Department of Transportation and Michigan State Police, Commercial Vehicle Enforcement Division oversee transportation of radioactive material under Title 49 of the Code of Federal Regulations (49 CFR). See Chapter 4.4 for more information about the transportation of radioactive materials.
- The Michigan Department of Licensing and Regulatory Affairs, Radiation Safety Program, is responsible for the registration and inspection of medical (x-ray and mammography machines) and non-medical radiation machines and facilities. Call 517-284-7820 for more information.

10.1 Environmental Monitoring and Radon Gas

The Environmental Monitoring Program operates an environmental monitoring network around each of Michigan's nuclear power plant sites. The program collects and analyzes several types of samples, including direct radiation, air, surface water, precipitation, and milk from the environs of the nuclear plants. Unit laboratory analyses also include samples collected by other program staff during investigations of potentially contaminated sites, during emergency response activities, and from routine staff compliance investigations.

The DEQ's Indoor Radon Program conducts activities under the U.S. Environmental Protection Agency's (U.S. EPA's) State Indoor Radon Grant Program. This program provides education on the radiological risks posed by public exposure to radon gas and works closely with local health departments throughout the state for outreach at the local level.

Radon Information - **www.michigan.gov/radon** | radon@michigan.gov | 800-723-6642.

10.2 Nuclear Facilities

The Radiological Emergency Preparedness (REP) Program is responsible, in part, for Michigan's Radiological Emergency Preparedness program. The REP Unit develops and implements the DEQ's Nuclear Facilities Emergency Management Plan. These efforts are conducted in cooperation with other state and federal agencies and are overseen by the Michigan State Police. REP Unit staff also interacts with nuclear plant utility staff and staff of the NRC concerning the

day-to-day operations of nuclear power reactors to ensure radiological protection of the public and the environment. Go to www.michigan.gov/radon and select "Radiological Emergency Preparedness" on the left for more information related to radiological emergency preparedness.

10.3 Radioactive Materials in the Environment

Radioactive materials occur naturally in our environment. These materials can be concentrated by certain industrial processes, like drilling for the production of oil, gas, and brine. Municipal drinking and waste water treatment systems can also have radium on their production equipment, in sludges, and in solid residuals. The Radiological Protection Program works with other DEQ staff to monitor and evaluate the public health and environmental consequences of these naturally occurring radioactive materials. Radiological Protection Program staff identifies and coordinates remediation of radioactively contaminated sites and works with other state and federal agencies to assure proper site cleanup and disposition of contaminated materials.

10.3.1 NRC Licensing

The U.S. Nuclear Regulatory Commission regulates source, byproduct, and special nuclear material. It also regulates nuclear power plants and high level radioactive waste storage and disposal. The Region III office near Chicago, Illinois, can be contacted at 800-522-3025.

10.4 Emergency Assistance

Program staff responds to radiation alarm trips at scrap metal facilities and landfills and to citizen concerns and complaints regarding radioactive materials. During normal business hours, please contact the Radiological Protection Program at 517-284-5185 regarding any radiation emergency or for questions about radioactive material. Off-hour radiation emergencies can be reported through the DEQ Pollution Emergency Alerting System (PEAS) hotline at 800-292-4706 or by contacting the Michigan State Police Operations Center at 517-241-8000. A facility must also meet the emergency reporting requirements of other federal or state agencies for hazardous or radioactive material. Radiological Protection Program staff are trained and equipped with radiation detection instrumentation to act as first responders to radiation emergencies 24 hours a day, seven days a week.

10.5 Radioactive Waste Disposal

Discuss disposal options for radioactive wastes with the Radiological Protection Program staff by calling 517-284-5185.

10.5.1 Tritium Exit Signs

Do NOT landfill exit signs that contain tritium. These should be returned to the manufacturer, if possible, or properly disposed by a licensed radioactive waste disposal contractor. A label should be on the signs giving proper disposal directions. These exit signs, disposal contractors, and disposal sites are regulated under 10 CFR by the NRC.

The shipping requirements for these exit signs are regulated under the US. Department of Transportation regulations in 49 CFR. Contact the shipping companies for their specific policies and contact the Michigan State Police, Commercial Vehicle Enforcement Division with shipping questions.

See Chapter 30 regarding MIOSHA regulations that require exit signs in buildings. For information on disposal of exit signs, go to **www.michigan.gov/radon,** "Radioactive Material," go to the U.S. EPA's site at **www.trainex.org/web_courses/tritium/index.htm**.

10.5.2 Waste Industrial Smoke Detectors

Remove any batteries from the detector and handle the battery as a universal waste or under the applicable hazardous waste regulations for that company's hazardous waste generator status (see Chapter 2).

The requirement a company must follow depends on whether the smoke detector contains radioactive material or if it could be considered a hazardous waste. There are two types of materials commonly found in smoke detectors.

- The older models may contain a non-exempt radium-226 source that is regulated by the U.S. Nuclear Regulatory Commission. These detectors should not go to a solid waste landfill but be returned to the manufacturer or disposed as radioactive waste.
- Newer models may contain a small americium-241 source. The combined smoke detector and americium source are specifically exempted in the federal regulations allowing homeowners to dispose individual detectors in a sanitary landfill. Large quantities, such as those collected during a major construction renovation or hazardous waste collection project should not be disposed without first checking with officials of the NRC or Radiological Protection Program staff.

Some smoke detectors could be subject to the hazardous waste regulations because the amount of metal in the detectors may fail the Toxicity Characteristic Leaching Procedure. Small quantity generators and large quantity generators cannot put hazardous waste smoke detectors in the trash. Conditionally exempt small quantity generators may dispose smoke detectors in licensed solid waste landfills if the landfill will accept them and they do not contain radioactive materials above exempt quantities. However, if smoke detectors are not classified as a hazardous waste and do not contain radioactive materials above exempt quantities, then they may be sent to a licensed landfill. Companies should contact the landfill if disposing of large numbers (roughly around 25 or so) because the waste load may set off the landfill's radiation detectors. Smoke detectors should not be recycled for metal or incinerated.

Contact the DEQ, Radiological Protection Program regarding potential safety concerns when numerous smoke detectors are disposed of at the same time or regarding nuclear regulations.

WHERE TO GO FOR HELP

SUBJECT: **State and Federal Radioactive Material Regulations**

CONTACT: DEQ, Radioactive Materials Program
517-284-5185
RadioactiveMaterial@Michigan.gov**www.michigan.gov/radon**
("Radioactive Materials")

PUBLICATIONS:
1. Ionizing Radiation Rules for Radioactive Material
2. Cleanup and Disposal Guidelines for Sites Contaminated with Radium-226 (EQC 1602)

SUBJECT: **Radon Gas in Indoor Air (Naturally Occurring)**

CONTACT: DEQ, Indoor Radon Program
Radon@michigan.gov
800-723-6642
www.michigan.gov/deqradon

SUBJECT: **Registration and Inspection of Radiation Machines**

CONTACT: DLARA, MIOSHA-Radiation Safety Program
517-284-7820
RSSInfo@michigan.gov
www.michigan.gov/miosha (select "Radiation Safety.")

SUBJECT: **U.S. DOT Hazardous Materials Transportation**

CONTACT: U.S. Department of Transportation
800-467-4922 or 517-853-5990
www.phmsa.dot.gov

Michigan State Police, Commercial Vehicle Enforcement Division
517-241-0506
www.michigan.gov/msp

Michigan Center for Truck Safety
800-682-4682
www.truckingsafety.org

Michigan Guide to Environmental, Health, and Safety Regulations

Chapter 11

Oil, Gas, and Mineral Resources

SECTION ONE – ENVIRONMENTAL REGULATIONS

CHAPTER 11: Oil, Gas, and Mineral Resources

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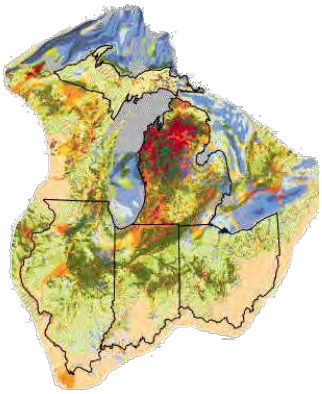

Purpose and Applicability of Regulations

The Oil, Gas, and Minerals Division (OGMD) of the Michigan Department of Environmental Quality (DEQ) fosters the conservation and orderly development of hydrocarbon and mineral resources; while preventing damage to the environment and protecting public health and safety. The OGMD also maintains a variety of geological and regulatory records, maps, publications, and computerized information for public use. Although most manufacturers in the state do not participate in activities that are regulated by the OGMD, it is important to have a general understanding of the various OGMD programs in case you interact with industries, such as mining, that are regulated.

Agencies and Their Laws and Rules

The OGMD regulates oil, gas, and mineral resources by administering parts of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451): Part 615 (Supervisor of Wells), Part 616 (Orphan Well Fund), Part 617 (Unitization), Part 625 (Mineral Wells), Part 631 (Ferrous Mineral Mining), Part 632 (Nonferrous Metallic Mineral Mining), Part 635 (Surface and Underground Coal Mine Reclamation), and Part 637 (Sand Dune Mining). Some of the OGMD's programs and areas of involvement include: oil and gas and mineral well permitting, ferrous and non-ferrous metallic mining and reclamation activities, and sand dune mining. The OGMD also serves as a collector and distributer of a variety of geological information and records. The following is a brief description of each of these programs.

11.1 Geological Information and Records

The OGMD maintains regulatory records on oil, gas, and mineral programs, maps, and publications on the geology of Michigan. This information includes records for over 70,000 oil, gas, and mineral wells; and maps and documents on surficial and bedrock geology, fuel and mineral resources, and geological topics of general interest.

11.2 Oil and Gas

The OGMD regulates the locating, spacing, drilling, operating, and plugging of oil and gas wells, and the operation of associated storage and disposal facilities. The OGMD also regulates oil and gas production rates and allocates production among the owners of a common reservoir. The OGMD reviews applications and issues permits to drill and operate wells for the production of oil and gas and for the disposal of associated brine. The OGMD staff conduct inspections of oil and gas sites for compliance with regulatory requirements.

The OGMD manages cleanups at oil, gas, and mineral sites utilizing Part 201 (Environmental Remediation) as a guide. See Chapter 7 for more information about environmental remediation.

The OGMD utilizes the Orphan Well Fund to plug oil and gas wells and conducts associated cleanup activities where no owner or operator is known, for which owners or operators are insolvent, or where an environmental emergency is declared.

11.3 Mineral Wells

The OGMD oversees the location, construction, operation, and closure of mineral wells, which includes wells for waste disposal, brine production, solution mining, underground storage, and mineral exploration. The OGMD reviews applications and issues permits for mineral wells, compiles records, and conducts inspections to assure compliance.

11.3.1 Waste Disposal

Some manufacturers in the state dispose of liquid wastes by underground injection. The OGMD regulates the wells used for this disposal. In addition, these wells are regulated by the U.S. Environmental Protection Agency (U.S. EPA), Underground Injection Control Branch. In those instances where the waste is considered hazardous and the manufacturer is storing and or treating the waste prior to discharge, the treatment and storage facilities are subject to regulations administered by the DEQ's Hazardous Waste Program (see Chapter 2 for more information).

Contact the DEQ, Hazardous Waste Program for questions concerning the permitting of Treatment, Storage, and Disposal Facilities at 800-662-9278 or visit their Web site at **www.michigan.gov/deqwaste** (select "Hazardous and Liquid Industrial Waste" then "Hazardous and Liquid Industrial Waste Management").

Contact the U.S. EPA, Region 5, Underground Injection Control Branch for questions concerning federal Underground Injection Control Regulations and permitting. Call 312-886-2446 or visit their Web site **www.epa.gov/r5water/uic/index.htm**.

11.4 Metallic Mineral Mining and Reclamation

The OGMD conducts permitting, inspection, and enforcement of mining reclamation requirements at metallic mines under Part 631 (Ferrous Mineral Mining), Part 632 (Nonferrous Metallic Mineral Mining), and Part 634 (Small Native Copper Mining).

11.5 Sand Dune Mining

The OGMD regulates sand mining in designated coastal sand dune areas pursuant to Part 637 (Sand Dune Areas). The OGMD reviews sand dune mining applications and issues permits, evaluates mining and reclamation plans, determines financial responsibility requirements, conducts regular inspections, and pursues enforcement action as necessary.

WHERE TO GO FOR HELP

SUBJECT: Conservation; regulation; and protection of oil, gas, sand dunes, brines, and metallic and non-metallic minerals

CONTACT: DEQ, Oil, Gas, and Minerals Division
517-284-6823 or 517-284-6826
www.michigan.gov/ogs

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Chapter 12

Pollution Prevention and Environmental Management Systems

SECTION ONE – ENVIRONMENTAL REGULATIONS

CHAPTER 12: Pollution Prevention and Environmental Management Systems

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12.1 Pollution Prevention (P2)

Most of us are familiar with the old adages “waste not, want not;” “one person’s trash is another person’s treasure;” and “an ounce of prevention is worth a pound of cure.” By embracing the wisdom behind these approaches, pollution prevention (P2) encourages businesses to identify and act upon opportunities that benefit their operations, as well as workers, communities, and the environment.

This chapter briefly discusses the benefits, tools, and opportunities common to the P2 approach. It also summarizes pollution prevention assistance and incentive programs offered by the Michigan Department of Environmental Quality (DEQ).

12.1.1 What is Pollution Prevention?

Parts 143 and 145 of the Michigan Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451), define P2 as preventing or minimizing waste generation or the environmentally sound reuse or recycling of those wastes that cannot be prevented. In Michigan, P2 is based on voluntary, multi-media efforts that are applied where they are practical, environmentally acceptable, and economically feasible. Only after P2 has been applied or considered should waste treatment, release, or disposal technologies be used in accordance with Michigan regulations.

Source:
www.epa.gov/waste/nonhaz/municipal/hierarchy.htm

Common examples of P2 include:

- Replacing hazardous organic solvents with non-toxic aqueous cleaners.
- Modifying manufacturing and industrial processes to eliminate the need for hazardous substances.
- Conserving and reusing process water.
- Installing green infrastructure
- Purchasing mercury-free switches, relays, lamps, or other equipment.
- Modified packaging that creates less waste.
- Deconstructing a building and reusing certain materials rather than demolition and landfilling.
- Recycling metals, solvents, oils, cardboard, wood pallets, office paper, organics, and other recyclable materials.
- Purchasing products containing less toxic, bio-based substances that result in less hazardous waste being generated.
- Purchasing products that are built for disassembly and material recovery.
- Conducting energy audits and practicing conservation.
- Using certified green products such as cleaners, glues, paints, etc. that contain less toxic materials and reduce employee exposure, asthma reactions, and odor complaints.
- Replacing standard motors, pumps, and lighting with high efficiency units.
- Stopping leaks, drips, and spills; and instituting preventive maintenance practices.
- Developing emergency response plans and procedures.

12.1.2 Why Practice Pollution Prevention?

Pollution prevention is a scientific, continuous improvement approach that often results in cost reduction, risk avoidance, and enhanced competitive advantage. P2 not only helps to meet environmental goals, but also reduces waste, improves efficiencies, saves money, reduces potential liabilities, and mitigates hazardous exposures. Unlike costly pollution control measures, P2 offers important economic, regulatory, environmental, and social benefits that may often result in a more competitive business. A facility with an effective P2 program will often:

- Reduce waste treatment, transport, and disposal costs.
- Reduce costs for energy, water, and raw materials.
- Eliminate or minimize compliance issues and associated costs.
- Reduce future liabilities through improved quality of work, environment, and employee health and safety.
- Avoid costs of accidents and spills.
- Improve production times.
- Enhance its public image and community relations.

In addition, instituting green practices and showcasing a strong environmental ethic provides a competitive edge and may open up new markets for your products to others that are concerned about environmental and health impacts.

12.1.3 Getting Started

An excellent way to get started with any P2 effort is to draw upon the many resources available through the DEQ's P2 assistance programs, projects, and initiatives. To help you develop an action plan or start a P2 program, the following is a brief description of assistance activities and incentive programs, including industry partnerships and collaborations.

i) **Financial Assistance:** A number of DEQ financial assistance programs are available to encourage the adoption of pollution prevention within the state.

   a) **Small Business Pollution Prevention Loan Program:** Low-interest loans of up to $400,000 are available to small businesses of 500 employees or fewer to finance projects that eliminate or minimize the generation of waste, result in environmentally sound reuse and recycling of wastes, or conserve energy or water within their organizations.

   b) **Non-Point Source/Stormwater Grants:** Nonpoint source (NPS) pollution is pollution caused when rain, snowmelt, or wind carry pollutants off the land and into lakes, streams, wetlands, and other water bodies. Michigan's Nonpoint Source Program provides grants to local units of government and non-profit entities to reduce nonpoint source pollution statewide. The DEQ *Grants and Loans Catalog* provides more information on the DEQ's financial assistance opportunities.

ii) **Education and Outreach:** Educational opportunities through workshops, seminars, webinars, and conferences are regularly provided by the DEQ through partnerships with businesses, trade associations, and other groups. These events disseminate information on pollution prevention, new technologies, current regulatory requirements, and compliance assistance. For the latest available workshops, go to **www.michigan.gov/deqworkshops**. In addition, the DEQ, Office of Environmental Assistance, also publishes newsletters, bulletins, fact sheets, and case studies and distributes many other P2-related documents. A list of these publications is available on the DEQ Web site at **www.deq.state.mi.us/pubcenter**.

iii) **Technical Assistance:** These programs focus on providing P2 information and technical assistance to companies, institutions, and communities.

a) Retired professionals provide on-site P2 assistance to businesses with 500 or fewer full-time employees in Michigan. Assessments are confidential, free of charge, and strictly non-regulatory. There is no obligation to implement the recommendations provided.

b) **Recycling Assistance:** Resources are available to assist companies in their recycling efforts.

iv) **P2 Programs:** By participating in any of the following P2 programs, a business can receive well-deserved public recognition, customized assistance, and other benefits for P2 efforts. Website shortcuts for these programs are listed in 12.1.6 at the end of this chapter.

a) **Clean Corporate Citizen (C3) Program:** Regulated companies, municipalities, and institutions meeting certain environmental performance criteria can be designated as Clean Corporate Citizens. In return they receive positive public recognition and are entitled to certain regulatory benefits, such as streamlined air quality permit processing.

CLEAN CORPORATE CITIZEN PROGRAM

b) **Green Chemistry:** A program to promote and coordinate "green chemistry" research, development, demonstration, education, and technology transfer activities in Michigan.

c) **Green Communities Challenge:** This peer-to-peer network shares home-grown best practices to help Michigan communities overcome barriers on the path toward sustainability. Members can earn recognition for sustainability accomplishments and track progress by participating in the Challenge.

d) **Mercury Pollution Prevention Efforts:** an effort to promote the elimination of nonessential uses of mercury and provide information on the proper cleanup and disposal of mercury.

e) **Michigan Business Pollution Prevention Partnership (MBP3):** Open to all businesses, associations, organizations, and agencies, MBP3 is a voluntary P2 program designed to encourage businesses to initiate or expand their P2 practices. Participants receive public recognition for their efforts and involvement in a community of practice.

f) **Michigan Clean Marinas Program:** An alliance between the Michigan Boating Industries Association, Michigan Sea Grant College, and the DEQ to protect Michigan's waterways through voluntary P2 efforts by businesses.

g) **Michigan Turfgrass Environmental Stewardship Program:** This program is designed to advance P2, compliance, and environmental stewardship at golf courses, athletic fields, parks, schools, and municipal grounds, and lawn care companies. Properties are recognized for their environmental achievements and may become certified in the program.

h) **Neighborhood Environmental Partners:** A recognition program intended to increase interaction between businesses and their neighbors, with the goal of enhancing the environment and the quality of life in the community.

12.1.4 The Pollution Prevention Plan

It has been shown that a systematic approach to planning, with measurable goals, results in effective pollution prevention. An effective P2 plan can reduce waste and costs. A good plan includes gaining full support of management, committing resources, and establishing policies that support reductions of waste, resources, water, and energy use within the company. Input from all levels of your business should be called upon to contribute P2 ideas, technical assistance, and decision-making. By following the steps outlined below, you can set the stage for a successful P2 program. A successful P2 program can help achieve goals set for compliance, environmental management plans, and sustainability efforts.

16 STEPS TO AN EFFECTIVE POLLUTION PREVENTION PLAN

STEP 1 Get management's commitment and support.

STEP 2 Develop a company pollution prevention policy statement.

STEP 3 Gain ongoing, company-wide commitment.

STEP 4 Establish a pollution prevention team.

STEP 5 Select a pollution prevention coordinator.

STEP 6 Establish reduction goals for: wastes, toxics, climate change, water, and energy.

STEP 7 Establish priorities and procedures for conducting detailed assessments.

STEP 8 Designate an assessment team.

STEP 9 Conduct a facility-wide assessment.

STEP 10 Identify potential pollution prevention opportunities.

STEP 11 Perform technical and economic analyses on the potential P2 opportunities.

STEP 12 Develop an implementation plan.

STEP 13 Implement the selected projects.

STEP 14 Evaluate project effectiveness annually and document results.

STEP 15 Celebrate positive results and learn from negative results.

STEP 16 Modify the plan as needed and select the next steps to be taken.

- ✓ *Step 1: Get management's commitment and support.*
  P2 programs are only as strong and effective as the company's internal commitment. Thus, the first and most important step is making the philosophy of pollution prevention a company priority. P2 should be incorporated into every aspect of the business, including mission and policy statements, budgeting, purchasing, design, and production. A high level manager should announce the program to employees, ask for their input in identifying areas where waste, toxics, water, and energy usage can be reduced, and seek their participation in carrying out all P2 projects.

- ✓ *Step 2: Develop a company pollution prevention policy statement.*
  Putting the company's commitment in writing helps to legitimize the program with all employees and can lead to an attitude change that makes P2 efficiencies "an everyday part of doing business."

- ✓ *Step 3: Gain ongoing, company-wide commitment.*
  Some companies have initiated bonuses or award programs for employees who make significant contributions or savings through P2 programs. Others find that employees derive satisfaction from being actively involved in decisions that affect their production and work-related activities.

- ✓ *Step 4: Establish a pollution prevention team.*
  Once your facility establishes a clear commitment to P2, gather interested, appointed, and affected individuals for a brainstorming session (see Step 10). This group of individuals should include a cross-section from all levels of staff, including management to front-line workers in the purchasing, financial, clerical, production, maintenance, and warehousing areas.

- ✓ *Step 5: Select a pollution prevention coordinator.*
  Heading the P2 team should be a Pollution Prevention Coordinator. This P2 champion is the one who coordinates the assessments, carries forward your team recommendations, and provides oversight to the implementation of projects. This person also acts as a point person for any questions, comments, or recommendations from other employees. Putting someone in charge helps ensure the program will move forward in a timely and effective manner.

- ✓ *Step 6: Establish overall reduction goals.*
  The first goals need to be target goals such as achieving specific energy, toxics, water, or waste reductions by a set date. Then ask what steps the company needs to take to achieve this goal. Purchasing changes are probably the easiest and most powerful means of reducing toxics that result in hazardous waste and employee exposures as well as reducing energy usage.

- ✓ *Step 7: Establish priorities and procedures for conducting more detailed assessments.*
  Before conducting an assessment, you must determine what will be measured, how costs will be assessed, who should be involved, and how the assessment will proceed. Identify potential obstacles and define the means for overcoming them. These obstacles will be less likely to impede the process if there is a mechanism for addressing them as they arise.

- ✓ *Step 8: Designate a detailed assessment team(s).*
  Designate a team to perform detailed assessments (or an individual if staffing is tight).

✓ *Step 9: Conduct the assessment.*

An in-depth, comprehensive assessment is critical to a successful P2 plan. Experience has shown that only after a company realizes the true costs of its wastes will it have the motivation needed for an ambitious P2 effort. Also, by assigning waste costs to specific department budgets, greater efforts to eliminate costs associated with waste are likely to occur. An in-depth waste assessment helps a business to identify:

- Sources, compositions, and the true costs of wastes.
- Potential P2 opportunities and the benefits of acting on these opportunities.
- Obstacles to implementing P2 opportunities.

For a very small business, an in-house waste assessment might consist of a visual inspection of what goes into the trash dumpster, followed by research into local opportunities for recycling cardboard, office paper, plastic packaging, and other easy-to-recycle materials. Businesses with more complex operations should perform a walking tour of the facility observing the various points of waste generation and the conditions having the potential for causing accidents, health hazards, or environmental emissions. Discussions with operational staff typically reveal additional useful information. Other sources of important information include records of waste disposal costs, environmental compliance documents, and raw materials purchase invoices. Identifying the wastes that cost the most due to volume, disposal, or toxicity have good potential for P2 efforts.

Additionally, a business can request an Integrated Assessment that identifies P2 and compliance assistance opportunities within their facility. Businesses may also wish to have an assessment conducted by a professional technical consultant to characterize wastes and perform a cost-benefit analysis of each P2 option.

If your business, institution, municipality, or organization is interested in a free, confidential, integrated assessment, contact Nathan Hude, at 517-285-7847 or HudeN@michigan.gov.

If the facility can research the topic, there may even be a 'self-audit' checklist available to identify your own areas of focus. Contact your trade associations, business forums, or others for self-checklists or guidance. Other guidance for specific industries can be found in 12.1.6 at the end of this chapter.

✓ *Step 10: Identify potential pollution prevention opportunities.*

Once the information is collected and summarized, team members should discuss possible alternatives to reduce or eliminate waste or toxic-producing or energy or resource intense processes and/or ways to recycle waste streams. An initial list of P2 opportunities can typically be developed with simple brainstorming. However, for significant gains, the team should look for examples listed in the sector resources such as those listed above.

✓ *Step 11: Perform technical and economic analyses on* potential *P2 opportunities.*

Based on a set of selection criteria, an examination of the technical workability of P2 opportunities should occur, followed by an evaluation of cost and environmental impacts of each opportunity. This requires consideration of all costs and benefits involved, such as

decreases in operating costs; changes in regulatory burden; future liabilities; and improvements in productivity, worker safety, environmental protection, and quality management practices.

Projects can vary from easy to hard; inexpensive too costly. When considering costs, think in terms of return on investment and long-term impacts. A stock investment with a 10 percent return per year is considered good. Note that this would require 10 years for the stock to fully pay back that initial investment. If an investment in waste, resources, or energy reduction saves enough money to pay for itself in 5-7 years, that's better payback than the stock market! In addition, it is likely that costs for waste disposal, energy, water, and other resources will only increase over time, making the payback timeline even shorter.

The P2 team should investigate possible funding sources for those projects that require capital investment. A financial analysis of any project is helpful in requesting funding. Members of the financial departments should be included in this process. Options with the highest rate of return should be presented to management as final recommendations. For energy related projects, see the funding discussion under Section 12.1.5.d.

✓ *Step 12: Develop an implementation plan.*

With management's decision to act upon given P2 opportunities, steps to create waste, toxics, resource, water, and energy reduction actions must be designed. Financial and personnel resources must also be designated. An excellent financial resource is available from the Small Business Pollution Prevention Loan Program. Low-interest loans of up to $400,000 are available to small businesses of 500 employees or less, for financing P2 projects.

For additional information on the loan program, contact the Environmental Assistance Center at 800-662-9278 and ask to speak to the Small Business P2 Loan Program Manager.

It is important that each step of the implementation plan be approved by the P2 team. For each step or action to be taken, clearly indicate the following:

- Action to be implemented.
- Person or persons responsible for implementation.
- Possible barriers and ways for overcoming them.
- Time for action to be completed.

✓ *Step 13: Implement the selected projects.*

Inform all employees about the selected P2 projects and begin the implementation phase. All involved employees should have a clear understanding of the purpose of the P2 project and their role in implementing it. The pollution prevention team members should lead other employees and provide guidance in the implementation process.

- ✓ *Step 14: Evaluate project effectiveness and document results.*

  By reviewing the program's successes and failures, managers can assess the degree to which P2 goals are being met and what the economic results have been. The comparison identifies P2 techniques that work well and those that do not. This information helps guide future P2 assessment and implementation cycles. In order to evaluate project effectiveness, a set of baseline data (gathered during the waste assessment phase/Step 9) should be used to measure progress. Periodically conduct tests to determine if and where waste and hazards have been reduced. Results should be documented. This is a good way to determine if alternative production methods are working as expected. It is also an opportunity to re-evaluate methods and make any corrections.

- ✓ *Step 15: Celebrate positive results and learn from negative results.*

  Once the results are known, celebrate the positive steps forward. Are you purchasing less toxic materials and reducing hazardous wastes? If so, this means you're reducing the exposure to your employees as well as the disposal costs. Post the information where employees and the public can see what you're doing to save money and protect the environment as well as the health of your employees and customers. As we all know, not all new projects are successful. If you find a P2 project isn't working as expected, determine if it can be improved or if something different is indicated or if it should be shelved until new resources are available. Learn from the experience but keep working on improvements.

- ✓ *Step 16:* Modify the plan as needed and select the next steps to be taken.

  The pollution prevention plan should evolve as the P2 program proceeds. Goals once achieved can be expanded or new goals can be set, and policies can be revised. Maintaining a viable P2 program requires continued support and involvement from management and continuing effort from everyone involved in planning and implementation. With support and enthusiasm from respected persons within the company, employees at all levels can and will want to participate. Pollution prevention can become a part of quality management practices, contributing to the company bottom line.

12.1.5 Common Pollution Prevention Opportunities and Techniques

There are several ways to increase efficiency and prevent waste in all aspects of a business. The following is a brief review of some of the most common P2 opportunities and techniques a business can use to achieve its P2 goals. For additional ideas or more in-depth information, contact the OEA at 800-662-9278.

12.1.5.a Cost Accounting

Experience has shown the most successful P2 programs are those that account for the true cost of wastes, including expenses for lost raw materials; staffing; needed paperwork and insurance; sample analyses; and storage, treatment, and disposal costs. Successful billing strategies to account for the true costs of wastes include the following approaches:

- Charge direct and indirect costs of all air, land, and water discharges to specific processes, products, or departments.
- Allocate treatment/disposal costs to operations/departments that generate the waste.
- Allocate utility costs to specific processes, products, operations, or departments.

Once all the true costs of the various processes or products are known, you may determine if the waste, toxic substances use, resource use, and energy costs for a particular product are much larger than expected or identify the source of most of the hazardous waste. These are good areas to begin the focus of P2 efforts to reduce those costs and liabilities.

12.1.5.b Purchasing and Inventory Management

A purchasing policy on non-toxic and energy efficient alternatives can result in significant improvements, but purchasing staff need guidance on what those alternatives are. Purchasing changes are probably the easiest and most powerful means of reducing toxics that result in hazardous waste and employee exposures as well as reducing energy usage. This can also impact the companies you select to purchase from. Select suppliers or manufacturers who also exhibit your same environmental commitment. Don't forget this also opens up a market for your products.

- Order products according to need. The cost associated with the disposal of surplus hazardous materials or the resulting hazardous wastes, often exceeds the purchase price of the item or raw material. A non-toxic alternative that does not generate hazardous waste may reduce those costs, risks, and regulatory oversight.
- A coordinated material purchasing program can monitor all requests for products throughout the company or plant and implement efficient purchasing policies.
- An inventory control program can promote sharing of materials between common users, provide data on who is using extremely hazardous products, identify large volume users, locate unused caches of materials, and identify where waste reduction/material substitution options are viable. Inventory control should rotate stock on a first-in, first-out basis.

12.1.5.c Packaging, Shipping, and Containers

A second look at the transportation and product packaging that companies send and receive often leads to waste reduction without sacrificing product safety or quality.

- Request that deliveries be shipped in returnable/recyclable containers.
- Work with suppliers and customers to eliminate excess packaging.
- Increase your use of reusable shipping containers and recycled or recyclable packaging.
- Purchase products in bulk, in concentrated form, or in quantities matching process demand.
- Incorporate language into contracts specifying P2 requirements or preferences.

12.1.5.d Energy Usage and Efficiency

Energy use is often seen as a key area where, through efficiency and conservation, operating costs can be readily controlled and often significantly reduced. Energy savings can be achieved by simple changes in daily operations, maintenance practices, and worker habits, and can be implemented at little or no cost. Although more significant energy savings may involve investment in new/upgraded equipment, these simple changes typically have excellent financial returns.

The state Energy Office within the Michigan Agency for Energy provides some incentives for energy efficiency and renewable energy projects. Their information is available on-line at **http://michigan.gov/energy**.

Federal incentive programs are listed and explained on the following Web site:
http://energytaxincentives.org/consumers/

Most Michigan utility companies also provide a number of incentives.

Consumers Energy Rebates	**www.consumersenergy.com/eeprograms**
Consumers Energy –Products	**www.consumersenergy.com/products**
DTE Energy/MichCon	**www.dteenergy.com/businessCustomers/**
Indiana Michigan Power	**www.efficiencyunited.com/**
Lansing Board of Water & Light	**www.lbwl.com/energysavers/**
Other Municipal Utilities	**www.michigan-energy.org**

Lastly, there are many financial assistance programs available to Michigan small businesses to fund energy efficiency improvements, including the rapidly emerging Property Assessed Clean Energy (PACE) programs. Other financial assistance programs include Michigan Saves, the Rural Energy for America Program (REAP), Rural Business Enterprise Grants Program, the Small Business Pollution Prevention Loan Program, and the U.S. Small Business Administration Loans and Grants Program.

Basic energy efficiency steps to consider include:

- Submeter electrical energy usage for detailed information on when, how, and where electrical energy is used. Some pricing is based on time of day and peak usage. Changing or staggering startup times may save money at no cost. Knowing how and where energy is used is critical to identifying major usage in order to focus P2 efforts and gain best savings.
- Maintain equipment and the facility through an ongoing maintenance program.
  - i) Furnaces
    - ✓ Analyze flue gas and adjust the fuel-air ratio to increase efficiency.
  - ii) Process Heat, Heat Recovery, and Heat Containment
    - ✓ Enhance sensitivity of temperature control and cutoff.
    - ✓ Use flue gas waste heat to preheat combustion air.
  - iii) Process Cooling: Cooling Towers and Chillers/Refrigeration
    - ✓ Use a cooling tower instead of refrigeration when outside temperature allows.
    - ✓ Use waste heat for absorption refrigeration.
  - iv) Motors and Drives
    - ✓ Develop an ongoing motor replacement program to upgrade existing motors to high efficiency motors. Where power factor is not controlled elsewhere in the shop, choose replacement motors with high power factor.
    - ✓ Use variable speed drives to control motor speeds where varying pump or fan flows can be utilized.
  - v) Compressed Air Systems
    - ✓ Compressed air is almost always the most expensive means for performing work at a facility and should only be used when essential.
    - ✓ Establish a vigorous maintenance program and check for leaks often.
    - ✓ Operate the system at the lowest acceptable pressure.

vi) Electrical Power
- ✓ De-energize excess transformer capacity and increase power factor for facilities and equipment by installing the proper combination of fixed and variable capacitance.

vii) Heating, Ventilation, and Air Conditioning (HVAC) Equipment
- ✓ Develop an optimal start/stop schedule for your HVAC system.
- ✓ Use seven-day, programmable thermostats to coordinate system operations with occupancy loads.
- ✓ Install variable air volume systems where practical.
- ✓ Install an airside, rooftop, central, or waterside economizer to use outside air to cool the space when outside temperatures allow.

viii) Lighting
- ✓ Install low-mercury T-8 or T-5 fluorescent systems with electronic ballasts or LEDs (light-emitting diodes).
- ✓ Remove two out of four tubes in fluorescent fixtures where lower light levels are acceptable. Also, disconnect the ballast that operates these tubes to save even more energy (especially magnetic ballasts). If necessary, install reflectors or higher output lamps so more light is utilized.
- ✓ Install low-wattage, long-life, LED exit signs, or bulbs.
- ✓ Use high-efficiency halogen, low-voltage halogen, quartz, or LED lamps where lighting quality is critical (e.g., retail displays).
- ✓ Replace mercury vapor or other inefficient, high-intensity, discharge lighting systems with an efficient, metal halide, sodium, or other high-output fluorescent system.
- ✓ Tailor lighting levels to the task and occupants, and increase the use of “task lighting.”
- ✓ Rewire fixtures or use dimming controls so unnecessary lighting can be turned off.
- ✓ Install occupancy sensors in areas of sporadic use. (Examples include supply closets and restrooms.)
- ✓ Install light sensors near windows to shut down light sections on bright sunny days.

ix) Office Equipment
- ✓ When purchasing new equipment, buy Energy Star©, or higher efficiency models. Also compare the “Energy Guide” label included on many major appliances to determine the more efficient model.
- ✓ Consider installing Energy Management software on servers to control sleep and shutdown modes of desktop computers.

12.1.5.e Solvent Substitution, Green Cleaners, and Safer Chemicals

Regulatory and cost pressures, along with worker safety and liability issues, have led to the development of alternative cleaning technologies, safer solvents, and improved cleaning and recovery equipment. In recent years, new programs have developed to certify what are ‘green’ cleaning materials and processes. Green Seal is one certification program and provides a list of certified green cleaners at **www.greenseal.org/Home.aspx**. Implementing safer, green cleaning technologies has become easier and often only requires purchasing materials off the shelf or from a good supplier that also provides training. Facilities that want to do their own research will need:

- A better understanding of the chemistry, mechanics, and other fundamentals of cleaning.
- A clear determination on how clean equipment or process materials truly need to be.
- A review of upstream processes/practices and how they influence the cleaning process.
- An awareness and understanding of the pros and cons of potential alternatives.
- Some degree of modification of both up- and down-stream processes and practices.
- A significant experimentation and learning period for identifying appropriate and effective alternative cleaners, optimizing cleaner concentrations and cleaning times, adjusting equipment and process operations, and modifying employee practices.

In general, pollution prevention opportunities for solvent cleaning processes include:

i) Using alternative cleaning technologies such as:
   - ✓ Aqueous and semi-aqueous cleaning processes.
   - ✓ Thermal and steam cleaning processes.
   - ✓ Abrasive blasting using dry ice, baking soda, starch, plastic, and other media.
   - ✓ Supercritical carbon dioxide solvent cleaning.

ii) Using alternative/less hazardous solvents with low vapor pressure, low toxicity, or non-ozone-depleting characteristics such as lactic acid, dimethyl esters, DMSO, n-methyl pyrrolidone, glycol ethers, terpenes, soybean, and other bio-based solvents. Web sites that may be useful to identify alternative solvents include:
   - o Clean Gredients list of solvents: **www.cleangredients.org**
   - o Clean Production Action's 'Green Screen for Safer Chemicals' program is a guide for decision making towards the use of the least hazardous materials: **www.cleanproduction.org/Greenscreen.php**
   - o U.S. EPA Safer Choice: **www.epa.gov/saferchoice**

iii) Extending solution life by pre-cleaning, using in-line filtration, countercurrent flows, reducing drag-out and evaporative losses, and removing sludge and surface oils/scum.

iv) Reclaiming/recycling spent solvents using distillation, filtration and vapor recovery equipment, and off-site recycling services.

v) Evaluating and modifying upstream processes and practices, solvent handling/storage practices, and employee practices for reducing solvent waste generation.

12.1.5.f Water

Water usage and wastewater discharge treatment entail substantial costs for many businesses and manufacturers. By metering water usage and regularly taking inventory of all water users, companies can reduce a major operating expense and reduce the demands on wastewater treatment facilities. Reducing water usage, generally also saves energy as it need to be pumped. Funding for some water efficiency steps may be provided by your local utility (Section 12.1.5.d). Reducing water usage also reduces the water bills as well as the amount of wastewater that requires costly treatment.

- Cleaning Systems: Replace high-volume hoses with high-pressure, low-volume cleaning systems.

- Cooling Towers: Install or replace conductivity controllers on cooling towers to reduce the amount of blowdown water wasted. A medical supplier replaced a controller on an existing tower and reduced their annual water usage by 34 percent or over 437,000 gallons. Reuse treated wastewater for cooling water. Reuse cooling tower blowdown waters for: cleaning air scrubbers; landscaping (determine if mineral concentrations are acceptable); etc.
- Equipment: Purchase water efficient equipment and appliances including cafeteria dish washers, laundry washing machines, dual flush toilets, waterless urinals, etc. See the U.S. EPA's WaterSense Web site at: **www.epa.gov/WaterSense/**
- Graywater: Separate out graywater from treatment waters and sanitary wastes so they can be reused in other non-potable applications such as irrigation or toilet flushing during expansions, renovations or new construction.
- Landscaping: Use native plantings to reduce or eliminate potable water use for irrigation or reuse storm water, treated wastewater, etc.
- Conduct irrigation system audit or inspection. Routinely maintain the system.
- Non-contact Cooling Water: Once through non-contact cooling water should be replaced by a closed-loop cooling water system.
- Rinsing: Use countercurrent rinsing and equip all hoses with shut-off nozzles.
- Storm water reuse: Capture storm water and use it for irrigation, toilets or non-critical process usage.
- Valves: Install automatic shut-off valves on equipment to stop water flow when not in use.
- Wastewater Reuse: Investigate the reuse of treated wastewater for separately supplied, non-potable uses. This could include: cleaning air scrubbers; floor washing; fire response supply (confirm this is acceptable with related regulatory staff); landscaping; toilets; etc.
- Water Demand: Determine if the need for the water usage is critical or could be reduced or eliminated.
- Water Treatment Costs: Determine if the pollutants that require expensive treatment could be eliminated from the wastewater sources rather than do expensive treatment.

12.1.5.g By-Product Synergy

By-Product Synergy (BPS) is the matching of under-valued waste or by-product streams from one facility with potential users at another facility to create new revenues or savings with potential social and environmental benefits. The resulting collaborative network creates new revenues, cost savings, energy conservation, reductions in the need for virgin-source materials, and reductions in waste and pollution, including climate-changing emissions. These are quantifiable benefits to the environment, economy and communities (US Business Council for Sustainable Development).

If you are interested in pursuing a BPS solution for one of your by-product streams, please contact the DEQ's Environmental Assistance Center at 800-662-9278.

12.1.5.h Life Cycle Thinking, Greenhouse Gases, and Sustainability

Life cycle thinking is a product management system that helps companies minimize the environmental and social burdens associated with their product and supply chain during its entire life cycle. It is designed to assist in decision-making at all levels regarding product development, production, procurement, and final disposal. Life Cycle Thinking offers companies the possibility to examine a range of key impact categories and indicators, such as materials extraction, water use, and embodied energy, thus assessing the environmental and social impacts of a specific product.

In recent decades, life cycle thinking continues to set the stage and provide consistent data for product life cycle management systems that document and track such environmental impacts as acidification, eutrophication and global warming potentials.

- UNEP and SETAC- Life Cycle Initiative: **www.lifecycleinitiative.org/**
- Circular Economy: **www.circulareconomy.com/**

For example, the reduction of greenhouse gas (GHG) emissions reflects a direct impact on climate change potential. The carbon footprint is a measure of how domestic, commercial, and social activities are affecting the environment in terms of the amount of greenhouse gases produced per year, measured in tons of carbon dioxide, a well-documented GHG. (Global Footprint Network: **www.footprintnetwork.org/**)

The above activities are now providing a systematic approach to sustainable development, a concept first coined in 1987. Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:

- The concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and
- The idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs.

Source: Our Common Future, U.N. World Commission, Gro Harlem Brundtland Oslo, 20 March 1987

12.1.5.i Community Outreach

Community outreach is the practice of conducting local public awareness activities through targeted community interaction. Successful community outreach focuses on an issue relevant to the community and acknowledges the community's challenges in addressing the issue.

Good business and community partnerships are essential to successful outreach initiatives. These partnerships should be intentionally reciprocal interactions in which both partners share equally in the rewards and challenges of the partnership. By serving as sponsors, volunteers, fund-raisers, or educators, local businesses can help make their communities better places to live and work.

The DEQ recognizes the importance of these outreach efforts and values businesses and their community partners who have worked together to improve the environment in their community. Visit the Neighborhood Environmental Partners Program Web site for information (under Project Tools) on getting started in with your environmental community outreach efforts.

12.2 Environmental Management Systems

12.2.1 What is an Environmental Management System (EMS)?

An EMS is one of several structured management tools designed to provide a consistent approach to the activities, products and services that are within your control and influence. The EMS helps identify, control, and monitor the activities at your facility that could impact the environment. It is a system that encourages your facility to incorporate environmental issues into everyday operations at all functions and levels. An EMS provides you with a structure for overseeing your programs. It does not, however, tell you what to manage. You make the decisions on what to manage based on your business needs, your resources, and your identification of significant activities. The idea is to integrate all of your environmental responsibilities into the daily decision making and overall management of operations at your facility to increase effectiveness and efficiency.

Several countries originally developed the idea of EMS to improve environmental performance, to create a more “level playing ground” in the world market, to provide a competitive advantage, and to give credibility to environmental programs. An EMS is practical for a wide variety of operations including small businesses, large industry, educational institutions, and government agencies.

There is no one type of EMS, but there are standards or formats that you can follow in developing your system. The most well-known and widely used EMS standard in the U.S. is the ISO 14001 standard. The International Organization for Standardization (ISO), consisting of representatives from industry, government, non-governmental organizations, and other entities, finalized the ISO 14001 EMS standard in September 1996, updated in November 2004, and most recently in September 2015. The intent of this standard is to produce a single framework for any EMS that can accommodate varied applications all over the world. It is a standard that is harmonizing environmental management practices and requirements around the globe. All EMS standards have the same basic components, which are identified below:

ISO 14001 Environmental Standard

Environmental Policy and Scope

Environmental Planning

- Identifying Aspects and Impacts
- Significance Ranking
- Setting Objectives and Targets
- Environmental Management Programs (EMPs)

Implementation and Operation

- Roles, Responsibilities, Time Frames
- Training and Competence, Communication
- Controls and Documentation
- Emergency Preparedness

Monitoring and Measurement

- Evaluation of Compliance
- Dealing with Non-conformances
- Corrective and Preventative Actions
- Records
- EMS Audit Program and Procedures

Implementation of an EMS does not substitute for compliance with regulations but can improve your compliance record and help you address issues that are not covered by regulation. In short, environmental management is an ongoing improvement process propelled by the desire to comply with regulations and operate cost effectively. Fully developing and integrating an EMS into your day-to-day management processes and operations is a more effective way of doing business.

12.2.2 What is a Responsible Care Management System?

The Responsible Care 14001 and the Responsible Care Management System (RCMS) are business tools developed by the American Chemistry Council. The original version of the Responsible Care standard has been in place since late 1980s. Both Responsible Care systems go beyond the scope of a typical Environmental Management System. An ISO 14001 Environmental Management System typically does not include off-property activities, employee health and safety, and consideration and engagement of the local community and stakeholders. In addition to these elements, Responsible Care also considers the environmental risks associated with suppliers and distributors and security. Both versions are comprehensive environmental, health, safety and security performance improvement initiatives.

12.2.3 What are the Benefits of an Environmental Management System?

Developing and implementing an EMS for your Michigan business can help improve the triple bottom line of your operation; economic, environmental, and social. It can also help you qualify for Clean Corporate Citizen (C3) designation. By bringing environmental factors into daily business decisions, implementation of an EMS helps accomplish the following:

- ✓ **Reduce costs** – Facilities that have implemented an EMS show improved operating efficiency by focusing on important issues, developing standard procedures, and increasing employee training. Most companies have reported reduced costs through the systematic process of identifying potential risks and impacts. Some facilities have earned favorable status on financial indexes based on their reduced legal liability, reduced likelihood of catastrophic occurrences, and improved environmental and social responsibility.
- ✓ **Assume a competitive advantage** – There is an expanding “green” market in the world. Consumers and manufacturers are giving preference to products from environmentally responsible suppliers. An EMS can help obtain that “green” image. Several larger companies in the U.S., especially in the automotive and electronic fields, have mature systems and are now requiring (or strongly encouraging) that their suppliers implement an EMS.
- ✓ **Improved image with stakeholders** – An EMS can improve your image and give credibility to your environmental programs. Your local politicians, environmental regulators, and community groups see development of an EMS as an indication of a good corporate citizen and the willingness to go beyond compliance. Accordingly, they will recognize and reward these efforts.
- ✓ **Enhance regulatory compliance** – An EMS can help improve regulatory compliance and reduce liabilities associated with noncompliance. The adoption of procedures and work instructions and additional training programs typically adds consistency and stability to business operations. It enables improved control over potential impacts and helps anticipate and control upsets.

- ✓ **Improve environmental performance** – The systematic identification of potential environmental impacts and continual improvement goals lead to more efficient business operations. Achieving these goals will ultimately lead to improved performance, a cleaner environment, and a sustainable community.

12.2.4 What are the Stages of Environmental Management System Development?

Typically, an EMS undergoes three states of maturity:

1) In the years 0 – 2, the EMS is **developed and implemented (internal value systems)**
   a. Large changes are typically avoided in these years
   b. Tends to be re-active, often focusing on "end-of-pipe" controls
   c. Staff strive to fully understand ISO 14001 (or other) requirements
   d. The system focuses on learning how to communicate to stakeholders
   e. It establishes what and how to disclose information to the public
   f. It tends to be driven by one person (typically the EH & S leader)
   g. There is limited involvement and/or buy-in
   h. Determination of significant aspects and hazards is often complex and time consuming
   i. Management provides resources, but their involvement is minimal
   j. Very simple metrics are used to report results toward goals

2) The years 2 – 5 can be described as **deployment**
   a. Linkages within the system are strengthened
   b. EMSs are in conformance with standard requirements
   c. Benefits (social, environmental, financial) are demonstrated
   d. Alignment with other requirements and systems becomes integrated (quality, health, safety, security, environmental, purchasing, etc.)
   e. Consistent metric systems for reporting are developed to measure results and trends
   f. It moves away from a one-person driven system to include a cross-functional team
   g. Objective and targets tend to be modest
   h. Corrective and preventative action processes tend to be weak
   i. Communication and reporting systems are being refined
   j. Cultural change is starting

3) Five+ years the EMS is **mature or an external value** system
   a. Stakeholders are involved with EMS review
   b. The organization achieves and maintains high levels of performance
   c. Value is demonstrated
   d. Efficiency through process improvements is a primary activity
   e. Inclusion of collected data in strategic planning takes place
   f. Corrective and preventive action processes are well established
   g. Objectives and targets are "stretch" goals
   h. There is a high level of management involvement
   i. The management system serves as a launch pad for new initiatives
   j. Metrics are well established and support business goals
   k. Employees are held accountable for performance
   l. Management is committed to environmental protection (including the allocation of resources and time and the assignment of responsibility)

WHERE TO GO FOR HELP

SUBJECT: **Pollution Prevention (P2) Program Assistance**

CONTACT: DEQ, Pollution Prevention and Stewardship
800-662-9278
www.michigan.gov/p2

P2 General Resource Web sites

The following Web sites are great for researching any P2 topic:

- Great Lakes Regional Pollution Prevention Roundtable (**www.glrppr.org/**)
- P2RX – Pollution Prevention Resource Exchange (**www.p2rx.org/**)
- U.S. EPA Industry Sector Profiles at **nepis.epa.gov** (search "Sector Notebook")

Common Resource Web Sites

Common Program Web site	Web Address
Brownfield Programs	www.michigan.gov/deqbrownfields
Electronic Waste	www.michigan.gov/electronicwaste
Energy	www.michigan.gov/energyoffice
Environmental Education	www.michigan.gov/environmentaled
Grants & Loans	www.michigan.gov/deqgrantsandloans
Green Chemistry	www.michigan.gov/greenchemistry
Green Construction & Recycling	www.michigan.gov/deqconstruction
Integrated Assessment Program	www.michigan.gov/p2
Marinas	www.miseagrant.umich.edu
Mercury P2	www.michigan.gov/mercuryp2
Neighborhood Environmental Partners	www.michigan.gov/deqnep
Nonpoint Source Pollution Grants	www.michigan.gov/nps
P2 & Stewardship	www.michigan.gov/p2
P2 Community	www.michigan.gov/p2community
P2 Small Business Loans	www.michigan.gov/p2loan
Recycling Contacts	www.michigan.gov/deqrecyclingcontacts
Stewardship Programs	www.michigan.gov/p2
Turfgrass Stewardship	www.mtesp.org
Events and Training Opportunities	www.michigan.gov/deqevents

SUBJECT: **EMS Development/Michigan's Clean Corporate Citizen (C3) Program**

CONTACT: DEQ, Pollution Prevention and Stewardship
800-662-9278 | **www.michigan.gov/deqc3**

SUBJECT: **EMS Standards**

CONTACT: American National Standards Institute (ANSI)
212-342-4900 | **www.ansi.org**

SUBJECT: **EMS Standards**

CONTACT: Registrar Accreditation Board (RAB)
888-722-2440 | **www.anab.org**

SUBJECT: **Organizations**

CONTACT: U.S. Environmental Protection Agency (U.S. EPA)
www.epa.gov

The Global Reporting Initiative
www.globalreporting.org

SUBJECT: **Responsible Care Management Systems**

CONTACT: **www.responsiblecare-us.com**

American Chemistry Council
www.americanchemistry.com
www.responsiblecare-us.com

U.S. Department of Labor's Occupational Safety and Health Administration

OSHA Compliance Assistance http://stats.bls.gov/iif/home.htmBureau of Labor Statistics

American Chemistry Council
www.americanchemistry.com

U.S. Department of Labor's Occupational Safety and Health Administration
OSHA Compliance Assistance http://stats.bls.gov/iif/home.htmBureau of Labor Statistics

U.S. DOT Hazardous Materials Transportation Statistics
http://phmsa.dot.gov/hazmat/library/data-stats

Michigan Guide to Environmental, Health, and Safety Regulations

Part 1

MIOSHA Common Regulations for Safety and Health
Chapters 13 - 19

MIOSHA
Michigan Occupational Safety and Health Administration

SECTION TWO – MIOSHA REGULATIONS

In 2012, the Office of Regulatory Reinvention (ORR) completed its review of workplace safety and health regulations to identify and eliminate rules that went above Federal OSHA and were obsolete, unnecessary, and over burdensome. The goal was NOT to eliminate any rules that would jeopardize employee health and safety. There were 611 MIOSHA rules recommended for rescission and 115 MIOSHA standards affected. As of March 31, 2014, the revisions to MIOSHA rules due to the ORR recommendations are 90 percent complete. To view the progress of revisions to MIOSHA rules and review the implementation strategies visit the MIOSHA Standards Revision Update Table found at **www.michigan.gov/mioshastandards** or contact the Michigan Department of Licensing and Regulatory Affairs (LARA), MIOSHA Standards Division at 517-322-1845.

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SECTION TWO – MIOSHA REGULATIONS

PART 1: COMMON REGULATIONS FOR SAFETY AND HEALTH

CHAPTER 13: Hazard Communication/Employee Right-To-Know

The revised MIOSHA Part 42, 92, & 430 Hazard Communication standard (HCS) is now aligned with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). This update to the Hazard Communication Standard (HCS) will provide a common and coherent approach to classifying chemicals and communicating hazard information on labels and safety data sheets, will improve the quality and consistency of hazard information in the workplace, making it safer for workers by providing easily understandable information on appropriate handling and safe use of hazardous chemicals. This update will also help reduce trade barriers and result in productivity improvements for American businesses that regularly handle, store, and use hazardous chemicals while providing cost savings for American businesses that periodically update safety data sheets and labels for chemicals covered under the hazard communication standard.

All Michigan employers are required to develop a hazard communication program if their employees are exposed to hazardous chemicals.

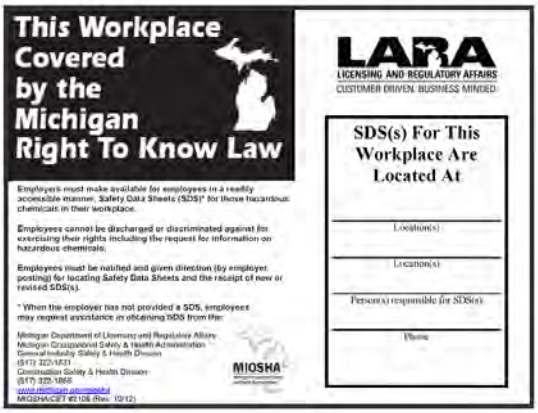
The standard does not apply to:

- Hazardous waste as defined in Chapter 2.4 (such as spent solvents).
- Articles (anything that during the course of its normal use does not have the potential to result in exposure of the employee to a hazardous substance; e.g., shipping containers and tools), food, drugs, or cosmetics intended for personal consumption by employees while in the workplace (29 CFR 1910.1200).

Product manufacturers are responsible for providing properly labeled containers. There are some federal acts with labeling requirements that supersede the labeling requirements of 29 CFR 1910.1200. If a product is subject to one of the following acts, the manufacturer must comply with that particular act's labeling requirements and not the hazard communication standard labeling requirements:

- Federal Insecticide, Fungicide, and Rodenticide Act
- Federal Food, Drug, and Cosmetic Act
- Federal Alcohol Administration Act
- Consumer Product Safety Act
- Federal Hazardous Substances Act
- Federal Seed Act
- Toxic Substances Control Act

Posters stating where safety data sheets are located and who is responsible for their maintenance must be placed in conspicuous locations accessible to all employees - "*Safety Data Sheet Location*" (CET #2105). Additionally, a poster must be conspicuously displayed within five working days of the receipt of a new or revised safety data sheet - "*New or Revised SDS*" (CET #2106). This poster must be displayed for not less than ten working days.



Both posters are typically displayed in areas of the work place where other federal and state required postings may be found.

MIOSHA has developed a handout summarizing the major changes to the Hazard Communication Standard. The MIOSHA Hazard Communication handout is available at **www.michigan.gov/ghs**. Also available on this Web site are the MTI HazCom & Right to Know Training Calendar and new Hazard Communication Employee Training Options, any of which can be used to meet the 12/01/13 training deadline in the revised standard.

Also available at **www.michigan.gov/ghs** are numerous resources and OSHA Tools included the following:

RESOURCES

- Hazard Communication Sample Plan (CET-5530)
- Hazard Communication - Aligning with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) (CET-5531)
- MIOSHA Standards Affected by the New GHS/Hazard Communication Standard (CET-5532)
- MIOSHA Regulated Area Signs Affected by the New GHS/Hazard Communication Standard (CET-5533)
- Revised 2012 Hazard Communication Standard FAQ's (CET-0186)
- Right to Know Hazard Communication Compliance Guide (SP-22)
- Safety Data Sheet (SDS) Location Poster (CET-2105)
- New/Revised Safety Data Sheet (SDS) Poster (CET-2106)

OSHA TOOLS

- Safety & Health Topics Page: Hazard Communication
- Labeling
- Safety Data Sheets

- Pictograms
- Quick Cards
- OSHA Wallet Card
- OSHA Brief - *Hazard Communication Standard: Labels & Pictograms*
- OSHA Fact Sheet - *Training Requirements for the Revised Hazard Communication Standard*
- Interim Guidance on Enforcement of the Revised Hazard Communication Standard
- OSHA Publication 3695 - *Hazard Communication: Small Entity Compliance Guide for Employers That Use Hazardous Chemicals*
- OSHA Publication FS-3696 - *Steps to an Effective Hazardous Communication Program for Employers that Use Hazardous Chemicals*
- *United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Publications*
  Note: OSHA and MIOSHA Hazard Communication Standards are based on GHS Revision 3.

SECTION TWO – MIOSHA REGULATIONS

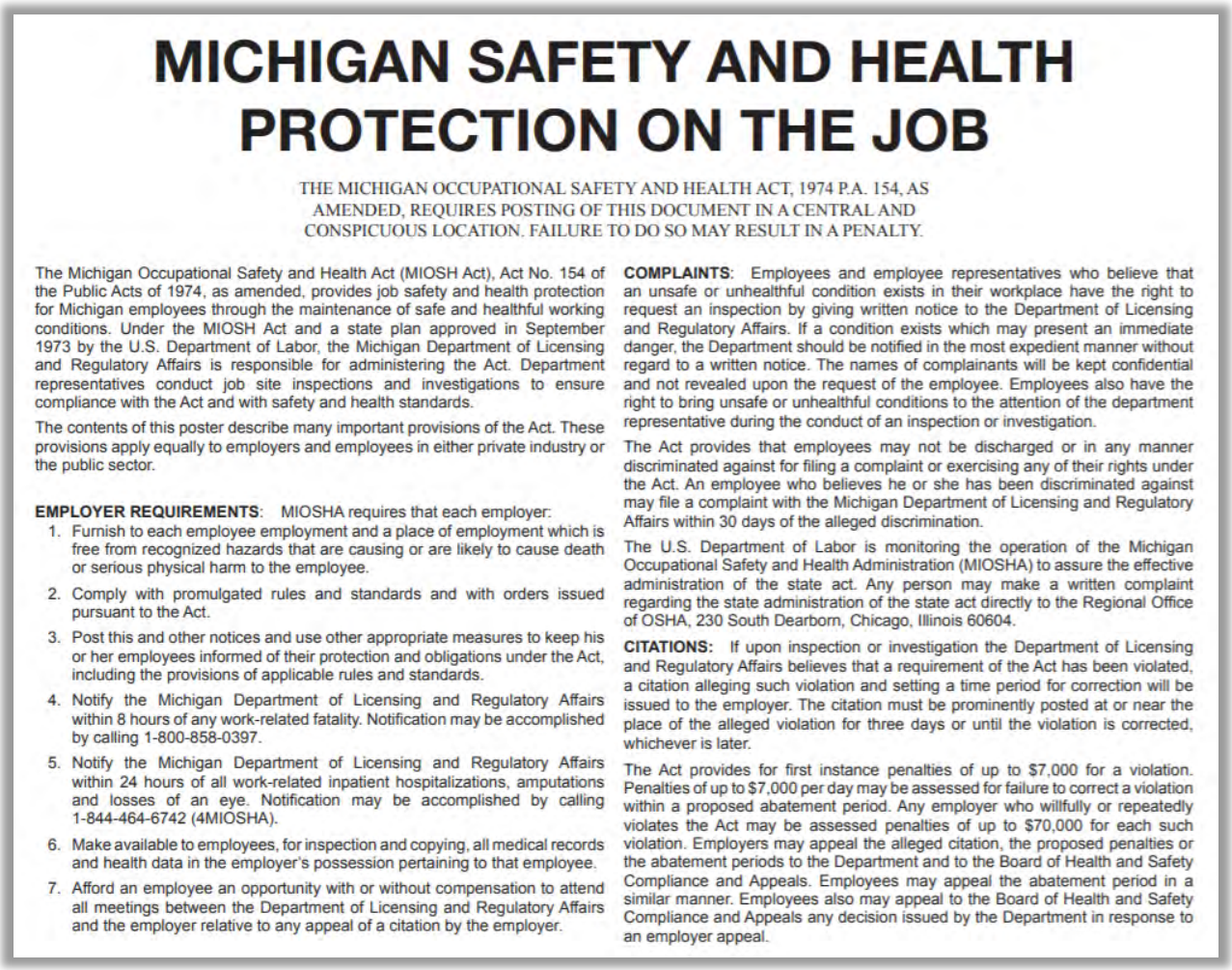
PART 1: COMMON REGULATIONS FOR SAFETY AND HEALTH

CHAPTER 14: MIOSHA Posting

The "*MIOSHA Administrative Rules - Part 13, Inspections and Investigations, Citations, and Proposed Penalties"* requires all Michigan employers to have a copy of the poster "*Michigan Safety and Health Protection on the Job*" (CET #2010) displayed in a conspicuous location. The poster must be located in an area accessible to all employees in the facility. More than one poster may be needed in larger facilities.

The poster may be ordered free of charge by calling the MIOSHA Consultation Education and Training Division at 517-284-7720.

Commonly, this poster is found in areas where employees regularly visit (e.g., break rooms, cafeterias, locker rooms) and areas where other federal and state required postings are found (e.g., employment of minors, minimum wage, etc.).



MICHIGAN SAFETY AND HEALTH PROTECTION ON THE JOB

THE MICHIGAN OCCUPATIONAL SAFETY AND HEALTH ACT, 1974 P.A. 154, AS AMENDED, REQUIRES POSTING OF THIS DOCUMENT IN A CENTRAL AND CONSPICUOUS LOCATION. FAILURE TO DO SO MAY RESULT IN A PENALTY.

The Michigan Occupational Safety and Health Act (MIOSH Act), Act No. 154 of the Public Acts of 1974, as amended, provides job safety and health protection for Michigan employees through the maintenance of safe and healthful working conditions. Under the MIOSH Act and a state plan approved in September 1973 by the U.S. Department of Labor, the Michigan Department of Licensing and Regulatory Affairs is responsible for administering the Act. Department representatives conduct job site inspections and investigations to ensure compliance with the Act and with safety and health standards.

The contents of this poster describe many important provisions of the Act. These provisions apply equally to employers and employees in either private industry or the public sector.

EMPLOYER REQUIREMENTS: MIOSHA requires that each employer:

1. Furnish to each employee employment and a place of employment which is free from recognized hazards that are causing or are likely to cause death or serious physical harm to the employee.
2. Comply with promulgated rules and standards and with orders issued pursuant to the Act.
3. Post this and other notices and use other appropriate measures to keep his or her employees informed of their protection and obligations under the Act, including the provisions of applicable rules and standards.
4. Notify the Michigan Department of Licensing and Regulatory Affairs within 8 hours of any work-related fatality. Notification may be accomplished by calling 1-800-858-0397.
5. Notify the Michigan Department of Licensing and Regulatory Affairs within 24 hours of all work-related inpatient hospitalizations, amputations and losses of an eye. Notification may be accomplished by calling 1-844-464-6742 (4MIOSHA).
6. Make available to employees, for inspection and copying, all medical records and health data in the employer's possession pertaining to that employee.
7. Afford an employee an opportunity with or without compensation to attend all meetings between the Department of Licensing and Regulatory Affairs and the employer relative to any appeal of a citation by the employer.

COMPLAINTS: Employees and employee representatives who believe that an unsafe or unhealthful condition exists in their workplace have the right to request an inspection by giving written notice to the Department of Licensing and Regulatory Affairs. If a condition exists which may present an immediate danger, the Department should be notified in the most expedient manner without regard to a written notice. The names of complainants will be kept confidential and not revealed upon the request of the employee. Employees also have the right to bring unsafe or unhealthful conditions to the attention of the department representative during the conduct of an inspection or investigation.

The Act provides that employees may not be discharged or in any manner discriminated against for filing a complaint or exercising any of their rights under the Act. An employee who believes he or she has been discriminated against may file a complaint with the Michigan Department of Licensing and Regulatory Affairs within 30 days of the alleged discrimination.

The U.S. Department of Labor is monitoring the operation of the Michigan Occupational Safety and Health Administration (MIOSHA) to assure the effective administration of the state act. Any person may make a written complaint regarding the state administration of the state act directly to the Regional Office of OSHA, 230 South Dearborn, Chicago, Illinois 60604.

CITATIONS: If upon inspection or investigation the Department of Licensing and Regulatory Affairs believes that a requirement of the Act has been violated, a citation alleging such violation and setting a time period for correction will be issued to the employer. The citation must be prominently posted at or near the place of the alleged violation for three days or until the violation is corrected, whichever is later.

The Act provides for first instance penalties of up to $7,000 for a violation. Penalties of up to $7,000 per day may be assessed for failure to correct a violation within a proposed abatement period. Any employer who willfully or repeatedly violates the Act may be assessed penalties of up to $70,000 for each such violation. Employers may appeal the alleged citation, the proposed penalties or the abatement periods to the Department and to the Board of Health and Safety Compliance and Appeals. Employees may appeal the abatement period in a similar manner. Employees also may appeal to the Board of Health and Safety Compliance and Appeals any decision issued by the Department in response to an employer appeal.

8. Give the representative of employees the opportunity to accompany the department during the inspection or investigation of a place of employment and to prohibit the suffering of any loss of wages or fringe benefits or discriminate against the representative of employees for time spent participating in the inspection, investigation, or opening and closing conferences.
9. Provide personal protective equipment, at the employer's expense, when it is specifically required by a MIOSHA standard.
10. Not permit an employee, other than an employee whose presence is necessary to avoid, correct or remove an imminent danger, to operate equipment or engage in a process which has been tagged by the Department and which is the subject of an order issued by the Department identifying that an imminent danger exists.
11. To promptly notify an employee who was or is being exposed to toxic materials or harmful physical agents in concentrations or at levels which exceed those prescribed by a MIOSHA standard.

EMPLOYEE REQUIREMENTS: MIOSHA requires that each employee:

1. Comply with promulgated rules and standards and with orders issued pursuant to the Act.
2. Not remove, displace, destroy, or carry off a safeguard furnished or provided for use in a place of employment, or interfere in any way with the use thereof by any other person.

INSPECTIONS/INVESTIGATIONS: Inspections and investigations are conducted by trained personnel. The Act requires that an employer representative and a representative of employees be given an opportunity to accompany the department representative for the purpose of aiding in the inspection or investigation.

If a representative of employees does not participate, the department representative will consult with a number of employees concerning matters of safety or health in the place of employment.

Criminal penalties also are provided for in the Act. A person who knowingly makes a false statement or report pursuant to the Act upon conviction is punishable by a fine of up to $10,000 or may be imprisoned for not more than 6 months or both. Any willful violation resulting in death of an employee, upon conviction, is punishable by a fine of up to $10,000 or by imprisonment for not more than one year or both. A second conviction doubles the maximum monetary penalty and is punishable by imprisonment for up to three years.

VOLUNTARY ACTIVITY & COMPLIANCE ASSISTANCE: The act encourages employers and employees to reduce workplace hazards voluntarily.

The Michigan Department of Licensing and Regulatory Affairs offers limited on-site consultation assistance to employers to assist them in achieving compliance with occupational safety and health standards. Training specialists are available and can give advice on the correction of hazardous conditions and on the development of safety and health systems. Department staff are available to conduct seminars and training relative to occupational safety and health for both employer and employee groups. Requests for service should be addressed to the department at the address shown below.

The U.S. Department of Labor will continue to enforce federal standards governing maritime operations of long shoring, shipbuilding, ship breaking and ship repairing. These issues are not covered by the Michigan Plan for Occupational Safety and Health.

MORE INFORMATION:

Department of Licensing and Regulatory Affairs
Michigan Occupational Safety & Health Administration
530 W. Allegan Street, Box 30643
Lansing, Michigan 48909-8143
www.michigan.gov/miosha

THIS IS AN IMPORTANT DOCUMENT - DO NOT COVER!

MIOSHA
Michigan Occupational Safety and Health Administration

MIOSHA Complaint Hotline..... 1-800-866-4674
Fatality Hotline 1-800-858-0397
MIOSHA Injuries/Illnesses Reporting..... 1-844-464-6742
Consultation and Training Assistance 1-517-284-7720

LARA
LICENSING AND REGULATORY AFFAIRS
CUSTOMER DRIVEN. BUSINESS MINDED.

The Department of Licensing and Regulatory Affairs will not discriminate against any individual or group because of race, sex, religion, age, national origin, color, marital status, disability, or political beliefs. If you need assistance with reading, writing, hearing, etc., under the Americans with Disabilities Act, you may make your need known to this agency.

MIOSHA/CET 2010 (9/15)

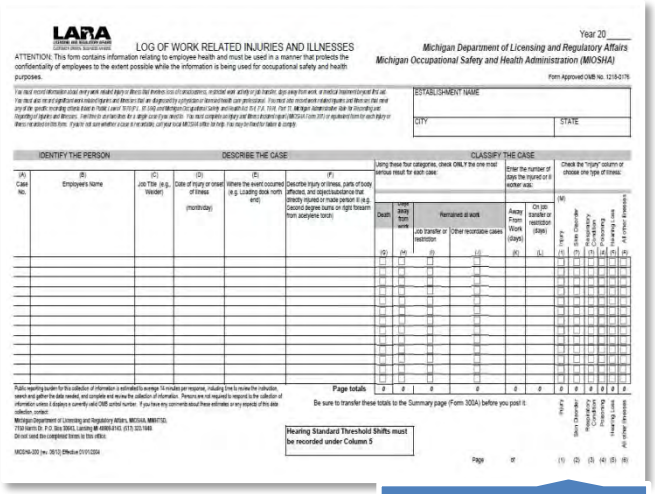
SECTION TWO – MIOSHA REGULATIONS

PART 1: COMMON REGULATIONS FOR SAFETY AND HEALTH

CHAPTER 15: MIOSHA Recordkeeping

15.1 Injury and Illness Record Keeping

If your facility employs ten or more persons at any given time during the calendar year, you are required to maintain a "*Log and Summary*" (MIOSHA 300) and "*Supplementary Record*" (MIOSHA 301) of occupational injuries and illnesses in the workplace beginning the following calendar year under the MIOSHA Administrative Rules - Part 11, Recording and Reporting of Occupational Injuries and Illnesses. If you have ten or fewer employees and are notified that you have been selected to participate in the annual survey, you will have to maintain records for the period of time identified. Employers in select Standard Industrial Classification (SIC) Codes are partially exempt from maintaining a log unless specifically asked to do so by MIOSHA. For a complete listing of partially exempt industries, please refer to Appendix A of the standard.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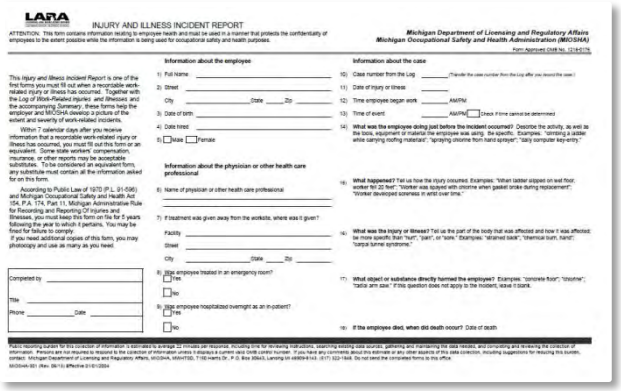
LOG OF WORK RELATED INJURIES AND ILLNESSES

Michigan Department of Licensing and Regulatory Affairs
Michigan Occupational Safety and Health Administration (MIOSHA)

MIOSHA 300

- **MIOSHA 300** is a single log of the occupational injuries and illnesses experienced by employees at your establishment.

- **MIOSHA 301** is a supplementary record to MIOSHA 300 and is required to supply additional information on all recordable injuries and illnesses.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INJURY AND ILLNESS INCIDENT REPORT

Michigan Department of Licensing and Regulatory Affairs
Michigan Occupational Safety and Health Administration (MIOSHA)

MIOSHA 301

An employer can use any other forms that contain the same information as the **MIOSHA 300** and **MIOSHA 301**. Computer software capable of generating a printout of the same information as the **MIOSHA 300** and **301** is acceptable (if the forms are equivalent).

The employer must post the "*MIOSHA Form 300A*," a summary of work related injuries and illness for the previous calendar year, no later than February 1 and keep it in place until April 30. Usually, the 300A Summary Log is posted near the "*Michigan Safety and Health Protection on the Job*" poster (CET 2010).

The log and summary must be established on a calendar year basis and retained and maintained for five years. The records must be made available for MIOSHA inspections and to any employee, former employee, or their representative.

Guidelines for distinguishing between medical treatment and first aid, and forms for injury and illness recordkeeping, may be obtained from the MIOSHA, Consultation Education and Training Division or Management Information Systems Section.

15.2 What Must Be Recorded

According to R 408.22109 (Rule 1109), each employer that is required to keep records of fatalities, injuries, and illnesses must record each fatality, injury, and illness that involves all of the following:

- Is work-related.
- Is a new case.
- Meets one or more of the general recording criteria of R 408.22112 or the application to specific cases of R 408.22113 through R 408.22120.

According to R 408.22112 (Rule 1112), employers must consider an injury or illness to meet the general recording criteria, and therefore be recordable, if it results in any of the following:

- Death
- Days away from work
- Restricted work or transfer to another job
- Medical treatment beyond first aid
- Loss of consciousness

You must also consider a case to meet the general recording criteria if it involves a significant injury or illness diagnosed by a physician or other licensed health care professional, even if it does not result in the above-listed criteria.

Determination of Work-Relatedness

According to R 408.22110 (Rule 1110), employers must consider an injury or illness to be work-related if an event or exposure in the work environment either caused or contributed to the resulting condition or significantly aggravate a pre-existing injury or illness. Work-relatedness is presumed for injuries and illnesses resulting from events or exposures occurring in the work environment unless an exception in Rule 1110(2)(b) specifically applies.

Travel Status

How do I decide whether an injury or illness is work-related if the employee is on travel status at the time the injury or illness occurs? Injuries and illnesses that occur while an employee is on travel status are work-related if, at the time of the injury or illness, the employee was engaged in work activities "in the interest of the employer." Examples of such activities include travel to and from customer contacts, conducting job tasks, and entertaining or being entertained to transact, discuss, or promote business (work-related entertainment includes only entertainment activities being engaged in at the direction of the employer).

Injuries or illnesses that occur when the employee is on travel status do not have to be recorded if they meet any of the exceptions listed below [Rule 1110(2)(f)].

R 408.22110(2)(f)	If the employee has:	You may use the following to determine if any injury or illness is work-related.
(i)	Checked in to a hotel or motel for one or more days.	When a traveling employee checks into a hotel, motel, or other temporary residence, he or she establishes a “home away from home.” You must evaluate the employee’s activities after he or she checks into the hotel, motel, or other temporary residence for his or her work-relatedness in the same manner as you evaluate the activities of a non-traveling employee. When the employee checks into the temporary residence, he or she is considered to have left the work environment. When the employee begins work each day, he or she re-enters the work environment. If the employee has established a “home away from home” and is reporting to a fixed work site each day, you also do not consider injuries or illnesses work-related if they occur while the employee is commuting between the temporary residence and the job location.
(ii)	Taken a detour for personal reasons.	Injuries or illnesses are not considered work-related if they occur while the employee is on a personal detour from a reasonably direct route of travel, that is, has taken a side trip for personal reasons.

Telling the Difference between Occupational Injuries and Illnesses

According to R 408.22107, occupational injury is a result of a work accident or from an exposure involving a single incident in the work environment and includes cases such as, but not limited to, a cut, fracture, sprain, or amputation. Occupational illnesses include both acute and chronic illnesses, such as, but not limited to, skin disease, respiratory disorder, or poisoning.

Note: Injuries and illnesses are recordable only if they are new, work-related cases that meet one or more of the recording criteria discussed earlier.

15.3 The Difference between First Aid and Medical Treatment

Medical treatment is the management and care of a patient to combat disease or disorder. For the purposes of MIOSHA record keeping and reporting of occupational injuries and illnesses, medical treatment does *not* include any of the following:

- Visits to a physician or other licensed health care professional solely for observation or counseling.
- Conducting diagnostic procedures, such as x-rays and blood tests, including the administration of prescription medications used solely for diagnostic purposes, e.g. drops to dilate pupils.

Though not applicable in every situation, the following examples could be considered under these categories:

- First Aid (one-time observation or treatment - can be professionally administered):
  - Use of eye patches
  - Tetanus immunization
  - Hot or cold therapy
- Medical Treatment (professional medical treatment):
  - Prescription and non-prescription medicine used at prescription strength
  - Physical therapy and chiropractic treatment
  - Sutures, staples, other wound-closing devices (e.g., glue)

15.4 Reporting Fatalities and Catastrophes

As an employer, you are required to notify the Michigan Department of Licensing and Regulatory Affairs, MIOSHA, within eight hours of a fatality or any in-patient hospitalization of three or more employees suffering an injury or illness from a single incident. MIOSHA Fatalities or Catastrophes: 1-800-858-0397.

15.5 Employee Medical Records and Trade Secrets

The MIOSHA General Industry Occupational Health Standards - Part 470, Employee Medical/Exposure Records (R 325.3451-3475) requires that all employee medical records be maintained for a minimum of 30 years after their last year of employment. These records include:

- Medical and employment questionnaires or histories, including job descriptions and occupational exposures.
- Results of replacement, periodic, or episodic medical examinations and laboratory tests, including x-ray examinations and all biological monitoring.
- Medical opinions, diagnoses, progress notes, and recommendations.

- Description of treatments and prescriptions, including first aid records.
- Employee medical complaints.
- Death certificates.

Generally, employee exposure records must be maintained for not less than 30 years. Specific exceptions are noted in the standard. Employee exposure records include:

- Work place environmental monitoring or measuring, including personal, area, grab, wipe, or other forms of sampling, and related collection and analytical methodologies, calculations, and other background data relevant to the interpretation of the results obtained.
- Biological monitoring results that directly assess the absorption of a substance or agent by body systems, such as the level of a chemical in the blood, urine, breath, hair, or fingernails, but not including results that assess the biological effect of a substance or agent.
- Safety data sheets.
- In the absence of information identified in the three above, any other record, such as chemical, common, or trade name, that reveals the identity of a toxic substance or harmful physical agent.

Records can be kept in any location that is accessible within 15 working days or less of request for such information. Please refer to the rules for further information pertaining to recordkeeping access and trade secrets.

SECTION TWO – MIOSHA REGULATIONS

PART 1: COMMON REGULATIONS FOR SAFETY AND HEALTH

CHAPTER 16: Personal Protective Equipment

When you are unable to eliminate a work place hazard through engineering changes or safeguarding, MIOSHA requires that you provide personal protective equipment (PPE) to employees who have the potential of being exposed to hazards. Equipment must be provided at no expense to employees when specified by a MIOSHA standard. Employers must also replace equipment when needed due to wear and tear or when the equipment is lost due to the work environment.

Rules specifying when and the types of personal protective equipment needed are included in both MIOSHA health and safety rules. The "*MIOSHA General Industry Safety Standards – Part 33, Personal Protective Equipment*" and the "*MIOSHA General Industry Occupational Health Standards – Part 433, Personal Protective Equipment (R 325.60001-600011)*' may be ordered from the Michigan Department of Licensing and Regulatory Affairs, MIOSHA. OSHA revised federal regulations 1910.140 "Personal fall protection systems." Therefore, MIOSHA amended **GI Part 33 Personal Protective Equipment** to be as effective as the revised regulations by adding 1910.140 Personal fall protection systems.

16.1 Hazard Assessment

As an employer, you must assess your work place to determine if there are hazards present that make the use of personal protective equipment necessary. If hazards are present or likely to be present, then the employer must do ALL of the following:

- Select and have employees use the types of PPE required to protect them from the hazards identified.
- Inform each affected employee about the decisions regarding selection of PPE.
- Select the PPE that properly fits each employee.

You must *certify in writing* that the hazard assessment was completed by creating a written document to serve as certification of the hazard assessment and provide the following information:

- The work place evaluated (i.e., name and address of your business).
- The person certifying that the evaluation has been performed.
- The date of the hazard assessment.

You can download guidance materials for this standard at the following Web site **www.michigan.gov/miosha** (select "Publications, Forms & Media" then "General Industry Safety Publications").

16.2 Training

It is not enough to just provide your employees with personal protective equipment. You must also train all employees who use personal protective equipment in the following:

- When and why PPE is necessary.
- The type of PPE necessary to fit the job duty.
- How to correctly put on, take off, adjust, and wear needed PPE.
- The limitations of the equipment.
- The useful life of the equipment, as well as the proper care, maintenance, and disposal of the equipment.

Before allowing employees to use personal protective equipment they must be trained on all of the above. Be sure they can show you they understand how to put on and use the equipment and that they understand proper use, care, and limitations of the PPE.

16.2.1 Retraining

Retrain your employees any time you believe an employee is not knowledgeable or does not have the skill or understanding needed to use the personal protective equipment. Also, retrain if any of the following occurs:

- Changes in the work place that make previous training outdated.
- Changes in the types of PPE used, thereby making previous training outdated.
- When an affected employee's knowledge or use of assigned PPE appears to indicate the employee has not retained the understanding or skills necessary.

Maintain written certification of employee training by including:

- Name of each employee trained.
- Date(s) of training.
- Subjects covered by the training.

16.3 Face and Eye Protection

Manufacturing industry employees may require face and eye protection based on the duties assigned to them. Generally, face and eye protection must be provided to employees if hazards exist due to the following exposures:

- Flying objects or particles
- Molten metal
- Liquid chemicals
- Acids or caustic liquids
- Chemical gases or vapors
- Glare
- Injurious radiation
- Electrical flash
- Any combination of the above hazards

16.3.1 Face and Eye Protector Selection

MIOSHA General Industry Safety Standards – Part 33, Personal Protective Equipment, contains guidance for selecting the appropriate protective equipment.
When selecting eye protection, consider the following requirements:

- If there is a hazard from flying objects, side shields are required.
- Hardened or plastic contact lenses meeting the Federal Food and Drug Administration standard are not considered eye protection in occupational settings. They are manufactured to lesser strength and other specifications than those manufactured to American National Standards Institute (ANSI) standard specifications.

Face or eye protection must also meet the following minimum requirements:

- Provide protection against the hazards for which it is designed.
- Fit snugly and not unduly interfere with the employee's movements.
- Capable of withstanding sanitizing.
- Marked distinctly to identify the manufacturer.

16.3.2 Maintenance of Face and Eye Protection

All face and eye protectors must be kept clean and in good repair. Cleaning facilities for the protectors must be kept away from the hazard, but readily accessible to the wearer.

Replace headbands of goggles and shields when they become slack, worn out, sweat-soaked, knotted, or twisted.

A face or eye protector is for individual use only; if it is necessary to reissue a face or eye protector, it must be thoroughly cleaned, sanitized, and in good condition.

16.4 Foot Protection

If there is a potential for foot injuries due to falling or rolling objects or a danger of objects piercing the sole of the shoe, employees must wear protective footwear.

If you have a process that could create a hazard due to absorption or physical contact by the feet, then footwear such as boots, overshoes, rubbers, wooden-soled shoes, or their equivalent must be used.

16.5 Hand Protection

In general, provide employees with hand protection if they are exposed to any of the following hazards:

- Skin absorption of harmful substances
- Severe cuts or lacerations
- Severe abrasions
- Punctures
- Chemical burns
- Thermal burns
- Harmful temperature extremes

Consider the following when selecting hand protection for use in your establishment:

- The task to be performed.
- Conditions present.
- Duration of use.
- The hazards and potential hazards identified. Frequent skin contact with solvents is the most likely cause of dermatitis in the manufacturing industry.
- The interior of the hand protection must be kept free of corrosive or irritating substances.
- Hand protection must be sanitized before being reissued.

Examples of the types of hazards that require hand protection by employees of manufacturing establishments include the need for gloves during part cleaning operations by maintenance personnel. Always consult your material safety data sheets to see if the products you are using require glove usage.

> **CAUTION!** Supervise and train all employees to NEVER wear gloves if they have any possibility of coming into contact with inrunning pinch points, rotating parts, or are working around automated equipment. If the above hazards to the hands are present and employees must work around moving parts, then the physical hazards must be guarded. Also train them on these safe work practices:
>
> ✓ Wear short-sleeve shirts or roll up long sleeves.
> ✓ Remove jewelry before beginning work.
> ✓ Never override an engineering control or operate a machine with a guard removed.
> ✓ Secure and restrain long hair.

16.6 Respiratory Protection

The MIOSHA General Industry Occupational Health Standard – Part 451, Respiratory Protection (R 325.60051 and 29 CFR 1910.134) applies to all employers whose employees are required to wear respirators for protection against overexposure to air contaminants or in emergency situations. The standard requires the employer to establish and maintain an effective respirator program:

- Develop a worksite specific written program discussing selection, issuance, use, and care of respirators. The program should include a hazard assessment and it should identify the program administrator's responsibilities.
- Train employees in the proper use and limitations of respirators. Often employees use inappropriate protection because they have not been informed of the limitations of the equipment. For example, if disposable dust masks are made available to employees, it must be stressed that these respirators are useless for any of the various solvents found throughout the facility.
- Ensure that all respirators used in the work place, whether supplied by the employer or the employee (for personal use), are approved or accepted by the National Institute for Occupational Safety and Health.
- Provide annual fit testing, not to be confused with a fit check, to all employees who are required to wear negative or positive pressure respirators which rely upon a tight fitting face piece to face seal.

Medical surveillance of employees required to wear respiratory protection is required to ensure they are physically capable of wearing the device.

Special provisions apply if you have air-supplied respirators (air line or self-contained breathing apparatus) to ensure function of the equipment and quality of the air supplied. This regulation also addresses the use of respirators for emergencies.

Additionally, all employees who wear respirators that have a tight-fitting face piece, meaning the respirator contacts the surface of the skin, must not let anything (i.e., facial hair such as beards and long goatees, sideburns and mustaches, skullcaps and temple pieces on eyeglasses) interfere with the sealing surface of the respirator! You are strongly encouraged to include and enforce a policy which addresses this issue in your respirator program when these types of respirators are used in the workplace.

Copies of materials that help employers develop written respirator programs and train employees may be obtained from the MIOSHA, Consultation Education and Training Division. **DVD's** (for generic training of employees in the use and limitations of respirators) can be borrowed from the Safety & Health DVD/Video Library Service.

SECTION TWO – MIOSHA REGULATIONS

PART 1: COMMON REGULATIONS FOR SAFETY AND HEALTH

CHAPTER 17: Process Safety Management of Highly Hazardous Chemicals

The MIOSHA General Industry Safety Standards - Part 91, Process Safety Management of Highly Hazardous Chemicals and General Industry Occupational Health Standards - Part 591 (R325.18301-18302), adopted by reference the federal standards 29 CFR 1910.119 and 1910.109.

This standard contains requirements for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals. These releases may result in toxic, fire, or explosive hazards. The standard applies to all work places with processes involving Highly Hazardous chemicals at or above specified threshold quantities. Regulated employers include manufacturers of bulk and specialty chemicals, solvent based paints and coatings, adhesives, pharmaceuticals, pulp and paper processors, agricultural chemicals, and public water treatment facilities. The standard also applies when keeping, having, storing, manufacturing, selling, transporting, and using explosives, blasting agents, and pyrotechnics. These rules do not apply to the sale and use (public display) of pyrotechnics, commonly known as fire works, or to the use of explosives in the form prescribed in the official United States pharmacopoeia. Compliance with the standard typically requires the involvement of specially trained Industrial Hygienists, Safety Professionals or Professional Engineers. Contact MIOSHA Consultation Education & Training division for assistance at 517-284-7720.

17.1 Elements of Process Safety Management

There are 14 principal elements to this standard:

- Employee participation
- Mechanical integrity
- Process safety information
- Hot work permit
- Process hazard analysis
- Management of change
- Operating procedures
- Incident investigation
- Training
- Emergency planning and response
- Contractors' obligations
- Compliance audits
- Pre-start-up safety review
- Trade secrets

For more information about the Process Safety Management of Highly Hazardous Chemicals, contact the MIOSHA at 517-284-7720.

SECTION TWO – MIOSHA REGULATIONS

PART 1: COMMON REGULATIONS FOR SAFETY AND HEALTH

CHAPTER 18: Permit-Required Confined Spaces

The MIOSHA General Industry Safety Standards - Part 90, Permit-Required Confined Spaces and General Industry Occupational Health Standards - Part 490 (R 325.63001) provide rules that establish minimum requirements for the practices and procedures to protect employees from the hazards associated with entry into permit-required confined spaces. These rules do not apply to agriculture, construction, and shipyard employment.

The standard requires the employer to:

a. Evaluate the workplace to determine if it contains any permit-required confined spaces (PRCS).

b. If PRCSs are found, the employer must inform employees of the existence, location, and danger posed by these spaces. Place "**Danger Confined Space**" stickers at these locations.

c. If employees are not to enter PRCSs, the employer must take steps to prevent entry (i.e., postings, locks, etc.).

d. If employees will enter PRCSs, the employer must develop and implement a written permit space entry program that complies with the standard. Persons acting as entrants, attendants, and entry supervisors must be trained according to the standard.

A confined space meets all of the following criteria:

a. It is large enough and so configured that an employee can bodily enter and perform assigned work.

b. It has limited or restricted means for entry or exit (i.e., tanks, vessels, silos, storage bins, hoppers, vaults, pits, etc.).

c. It is not designed for continuous human occupancy.

A PRCS has one, or more, of the following characteristics:

a. It contains or *has a potential to contain* a hazardous atmosphere.

b. It contains a material that has the potential for engulfing the entrant (i.e., liquids, grain, sand, coal, etc.).

c. It has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or a floor which slopes downward and tapers to a smaller cross-section.

d. It contains any other recognized serious safety or health hazard.

Entry into PRCSs may be undertaken by (1) following a complete permit entry program, (2) using alternate entry procedures, or (3) declassifying to a non-permit space.

Permit Entry - If atmospheric, engulfment, and/or mechanical hazards in the PRCS cannot be eliminated and/or controlled prior to entry, a complete permit entry program must be followed. Refer to the standard for a complete description of a permit entry program. I

Alternate Entry - f the only hazard in the space is an actual or potential atmospheric hazard that can be controlled through continuous forced air ventilation, the alternate entry procedures can be used. The employer must certify alternate entry conditions in writing.

De-classified - A PRCS can be reclassified as a non-permit space only if the employer certifies in writing that all hazards in the space are eliminated without entering the space. Such a space is considered reclassified as a non-permit space until such time as the conditions change or hazards are introduced into the space.

If you have confined spaces, we strongly encourage you to obtain a copy of the standard and evaluate the spaces to determine if they are PRCSs. If you need assistance, contact the MIOSHA Consultation Education & Training Division 517-284-7720.

SECTION TWO – MIOSHA REGULATIONS

PART 1: COMMON REGULATIONS FOR SAFETY AND HEALTH

CHAPTER 19: Spray Finishing Operations

The MIOSHA General Industry Safety Standard - Part 76, Spray Finishing using Flammable and Combustible Materials was amended January 17, 2014. These rules protect Michigan employees from health and safety hazards in the workplace when spray finishing using flammable and combustible materials. On March 26, 2012 the Occupational Safety and Health Administration (OSHA), in the U.S. Department of Labor, revised the Spray Finishing Using Flammable and Combustible Materials for general industry (29 C.F.R. §1910.107), and on September 9, 2009 revised Ventilation for Occupational Safety and Health Standards (29 C.F.R. §1910.94).

The revised R 408.17601 adopts by reference the current version of 29 C.F.R. §1910.107 and 29 C.F.R. §1910.94, in order to be as effective as the Federal OSHA standards. GI Part 76 provides specifications for spray finishing operations. These rules also cover the application of combustible powders by spray guns, electrostatic powder spray guns, fluidized beds, or electrostatic fluidized beds. These rules do ***not*** apply to outdoor spray application or buildings, tanks, or other similar structures or to small portable spraying apparatus that is not used repeatedly in the same location. The intent of the standard is to prevent fire or explosion caused by unintentionally igniting flammable or combustible sprayed materials.

As an employer, you must provide training to each assigned employee regarding the operation, maintenance, hazards, and safeguards of the job covered by these rules.

Smoking must be prohibited and "**No Smoking**" signs must be posted in the vicinity of all areas related to spray finishing and dip tanks. The smoking restriction must extend 20 feet from the area.

These rules define spray finishing operations, maintenance of spray finishing areas, design and construction of spray booths/rooms, and ventilation requirements. Copies of the Strike Bold Draft and the Revised Standard are available on the MIOSHA Standards website and below:

- GI Part 76 Spray Finishing Using Flammable and Combustible Materials Strike Bold Draft
- GI Part 76 Spray Finishing Using Flammable and Combustible Materials Standard

Some of the highlights of the rules are as follow:

19.1 Design and Use

- Spraying must be conducted in a designated spraying area.
- All spraying areas must be maintained so that the build-up of deposits of combustible residues does not create a hazard.
- Tools that are used for cleaning purposes must be made of non-sparking material.

- Solvents used for cleaning must have flashpoints greater than 100 degrees Fahrenheit, unless they are used for cleaning nozzles and auxiliary equipment inside of the spray booth with the ventilation equipment operating.
- Spray booths must be constructed of noncombustible materials.
- The interior surfaces of spray booths must be smooth and continuous without edges to prevent the build-up of residues and to make cleaning easier.
- When spraying areas are illuminated through glass panels or other transparent materials, only fixed lighting units can be used as a source of illumination. Panels must be made of a noncombustible material which will not break, causing a hazardous condition.
- A clear space of not less than three feet on all sides of a spray booth must be kept free from storage of combustible material.
- A closed container, an approved portable tank, an approved safety can, or properly arranged system of piping must be used for bringing flammable or combustible liquids into a spray finishing room.
- When flammable or combustible liquids are transferred from one container to another, both containers must be bonded and grounded to prevent discharge sparks of static electricity.
- No electrical equipment is allowed in any spraying area, unless it is specifically approved for those locations.
- Portable electric lamps may not be used in any spraying area during spraying operations.
- All areas used for spraying, including the interior of the booth, need to be protected by automatic sprinklers where this protection is available. Where not available, other automatic extinguishing equipment shall be provided.

19.2 Ventilation

- Ventilation systems to remove flammable vapors and confine overspray residue to the spray area must be provided and used. The spraying operations must be designed, installed, and maintained so that the average air velocity over the open face of the booth is not less than 100 linear feet per minute.
- Visible gauges, audible alarms, or pressure activated devices must be installed to indicate or ensure that the required air velocity is maintained.
- Clean fresh make-up air must be supplied to a spray booth/room in quantities equal to the volume of air exhausted through the spray booth/room.
- In areas where the outdoor temperature may be expected to remain below 55 degrees Fahrenheit for extended periods of time, the make-up air must be heated, except where adequate and safe means of radiant heating for all operating personnel affected is provided.
- If the make-up air is filtered, a pressure gauge must be installed to show the pressure drop across the filters. This gauge must be marked to show the pressure drop at which the filters require cleaning or replacement.
- The spray system shall be interlocked with the ventilation system.

Refer to Chapter 34: Flammable and Combustible Liquids for more information on the proper storage and handling of these types of materials. If you require employees to wear respirators while working in spray finishing operation, please refer to Chapter 16.7 "Respiratory Protection."

Michigan Guide to Environmental, Health, and Safety Regulations

Part 2

MIOSHA Health Regulations
Chapters 20 - 26

MIOSHA
Michigan Occupational Safety and Health Administration

SECTION TWO – MIOSHA REGULATIONS

PART 2: MIOSHA HEALTH REGULATIONS

In 2012, the Office of Regulatory Reinvention (ORR) completed its review of workplace safety and health regulations to identify and eliminate rules that went above Federal OSHA, were obsolete, unnecessary, and over burdensome. The goal was NOT to eliminate any rules that would jeopardize employee health and safety. There were 611 MIOSHA rules recommended for rescission and 115 MIOSHA standards affected. The revisions to MIOSHA rules due to the ORR recommendations are 100 percent complete. To view the progress of revisions to MIOSHA rules and review the implementation strategies visit the MIOSHA Standards Revision Update Table found at **www.michigan.gov/mioshastandards.** For more information contact the Michigan Department of Licensing and Regulatory Affairs (LARA), MIOSHA Standards Division at 517-284-7790.

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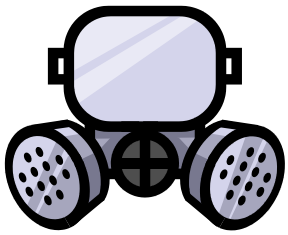
CHAPTER 20: Air Contaminants



The MIOSHA General Industry Occupational Health Standards- Part 301, Air Contaminant Rules (R 325.51101-51108) are administered by the Michigan Department of Licensing and Regulatory Affairs, MIOSHA. The air contaminant rules set permissible exposure limits for approximately 600 substances. MIOSHA permissible exposure limits (i.e., PEL's) may or may not be the same as federal OSHA's, Michigan's PELs must be equal to or more stringent than federal OSHA's. Permissible exposure limits set by these rules include:

- The time-weighted average (TWA) represents the employee's average airborne exposure in any eight-hour work shift of any 40-hour work week which shall not be exceeded.
- The short-term exposure limit (STEL) represents the employee's 15-minute TWA exposure which shall not be exceeded at any time during a work day unless another time limit is specified for the contaminant.
- A ceiling limit is the employee's exposure which shall not be exceeded during any part of the work day. If instantaneous monitoring is not feasible, the ceiling shall be assessed as a 15-minute, TWA exposure which shall not be exceeded during any part of the work day.

Permissible exposure limits for some commonly used chemicals.

Chemical	TWA	STEL
Acetone	750 ppm	1,000 ppm
2-butoxylethanol	25 ppm	
Toluene	100 ppm	150 ppm
1,1,1-Trichloroethane	350 ppm	450 ppm
Xylene	100 ppm	150 ppm

20.1 Employee Exposure

As an employer who uses hazardous chemicals in the workplace, you should evaluate your employees' potential exposure to these chemicals. Key elements of a hazard evaluation will provide you with the knowledge to determine which materials must be monitored for exposure purposes. (This evaluation may be coordinated with your facility's pollution prevention efforts.) Steps that should be considered in the evaluation include:

- Determining the physical, chemical, and toxicological properties of the hazardous material.
- Quantifying the amount of product that is used and the rate at which gases or vapors are generated.
- Determining the length of exposure.
- Considering the decomposition of products and other types of hazards such as skin absorption or ingestion.
- Evaluating the location of the hazard and existing engineering controls.
- Seasonal considerations. Volatile compounds will produce more vapors as the temperature of the work place increases during summer months. Dilution ventilation during cold months typically decreases as buildings are closed up to minimize heat loss.

20.2 Monitoring

The best method of evaluating your employee exposure to hazardous chemicals is achieved by conducting personal monitoring. Personal monitoring means the sample is collected as close as possible to the exposed employee's breathing zone.

Area monitoring (collecting the sample from an area of the plant where employees are exposed to hazardous chemicals) can be conducted in some circumstances to provide general information pertaining to the likelihood of overexposure of employees to regulated permissible exposure limits. However, area monitoring can produce inaccurate results if the sample is not collected from a proper location.

Monitoring of air contaminants can be conducted in a variety of ways. These include:

- Use of direct reading instruments which provides instantaneous or continuous analytical results.
- Use of personal monitoring devices which are either passive or active. Active devices utilize a pump to draw air through some type of collection media. The collection media is then sent to a laboratory for analysis. There are specific, recognized procedures for collection and analysis of air contaminants which must be followed to ensure reporting of accurate results.
- Use of detector tubes, which are a type of passive or active monitoring device, provides inexpensive, quick, and relatively accurate analysis of contaminant levels in the work place.

The MIOSHA, Consultation Education and Training Division (517-284-7720), provides professional on-site assistance, free of charge, to aid employers in evaluating employee exposure to air contaminants.

20.3 Engineering Controls

When employee exposures to an air contaminant exceed the permissible exposure limit, without regard to the use of respiratory protection, the employer must institute available and feasible (i.e., economically, structurally, etc.) engineering controls to reduce exposures below the permissible exposure limit. If exposures cannot be reduced below the permissible exposure limit, engineering controls, in conjunction with personal protective equipment, shall be used to attain the lowest exposure levels feasible. Types of engineering controls may include:

- Bringing in large volumes of fresh air to dilute the concentrations of hazardous material, referred to as dilution ventilation.
- Use of local exhaust ventilation to capture and remove the hazardous material at its point of emission or source. Use of filters, cyclones, absorbents, and scrubbers may be necessary components of such a ventilation system. These are used to capture the contaminant in the exhausted air prior to venting the air to the outdoor environment or recirculating some or all of the air back into the work place.
- Construct an enclosure around the employee or the process that uses the hazardous material.

Contact the Michigan Department of Environmental Quality, Clean Air Assistance Program, at 800-662-9278, prior to exhausting air to the outdoor environment. Permits may be required (see Chapter 1.1).

Additionally, consult "*MIOSHA General Industry Occupational Health Standards – Part 520, Ventilation Control (R 325.52011)*" prior to recirculating any air from exhaust systems back into the work place.

20.4 Administrative Controls and Personal Protective Equipment

If engineering controls do not reduce the exposures below the permissible exposure limit, you must rely on administrative controls and personal protective equipment to reduce exposures. Administrative controls are work practices or policies instituted by the employer to reduce employee exposure to air contaminants. Many of the water and air pollution prevention strategies addressed in previous chapters are also effective controls for your employees' exposures to workplace contaminants.

The last line of defense against airborne contaminants is personal protective equipment (see Chapter 16). This control measure is not considered as effective as engineering controls because the hazard still exists and you are relying on the employee to properly use the personal protective equipment to prevent exposure. Types of personal protective equipment include respirators, hearing protection, and chemical protective clothing. Personal protective equipment should only be used to control exposures to contaminants (including noise):

- When engineering or administrative controls are not available or feasible (or, if these controls are installed but are not enough to reduce exposures below the personal exposure limit).
- During the time period that engineering controls are being installed.
- During emergencies.

Air Contaminants Initiative

Hazardous chemicals (e.g. air contaminants) are present in almost every work environment. These contaminants can have a profound negative effect on the health of workers which may reduce productivity and the profitability of a business. A great resource has been developed to assist employers and employees in identifying air contaminants present in the work environment and determining the best way to anticipate, evaluate, control or eliminate those hazards. It can be found at www.michigan.gov/miosha under "MIOSHA Initiatives."

The following Frequently Asked Questions are answered at the above reference site:

- Which air contaminants are covered by MIOSHA rules?
- Where can I obtain more information related to specific air contaminants?
- Are there training sessions or materials available?
- Are there any case studies, success stories or emerging issues related to air contaminants?
- Where can I find additional resources to assist in identifying, evaluating and controlling air contaminants?
- Does MIOSHA have occupational health consultants who can assist me?

SECTION TWO – MIOSHA REGULATIONS

PART 2: MIOSHA HEALTH REGULATIONS

CHAPTER 21: Asbestos

The Construction Safety & Health Division's Asbestos Program was initiated in September 1986. The Asbestos Program is responsible for enforcement of the Asbestos Abatement Contractors Licensing Act, the Asbestos Workers Accreditation Act, and for meeting the state of Michigan's responsibilities under the U.S. Environmental Protection Agency's (U.S. EPA's) Asbestos Hazard Emergency Response Act (AHERA). The program also enforces asbestos issues related to the Michigan Occupational Safety and Health Act (MIOSHA). The primary function of the program is to assure that people working with asbestos are properly trained and that individuals performing asbestos abatement comply with rules governing the work activity. These rules are designed to protect not only the individual employee performing asbestos abatement work, but also the general public that occupy the area or building in which the work occurs.

21.1 Why Regulate Asbestos

Asbestos is a mineral that has been used in more than 3,000 different products over the last 100 years for its insulating, acoustical and fire protective properties. Common products that contain asbestos are pipe insulation, floor and ceiling tile, spray-on insulation, boiler wrap insulation, and electrical appliances such as your toaster and hair dryer. Asbestos-containing materials are frequently encountered in a wide range of environments, including but not limited to, industrial and commercial facilities, schools and universities, and residential properties.

Asbestos is actually the name of a group of minerals that share similar chemical and physical properties. The most common of these minerals are *Chrysotile*, *Amosite*, and *Crocidolite*. The primary characteristic that makes asbestos a reason for concern is its ability to separate into microscopic needle-like fibers. Once these fibers become airborne (usually by disturbing the product in which they are contained), they are easily inhaled into the lungs. Once in the lungs, these needle-like fibers can penetrate the lung tissue and the lining that holds the lung in place (pleura). This begins the process that can eventually lead to one of the three commonly associated diseases of asbestos:

- *Asbestosis:* A scarring and hardening of the lung tissue
- *Lung cancer:* Malignant tumor of the lung tissue
- *Mesothelioma:* A scarring or malignant tumor of the lung lining

All of these diseases can lead to death. Exposure to asbestos is also associated with increased incidences of gastrointestinal cancer. Further, epidemiological studies indicate that the risk of lung cancer among exposed workers who smoke cigarettes is greatly increased over the risk of

lung cancer among non-exposed smokers or exposed nonsmokers. Therefore, *smoking among asbestos workers is strongly discouraged*.

The key to preventing occupational illnesses/diseases involving asbestos is to initially recognize products that may contain asbestos and assure that employees are properly trained, protected and equipped to work with these products in a safe manner. Contact the Asbestos Program at 517-284-7680 or go to **www.michigan.gov/asbestos**.

21.2 Who Is Exposed

Nationwide, an estimated 1.3 million employees in construction and general industry potentially face significant asbestos exposure on the job. Heaviest exposures occur in the construction industry, particularly during building renovation or demolition activities where asbestos is disturbed or removed. Employees may also be exposed during custodial/maintenance activities in a building containing asbestos, during the manufacture of asbestos products (such as textiles, friction products, insulation, and other building materials) and during automotive brake and clutch repair work.

21.2.1 Employer's Responsibilities

If your work involves asbestos-containing materials, it is important to recognize an employer's responsibilities under the Michigan Occupational Safety and Health Act (MIOSHA) concerning exposure monitoring, regulated areas, engineering controls and work practices, respiratory protection, protective clothing, hygiene facilities for employees, communication of the hazards associated with asbestos in construction activities, housekeeping, medical exams, and record keeping.

Pursuant to Part 305, the Asbestos for General Industry Standard, section (j)(3)(iii), '…employers shall inform employees who will perform housekeeping activities in areas which contain ACM and/or PACM of the presence and location of ACM and or PACM…' Section (j)(7)(iv) also requires an employer to provide asbestos awareness training to the custodial and/or janitorial staff. Asbestos awareness training assists custodial and janitorial staff in identifying asbestos-containing material (ACM) and/or presumed asbestos-containing material (PACM) and in understanding the information contained within the survey. Asbestos awareness training helps ensure that employees do not inadvertently disturb asbestos-containing materials. It also addresses requirements under the standard pertaining to housekeeping activities.

21.2.2 Building Owner's Responsibilities

Building owners often are the only or best sources of information concerning asbestos hazards within their building(s). Therefore, they, along with employees, are assigned specific conveying and retention duties under the asbestos regulations. To comply with these regulations, a thorough asbestos inspection must be conducted of all pre-1981 building facilities. This survey must identify the presence, location, and quantity of ACM/PACM within the building.

If the building owner does not have a survey, the building owner should contact an environmental consulting firm that has Michigan accredited asbestos building inspectors to conduct an asbestos building survey.

If an employer leases space and the building owner does not have a survey, an option for the employer would be to hire an accredited asbestos inspector to conduct an asbestos survey of the leased area. This limited survey will help ensure the safety and health of employees in the leased area. It is important to recognize, however, that the building owner is legally obligated to complete a comprehensive building survey for all asbestos materials in the building.

The information obtained from a comprehensive asbestos building survey will assist a building owner in fulfilling their notification obligations pertaining to construction and maintenance work activities [i.e., Part 602, (Asbestos Standards for Construction) 29 CFR 1926.1101 (k)(2)(ii)] and also to building housekeeping personnel [i.e., Part 305, 29 CFR 1926.1001 (j)(3)(i)].
In summaries, a building owner must:

- ✓ Have building surveyed by an accredited inspector.
- ✓ Maintain ACM in a safe manner.
- ✓ Have all employees appropriately trained.
- ✓ Notify all contractors or parties who may contact or be exposed to ACM at their facility.

21.3 General Requirements

The Asbestos Program is responsible for the enforcement of most Michigan asbestos regulations. The Asbestos Program has the following six (6) major areas of responsibility:

21.3.1 Approval of Asbestos Training Courses

In order for individuals performing asbestos-related work to become accredited, they must successfully complete a designated training course that is recognized or approved by the U.S. EPA or the Asbestos Program. For the 32-hour asbestos abatement worker, 40-hour contractor/supervisor, 24-hour project designer, 24-hour inspector and 16-hour management planner courses, Michigan course sponsors must submit an application and other specified materials to the Asbestos Program and receive approval before the course may be taught in Michigan. Specifically, course sponsors must submit all course materials, instructors' credentials, and a completed application form with the appropriate fee. When a course sponsor has satisfied Michigan's minimum requirements, it receives "*Contingent Course Approval*" and is able to provide asbestos-related training within the state of Michigan. Each sponsor must then pass an on-site review of their course before receiving "*Full Course Approval*."

21.3.2 Accreditation of Workers

Asbestos abatement workers, supervisors, project designers, inspectors and management planners must successfully complete the appropriate initial or refresher training requirements and become accredited before working in Michigan. Individuals who work as abatement workers, supervisors, project designers, building inspectors, or management planners must submit proof that they have attended and successfully completed their respective training courses. Asbestos inspectors, management planners, and project designers must also satisfy asbestos-related work experience requirements to become accredited to work in the state.

21.3.3 Licensing of Asbestos Abatement Contractors

Other than specified exempt licensed trade groups (i.e., electricians, mechanical contractors, plumbers, residential builders, or residential maintenance/ alteration contractors), any individual or company within Michigan that is hired to remove or encapsulate friable asbestos on the premises of another, must be licensed by the Asbestos Program before engaging in any asbestos abatement activities. To become licensed, a contractor must have workers' compensation insurance and proof that all workers and supervisors have been accredited before receiving their annual licenses. The designated exempt licensed trade groups are allowed to remove or encapsulate friable asbestos materials without obtaining an asbestos abatement contractor's license provided the job they are performing is incidental to their primary license trade and it does not exceed 260 linear feet or 160 square feet of friable asbestos-containing materials.

21.3.4 Processing of Asbestos Abatement Project Notifications

Contractors performing friable asbestos removal or encapsulation work in Michigan must provide project notifications indicating the starting and ending dates and other job-related information to the Asbestos Program within a specified time frame. The Asbestos Program requires project notification 10 days prior to any non-emergency asbestos abatement project exceeding 10 linear feet or 15 square feet, or both, of friable asbestos materials. A one-percent project notification fee must also be included. Emergency asbestos abatement projects must provide notification by phone, fax, or mail prior to starting the projects. Initial phone and fax notifications must be followed up by submitting the original written project notification and fee.

While asbestos abatement workers' exposure to asbestos during removal is regulated by the Department of Licensing and Regulatory Affairs, the Department of Environmental Quality (DEQ) enforces federal regulations designed to protect the public from exposure to asbestos. For more information about the National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Asbestos, see Chapter 1.17.6.

21.3.5 Compliance Investigations

The Asbestos Program conducts on-site evaluations of the abatement activities of contractors and also responds to complaints or referrals involving improper work practices or procedures during asbestos abatement or disturbance activities.

21.3.6 AHERA Management Plan Review

The Asbestos Hazardous Emergency Response Act (AHERA) of 1986 is an act mandated by Congress and administered by the U.S. EPA to regulate asbestos in schools. This act mandates school building inspections and written management plans for friable and non-friable asbestos-containing building materials (ACBM) for kindergarten through 12th grade private and public nonprofit schools. The Asbestos Program is the state agency, which was selected by the governor to review the school's management, plans and determine their compliance with AHERA. This process has involved the review of more than 5,000 individual plans with a written assessment given to each Local Education Association (LEA).

21.4 Regulations Enforced

- Michigan Public Act 154 of 1974 "Michigan Occupational Safety and Health Act"
- Michigan Public Act 135 of 1986 "Asbestos Abatement Contractors Licensing Act"
- Michigan Public Act 440 of 1988 "Asbestos Workers Accreditation Act"
- OSHA 29 CFR 1926.1101 "Asbestos Standard for Construction"
- OSHA 29 CFR 1910.1001 "Asbestos Standards for General Industry"

21.5 Other Asbestos Enforcement Agencies

The DEQ, Air Quality Division, NESHAPs Asbestos Coordinator. Contact the NESHAP Asbestos Coordinator at 517-373-7064.

Areas of Responsibility:

- NESHAP Regulations (40 CFR Subpart M)
- Renovation and Demolition Projects
- Transportation of Asbestos Waste
- Landfill Requirements

The U.S. EPA. Contact the Region 5 Toxic Substance Control Act (TSCA) Coordinator at 312-353-9062.

Areas of Responsibility:

- Enforcement of AHERA Regulations

SECTION TWO – MIOSHA REGULATIONS

PART 2: MIOSHA HEALTH REGULATIONS

CHAPTER 22: Bloodborne Infectious Diseases

If your employees are, or have the potential to be, exposed to blood or other potentially infectious materials (OPIMs), the expanded standard under MIOSHA General Industry Occupational Health Standards - Part 554, Bloodborne Infectious Diseases (R 325.70001-70018) applies. OPIMs include semen, vaginal secretions, and several internal body fluids. Sweat, tears, saliva (except in dental procedures), urine, feces, and vomitus are not considered as other OPIMs unless they contain visible blood or OPIM. You may want to refer to the standard for further information pertaining to other potentially infectious materials.

In a manufacturing facility, exposure to blood or other potentially infectious material may occur from designated personnel providing first aid services (see Chapter 24). Exposure means reasonably anticipated skin, eye, mucous membrane, or related contact with blood or other potentially infectious material that may result from performing job duties.

If employees are, or potentially are, exposed to blood or other potentially infectious materials, under the ***Bloodborne Infectious Diseases Standard*** you must:

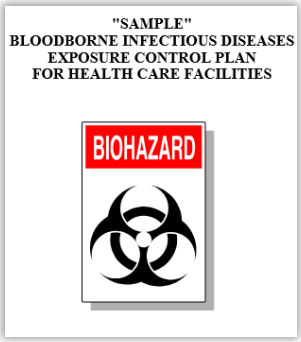
- Characterize jobs as either “Category A” or “Category B.” To be classified as Category A, procedures or tasks must involve potential exposure to blood or other potentially infectious materials. Category B means there is no reasonable potential exposure to blood or other potentially infectious materials. This exposure determination must be made without considering the use of personal protective equipment. In other words, you need to consider if blood or other potentially infectious material could contact the employee or the employee’s clothing if no personal protective equipment were used.
- Maintain a list of job classifications determined to be Category A.
- Assess and document the basis used for determining the exposure potential for both categories.

Develop a written exposure control plan, which includes:

- An exposure determination.
- A schedule and method of implementation for each applicable rule of this standard.
- Content or a summary of the required training program.
- Procedures for evaluating exposure incidents (post-exposure follow-up procedures).
- Management of inadvertent exposure such as needle sticks or mucous membrane exposures.
- Appropriate task-specific standard operating procedures.

Standard operating procedures must:

- Address employee recognition of reasonably anticipated exposure to blood and other potentially infectious material.
- Cover appropriate selection, use, maintenance, and disposal of personal protective equipment.
- Include contingency plans for foreseeable circumstances that prevent following the recommended standard operating procedures.
- Ensure that universal precautions are followed. That is, treat all clothing and linens as if they are contaminated with a bloodborne infectious disease.
- Ensure that appropriate engineering and administrative controls (i.e., safer medical devices) are instituted, followed, and annually reviewed in order to prevent or reduce exposure to blood or other potentially infectious materials. Additionally, the solicitation of non-managerial employees in the selection of safer medical devices is required.
- Provide, launder or clean, repair, replace, and dispose of all required personal protective equipment. Ensure its appropriate use by your employees. Gloves should be worn whenever hand contact with blood or other potentially infectious material is possible. Reusable utility gloves are acceptable.
- Ensure that the work place is maintained in a clean and sanitary condition. A written schedule for cleaning and decontamination needs to be developed and implemented.
- Offer hepatitis B (HBV) vaccinations to all Category A employees within ten workdays of their assignment to a Category A position and after they have received the required training. Those employees who decline to receive the vaccine must sign a declination statement as specified by Rule 13(4)(d) of this standard. HBV antibody testing must be provided if an employee requests it prior to receiving the HBV vaccination. Furthermore, the antibody testing must be conducted in accordance with the most current Center for Disease Control recommendations.
- Provide post-exposure follow-up and care to any employees who experience an exposure incident. This might be any specific eye, mouth, other mucous membranes, non-intact skin, or related contact with blood or other potentially infectious material.
- Ensure that proper signs and labels are used. Contaminated laundry sent off-site to a second facility must be shipped in biohazard labeled containers.
- Ensure that all records such as medical, training, etc., are maintained as prescribed in Rule 15 of this standard.
- Ensure that all Category A employees have been appropriately trained as specified in Rule 16 of this standard.
- Establish and maintain a sharps injury log for all percutaneous injuries from contaminated sharps.



Copies of materials that help employers develop written exposure control plans and train employees, such as the **"***Sample - Bloodborne Infectious Diseases Exposure Control Plan (BSR-CET-823)***"** can be obtained from the Michigan Department of Licensing and Regulatory Affairs, Consultation Education and Training Division at 517-284-7720.

SECTION TWO – MIOSHA REGULATIONS

PART 2: MIOSHA HEALTH REGULATIONS

CHAPTER 23: Emergency Response

As an employer, you must comply with the emergency response provisions of the Part 432, Hazardous Waste Operations and Emergency Response (HAZWOPER) Rule (R 325.52101-52137***)*** of the MIOSHA General Industry Occupational Health Standards if your work place contains hazardous substances in quantities that could require an emergency response if released.

An emergency response is defined by the ***HAZWOPER*** standard as a response effort by employees from outside the immediate release area or by other designated responders. This could be your hazardous waste hauler or local fire department responding to an occurrence which resulted in an uncontrolled release of hazardous substances. If employees are evacuated because of safety or health threats posed by an uncontrolled release of a hazardous substance, it is an emergency response. Considerations in determining an emergency response include:

- Properties of the hazardous substance such as type, quantity, toxicity, flammability, explosiveness, reactivity, vapor pressure, etc.
- Circumstances of the release such as quantity, location, etc.
- Mitigating factors in the work area such as engineering controls, training level of employees, number of employees, availability of outside resources, equipment available, pre-established standard operating procedures, etc.

Responses to incidental releases of hazardous substances where the substance can be absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate release area or by maintenance personnel are not considered to be emergency responses within the scope of these rules. An example of an incidental release is use of shop towels by an employee to soak up a small solvent or coolant spill.

If you are an employer whose work place has the potential for developing an emergency response, you have two choices in complying with the standard.

1. You can rely on an emergency action plan that complies with the federal OSHA Standard - Employee Emergency Plans and Fire Prevention Plans (29 CFR 1910.38 [a]) if you evacuate employees to a safe distance and contact an outside organization to mitigate the emergency release. This level of response basically requires employees to be trained to recognize an emergency response situation and understand the appropriate action to take when one is determined, such as a designated meeting location after evacuation. An employer must take monitoring steps to ensure that the work place is safe before allowing employees to re-enter the emergency response area to perform cleanup operations or continue normal work operations.

2. If you allow your employees to take either defensive (first-responder, operations level) or offensive (HAZMAT technician or specialist level) actions to mitigate the actual or potential emergency release of hazardous materials, you will need to develop a full emergency response plan.

Further information regarding this standard and providers of training for this standard can be obtained by contacting the MIOSHA, General Industry Safety and Health Division at 517-284-7750. In addition, see Chapter 5 for more information regarding emergency response planning.

This Standard was Changed Due to the ARC Report to ORR STANDARD	RULE NUMBERS	MIOSHA IMPLEMENTATION STRATEGY
OH Part 432 Hazardous Waste Operations and Emergency Response	R 325.52102, R 325.52103, R 325.52104, R 325.52109, R 325.52113, R 325.52114, R 325.52116, R 325.52117, R 325.52118, R 325.52123, R 325.52124, R 325.52125, R 325.52127, R 325.52129, R 325.52130, R 325.52131, R 325.52135	The amended rules do not result in a reduction in the requirements for control of employee exposure to hazards associated with hazardous waste operations and emergency response.
Effective March 27, 2014	R 325.52102a	The added rule provides a list of the standards adopted and referenced in this part.
www.michigan.gov/documents/lara/OH_432_Strike_Bold_Draft_452582_7.pdf	R 325.52136 and R 325.52137	The rescinded rules were obsolete or unnecessary.

SECTION TWO – MIOSHA REGULATIONS

PART 2: MIOSHA HEALTH REGULATIONS

CHAPTER 24: First Aid

24.1 First Aid

All employers who do not have medical services (clinic, ambulance, hospital, etc.) readily accessible must have a person or persons adequately trained to render first aid under the MIOSHA General Industry Occupational Health Standards - Part 472, Medical Services and First Aid. The Michigan Department of Licensing and Regulatory Affairs, MIOSHA, interprets "readily accessible" as within 3-4 minutes travel time. If first aid providers are required on-site, the employer must also provide readily available first aid supplies and ensure first aid providers are included in an appropriate Bloodborne Infectious Diseases written exposure control plan. MIOSHA does not approve first aid kits or state the required contents of a first aid kit. First aid supplies should be ordered through consultation with a health care professional. Buyer beware!

Compliance with MIOSHA General Industry Occupational Health Standards - Part 554, Bloodborne Infectious Diseases is necessary if you have designated personnel to provide first aid services. If you are not required to and do not wish to designate first aid providers, a policy should be developed stating such. In this case, off-site sources must be relied on for provision of first aid services, and absolutely no employees have responsibility to provide first aid to co-workers. The employer should ensure that an off-site responder (e.g., ambulance service) is able to handle medical emergencies and is familiar with the facility location as well as ensure a 3-4 minute response time. It is strongly recommended that this policy be in writing, clearly communicated to all employees, and enforced. This will reduce confusion regarding compliance with the bloodborne infectious diseases rules.

Simply providing first aid training to employees or kits for employee use does not require an employer to comply with the bloodborne infectious diseases standard. As long as a policy, as described above, is in place, employees can use the kits themselves to treat minor injuries without the employer complying with the bloodborne infectious diseases standard.

24.2 Emergency Shower/Eyewash

Where the eyes or body of any person may be exposed to injurious or corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body must be provided in the work area for immediate emergency use. Corrosive materials are normally considered to be caustic compounds if they have a pH of 9.0 or greater or acidic compounds if they have a pH of 4.0 or less in solution. A cleaner in a plating line is an example of a corrosive material found in some manufacturing facilities. The pH of a chemical usually can be obtained from the Safety Data Sheet (see Appendix E). Materials which, by their nature, are capable of causing severe tissue damage (i.e., formaldehyde, methyl ethyl ketone peroxide [MEKP], or other organic solvents), are also considered injurious.

Suitable facilities are considered to be plumbed or self-contained emergency shower and/or eyewash equipment or eye/face wash equipment meeting the design specifications of the American National Standard for Emergency Eyewash and Shower Equipment (ANSI Z 358.1-2009). Additionally, according to the American National Standards Institute, self-contained eyewash equipment or portable units must be capable of delivering to the eyes not less than 0.4 gallons (1.5 liters) per minute for 15 minutes (minimum total volume of six gallons or 22.7 liters). Self-contained emergency showers shall be capable of delivering a minimum of 20 gallons (75.7 liters) per minute for 15 minutes (minimum total volume of 300 gallons or 1135.6 liters).

Currently, MIOSHA recognizes a cold water pipe (carrying potable water at a pressure not exceeding 25 pounds per square inch) equipped with a quick-opening valve and a hand-held drench hose, or a standard hose at least 48 inches in length and not smaller than three-fourths (3/4) of an inch in diameter, as "suitable facilities." A shortcoming of this type of system is that both hands are not free to hold the eyelids open. Additionally, both eyes cannot be flushed simultaneously. Personal wash units (e.g., 12 to 16 ounce bottles) do not meet the criteria of plumbed or self-contained eyewash equipment. These units are supplemental devices that support plumbed and/or self-contained units by delivering immediate flushing fluid to the eyes or body. Personal wash units shall have the capacity to deliver immediate flushing fluid without being injurious to the user.

The proximity of the emergency shower and eyewash is determined by the injurious or corrosive nature of the chemical and its ability to cause tissue damage. Chemicals considered highly corrosive (i.e., pH < 2.0 or pH > 12.5) or capable of causing severe tissue damage must have, as appropriate, an emergency shower and eyewash station within 25 feet of the hazardous operation. The location of the station shall be clearly marked, well lit, and easily accessible. There should be no obstacles, closeable doorways, or turns.

Corrosive materials of an other-than-serious nature (i.e., pH > 2 and < 4 or pH > 9 and < 12.5) must have an appropriate station located within 100 feet of the hazard.

For more information regarding MIOSHA's "Application of Standards Requiring Emergency Eyewash/Shower Equipment" please review the following document on the MIOSHA Web site **www.dleg.state.mi.us/wsh/docs/inst/miosha_std_07_1.pdf.**

SECTION TWO – MIOSHA REGULATIONS

PART 2: MIOSHA HEALTH REGULATIONS

CHAPTER 25: Sanitation

The MIOSHA General Industry Occupational Health Standards - Part 474, Sanitation (R 4201) applies to all permanent places of employment and discusses the following items:

- Housekeeping, waste disposal, and vermin control requirements.
- Requirements for provision of potable (approved for drinking) and nonpotable water supplies. This includes design, construction, and installation of facilities and prohibited conditions.
- Number of toilets or urinals and lavatories required in the work place.
- Provision, design, construction, and installation of toilet, lavatory, shower, washing and clothes drying facilities, and change rooms.
- Consumption of food and beverages in the work place as well as food handling protocol.

SECTION TWO – MIOSHA REGULATIONS

PART 2: MIOSHA HEALTH REGULATIONS

CHAPTER 26: Noise

In manufacturing facilities, noise is one of the pervasive occupational health problems. Exposure to high levels of noise can cause permanent hearing loss. Noise is a byproduct of many processes. The MIOSHA General Industry Occupational Health Standards – Part 380, Occupational Noise Exposure (R 325.60101-60138) requires you to develop a hearing conservation program when noise levels equal or exceed the action level for noise. The action level is 85 dBA as averaged over an eight-hour workshift. A hearing conservation program includes:

- Monitoring of the work place to document sound levels in high noise areas and employee exposure to this noise.
- Audiometric testing of employees provided at no cost to the employee. The test must be conducted by a licensed or certified audiologist, otolaryngologist, physician, or appropriately trained or certified technician supervised by one of the previously mentioned persons. Baseline audiograms must be conducted within six months after the employee's first exposure at or above the action level. Baselines can be obtained within one year after initial exposure if mobile test vans are used. At least annually after obtaining the baseline audiogram, an employer must obtain a new audiogram for each employee exposed at or above the action level.
- Provision of a variety of hearing protection for all employees exposed to noise at or above the action level. Mandatory use of hearing protection is required for all employees exposed to noise at or above the permissible exposure limit (permissible exposure limit – 90 dBA, eight-hour time-weighted average). Also, mandatory use of hearing protection is required for all employees who have not received a baseline audiogram within six months of initial exposure at or above the action level or who have experienced a standard threshold shift.
- Training of employees on the:
    - Effects of noise on hearing.
    - Purpose of hearing protectors.
    - Advantages, disadvantages, and ability to reduce noise levels through use of various types of hearing protectors.
    - Selection, fitting, use, and care of hearing protectors.
    - Purpose of audiometric testing and an explanation of test procedures.

A standard threshold shift means a change in the hearing threshold, relative to the baseline audiogram, of an average of 10 dB or more at 2,000; 3,000; and 4,000 Hz in either ear. If a standard threshold shift is caused by prolonged exposure to noise, it may be recordable on the MIOSHA 300 log in column (5). Any standard threshold shift caused by exposure to an instantaneous event must be recorded on the MIOSHA 300 log as an injury.

Additionally, if noise exposures exceed the permissible exposure limit, the employer must utilize all technologically available and feasible (i.e., economically, structurally, etc.) engineering and administrative controls to reduce and maintain noise exposures below the permissible limit. When purchasing new equipment, noise control measures should be considered and addressed prior to installation. Noise control measures include isolating vibration sources, insulating surrounding walls with sound-absorbing material, and enclosing equipment. If these controls do not reduce noise exposures below the permissible exposure limit, hearing protection must also be provided to and be used by exposed employees.

Michigan Guide to Environmental, Health, and Safety Regulations

Part 3

MIOSHA Safety Regulations
Chapters 27 - 36

MIOSHA
Michigan Occupational Safety and Health Administration

SECTION TWO – MIOSHA REGULATIONS

In 2012, the Office of Regulatory Reinvention (ORR) completed its review of workplace safety and health regulations to identify and eliminate rules that went above Federal OSHA and were obsolete, unnecessary, and over burdensome. The goal was NOT to eliminate any rules that would jeopardize employee health and safety. There were 611 MIOSHA rules recommended for rescission and 115 MIOSHA standards affected. As of March 31, 2014, the revisions to MIOSHA rules due to the ORR recommendations are 100 percent complete. To view the progress of revisions to MIOSHA rules and review the implementation strategies visit the MIOSHA Standards Revision Update Table found at **www.michigan.gov/mioshastandards** or contact the Michigan Department of Licensing and Regulatory Affairs (LARA), MIOSHA Standards Division at 517-284-7790.

PART 3: MIOSHA SAFETY REGULATIONS

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SECTION TWO – MIOSHA REGULATIONS

PART 3: MIOSHA SAFETY REGULATIONS

CHAPTER 27: General Housekeeping Guidelines

Good housekeeping benefits everyone in your manufacturing establishment by creating safe and clean surroundings. Keeping floors clean and clear reduces the chance that employees will trip or fall. Uncluttered work areas leave more room to work with and less irritation from trying to find misplaced items.

- ✓ **Start by Cleaning Up:**
  Begin with a thorough housecleaning. Remove all trash, accumulations of scrap, and unused materials.
- ✓ **Make Housekeeping an Ongoing Effort:**
  Employees should understand that housekeeping is a priority and that each person is accountable for making sure their area remains clean and well-kept.
- ✓ **Properly Dispose of Trash:**
  Provide and instruct employees to use proper containers for trash and waste. Liquids and chemicals must be stored in approved containers. Empty out trash and waste containers often enough to prevent overflow onto the floor. Please refer to Chapter 2 for further information on the storage and disposal of hazardous waste.

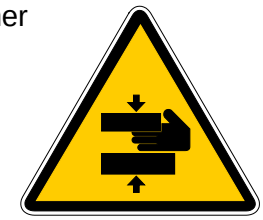
The MIOSHA standard contains some specific requirements for housekeeping in the workplace, General Industry Safety Standards - Part 1, General Provisions, Rule 15. These include:

- Stacking, piling, or placing scrap and debris in a container in a way that does not create a hazard to an employee.
- Keeping aisles, exits, and stairs clean and orderly by ensuring they are free from hazardous accumulations of scrap, debris, water, oil, grease, and other slip and trip perils, and maintaining a clear aisleway for walking and transporting materials.
- Providing drainage or a false floor, platform, or mat in wet process areas.
- Providing a slip-resistant surface where employees are required to walk on a wet surface.
- Keeping storage areas free from accumulations of materials that could create a hazard from fire, explosion, or pest infestation.

In manufacturing facilities, some common housekeeping problems include wet and slippery floors, broken pallets laying around aisle ways, overflowing trash containers, and soiled cleaning rags left around the work place.

CHAPTER 28: Machine Guarding Requirements

MIOSHA requirements include rules for general machine guarding. These include standards which address the safe maintenance and operation of machinery and other equipment in the manufacturing industry.



MIOSHA requires that parts of equipment which transmit power be safeguarded so that employees do not become entangled, pinched, or caught in moving parts. Belts and pulleys, flywheels, chains, sprockets, and gears must all be guarded. These areas are commonly referred to as pinch points.

A pinch point means a point at which it is possible to be caught between the moving parts of a machine, between the moving and stationary parts of a machine, or between material and any part of a machine. A point of operation refers to the point on a machine where work is performed.

In manufacturing industries, employees can become exposed when machine guards are removed to service or provide maintenance and then not replaced when the service or maintenance is completed.

MIOSHA requires guarding of these hazards that may exist in manufacturing industries:

- A point of operation or pinch point.
- Feedrolls and rollers.
- A revolving barrel, container, or drum exposed to contact.
- Belts and pulleys seven feet or less above a floor or platform.
- Blades of a fan, within seven feet, used for cooling or ventilation.
- A horizontal belt more than seven feet above the floor or platform if it is located over a passageway or work area.
- A band or circular saw (Part 1, General Provisions; Part 26, Metalworking; and Part 27, Woodworking Machinery).
- Gears, sprockets, shafting, and chain drives exposed to contact.
- An extractor, parts washer, or tumbler manually controlled.

If safeguarding one of these hazards requires that you make a guard, the guard should be durable and not result in a new hazard to employees, such as burrs or sharp edges.

There are specific requirements for various types of materials and clearances that must be followed when guarding machines. For example, expanded metal used to guard a moving part less than four inches away from the pinch point cannot have openings larger than one-half inch. The MIOSHA General Industry Safety Standards – Part 1, General Provisions and Part 7, Guards for Power Transmission contains a table listing size and clearances for a variety of materials. Other standards such as Part 23, Hydraulic Power Presses; Part 24, Mechanical Power Presses; Part 26, Metalworking Machinery; and Part 27, Woodworking Machinery have provisions for machine guarding.

The MIOSHA General Industry Safety Standards – Part 1, General Provisions also includes specific applications you may need to review.

Below are some of the MIOSHA safeguarding requirements that apply in a manufacturing facility:

- Provide training to each newly assigned employee regarding the operating procedures, hazards, and safeguards of the job.

Machine Controls:

- Powered electrical equipment must have an on/off switch.
- When unexpected motion can cause injury, an actuating machine control (except for an emergency device for a powered fixed or transportable machine) must be guarded or located to prevent accidental actuation.
- Unless its function is self-evident, each operating control device shall be identified as to its function.
- Equipment that is operated in a series so that one piece of equipment automatically supplies another shall be interlocked so that when any equipment in the series is stopped for any reason, the initial stopping causes the upstream equipment to stop if continued operation would create a hazard. Reactivation requires a separate, positive action by the employee who initiated the stop.

Machine Guards and Devices:

- Two hand-control devices must be the anti-tie down and located in a manner to prevent bridging. Operation shall require manual activation of both controls until a point is reached in the cycle where the operator cannot remove his or her hands and place them within a pinch point.
- Guards need to be secured requiring a tool for removal or electrically interlocked. The guard must not create a hazard in itself.
- A point of operation guard or device must be as prescribed in a specific standard or, in the absence of a specific standard, must be designed and constructed when required to prevent the machine operator exposed to the hazard from having any part of his or her body in the hazardous area during the operating cycle.
- Blades of a fan, located within seven feet of a floor or working level and used for ventilation or cooling of your employee(s), must be guarded with a firmly affixed or secured guard. Any opening in the guard shall not have more than one of its dimensions more than one inch, and the distance to the blade must not be less than that prescribed in Table 1 of Part 1, General Provisions.

Air Under Pressure:

- Air pressure at the discharge end of a portable air blow gun or portable air hose must be less than 30 pounds per square inch gauge when dead-ended. If used in metalworking, air pressure at the discharge end of a portable air blow gun must be less than 30 pounds per square inch static flow.

SECTION TWO – MIOSHA REGULATIONS

PART 3: MIOSHA SAFETY REGULATIONS

CHAPTER 29: Duty to have Fall Protection and Falling Object Protection

29.1 Holes or Openings in Floors and Walls

The MIOSHA General Industry Safety Standards – Part 2, Walking Working Surfaces provides rules for safeguarding openings in floors and walls (including skylights) four (4) or more feet above a lower level. This is to prevent persons falling into, from, or through walking or working surfaces to a lower level, operating machinery or other hazardous operation.

Open-Sided Floors:
If your manufacturing facility includes areas where employees are exposed to open-sided floors, platforms, or runways (e.g., an access platform along the back of machines and equipment), you must provide a guardrail system as described in Chapter 29.2 when the following conditions exist:

- An open-sided floor or platform is four (4) feet or more above the floor or ground level.
- An open-sided floor, walkway, platform, or runway is above or adjacent to dangerous equipment. In this circumstance the guardrail must include a toeboard or screening.

  NOTE: Loading docks are exempt from this requirement.

29.2 Guardrail System

Guardrail:

A guardrail must be constructed to a height of 42 inches plus or minus three (3) inches. A guardrail system consists of a top rail, a horizontal midrail or vertical balusters no more than 19 inches apart and supporting posts. It can be of any construction that meets the basic dimension requirements as long as it can withstand 200 pounds of force applied in any direction, at any point.

Protection from Falling Objects:

A toeboard or screening must be added to a guardrail when:

- People can pass or walk by.
- There is moving machinery.
- There is equipment in which falling material could be a hazard.

29.3 Stairways and Railings

MIOSHA requires that employers provide for the safety of employees who are attempting to gain access from one walking-working surface to another. Access can be provided by stairways; a ramp; a fixed ladder; or, for temporary access, a portable ladder.

If you provide a stairway and it has four or more risers, you must provide handrails. Handrails must be able to withstand a 200-pound load. The handrail must be mounted so that the top of the handrail is 30 to 34 inches above the surface of the tread.

29.4 Maintenance of Floors, Platforms, and Stairs

Maintain all floors, platforms, stair treads, and landings to keep free from broken, worn, splintered, or loose pieces that could cause an employee to trip or fall.

When repairing or replacing any of the above, assure that materials being used meet design strength requirements.

29.5 Aisle Widths

When mobile equipment and your employees share the same aisle, dock, or doorway, clearances must be provided and maintained to assure safe passage for the equipment and employee.

- An aisle and passageway must be marked or otherwise identified.
- A floor shall be maintained free of holes, loose boards, and protruding objects that could be a hazard to your employees.
- The maximum designed safe load limit of a floor or roof must not be exceeded.

29.6 Skylights

If employees have any exposure to working around skylights, you must provide adequate protection.

- A skylight guard shall be designed and constructed to withstand a 200-pound load that is applied at any area on the screen.
- The guard construction shall be of the grillwork design.

SECTION TWO – MIOSHA REGULATIONS

PART 3: MIOSHA SAFETY REGULATIONS

CHAPTER 30: Fire Safety

This section provides general information regarding precautions that can be taken to prevent fire hazards in your manufacturing facility. In addition, some of the most common MIOSHA rules regarding fire exits and provision of portable fire extinguishers are explained.

30.1 General Fire Safety Precautions

To eliminate hazards, look for potential sources of fire ignition which may exist in your facility:

- ✓ *Electrical Failures and Misuse of Electrical Equipment:*

  You can reduce these hazards by ensuring proper installation, maintenance, and use; conducting regular inspections; and providing job training to employees. Also, be sure to replace worn or damaged electrical cords and avoid overloading electrical circuits.

- ✓ *Friction:*

  You can lessen the potential for friction through proper maintenance, lubrication, and frequent inspections of your equipment.

- ✓ *Housekeeping and Maintenance:*

  You can reduce the potential for fires through attention to housekeeping. Immediately dispose of flammable wastes and scrap in covered metal containers with metal lids. Avoid excessive stockpiling and put trash and paper in proper containers.

30.2 Fire Exits

Employers must provide a means of egress for employees to use in case of fire, explosion, or natural disaster. A means of egress refers to the route your employees are to follow through the building, the exit door, and away from the building.

- ✓ *Exit Doors*:

  A door designated as a means of egress must be maintained so that employees can easily exit. MIOSHA requires that these rules be followed:

  - Do not lock exit doors; doing so prevents escape from inside the building. Doors shall never be chained, barred, bolted, or latched when the building is occupied.
  - Prohibit the use of locking devices that are difficult to open against door pressure (examples: slide bolts, hasps, hooks and eyes).
  - Prevent the door from being blocked by debris, surplus stock, mechanical equipment, or ice and snow.
  - Maintain all door components in working condition.

- ✓ *Exit Signs:*

  Be sure that exits are designated by a sign that is readily visible and identifiable from the distance that employees will have to travel. Exit signs must have letters at least six inches high and three-fourths inches wide and must be illuminated by a light source or internally illuminated.

- ✓ *Path of Travel:*

  Do not store flammable material in any part of a means of egress.

  If the path that your employees must travel to leave the building is not immediately apparent from any point, mark the route with directional signs.

30.3 Portable Fire Extinguishers

Under the MIOSHA General Industry Safety Standards - Part 8, Portable Fire Extinguishers, there are rules which establish minimum requirements for provision and maintenance of portable fire extinguishers.

Different types of extinguishers are required based on the type of hazard at the location. As the employer, you must be aware of circumstances in your work place that determine whether unique conditions exist which create a greater fire hazard. Contact your local fire department, fire marshal, or the Michigan Department of Licensing and Regulatory Affairs to obtain additional information or assistance with this determination.

30.3.1 Choosing an Extinguisher

The type of fire extinguisher needed depends on the type of fire hazard present. A fire is classified based on what fuels it. Extinguishers are rated to tell which types of fire they can put out:

Table 1. Extinguisher Ratings

Fire Hazard	Type of Fuel	Extinguisher Type and Contents
Class “A” fire	Wood, Paper, Cloth	Foam, loaded stream, multipurpose dry chemical, pressure-operated water, water pump tanks.
Class “B” fire	Gasoline, Paints, Oil	Carbon dioxide, dry chemical, foam, loaded stream, multipurpose dry chemical, bromotrifluoromethane.
Class “C” fire	Electrical, Wiring, Fuse Box	Carbon dioxide with plastic horn only, dry chemical, multipurpose dry chemical, bromotrifluoromethane.
Class “D” fire	Combustible Metals	Extinguishing agent listed for use on a specific combustible metal hazard.
Class “K” fire	Cooking Media (fats, grease)	Potassium acetate, potassium carbonate, potassium citrate, or a combination of these chemicals mixed with water.

ABC extinguishers are a good choice for establishments with fire potential from a variety of fuel types.

30.3.2 Location of Extinguishers

Fire extinguishers must be located where they can be easily seen and readily accessible along a normal path of travel. If the view of an extinguisher is blocked and the obstruction cannot be moved, you must install a sign, color symbol, or other means to indicate the location of the fire extinguisher. Extinguishers of different classes grouped together shall be marked in a manner to facilitate proper choice in case of a fire. An extinguisher with an extinguishing agent which conducts electricity shall bear a label “not for electrical fires” with the letters legible from a distance of 3 feet or more.

30.3.3 Maintaining Extinguishers

Portable fire extinguishers must be maintained in proper working order. MIOSHA requires that:

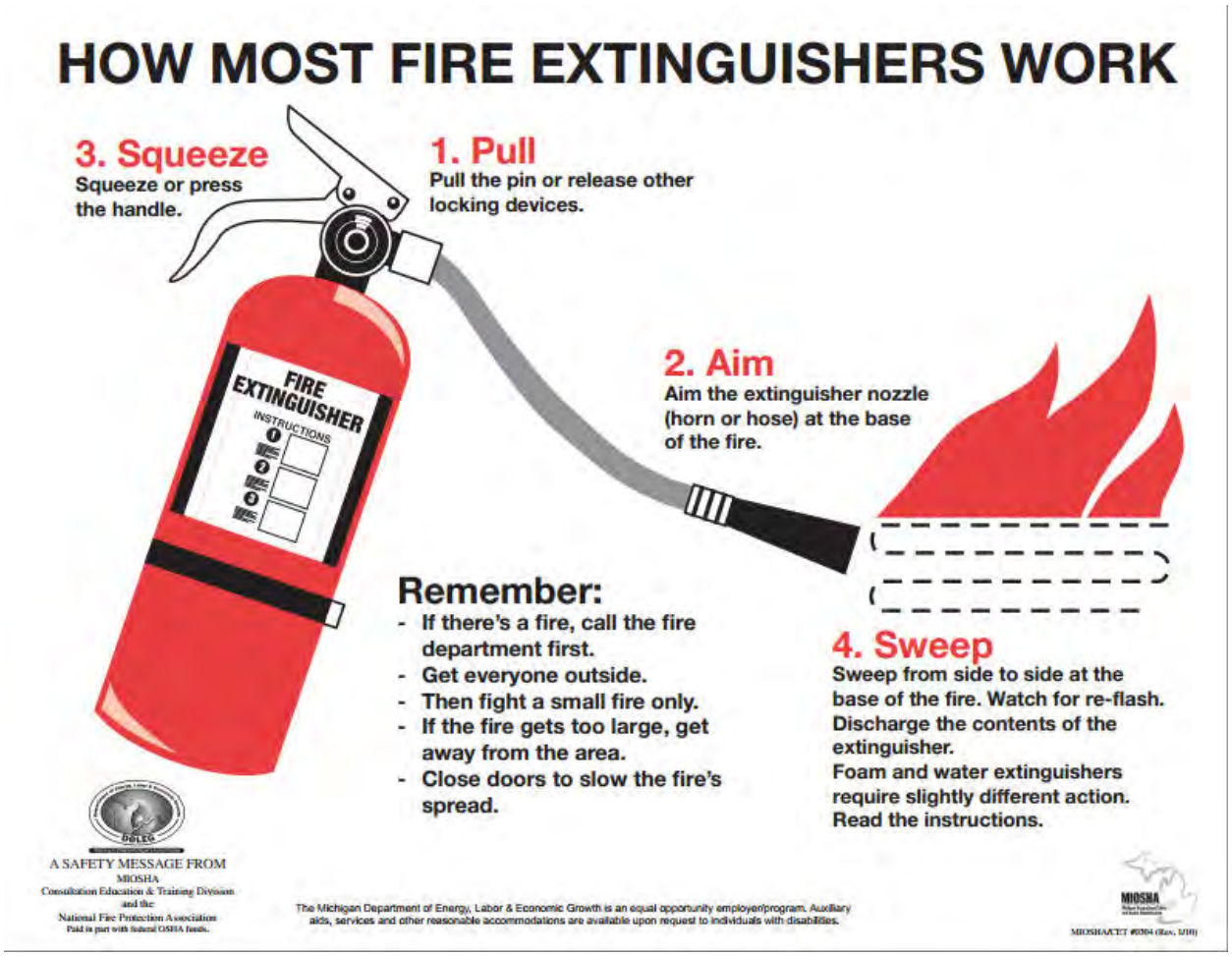
- Extinguishers and hoses be inspected monthly, or at more frequent intervals if required, to be sure the extinguisher:
  - ✓ Is in its proper location.
  - ✓ Has not been used or tampered with.
  - ✓ Does not have obvious damage (e.g., physical damage, external corrosion, or other impairments).
- Extinguishers be thoroughly inspected at least once a year to ensure working order and have a tag be attached showing the inspection date.
- Defective extinguishers be removed from service and repaired before being put back into service.
- Extinguishers are properly recharged with recharging material of the class specified on the extinguisher nameplate or recommended by the manufacturer.

30.3.4 Employee Training

Train employees on evacuation procedures to follow in case of a fire or other emergency. Also, provide directions on proper use of fire extinguishers. Most fire extinguishers follow this technique:

P 1. Pull: Pull the pin or release other locking device.
A 2. Aim: Aim the extinguisher nozzle (horn or hose) at the base of the fire.
S 3. Squeeze: Squeeze or press the handle.
S 4. Sweep: Sweep from side to side at the base of the fire. Watch for reflash. Discharge the contents of the extinguisher.

Check the instructions for the extinguishers in your facility, as foam and water extinguishers require slightly different action.



30.4 Fixed Fire Equipment

The MIOSHA General Industry Standards - Part 9, Fixed Fire Equipment sets forth general rules which apply to the installation, use, maintenance, and testing of fixed fire extinguishing systems in, around, or about a place of employment. Manufacturing establishments should be familiar with the requirements and the employer and employee responsibilities therein.

SECTION TWO – MIOSHA REGULATIONS

PART 3: MIOSHA SAFETY REGULATIONS

CHAPTER 31: Electrical Safety

31.1 Training and Work Practices

The MIOSHA General Industry Safety Standards - Part 40 contains rules covering electrical safety-related work practices. You must provide training on safe work practices and the specific requirements of each job assignment where the employee will face a higher than normal risk of injury from electrical shock. This includes the following employees:

- Employees intentionally exposed to live parts (electricians, electrical troubleshooters, general maintenance workers).
- Employees who may be exposed to a known, limited electrical hazard related to a specific job assignment (e.g., a janitor cleaning in an electrical room or changing light bulbs).
- Employees who are not assigned to any electrical work but whose jobs place them in a position where they need to be mindful of casual exposures to exposed live parts (machine operators, material handlers, janitors).
- Employees who use or handle electrically operated equipment.
- Training for employees can be either classroom or on-the-job.

31.1.1 Selection and Use of Work Practices

You must ensure that employees performing work near or on equipment or circuits that are, or may become, energized utilize electrical safety-related work practices. These practices are intended to prevent electrical shock or other injuries to your employees resulting from either direct or indirect electrical contacts.

De-energize live parts to which an employee may be exposed before allowing an employee to work on or near those parts. Work on or near live parts is permissible if it can be demonstrated that de-energizing isolates the parts and protects the employee from coming in contact either directly or indirectly with some other conductive objects.

31.1.2 Work Practices/Procedures

If you ask employees to work on or near an exposed de-energized part and the employees may be exposed to electrical shock if equipment is re-energized, MIOSHA requires that you develop and utilize a procedure to lockout and tag equipment at the electrical source to prevent re-energizing the equipment. Chapter 32 provides further detail on lockout and tagout procedures.

If a lock cannot be used or the employer can demonstrate that tagging procedures will provide safety equal to a lock, a tag may be used without a lock. In these cases, all of the following must occur:

- The tag must be of a distinctive employer design that clearly prohibits unauthorized energizing of the circuits and removal of the tag.
- A tag shall not be used without an additional safety measure such as the removal of an isolating circuit element, the blocking of a controlling switch, or the opening of an extra disconnecting device.
- All persons who have access to controlling devices shall be trained in, and familiar with, the employer's tagging procedures. Part 40 requires the employer to develop a written lockout procedure.
- The situation must meet the requirements of the MIOSHA General Industry Safety Standards - Part 37, Accident Prevention Signs and Tags.

31.1.3 Cord- and Plug-Connected Equipment

If you use cord- and plug-connected equipment or extension cords in your manufacturing establishment, you must follow these safety requirements:

- Handle equipment in a way that does not cause damage. Extension cords must not be attached with staples or in any manner that causes damage to the outer jacket or insulation.
- Visually inspect extension cords and cord- and plug-connected equipment at the beginning of each shift for external defects such as loose parts, deformed and missing pins, or damage to the outer jacket or insulation, and for evidence of possible internal damage such as a pinched or crushed outer jacket.
- Remove defective or damaged items from service, and do not allow employees to use them.
- Use attachment plugs or receptacles that provide proper continuity of the equipment-grounding conductor.
- Be sure that portable electric equipment and extension cords used in highly conductive work locations are approved for those locations. Examples of highly conductive work locations are areas where employees are likely to contact water or conductive liquids.
- Employees must not have wet hands when plugging and unplugging flexible cords when energized equipment is involved.

31.1.4 Electric Power and Lighting Circuits

Do not allow the use of nonload-breaking-type cable connectors, fuses, terminal plugs, and cable splice connections to open or close circuits under load conditions.

After a circuit is de-energized by a circuit protective device, the circuit must not be manually re-energized until it has been determined that the equipment and circuit can be safely energized.

31.2 Equipment Maintenance and Installation

Minimum electrical safety requirements are established by MIOSHA General Industry Safety Standards - Part 39, Design Safety Standards for Electrical Systems. These rules provide for practical safeguarding of employees in their work places. The rules cover design safety standards for electric utilization systems and include all electric equipment and installations used to provide electric power and light for employee work places. See Chapter 37.2 for electrical licensing requirements.

Common electrical hazards that might be found in manufacturing facilities include missing covers on junction boxes, inadequate clearance and working space around electrical disconnects, electrical disconnects not clearly labeled, and extension cords with broken or exposed wiring.

31.2.1 General Requirements

General requirements for guarding electrical equipment in your manufacturing facility include:

- Installing and using equipment according to the instructions.
- Enclosing parts that could produce sparks, arcs, or flames during normal operation.
- Marking disconnects to identify their purposes unless located so that the purpose is obvious. Markings should be durable enough to withstand the environment in which they are located.
- Providing and maintaining sufficient access and working space above all electrical equipment to permit ready and safe operation and maintenance.
- Guarding live parts of electrical equipment operating at 50 volts or more with an approved cabinet, enclosure, or other approved means to protect against accidental contact.

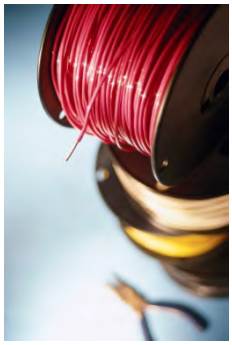
31.2.2 Wiring Design and Protection

- Prohibit attachment of a grounded conductor to any terminal or lead that reverses designated polarity on equipment installed or modified after March 15, 1972.
- Ensure that fuses or circuit breakers are located or shielded so that employees will not be burned or otherwise injured by their operation.

- Provide a ground on exposed noncurrent-carrying metal parts of cord- and plug-connected equipment which may become energized such as refrigerators, freezers, and air conditioners, including those in employee break rooms.

31.2.3 Wiring Methods, Components, and Equipment

These requirements apply to wiring methods, components, and equipment but do not apply to the conductors that are part of factory-assembled equipment.



- Ensure that metal raceways, cable armor, and other metal enclosures for conductors are metallically joined together and connected to all boxes, fittings, and cabinets in a way that provides effective electrical continuity.
- Provide approved covers on pull boxes, junction boxes, and fittings.
- Surround switches, circuit breakers, and switchboards with weatherproof enclosures when located in wet locations.
- Use flexible cords and cables that are approved and suitable for conditions of use and location.

Do not allow use of flexible cords and cables for any of the following situations:

- As a substitute for fixed wiring of a structure
- Run through holes in walls, ceilings, or floors
- Run through doorways, windows, or similar openings
- Attached to building surfaces
- Concealed behind building walls, ceilings, or floors

Use flexible cords in continuous lengths without splice or tap. Connect flexible cords to devices and fittings so that strain relief is provided and prevents pull from being directly transmitted to joints or terminal screws.

In all wet or damp locations, install light fixtures that are approved for use in that environment.

SECTION TWO – MIOSHA REGULATIONS

PART 3: MIOSHA SAFETY REGULATIONS

CHAPTER 32: Lockout/Tagout

The MIOSHA General Industry Safety Standards - Part 85, Lockout/Tagout requires that employers develop a lockout/tagout program to protect employees during machine and equipment servicing or maintenance where unexpected machine energization, start-up, or release of stored energy could cause injury to employees.

Energy sources include electrical, pneumatic, hydraulic, mechanical, and thermal. There may also be stored and/or residual energy that may remain once the primary energy source is shut down. Stored energy may result from steam, air pressure, water pressure, compression of springs, or gravity.

Manufacturing facilities, like other establishments, may perform servicing and maintenance of equipment or contract with an outside contractor to perform these functions. Either way, it is mandatory that all workers understand that a potentially dangerous condition exists when a machine is being serviced and that the people who normally operate the equipment are aware of the servicing activity.

The lockout/tagout standard does not apply to normal production operations and to maintenance work on cord- and plug-connected electrical equipment for which exposure to the hazards of unexpected energization or start-up of the equipment can be controlled by unplugging the equipment from the energy source. The plug must be under the exclusive control of the employee performing the maintenance.

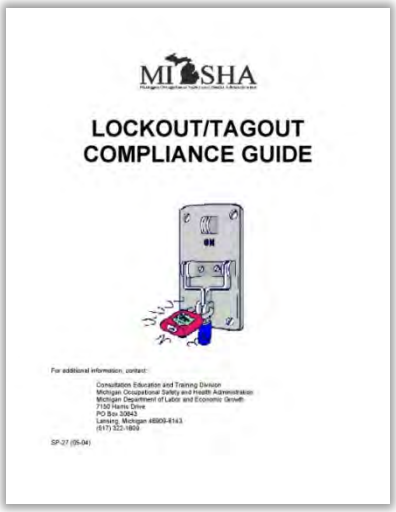
32.1 Employer Responsibility

MIOSHA requires that you plan for the control of energy during servicing and/or maintenance of machines and equipment by doing the following:

- Establish an energy control program.
- Develop, document, and utilize lockout/tagout procedures.
- Conduct periodic inspections.
- Provide appropriate training to employees.
- Provide equipment required by the lockout/tagout procedures at no cost to employees.

32.2 Lockout/Tagout Program

Your lockout/tagout program must include documented energy control procedures, employee training, and periodic inspections. This ensures that before any employee performs any servicing or maintenance on a machine or equipment where the unexpected energizing, start-up, or release of stored energy could occur and cause injury, the machine or equipment will be isolated from the energy source and rendered inoperative.


MIOSHA

LOCKOUT/TAGOUT
COMPLIANCE GUIDE

Contact the MIOSHA, Consultation Education & Training Division, at 517-284-7720, for a copy of "*Lockout/Tagout Compliance Guide*" (CET SP #27).

32.3 Lockout/Tagout Procedures

Procedures addressing how potentially hazardous energy will be controlled during machine or equipment servicing and maintenance must be developed, documented, and used. Employers must also make sure that the established procedures are followed.

Procedures DO NOT have to be documented for a particular machine or equipment when ALL of the following eight conditions are met:

1. The machine/equipment has no potential for stored or residual energy after shutdown which would endanger an employee.
2. The machine or equipment has a single energy source that can be identified and isolated.
3. The isolation and locking out of that energy source will completely de-energize and deactivate the machine or equipment.
4. The machine or equipment is isolated from that energy source and locked out during service or maintenance.
5. A single lockout device will achieve a locked out condition.
6. The lockout device is under the exclusive control of the authorized employee performing the service or maintenance.
7. The servicing or maintenance does not create hazards for other employees.
8. The employer using the exception has had no accidents involving the unexpected activation or energization of the machine or equipment during service or maintenance.

When a documented procedure is required, it must include the following actions and elements which must be accomplished in sequence:

1. Preparation for Shutdown

All authorized employees must know the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy before the employee turns off a machine or equipment.

2. Machine or Equipment Shutdown

   Procedures must be established for turning off or shutting down each piece of equipment. An orderly shutdown should be used to avoid additional or increased hazards to employees as a result of the equipment stoppage.

3. Machine or Equipment Isolation

   Locate and apply all energy-isolating devices needed to control the energy of the machine or equipment so that the machine or equipment is isolated from the energy source.

4. Lockout or Tagout Device Application

   A lockout device is defined as a device, such as a key or combination lock that utilizes a positive means or holds an energy-isolating device in a safe position and prevents the energizing of a machine or equipment. A tagout device is defined as a prominent warning apparatus to identify the energy-isolating device and equipment being controlled. A tag used without a lock shall be supplemented by at least one additional safety measure that provides a level of safety equivalent to that obtained by the use of a lock. This includes opening an additional disconnecting device, removal of an isolating circuit element, blocking of a controlling switch, or the removal of a valve handle to reduce the likelihood of inadvertent energization.

   Lockout or tagout devices should be applied as follows:

   - Only authorized employees should place the lockout or tagout device on each energy-isolating device.
   - Lockout devices need to be affixed properly so they will hold the energy-isolating devices in a safe or off position.
   - Tagout devices, when used, must be placed to clearly indicate that operation or movement of energy-isolating devices from the safe or off position is prohibited.

5. Stored Energy

   All possible hazardous stored or remaining energy needs to be relieved, disconnected, restrained, and otherwise rendered safe after the lockout or tagout device has been put in place.

   If there is a possibility of stored energy gathering to a hazardous level, proof of isolation must be continued until the servicing or maintenance is completed or until the possibility of such energy gathering no longer exists.

6. Proof of Isolation

   Before starting work on a machine or equipment that has been locked out or tagged out, the authorized employee needs to show that the machine or equipment has been isolated or de-energized.

Your documented procedure must also address how you will perform start-up once maintenance or servicing is complete. Follow this procedure to release the equipment or process from lockout or tagout:

- ✓ Machine or Equipment
  - o Inspect the work area to ensure that unnecessary items have been removed and that machine or equipment parts are intact.
- ✓ Employees
  - o Employees must be safely positioned or removed from the work area. Tell affected employees that the lockout or tagout devices are being removed before removing the lockout or tagout devices and before energizing machines or equipment.
- ✓ Lockout or Tagout Device Removal
  - o The employee who applied the lockout or tagout device must be the person to remove the device. (If that employee is not available to remove the device, then it may be removed under the direction of the employer, provided that specific procedures and training for such removal have been developed, documented, and incorporated into your energy control program.)

32.4 Other Requirements

32.4.1 Outside Contractors

Outside contractors doing maintenance or repair work on any equipment at your facility must share their lockout/tagout procedures with all affected employees. You must also share information on your lockout/tagout procedures with the outside contractor.

32.4.2 Group Lockout or Tagout

There are special procedures for servicing or maintenance performed by two or more people:

- Responsibility
  Designate one employee with primary responsibility for the project. This employee will remain responsible throughout the project.
- Multiple Individual Locks
  Each authorized employee will place a personal lockout or tagout device on the group lockout device, group lockbox, or similar mechanism when he or she begins work. Each employee removes their device when finished working on the machine or equipment being serviced or maintained.
- Shift or Personnel Changes
  If a shift or personnel change occurs before the maintenance or servicing is finished, one employee must be designated as responsible for the specific procedures to ensure that lockout/tagout protection is continued. This employee will provide for the orderly transfer of lockout or tagout devices between out-going and incoming employees.

32.5 Training and Communication

The lockout/tagout requirements include training for employees based on the duties performed by the employee. Employees are categorized as:

Authorized Employees

An authorized employee is a person who locks out or tags out a machine or equipment in order to perform service or maintenance on that machine or equipment. An affected employee becomes an authorized employee when duties include performing service or maintenance while exposed to potentially hazardous energy.

Authorized employees must receive training in how to recognize a hazardous energy source, the type and extent of energy available in the work place, as well as the methods and means necessary for energy isolation and control.

Affected Employees

An affected employee is one whose job requires:

- Operation or use of a machine or equipment which is being serviced or having maintenance performed under lockout or tagout.
- Working in an area where servicing or maintenance is being performed under lockout or tagout.

Affected employees need instruction in the purpose and use of the energy control procedures.

Other Employees

Other employees are those classified as employees whose work operations are or may be in an area where energy control procedures may be utilized. They must be instructed about the procedure. These employees must also be aware that attempts to restart or re-energize machines or equipment which are locked out or tagged out are prohibited.

32.5.1 Tagout Systems

When tagout systems are used, employees must also be trained in the following limitations of tags (29 CFR 1910.147[c][7][ii][A-F]):

- Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.
- Tags are only warning devices placed on energy-isolating devices and do not provide physical restraint on devices such as provided by a lock.
- Once a tag is attached to an energy-isolating means, it is not to be removed without permission from the authorized person responsible for it.
- A tag should never be bypassed, ignored, or otherwise defeated.
- Tags must be legible and easily understood by all authorized employees, affected employees, and all other employees whose work operations are in or near the area.

- Tags and their means of attachment must be made of materials that will withstand the environmental conditions encountered in the work place.
- Tags must be securely attached to energy-isolating devices so that they cannot be accidentally detached during use.

32.5.2 Employee Retraining

Authorized and affected employees must be retrained whenever the following occurs:

- A change in their job assignments.
- A change in machines, equipment, or processes that present a new hazard.
- A change occurs in the energy control procedures.

Certify that employee retraining has been completed and is kept up to date. The certification should contain each employee's name and dates of training.

32.6 Periodic Inspections

At least annually, you must conduct an inspection of the energy control procedure to make sure the procedure and the standard requirements are being followed.

32.6.1 Minor Adjustments and Servicing Exception

Lockout/tagout requirements do not apply to minor adjustments or servicing tasks which take place during the normal production procedures if the activities are routine, repetitive, and integral to the use of the equipment for production. When more than one employee performs a particular servicing or maintenance operation on a machine or equipment, the servicing or maintenance generally is not considered minor in nature and the machine or equipment must be locked out.

In order for the aforementioned exception to apply, the work must be performed in a way which prevents exposure, such as by the use of special tools and/or alternative procedures that keep the employee's body out of the areas of potential contact that could cause harm.

Thus, lockout or tagout is not required by this standard if the alternative protective measures enable the servicing employee to clear or unjam, or otherwise service, the machine without being exposed to unexpected energization or activation of the equipment or release of stored energy.

Compliance with the machine guarding requirements is an example of such alternative measures. An employer who requires employees to perform routine maintenance and/or servicing while a machine or process is operating in the production mode must provide employee safeguarding under the applicable machine guarding requirements. Operations such as lubricating, draining sumps, servicing filters, and inspecting for leaks and/or mechanical malfunctions are examples of routine operations which often can be accomplished with effective production-mode safeguards. However, the replacement of machine or process equipment components such as valves, gauges, linkages, support structures, etc., **is not** considered to be a normal routine maintenance function which can safely be accomplished during machine or process equipment operation.

SECTION TWO – MIOSHA REGULATIONS

PART 3: MIOSHA SAFETY REGULATIONS

CHAPTER 33: Powered Industrial Trucks

Powered industrial trucks are used throughout the manufacturing industry. Their primary usage allows a variety of tasks associated with material handling to be performed quickly, efficiently, and economically. The hazards commonly associated with powered industrial trucks vary depending on the type of operations and how the operator drives the vehicle. Among these hazards are:

- Falling loads caused by overloading or unbalanced loading.
- Operator has an obstructed view in the direction of travel.
- The vehicle is being operated at an excessive rate of speed.

There are other hazards related to the use of powered industrial trucks that are caused or enhanced by characteristics of the work place. These hazards include the following:

- Operating in areas where there are narrow aisles.
- Operating where there are employees working in or adjacent to the path of travel of the powered industrial truck.
- Loading or unloading trailers and failing to assure that the trailer floor will support the imposed load.
- Failure to assure the wheels are properly blocked with wheel chocks.

Due to the heavy volume of powered pallet jacks, it is important to alert operators that this equipment may be dangerous, and they must be instructed in safe equipment operation. Permits are optional, but training must be given in order to ensure that operators know how to use the equipment.

The safe and proper handling of powered industrial trucks is of prime importance to all. The MIOSHA General Industry Safety Standards - Part 21, Powered Industrial Trucks establishes both employer and employee responsibilities. OSHA revised federal regulations 1910 Subpart D "Walking-Working Surfaces." Therefore, MIOSHA amended this standard to be as effective as the revised regulations.

Training materials, sample operator permits, and other safety information, such as the "*Powered Industrial Truck Operator's Manual*" (CET #0116), can be obtained from the MIOSHA, Consultation Education and Training Division. Call 517-284-7720 or go to www.michigan.gov/miosha (select Publications, Forms, & Media" then "General Industry Safety Publications").

33.1 Employer Responsibility

Only authorized personnel are allowed to operate a powered industrial truck. You must provide training prior to the employee's assignment as an operator and test the potential operator on:

- Operating ability
- Knowledge of the equipment
- Knowledge of Part 21Powered Industrial Truck rules (R 408.12171-R 408.12193)
- Knowledge of daily checks

As the employer, you must initiate a performance test to determine whether the employee can operate the assigned truck through the functions necessary to perform the required work. After successfully completing the above requirements, the employer must issue the employee an operator's permit authorizing the use of the equipment that the employee has been trained to operate.

33.2 Employee Responsibility

An operator shall safeguard other employees at all times. If at any time a powered industrial truck is found to need repair, is defective, or in any way unsafe, the truck must be taken out of service until it has been restored to a safe operating condition. All repairs must be made by authorized personnel.

SECTION TWO – MIOSHA REGULATIONS

PART 3: MIOSHA SAFETY REGULATIONS

CHAPTER 34: Flammable and Combustible Liquids

This chapter reviews and provides references to the MIOSHA General Industry Safety Standard - Part 75, Flammable Liquids. It addresses design and construction of inside storage rooms and safe handling requirements to assure employee safety for all establishments. The standard also makes reference to various tables that can help you understand these provisions. The tables show allowable quantities and maximum size specifications. Refer also to Chapter 6 covering spills and releases to ensure that all appropriate safety precautions are being undertaken at your facility.

The hazards associated with the handling of either flammable liquids MUST be addressed in your Hazard Communication Program (also refer to Chapter 13). You should refer to your safety data sheets (SDSs) for assistance in this area. The following are some common terms and definitions that you should be aware of:

- **Flashpoint** - The minimum temperature at which a substance produces enough vapor to promote combustion (be ignited). Generally, the lower the flashpoint, the greater the danger of explosion.
- **Flammable liquid** - means any liquid having a flashpoint at or below 199.4 °F (93 °C). Flammable liquids are divided into four categories as follows:
- **Flammable liquid means any liquid having a flashpoint at or below 199.4 °F (93 °C).** Flammable liquids are divided into four categories as follows:
    - **Category 1** shall include liquids having flashpoints below 73.4 °F (23 °C) and having a boiling point at or below 95 °F (35 °C).
    - **Category 2** shall include liquids having flashpoints below 73.4 °F (23 °C) and having a boiling point above 95 °F (35 °C).
    - **Category 3** shall include liquids having flashpoints at or above 73.4 °F (23 °C) and at or below 140 °F (60 °C). When a Category 3 liquid with a flashpoint at or above 100 °F (37.8 °C) is heated for use to within 30 °F (16.7 °C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint below 100 °F (37.8 °C).
    - **Category 4** shall include liquids having flashpoints above 140 °F (60 °C) and at or below 199.4 °F (93 °C). When a Category 4 flammable liquid is heated for use to within 30 °F (16.7 °C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint at or above 100 °F (37.8 °C).

1910.106(a)(19)(v) When liquid with a flashpoint greater than 199.4 °F (93 °C) is heated for use to within 30 °F (16.7 °C) of its flashpoint, it shall be handled in accordance with the requirements for a Category 4 flammable liquid.

34.1 Safe Practices

Safe practices on the part of employees who handle flammable liquids are essential in the prevention of fire and explosion hazards. Regardless of the quantities involved, each flammable liquid used should be analyzed to determine the extent of its flammability and any health hazards associated with the liquid so that appropriate control measures can be taken. Flammable liquids are categorized by their ease of ignition. Examples of flammables are:

- Acetone
- Gasoline
- Lacquer thinner
- Kerosene
- Fuel oil
- Stoddard solvent
- Mineral spirits

Connections on all drums and piped systems of flammable liquids must be vapor- and liquid-tight.

Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100 °F (37.8 °C), shall not be dispensed into containers unless the nozzle and container are electrically interconnected. Where the metallic floorplate on which the container stands while filling is electrically connected to the fill stem or where the fill stem is bonded to the container during filling operations by means of a bond wire. This practice prevents electrical discharge (sparks) from the accumulation of static charge because of the transfer process.

All spills of flammable liquids must be cleaned up promptly. With major spills, remove any ignition sources, ventilate the area, and provide respirators if needed. These liquids must not be allowed to enter a confined space such as a pit or sewer because of the possibility of an explosion.

Supplies of flammable liquids must be stored in approved, fire-resistant, safety containers equipped with flash screens and self-closing lids. All flammable liquids must be kept in closed containers when not in use.

34.2 Design, Construction, and Capacity of Storage Cabinets

The quantity of liquid that may be located outside of an inside storage room or storage cabinet in a building, or in any one fire area of a building, shall not exceed:

Maximum Allowable Size of Containers and Portable Tanks for Flammable Liquids

Container type	Category 1 Max size	Category 2 Max size	Category 3 Max size	Category 4 Max size
Glass or approved plastic	1 pt.	1 qt.	1 gal.	1 gal.
Metal (other than DOT drums)	1 gal.	5 gal.	5 gal.	5 gal.
Safety cans	2 gal.	5 gal.	5 gal.	5 gal.
Metal drums (DOT specifications)	60 gal.	60 gal.	60 gal.	60 gal.
Approved portable tanks	660 gal.	660 gal.	660 gal.	660 gal.

Note: Container exemptions: (a) Medicines, beverages, foodstuffs, cosmetics, and other common consumer items, when packaged according to commonly accepted practices, shall be exempt from the requirements of 1910.106(d)(2)(i) and (ii).

Storage cabinets shall be designed and constructed to limit the internal temperature to not more than 325 deg. F. when subjected to a 10-minute fire test using the standard time-temperature curve as set forth in Standard Methods of Fire Tests of Building Construction and Materials, NFPA 251-1969, which is incorporated by reference as specified in Sec. 1910.6. All joints and seams shall remain tight and the door shall remain securely closed during the fire test. Cabinets shall be labeled in conspicuous lettering, "Flammable - Keep Fire Away."-Open flames and smoking must not be permitted in flammable liquid storage areas.

For a copy of the poster "*Danger – No Smoking, Matches or Open Flames*" (CET #0321), contact the MIOSHA, Consultation Education and Training Division at 517-284-7720 or go to **www.michigan.gov/miosha** (select Publications, Forms, & Media" then "General Industry Safety Publications").

34.3 Design and Construction of Inside Storage Rooms

Inside storage rooms shall be constructed to meet the required fire-restrictive rating for their use. Such construction shall comply with the test specifications set forth in "Standard Methods of Fire Tests of Building Construction and Materials" (NFPA 251-1969).

- Openings to other rooms or buildings must have noncombustible, liquid-tight, raised sills or ramps at least four inches in height; or the floor in the storage area must be at least four inches below the surrounding floor. A permissible alternate to the sill or ramp is an open-grated trench inside the room that drains to a safe location. This method may be preferred if there is an extensive need to transfer flammable liquids into and out of the room by means of hand trucks.
- Any openings must have approved, self-closing fire doors.
- The room must be liquid-tight where the walls join the floor.
- Where other portions of the building or other properties are exposed, windows shall be protected as set forth in the Standard for Fire Doors and Windows, NFPA No. 80-1968
- An aisle at least three feet wide must be maintained in every inside storage room.
- Easy movement within the room is necessary in order to reduce the potential for spilling or damaging the containers and to provide both access for fire fighting and a ready escape path for occupants of the room should an emergency occur.
- Containers over 30 gallons in capacity cannot be stacked one upon the other.
- Dispensing of flammables must be by approved pump or self-closing faucet only.

34.4 Housekeeping

Maintenance and operating practices at your manufacturing facility must be in accordance with established procedures designed to control leakage and prevent the accidental escape of flammable liquids. Spills must be cleaned up promptly!

Adequate aisles must be maintained for unobstructed movement of personnel and so fire protection equipment can be brought in to any part of the flammable liquid storage area.

All flammable waste material and residues in your building(s) must be kept to a minimum, stored in covered metal receptacles, and disposed of daily.

Smoking is not allowed outside of designated areas, and signage should be posted in all flammable storage areas.

Contact the MIOSHA, Consultation, Education and Training Division, at 517-284-7720 for a copy of the **"***On-Site Consultation Abatement Method Advice For: Flammable & Combustible Liquids*" (OSC-113).

SECTION TWO – MIOSHA REGULATIONS

PART 3: MIOSHA SAFETY REGULATIONS

CHAPTER 35: Other MIOSHA Safety Standards

There are several MIOSHA standards with rules generally applicable to the manufacturing industry. Depending on the North American Industry Classification System (NAICS) Code, each manufacturing industry may be subject to selected rules developed to ensure the health and safety of its employees. These standards may include:

35.1 Welding and Cutting

The MIOSHA General Industry Safety Standards - Part 12, Welding and Cutting this standard is intended to provide, in, about or around places of employment, reasonable safety to persons involved in welding, cutting, brazing, soldering and acetylene generating and to those exposed to these processes and the equipment and compressed gases used. It also includes those exposed to these processes, as well as the equipment and compressed gases used.

Part 12 covers employer and employee responsibility including training, inspection, testing, and the use of personal protective equipment. The standard specifies who is qualified to use and how to use welding and cutting equipment in confined spaces. The rules discuss the construction, storage, and handling of cylinders. Other topics reviewed are manifolding, service piping, protective devices, hoses, and regulators. Arc welding, cutting, and acetylene generators are also discussed.

35.2 Walking Working Surfaces

January 17, 2017, OSHA issued a new final rule that updates and revises the outdated general industry Walking-Working Surfaces and Personal Protective Equipment (Fall Protection Systems) standards on slip, trip, and fall hazards, which are a leading cause of worker deaths and lost-workday injuries (29 CFR part 1910, subparts D and I).

The final rule applies to all general industry workplaces and covers all walking-working surfaces, which include horizontal and vertical surfaces such as floors, stairs, roofs, ladders, ramps, scaffolds, elevated walkways, and fall protection systems. A variety of general industry firms will be impacted including building management services, utilities, warehousing, retail, window cleaning, chimney sweeping, and outdoor advertising.

The rule provides greater consistency between OSHA's general industry and construction standards, which makes compliance easier for employers who perform both general industry and construction activities. It incorporates advances in technology, industry best practices, and national consensus standards. OSHA estimates the final rule will prevent 29 worker deaths and 5,842 lost-workday injuries each year.

Major changes and new requirements to the rule include:

- Fall protection flexibility
- Updated scaffold requirements to match OSHA's construction scaffold standards
- Phase-in of ladder safety systems or personal fall arrest systems on fixed ladders (20 yrs)
- Phase-out of the "qualified climber" exception in outdoor advertising
- Rope descent systems (RDS) and certification of anchorages
- Personal fall protection system performance and use requirements
- Inspection of walking-working surfaces
- Training and retraining as necessary in a manner the worker understands

The MIOSHA General Industry Safety Standard – Part 2 Walking Working Surfaces became effective on February 2, 2018. MIOSHA made the following changes:

- **GI Part 1 General Provisions.** MIOSHA amended this standard to be as effective as the revised regulations.
- **GI Part 2 Walking-Working Surfaces.** MIOSHA adopted the federal regulations by reference.
- **GI Part 3 Fixed Ladders and GI Part 4 Portable Ladders were rescinded.** These rules have been replaced by the newly revised GI Part 2 Walking-Working Surfaces standard.

A copy of the "revised standards" are available on the MIOSHA Standards website and here:

- GI Part 1 General Provisions
- GI Part 2 Walking-Working Surfaces

A copy of the "strike-bold drafts" are available here:

- GI Part 1 General Provisions
- GI Part 2 Walking-Working Surfaces
- GI Part 3 Fixed Ladders, rescinded
- GI Part 4 Portable Ladders, rescinded

A copy of the "comparisons to previous standard" are available on the MIOSHA Standards website and here:

- GI Part 1 General Provisions
- GI Part 2 Walking-Working Surfaces
- GI Part 3 Fixed Ladders, rescinded
- GI Part 4 Portable Ladders, rescinded

35.3 Abrasive Wheels

The MIOSHA General Industry Safety Standards - Part 1A, Abrasive Wheels sets forth rules and specifications for the safe use of abrasive wheels in, around, and about places of employment. Part 1A identifies several types of grinding wheels, classified according to their appearance. The provisions provided include specifications for safety guards, flange construction and maintenance, as well as rules for storage, handling, mounting, and use of grinding wheels.

35.4 Hand and Portable Powered Tools

The MIOSHA General Industry Safety Standards - Part 38, Hand and Portable Powered Tools provides for the safe maintenance; operation; and use of hand tools and portable powered tools, regardless of ownership in, around, or about a place of employment.

Part 38 outlines employee/employer responsibility and establishes requirements for proper storage and handling, equipment inspection, and control devices. A number of provisions are provided for specific hand tools (knives, pliers, hot sticks, etc.) and powered tools (circular saws, staplers, nailers, pneumatic grinders, etc.). These provisions identify how to properly inspect, operate, and maintain the tools in accordance with the standard. In addition, there are also several provisions that address the proper design, training, and operation of powder-actuated tools (devices used for making forced entry into materials by use of a tool, a fastener, and an explosive load).

35.5 Air Receivers

The MIOSHA General Industry Safety Standards - Part 93, Air Receivers applies to compressed air receivers and other equipment used in providing and utilizing compressed air for performing operations such as cleaning, drilling, hoisting, and chipping. Essentially, *Part 93* establishes requirements for the proper installation of air receivers as well as any equipment used in conjunction with them (drains, gauges, valves, handholes, etc.).

35.6 Polishing, Buffing, and Abrading

The MIOSHA General Industry Safety Standards - Part 11, Polishing, Buffing, and Abrading sets forth rules for safety in the use of buffing and polishing wheels and coated abrasives. This standard provides specifications for flanges, guards, fixtures, proper illumination, and operation. Part 11 also includes precautions be taken to protect against fire and explosion.

35.7 Refuse Packer Units

The MIOSHA General Industry Safety Standards - Part 17 Refuse Packer Units applies to the safe design, use, and maintenance of mobile and stationary equipment used in the collection and compaction of solid waste in, around, or about places of employment. Part 17 includes general provisions that cover employer/employee responsibility, refuse packer operation, hoisting cables and chains, hydraulic piping, and lights. In addition, the standard also provides special provisions for both mobile and stationary units. These provisions identify special requirements for warning devices, controls, guards, as well as loading and unloading.

35.8 Conveyors

The MIOSHA General Industry Safety Standards - Part 14, Conveyors applies to the construction, maintenance, and operation of conveyors and conveying machinery. Conveyor is defined in the Rule as "a horizontal, inclined, or vertical device for moving or transporting bulk materials,

packages, or objects in a predetermined path by design and having points of loading or discharge fixed or selective. Part 14 provides several design provisions for conveyors, such as guarding, as well as electrical provisions that cover items like starting buttons and stop devices. Also included are specific provisions that regulate individual types of conveyors.

35.9 Overhead and Gantry Cranes

The MIOSHA General Industry Safety Standards - Part 18, Overhead and Gantry Cranes covers the equipment, installation, maintenance, and operation of top running overhead and gantry single and multiple girder cranes. This part does not apply to top running overhead cranes with push-type bridge and trolley, monorails, railway or truck cranes, mine hoists, conveyors, shovels, drag-line excavators, equipment used on construction jobs or systems used to transport people. Part 18 provides several provisions for construction, installation, and equipment, as well as regulations for operator training and testing. Also included are a number of provisions that pertain to inspection protocol and proper maintenance. OSHA revised federal regulations 1910 Subpart D “Walking-Working Surfaces.” Therefore, amended this standard to be as effective as the revised regulations.

35.10 Crawler, Locomotive, and Truck Cranes

The MIOSHA General Industry Safety Standards - Part 19, Crawler, Locomotive, and Truck Cranes pertains to the safe construction and maintenance by the employer and safe use by the employee of crawler, locomotive, and truck cranes including mobile hydraulic cranes used only as lifting cranes. Part 19 provides several sections that address operating practices and required training as well as inspection procedures and maintenance programs.

35.11 Underhung Cranes and Monorail Systems

The MIOSHA General Industry Safety Standards - Part 20, Underhung Cranes and Monorail Systems applies to power-driven cranes, classified as underhung, single-leg gantry, and jib, operating on the bottom flange of a track section and to single-track monorail systems. This part does not apply to monorail systems used only to transport personnel or to monorail-type conveyor systems, commonly referred to as overhead trolley conveyors or power and free trolley conveyors. Part 20 provides regulations for the construction, installation, and testing of these types of systems. Also included are provisions for operator training and proper operation, as wells as several rules regarding inspection and maintenance procedures.

35.12 Slings

The MIOSHA General Industry Safety Standards - Part 49, Slings sets forth the requirements for slings, their construction, care, and use. This part pertains to several types of slings including: chain, wire rope, metal mesh, 3-strand natural or synthetic rope, and synthetic web made from nylon, polyester, and polypropylene. Part 49 provides rules for each type of sling mentioned previously and addresses, among other things, inspection, repairs, rated capacities, and attachments.

Michigan Guide to Environmental, Health, and Safety Regulations

Chapter 36

Construction Codes in Michigan

SECTION THREE – CONSTRUCTION CODES

CHAPTER 36: Construction Codes in Michigan

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Purpose and Applicability of Regulations

Manufacturing facilities and other businesses must be designed according to code in terms of the actual structure, plumbing, electrical, and mechanical systems. The purpose of the code is to ensure the safety and welfare of building inhabitants. This chapter highlights various aspects of the code, including permits to which industry must comply.

Agencies and Their Laws and Rules

The Bureau of Construction Codes of the Michigan Department of Licensing and Regulatory Affairs (DLARA) is responsible for the administration and enforcement of the following:

- Michigan Construction Code, Public Act 230 of 1972, as amended, (Act 230).
- Boiler Act, Public Act 290 of 1965, as amended (Act 290).
- Elevator Safety Board, Public Act 227 of 1967, as amended (Act 290).
- Licensing laws for electricians, plumbers, and mechanical contractors.
- Barrier Free Design, Public Act 1 of 1966, as amended (Act 1).
- Building Officials and Inspectors Registration Act, Public Act 54 of 1986, as amended (Act 54).

The bureau enforces building, electrical, plumbing, and mechanical codes in areas of the state that don't have local building, electrical, plumbing, or mechanical departments. In addition, the bureau registers local code officials, plan reviewers, and inspectors in the areas of building, electrical, mechanical, and plumbing inspections as required by Act 54. The law gives the bureau authority to approve instructors, courses, and tests for education and training programs. The bureau is also responsible for examination and licensing in the boiler, electrical, elevator, mechanical, and plumbing fields, as well as investigating consumer complaints against licensees.

36.1 Building Permits

Act 230 of 1972 allows a local unit of government to legally adopt and enforce the state building code at the local level. The respective building departments are generally listed in the telephone book as Building Safety Departments in the city, township, or county in which the building is located.

In areas without a local building department, you may contact the Bureau of Construction Codes, Building Division at 517-241-9317.

The purpose of the building code is to ensure public health, safety, and welfare by protecting life and property from all hazards related to the design, erection, repair, removal, demolition, or use and occupancy of buildings, structures, or premises. This is in relation to structural strength, adequate egress facilities, sanitary equipment, light and ventilation, and fire safety.

Application for Building Permit
Michigan Department of Labor & Economic Growth
Bureau of Construction Codes & Fire Safety
Building Division
P.O. Box 30255
Lansing, MI 48909
517/241-9317

Print Clear 120

Applicant to Complete All Items in Sections I, II, III, IV, V and VI
Note: Separate Applications Must Be Completed for Plumbing, Mechanical, and Electrical Work Permits

I. PROJECT INFORMATION
II. IDENTIFICATION
A. OWNER OR LESSEE
B. ARCHITECT OR ENGINEER
C. CONTRACTOR
III. TYPE OF IMPROVEMENT AND PLAN REVIEW
A. TYPE OF IMPROVEMENT
B. PLAN REVIEW REQUIRED
Plan Review Submission No

Building permits are required for any of the following:

- Construction or alteration of a structure.
- Construction of an addition.
- Demolition or movement of a structure.
- A change of occupancy.
- Installation or alteration of any equipment that is regulated by the code.
- Moving a lot line which affects an existing structure.

A building permit may be obtained by the owner or the owner's builder, architect, engineer, or agent. A builder's license is not necessary to secure a building permit for a commercial building.

Plans and specifications, signed and sealed by a Michigan licensed architect or engineer, must accompany the application for a building permit, except for minor alterations and repair work.

36.1.1 Existing Structures

A permit is not required for ordinary repairs. Ordinary repairs to structures may be made without permit, but such repairs do not include:

- The cutting away of any wall, partition, or portion thereof.
- The removal or cutting of any structural beam or bearing support.
- The removal or change of any required means of egress, or rearrangement of parts of a structure affecting the exit requirements.

Ordinary repairs do not include addition to, alteration of, and replacement or relocation of:

- Any standpipe, water supply, sewer, drainage, drain leader, gas, soil, waste, vent, or similar piping.
- Electric wiring.
- Mechanical or other work affecting public health or general safety.

Section 3401.2 of the code establishes the owner's responsibility to keep the building maintained and repaired. Additionally, fire protection and safety systems in existing structures are to remain in place and be maintained.

When adding on to your building, the addition shall conform to the requirements for a new structure without requiring the existing structure to comply with new construction requirements of the code. Any existing structure plus additions must comply with the height and area requirements of the code.

A change in occupancy to an existing structure may change the level of inherent hazards initially addressed by the code. If you are buying a building that previously had a different use, a change of occupancy must not be made to the structure without approval of the code official. For example, if the existing or previous business was mercantile (display and sales) and you are changing it to a business use, the use Group B (business) provisions are applicable to all portions of the structure where the occupancy has changed or which are affected by the change. The use Group B provisions may not have applied in the past, so the structure may not be fully in compliance. Therefore, building modifications may be necessary before the business opens.

36.2 Electrical Permits

Act 230 of 1972 allows a local unit of government to legally adopt and enforce the state electrical code at the local level. The purpose of the electrical code is to provide practical safeguards to persons and property from hazards arising from the use of electricity. The code contains provisions considered necessary for safety. For further information on regulations pertaining to electrical safety standards, see Chapter 31.

Local electrical inspection department telephone numbers are generally listed in telephone books as Building Safety or Electrical Safety Departments in the city, township, or county in which the building is located.

Electrical permits are required for any of the following:

- Before equipping a building with electrical equipment.
- Making an alteration or addition to electrical equipment in excess of $100.

Electrical permits for commercial buildings may be obtained by an electrical contractor who is licensed by a municipality or by the State Electrical Administrative Board. An electrical contractor's license is required to secure an electrical permit for any of these types of facilities.

Plans and specifications, signed and sealed by a Michigan licensed architect or engineer, must accompany the application for an electrical permit. Exceptions to this are alterations and repair work determined by the electrical official to be minor and wiring or alteration to an electrical system rating which does not exceed 400 amps in a building that is not over 3,500 square feet in area.

In areas without an electrical inspection department, you may contact the Bureau of Construction Codes, Electrical Division, at 517-241-9320.

36.3 Mechanical Permits

Act 230 of 1972 allows a local unit of government to legally adopt and enforce the state mechanical code at the local level. The purpose of the mechanical code is to ensure for the safe installation of all mechanical equipment in order to protect the public health, safety, and welfare. The code sets forth comprehensive regulations for this, where in the past, great reliance was placed on accepted practice and engineering standards.

The respective mechanical inspection department telephone numbers are generally listed in telephone books as Building Safety or Mechanical Safety Departments in the city, township, or county in which the building is located.

Mechanical permits are required for the installation and alteration of the following equipment:

- Air pollution control systems
- Appliances that use gas, liquid, or solid fuel
- Barbecues
- Chimneys and vents
- Cooling systems
- Crematories
- Fireplaces
- Fire suppression systems
- Heating systems
- Incinerators
- Mechanical refrigeration systems
- Process piping
- Residential boilers and pressure vessels
- Steam and hot water systems
- Systems utilizing solar or geothermal energy as an energy source
- Ventilating systems
- Water heaters

A state mechanical contractor's license is required to secure a mechanical permit for a commercial building.

Plans and specifications, signed and sealed by a Michigan licensed architect or engineer, must accompany the application for a mechanical permit. Exceptions to this are alterations and repair work determined by the mechanical official to be of a minor nature, and business, mercantile, and storage buildings having heating, ventilation, and air conditioning (HVAC) equipment only, with one fire area not more than 3,500 square feet.

In areas without a local mechanical inspection department, you may contact the Bureau of Construction Codes, Mechanical Division, at 517-241-9325.

36.4 Plumbing Permits

Act 230 of 1972 allows a local unit of government to legally adopt and enforce the state plumbing code at the local level. The purpose of the plumbing code is to protect public health, safety, and welfare by regulating the installation of systems used for storm drainage, furnishing potable water, and disposing of sanitary sewage.

Local plumbing inspection department telephone numbers are generally listed in telephone books as Building Safety or Plumbing Safety Departments in the city, township, or county in which the building is located.

Plumbing permits are required for the installation and alteration of the following equipment:

- Sanitary facilities
- Sanitary piping
- Water services
- Storm and sanitary sewers

An authorized master plumber licensed by the State Plumbing Board must obtain a plumbing permit for a commercial facility. The only exemptions from permits are building sewers, private sewers, or water service.

Plans and specifications, signed and sealed by a Michigan licensed architect or engineer, must accompany the application for a plumbing permit. There are exceptions for alterations and repair work determined by the plumbing official to be of a minor nature, as well as exceptions for assembly, business, mercantile, and storage buildings that have a required plumbing fixture count of less than 12.

In areas without a local plumbing inspection department, you may contact the Bureau of Construction Codes, Plumbing Division, at 517-241-9330.

36.5 Boiler Permits

The Boiler Act, Public Act 290 of 1965, as amended (Act 290), requires that all permits for boilers installed and repaired in commercial, public, and multiple dwelling units of six or more be obtained from the DELEG, Bureau of Construction Codes, Boiler Division. Boilers installed in private residences are permitted in accordance with the mechanical code.

Boiler permits are required when a boiler is installed, reinstalled, or repaired anywhere other than a private residence or the City of Detroit. All persons applying for a permit to install, reinstall, or repair a boiler must have a license to do so from the DELEG, Bureau of Construction Codes, Boiler Division. Boiler issues within the City of Detroit are handled by the City's Building & Safety Engineering.

The State Boiler Code regulates installation and repair of boilers and requires periodic inspection of them to assure public safety from the catastrophic results of a boiler failure.

A plan review is not necessary for the installation of a boiler. However, a plan review for the system connected to the boiler is necessary.

The Boiler Act requires an annual inspection of power, process and high temperature, and high pressure boilers. Low pressure steam or vapor heating boilers, hot water heaters, and hot water supply boilers must be inspected every two years. Inspections are also required any time a new boiler is installed or a used boiler is reinstalled. Inspections may also be required during or after repairs to boilers, depending on the type of repair.

The Boiler Act only requires annual servicing or once every two years, depending on the type of boiler. However, a boiler should be examined daily during operation to assure that it is operating properly and safely. It only takes a few minutes for a boiler with a malfunctioning control or safety device to reach critical pressure and fail with devastating results.

Contact the Bureau of Construction Codes, Boiler Division, at 517-241-9334 for further information.

Contact the City of Detroit, Building & Safety Engineering at 313-224-3212 for more information regarding the installation of a boiler within the City of Detroit.

36.6 Elevator Permits

Public Act 227 of 1967 states that an elevator shall not be installed or altered without first obtaining a permit from the DELEG, Bureau of Construction Codes, Elevator Safety Division. A permit shall be issued only to a person, firm, or corporation licensed by the director as an elevator contractor.
The State Elevator Code regulates the installation, alteration, repair, and testing of elevators. It also regulates the licensing of elevator contractors, journey persons, special inspectors, and general inspectors.

Any holder of a certificate of operation must notify the DELEG within 48 hours of every accident involving personal injury or damage to an elevator. The department may investigate all such accidents.

All elevators must be inspected by a general elevator inspector in accordance with the following schedule:

- ☐ Passenger, freight, barrier free lifting devices, and special elevating devices must be inspected at least once every 12 months.
- ☐ Escalators, moving walks, inclined lifts, dumbwaiters, one-person elevators (hand-powered), one-person elevators (electric-powered), wheelchair elevating devices in buildings other than private residences, and sidewalk elevators must be inspected at least once every 24 months.
- ☐ Personal hoists must be inspected at least once every 30 days. Elevating devices in private residences shall be inspected only at the discretion of the department or owner.
- ☐ Detailed plans and specifications must be submitted in triplicate with each installation permit and shall be approved by the department before a permit is issued.
- ☐ A power elevator, except a private residence elevator, must be serviced and examined for defects at least once every 90 days by a licensed elevator journey person.

You may contact the DLARA, Bureau of Construction Codes, Elevator Safety Division, at 517-241-9337 for further information about elevators.

Contact the City of Detroit, Building & Safety Engineering, Elevator Division, at 313-224-3704 for more information regarding the installation of elevators within the City of Detroit.

36.7 Michigan's Barrier Free Design Law

Barrier Free Design, Public Act 1 of 1966, as amended (Act 1), is intended to assure that buildings in Michigan are accessible and usable for all citizens. This includes elderly persons, wheelchair users, and persons with permanent or temporary conditions that reduce coordination or mobility or make walking difficult or insecure. Barrier free design is also intended to ensure that persons with visual or hearing impairments will be able to use facilities safely.

When barrier free design was implemented as public policy in 1966 by Act 1, the law applied almost exclusively to government-owned buildings and facilities. In the mid-1970s, in response to demands made by handicappers devoted to living independently rather than in institutional settings, the law was amended to require barrier free design in buildings where employment opportunities existed and where services to the public were available (e.g., schools, retail stores, restaurants, churches, hotels, etc.). There were considerable differences of opinion about what, if anything, should be done regarding existing buildings.

Michigan lawmakers compromised the differences by stating in law that when an existing building undergoes a change in use group, occupancy load, or an alteration, some accessibility changes will be required. If the change affects less than 50 percent of the existing floor area, only the affected area and a barrier free route to it (from and including the nearest entrance) must be barrier free. If the change affects 50 percent or more of the existing floor area, the entire facility must become barrier free.

At the time this standard was enacted, Michigan lawmakers recognized potential hardship to building owners. To address this, the legislature also created the Barrier Free Design Board (BFDB) and authorized it as the only entity in the state with the authority to grant exceptions (variances) to the barrier free design requirements.

Created in 1975, the BFDB consists of a nine-member citizen panel appointed by the Governor with the advice and consent of the Senate. Act 1 specifically prohibits any person, local unit of government, state department, or agency other than the BFDB from granting an exception to the barrier free design requirements. To request an exception (variance), you must submit a formal application to the BFDB. For additional information on the exception process, or for an application, contact the Plan Review Division at 517-241-9328.

The BFDB can grant exceptions or variances from the barrier free design requirements, require alternatives when exceptions are granted, and allow an exception for a stated time period or upon stated conditions. The Board has established criteria which is taken into consideration when reviewing a request for an exception. A person requesting an exception must demonstrate

a compelling need to warrant the exception. Compelling need can include structural limitations, site limitations, economic limitations, technological limitations, and jurisdictional conflicts.

An administrative process, which includes a formal hearing before an administrative law judge, gives the person seeking an exception the opportunity to fully explain the details surrounding the request. The judge then makes a recommendation to the BFDB. The Board may then accept or modify the law judge's opinion. The Board's final decision can be appealed to the Circuit Court of the county in which the project is located.

Michigan law requires the Board to follow the provisions of the Michigan Administrative Procedures Act and that a hearing be conducted in accordance with the provisions of that act. The act establishes the hearing procedure so that all persons are treated in a fair and equitable manner and their due process and equal protection rights are assured.

36.8 Americans with Disabilities Act

The Americans with Disabilities Act (ADA) became effective January 26, 1992, for places of public accommodation, i.e., commercial facilities. This was also the due date to complete the removal of barriers for existing facilities. The ADA public accommodation requirements are similar to, and cover many of the same areas as, the State of Michigan's Barrier Free Design law provisions.

36.9 High-Hazard Materials

The building code, at the time of construction or alteration to a building, specifies the maximum quantities of high-hazard materials allowed per control area before having to classify a part of (or the entire) building as a high-hazard use group.

The high-hazard use group classification relates to those facilities where the storage of materials or the operations are deemed to be hazardous to life and property, especially when they involve the use of significant amounts of highly combustible, flammable, or explosive materials, regardless of their composition. Although they are not explosive or highly flammable, other hazardous materials - such as corrosive liquids, highly toxic materials, and poisonous gases, still present an extreme hazard to life. Many hazardous materials possess multiple hazards, whether physical and/or health related.

It is important to isolate industrial or storage operations that pose the greatest dangers to life and property and reduce such hazards by providing systems or elements of protection through the regulatory provisions of the building codes.

Examples of systems and elements of protection that may be required are:

- Fire separation assemblies
- Explosive venting
- Monitor control equipment
- Fire suppression systems
- Spill control, drainage, and containment
- Type of construction and height limitations
- Ventilation

For further information on regulations pertaining to the storage of high-hazard materials, see Chapters 4, 6, 34, and 37.

WHERE TO GO FOR HELP

SUBJECT: **Building, electrical, mechanical, and plumbing codes**

CONTACT: Contact the relevant local unit of government building, electrical, mechanical, and/or plumbing departments if you have questions or need information about applicable codes.

If your local unit of government does not have one or more of these departments or you are not sure who to call, contact the Bureau of Construction Codes, at one of the phone numbers listed below.

- Building Division – 517-241-9317
- Electrical Division – 517-241-9320
- Mechanical Division – 517-241-9325
- Plumbing Division - 517-241-9330

www.michigan.gov/bcc

PUBLICATION:

1. Building Permit and Plan Examination (BCC-324)
2. Electrical Permit Application (BCC-339)
3. Mechanical Permit Application (BCC-9)
4. Plumbing Permit Application (BCC-327)

SUBJECT: **Installation or repair of boilers***

CONTACT: Bureau of Construction Codes and, Boiler Division
517-241-9334
www.michigan.gov/bcc (select “Divisions”)

*If installing or repairing a boiler within the City of Detroit, contact Building & Safety Engineering, Boiler Division, 313-224-3210, and Mechanical Division, 313-224-3211.

SUBJECT: **Barrier free design**

CONTACT: Bureau of Construction Codes, Plan Review Division
517-241-9328
www.michigan.gov/bcc (select “Divisions”)

SUBJECT: **Installation, alteration, repairs, and testing of elevators***

CONTACT: Bureau of Construction Codes, Elevator Safety Division
517-241-9337
www.michigan.gov/bccfs (select "Divisions")

*If installing or repairing an elevator within the City of Detroit, contact the City of Detroit, Buildings, Safety Engineering, and Environmental Department, Construction Division, 313-224-3202.

SUBJECT: **Detroit elevator codes**

CONTACT: City of Detroit, Buildings, Safety Engineering, and Environmental Department, Construction Division
313-224-9401
www.detroitmi.gov/Government/Departments

Michigan Guide to Environmental, Health, and Safety Regulations

Chapter 37

Local Fire Department

SECTION THREE – CONSTRUCTION AND FIRE CODES

CHAPTER 37: Local Fire Department

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Purpose and Applicability of Regulations

Businesses frequently use or produce products that are flammable, combustible, and/or hazardous. Therefore, good communication between the company and its local fire department is necessary to prevent or properly respond to any emergency. The lives of the employees, nearby residents, and firefighters responding to the emergency are all at stake. Often manufacturers make changes to their processes that increase the potential for fires and spills of regulated materials. For example, a facility may install a new coating line that uses flammable paints and thinners. Therefore, manufacturers should routinely invite fire officials to their facilities to ensure that operational changes are done safely and performed in accordance with the fire code adopted by the municipality.

Note: There are many regulations pertaining to the storage, usage, and transportation of materials. Each regulation targets a specific group of material that exhibits certain characteristics. Appendix B contains definitions of the various regulated groups of material found in the material storage, usage, and transportation regulations. These defined terms appear throughout this chapter in bold lettering. In some instances, multiple agencies use the same term to describe a regulated group of material; however, its definition differs. Such terms will be followed by a dash and the acronym of the defining agency or regulation. For example, the Michigan Occupational Safety and Health Act (MIOSHA) and the Michigan Fire Prevention Code, Public Act 207 of 1941, as amended (Act 207) have differing definitions for the term "flammable and combustible liquids." Therefore, the MIOSHA and Act 207 definitions of flammable and combustible liquids will appear as ***"flammable and combustible liquids-MIOSHA"*** *and* ***"flammable and combustible liquids-Act 207,"*** *respectively.*

Agencies and Their Laws and Rules

Emergency Planning

Local fire departments are an active participant in three related emergency planning requirements:

1. Firefighter Right-to-Know.
2. Hazardous Waste Operations and Emergency Response (HAZWOPER).
3. Superfund Amendments and Reauthorization Act (SARA) Title III.

Fire Prevention

Two state acts give local fire departments the authority to regulate manufacturers and other commercial establishments:

The Michigan Fire Prevention Code, Act 207 of 1941, as amended (Act 207) gives local fire departments and the Department of Licensing and Regulatory Affairs, (LARA) Bureau of Fire Services limited authority to conduct fire inspections of manufacturers.

The State Construction Code Act, Act 230 of 1972, as amended (Act 230) gives local units of government the authority to adopt and enforce the state building code, which is the International Building Code with Michigan amendments. The state building code, which is one of four codes that comprise the construction code (electrical, plumbing, and mechanical being the other three) contains fire prevention requirements (see Chapter 36 for more information).

Open Burning

Fire Chiefs, under authority of Part 515 (Forest Fire Prevention) of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451), have the authority to issue burning permits for the open burning of certain materials. R 336.1310 promulgated pursuant to Part 55 (Air Pollution Control) of Act 451 identifies which materials can be open burned.

37.1 Introduction

All businesses should contact their local fire departments to make sure they are complying with all applicable fire safety regulations. If you are not sure which fire department has jurisdiction over your facility, call the municipal office where you pay your taxes and they should be able to give you the name and phone number of the fire chief. The fire chief is the one in charge of the fire department. Sometimes the fire department that responds to a fire or emergency is located in a municipality different from the one where the facility is located.

Fire departments around the state differ greatly in the number of employees, positions (full-time, part-time, and volunteer), and services they provide. Typically, the larger the population being served by the fire department, the more services they provide. Large municipalities have a fire department consisting of a full-time fire chief, full-time fire marshal (head of the fire prevention division of the department), HAZMAT response team, and full-time firefighters. Contrast this to a small, rural fire department that consists of a part-time fire chief and volunteer firefighters.

Responding to fires and accidents is a critical responsibility of the local fire department. However, they have numerous other responsibilities that are of equal importance. The following is a brief summary of some of the services offered and regulations enforced by the fire department that directly or indirectly impact manufacturers.

37.2 Emergency Planning

Fire departments are involved in three emergency planning requirements:

1. Firefighter Right-to-Know.
2. Hazardous Waste Operations and Emergency Response (HAZWOPER).
3. Superfund Amendments and Reauthorization Act (SARA) Title III.

Compliance with these three requirements calls for interaction between the fire department and manufacturers. Together, the three requirements are designed to protect firefighters, employees, and the public from spills, fires, and explosions involving regulated materials. The following discussion of the requirements focuses on this important relationship between the fire department and manufacturers.

37.2.1 Firefighter Right-To-Know

The Hazard Communication/Employee Right-to-Know Law (see Chapter 13) requires employers to educate employees about dangerous materials they work with. Fire departments, just like other employers, must protect their employees (firefighters) from the dangers associated with exposure to hazardous chemicals. Specifically, Section 14(i) of the Michigan Occupational Safety and Health Act (MIOSHA), Public Act 154 of 1974, as amended (Act 154) requires the chief of an organized fire department to prepare and disseminate to each firefighter information on facilities within their jurisdiction that use or produce hazardous chemicals.

Section 5(p) of the Michigan Fire Prevention Code, Public Act 207 of 1941, as amended gives fire departments the authority to survey businesses within their jurisdiction about the types of chemicals they have on site. This allows the fire department to gather information about each chemical so that the requirements of MIOSHA can be met.

Typically, letters and attached survey forms from the fire chief are sent out to businesses asking for information about the type and quantity of chemicals used or produced on-site. The survey may be followed up with a request for additional information such as Safety Data Sheets.

The fire chief then develops a plan for those facilities that use or produce **hazardous chemicals**. These plans are made available to the firefighters. Plans need to be updated every five years or whenever conditions change at the site. If the facility is uncooperative; i.e., they refuse to properly complete, update, and/or return the survey form, the fire chief may refer the matter to the Michigan Occupational Safety and Health Administration (MIOSHA) for follow up and enforcement.

37.2.2 HAZWOPER

As stated in Chapter 23, the Hazardous Waste Operations and Emergency Response (HAZWOPER) Rule of the MIOSHA General Industry Occupational Health Standards requires facilities that use or produce **hazardous substances-OSHA** to prepare emergency action or response plans and train employees who respond to uncontrolled releases of **hazardous**

substances-OSHA. Because fire departments are often the first responders to releases of **hazardous substances-OSHA**, the fire chief must provide the necessary training to firefighters and develop emergency response plans for each facility within their jurisdiction that handles **hazardous substances-OSHA** above certain thresholds.
To develop emergency response plans, fire chiefs need to get specific information from each facility. Planning elements include:

- Planning and coordination with outside parties.
- Evacuation routes and procedures.
- Emergency medical treatment and first aid.

The plan required under HAZWOPER and the plan required under Firefighter Right-to-Know each ensures safety to the emergency responder. Therefore, one plan for each site can be developed by the fire chief to satisfy both requirements.

Another part of HAZWOPER requires the employer to train all employees who may encounter or respond to a hazardous material incident. The level of training depends upon the anticipated level of involvement. Under HAZWOPER there are four levels of training, listed in order of increasing involvement and training: (1) first responder awareness level; (2) first responder operations level; (3) hazardous materials technician; and (4) hazardous materials specialist. The greater the potential hazard, the more extensive and stringent the training requirement. Most firefighters go through first responder operations level training.

Some municipalities around the state have created hazardous material response (HAZMAT) teams, which are groups of individuals trained to handle and control actual or potential leaks and spills of **hazardous substances-OSHA**. Individuals within the HAZMAT have gone through the hazardous materials technician level of training. Because of the training and resources involved in forming and maintaining HAZMAT teams, some municipalities have entered into mutual aid agreements that provide HAZMAT services to a region. For example, the City of Lansing Fire Department's HAZMAT team responds to chemical-related emergencies in Lansing, as well as nearby East Lansing, Delta Township, and Meridian Township due to an agreement reached between the four municipalities.

37.2.3 Superfund Amendments and Reauthorization Act (SARA) Title III

As mentioned in Chapter 5, Title III of the Superfund Amendments and Reauthorization Act ("SARA Title III"), also known as the Emergency Planning and Community Right-to-Know Act, is intended to improve local hazardous materials emergency response capabilities. Specifically, Sections 302-303 of SARA Title III mandate the establishment of local emergency planning committees (LEPCs) within the state. Michigan has an LEPC for each county as well as for some cities. The LEPC includes representation from the local fire department. The LEPCs are required to develop site specific emergency response plans for sites within their jurisdiction that have one or more **extremely hazardous substances** above a given threshold quantity. These plans, which serve primarily to protect the public from exposure to chemical releases, include emergency response and notification procedures, training programs, and evacuation plans.

Under Section 304 of SARA Title III, the LEPC, the state, and the National Response Center must receive immediate notification if a facility accidentally releases a chemical that:

- Is on the list of **extremely hazardous substances** or on the list of **hazardous substances-CERCLA**.
- Exceeds the corresponding reportable quantity.
- Has the potential for off-site exposure.

Most facilities call 9-1-1 to notify their LEPC and the fire department.

Sections 311 and 312 of SARA Title III apply to facilities that must maintain Safety Data Sheets (SDSs) for **hazardous substances-OSHA**. These facilities must provide a Tier II hazardous chemical inventory report to their fire department, the LEPC and the Michigan SARA Title III Program if they have **hazardous substances-OSHA** on site that exceed certain thresholds. The Tier II report must be submitted annually and whenever new chemicals are brought on site that exceed the thresholds. The fire department can require that the inventory also include chemicals that do not meet the thresholds in the regulation.

Finally, the owner or operator of a facility that has submitted inventory information under sections 311 or 312 of SARA Title III must comply with the following two requirements upon request by the fire department with jurisdiction over the facility:

1. Allow the fire department to conduct an on-site inspection of the facility, and
2. Provide the fire department with information regarding the specific locations of hazardous chemicals at your facility.

More information about SARA Title III is in Chapter 5.

37.3 Building and Fire Prevention Codes

Businesses should have two main concerns when it comes to preventing fires within their facilities. First, make sure the initial construction of new, or the modification of existing buildings and structures, conforms to the state building code. The building code will address fire prevention and hazards. Secondly, ensure that the subsequent operation and maintenance of the building complies with either a national fire prevention code that is adopted by the local municipality or the State Rules for Fire Prevention that are promulgated under authority of Michigan Fire Prevention Code, Act 207 of 1941, as amended (Act 207) in the event the local municipality does not adopt a fire prevention code.

37.3.1 Building Codes

As mentioned in Chapter 36, the State Construction Act, Public Act 230 of 1972, amended (Act 230) gives local units of government the option of enforcing the state building code, which is the International Building Code with Michigan amendments, or permitting the state to enforce the state building code.

The building code, which contains regulations adhered to during the construction of new buildings and alterations to existing buildings, addresses fire and hazard issues. When a business submits plans and specifications for new construction, the local building department reviews the plans concurrently with the fire marshal.

37.3.2 Fire Prevention Codes

Many local units of government adopt a national fire prevention code. Fire prevention codes pertain to the subsequent operation and maintenance of the building that ensures the prevention of fire and the protection of life from exposure to the dangers of fire and explosion. The codes address such fire safety issues as fire protection systems (i.e., fire alarms, fire suppression systems), fire exits, use and maintenance of specific equipment and processes, and storage and handling of flammable and combustible materials. Many of the national building codes have companion fire codes. For example, the companion fire code for the International Building Code is the International Fire Code.

Fire marshals from municipalities conduct routine inspections to ensure compliance with the locally adopted fire prevention code. If there is not a fire code adopted by the local jurisdiction, the State Rules for Fire Prevention, which reference the National Fire Protection Association (NFPA) Standard No.1, are applicable. These rules are enforced by the DLARA, Bureau of Construction Codes and Fire Safety.

Some of the potential hazards a local fire marshal may look for are found on page 37-7.

37.4 Storage of Flammable and Combustible Liquids

The LARA, Storage Tank Program (STP), regulates the installation and operation of aboveground storage tanks that store **flammable and combustible liquids-Act 207** with a flashpoint of less than 200° Fahrenheit. It also regulates the underground storage of all petroleum liquids and **hazardous substances-CERCLA**. Although only aboveground storage tanks that have a capacity of greater than 1,100 gallons and underground storage tanks have to be registered, there are other STP regulations that apply to all size containers of **flammable and combustible liquids-Act 207**. Local fire marshals should refer manufacturers to the STP for more information about these regulations (see Chapter 4.3).

The aboveground storage of **flammable and combustible liquids-MIOSHA** with a flashpoint greater than 200° Fahrenheit can be regulated under the fire prevention code adopted by the local municipality and/or by the **MIOSHA General Industry Safety Standards - Part 75, Flammable and Combustible Liquids** (see Chapter 34 for more information about this standard).

37.5 Burning Permits

Fire chiefs, under authority of Part 515 (Forest Fire Prevention) of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451) have the authority to issue burning permits for open burning of certain materials. Part 55 (Air Pollution Control) of Act 451 identifies which materials can be open burned provided that the person obtains necessary open burning permits from the local fire chief. However, Part 55 of Act 451 prohibits all open burning activities at commercial establishments, including manufacturing sites. See Chapter 1.2 for more information about open burning.

No

№ 17378

RE-INSPECTION DATES

1	2	3
4	5	6

Fire Prevention Division

INSPECTION REPORT

DATE:

Facility Name: | Use Group: | Capacity:

Address: | Zip: | District No:

Facility Number: | Phone No: ( )

Responsible Party: | Title: | Phone:

Responsible Party: | Title: | Phone:

Property Owner: | City: | Phone:

Construction Type: BASEMENT Yes ❑ No ❑ Stories | Bldg.❑ Complex ❑ Tenant Space ❑ Other ❑ | Haz. Mat. ❑ Yes ❑ No

Current Permits: Amusement Devices / | Sq. Ft. | Sprinkler Prot. ❑ Full ❑ Partial ❑ No Domestic ❑ Yes ❑ No

Type of Inspection:
General ❑ Final ❑
Special ❑ Site ❑
Complaint ❑ Liq. Lic. ❑
Witnessed Test ❑ Permit ❑
Reinspection ❑ Special Event ❑
Other ❑ _____

Requested by _____

Non-Comp. Comp. N/A

BLDG. EXT. – OUTSIDE STORAGE

1. ❑ ❑ ❑ Access drives/fire lanes clear/posted
2. ❑ ❑ ❑ Addresses posted
3. ❑ ❑ ❑ Protection of gas equip.
4. ❑ ❑ ❑ Fire hydrants clear
5. ❑ ❑ ❑ Outside storage orderly
6. ❑ ❑ ❑ Exit discharge clear
7. ❑ ❑ ❑ Fire dept. connection valves clear & secure
8. ❑ ❑ ❑ Canopy height posted
9. ❑ ❑ ❑ Keysafe

INTERIOR – EXITS, PASSAGEWAYS, LIFE SAFETY

10. ❑ ❑ ❑ Doors – locked, blocked, inoperative
11. ❑ ❑ ❑ Corridors – passageways, obstructed, improperly maintained
12. ❑ ❑ ❑ Aisles, cross aisles to be maintained, full width at all times
13. ❑ ❑ ❑ Stairs, towers, obstructed, defective, improperly maintained
14. ❑ ❑ ❑ Door devices – panic hardware, defective, inadequate
15. ❑ ❑ ❑ Exit passageways – inadequately lighted
16. ❑ ❑ ❑ Exit lights
17. ❑ ❑ ❑ Prohibited hardware – slide bolts, key locks, etc.
18. ❑ ❑ ❑ Emergency lighting

GENERAL HAZARDS

19. ❑ ❑ ❑ Hazardous accumulation rubbish, debris, waste materials to be removed
20. ❑ ❑ ❑ Stock–merchandise improperly stored to retard spread of fire
21. ❑ ❑ ❑ Interior finishes–decorations–tents, remove or flameproof
22. ❑ ❑ ❑ Ventilation systems to be cleaned, repaired, installed
23. ❑ ❑ ❑ Combustible lint & dust to be removed from equipment, walls, beams, floor, disposed of in proper manner
24. ❑ ❑ ❑ Storage/Stock too high 24"
25. ❑ ❑ ❑ Heat producing device clearance 36"
26. ❑ ❑ ❑ Improper – prohibited device
27. ❑ ❑ ❑ _____

ELECTRICAL

28. ❑ ❑ ❑ Wiring-switches-plugs defective, to be replaced
29. ❑ ❑ ❑ Extension cords/multi outlet devices
30. ❑ ❑ ❑ Proper clearances maintained 36"
31. ❑ ❑ ❑ Breaker locks/identification
32. ❑ ❑ ❑ _____

Non-Comp. Comp. N/A

FIREWALLS, DOORS, CURTAIN WALLS, PARTITIONS & CEILINGS

33. ❑ ❑ ❑ Fire wall penetrations
34. ❑ ❑ ❑ Ceiling tiles missing
35. ❑ ❑ ❑ Fire doors/Hdwe/Fusible links
36. ❑ ❑ ❑ Signage where needed
37. ❑ ❑ ❑ Fuse links damaged/painted/missing
38. ❑ ❑ ❑ Coordinators/estragals
39. ❑ ❑ ❑ Fire dampers
40. ❑ ❑ ❑ Corridor integrity
41. ❑ ❑ ❑ _____

SPECIAL PROCESSES/HAZARDS/ EQUIPMENT/OTHER

42. ❑ ❑ ❑ Cutting and Welding equip.
43. ❑ ❑ ❑ Cylinder storage
44. ❑ ❑ ❑ Ventilation
45. ❑ ❑ ❑ Manifold systems
46. ❑ ❑ ❑ No-Smoking posted
47. ❑ ❑ ❑ _____

DIPTANKS

48. ❑ ❑ ❑ Controls – operational
49. ❑ ❑ ❑ Overflow/drain
50. ❑ ❑ ❑ Protection
51. ❑ ❑ ❑ Location/Separation
52. ❑ ❑ ❑ Parts washer
53. ❑ ❑ ❑ _____

SPRAY PAINTING

54. ❑ ❑ ❑ Protection
55. ❑ ❑ ❑ Booth/Area/Room location
56. ❑ ❑ ❑ Explosion proof wiring
57. ❑ ❑ ❑ Adjacent storage
58. ❑ ❑ ❑ Ducts/fans/discharges
59. ❑ ❑ ❑ Maint./cleaning
60. ❑ ❑ ❑ Ignition devicas
61. ❑ ❑ ❑ Posted signs
62. ❑ ❑ ❑ Service Co. _____
63. ❑ ❑ ❑ Service Date _____

FLAMMABLE LIQUIDS – GASES – SOLIDS – EXPLOSIVES

64. ❑ ❑ ❑ Not properly stored – handled – processed
65. ❑ ❑ ❑ Storage rooms – premises not properly marked/maintained
66. ❑ ❑ ❑ Tank location not in accord with applicable standards
67. ❑ ❑ ❑ Existing above ground storage tanks maintained, diked, marked & located
68. ❑ ❑ ❑ Valves/dispensing equipment to be approved type – maintained

Non-Comp. Comp. N/A

FLAMMABLE LIQUIDS – GASES – SOLIDS – EXPLOSIVES

69. ❑ ❑ ❑ Cabinet required
70. ❑ ❑ ❑ Safety cans
71. ❑ ❑ ❑ Bonding & grounding
72. ❑ ❑ ❑ Proper posting/No smoking
73. ❑ ❑ ❑ Explosion wiring where needed
74. ❑ ❑ ❑ Storage room suppression
75. ❑ ❑ ❑ Haz. mat. MSDS/RTK
76. ❑ ❑ ❑ _____

SERVICE STATIONS

77. ❑ ❑ ❑ U/G tank fill pipes
78. ❑ ❑ ❑ U/G tank spill prot.
79. ❑ ❑ ❑ Dispensers/posting
80. ❑ ❑ ❑ Hoses - piping - nozzles
81. ❑ ❑ ❑ Impact valves
82. ❑ ❑ ❑ Intercommunications
83. ❑ ❑ ❑ Fire suppression/6 months maint.
84. ❑ ❑ ❑ Emergency controls
85. ❑ ❑ ❑ Breakers identified
86. ❑ ❑ ❑ Service Co. _____
87. ❑ ❑ ❑ Service Date _____

SPRINKLER SYSTEMS/ALARMS/EXTING.

88. ❑ ❑ ❑ Suppression/standpipe maintenance
89. ❑ ❑ ❑ Service Co. _____
90. ❑ ❑ ❑ Service Date _____
91. ❑ ❑ ❑ Sprinkler system design/density
92. ❑ ❑ ❑ Suppression system obstruction
93. ❑ ❑ ❑ Valve identification
94. ❑ ❑ ❑ Valve security/monitoring/repair
95. ❑ ❑ ❑ Alarm system monitoring/repair
96. ❑ ❑ ❑ Suppression system monitoring/repair
97. ❑ ❑ ❑ Smoke and heat detection
98. ❑ ❑ ❑ Storage too high 18"
99. ❑ ❑ ❑ Fire extinguishers location/mounting
100. ❑ ❑ ❑ Fire extinguisher I.D.
101. ❑ ❑ ❑ Fire extinguisher adequate
102. ❑ ❑ ❑ Service Co. _____
103. ❑ ❑ ❑ Service Date _____

HOOD/DUCT SYSTEMS

104. ❑ ❑ ❑ Dry Chemical
105. ❑ ❑ ❑ CO_2
106. ❑ ❑ ❑ Halon
107. ❑ ❑ ❑ Wet System
108. ❑ ❑ ❑ Signage
109. ❑ ❑ ❑ Alarm
110. ❑ ❑ ❑ U.L. 300
111. ❑ ❑ ❑ Service Co. _____
112. ❑ ❑ ❑ Service Date _____

❑ **Misc. Violation List Below...** ❑ **Premises and equipment in good order – no visible hazards observed this date.**

❑ **The following orders are issued for the correction of violation items checked above. These violation items shall be complied with forthwith. A reinspection will be conducted on or about the date shown in the box at the upper left corner of this form. WARNING: Fire or injury resulting from failure or delay to comply with this notice will be attributed to negligence on the part of the responsible party or parties.**

WHERE TO GO FOR HELP

SUBJECT: **All questions concerning fire safety**

CONTACT: Chief of the local fire department. The State Fire Marshal in the Department of Licensing and Regulatory Affairs (LARA), compiles and publishes a directory of local fire departments.

www.michigan.gov/bfs

SUBJECT: **Hazardous materials training courses**

CONTACT: Michigan State Police, Hazardous Materials Training Center
517-322-5519
www.michigan.gov/emhsd-training

SUBJECT: **Fire prevention codes**

CONTACT: LARA, Bureau of Fire Services
517-322-1123
www.michigan.gov/bfs

SUBJECT: Additional fire prevention code information

CONTACT: National Fire Protection Association (NFPA)
800-344-3555
www.NFPA.org

SUBJECT: **Additional fire safety information**

CONTACT: U.S. Fire Administration
www.usfa.fema.gov

Michigan Guide to Environmental, Health, and Safety Regulations

Appendix A

Acronyms

APPENDIX A: ACRONYMS

ADA .....Americans with Disabilities Act
ANSI .....American National Standards Institute
AST .....Aboveground Storage Tank
ARI .....Air Conditioning and Refrigeration Institute
ASME .....American Society of Mechanical Engineers
ASTM .....American Society for Testing and Materials
ATP .....Advanced Technology Program
AWR .....Annual Wastewater Report

BAA .....Broad Agency Announcements
BACT.....Best Available Control Technology
BAT .....Best Available Treatment
BEA .....Baseline Environmental Assessment
BFDB.....Barrier Free Design Board
BSR .....Bureau of Safety and Regulation (of DLARA)
BTU .....British Thermal Units

C3.....Clean Corporate Citizen Program
CAA .....Clean Air Act
CAP .....Corrective Action Plan
CAS .....Chemical Abstract Service
CDL .....Commercial Drivers License
CEPPO.....Chemical Emergency Preparedness and Prevention Office (U.S. EPA)
CERCLA.....Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also known as Superfund)
CFC .....Chlorofluorocarbon
CFR .....Code of Federal Regulations
CMR .....Critical Materials Register
CNG .....Compressed Natural Gas
CO2 .....Carbon Dioxide
CO .....Carbon Monoxide
CRDA .....Cooperative Research and Development Agreement
CRT .....Cathode Ray Tube
CWA .....Clean Water Act

DARD .....Michigan Department of Agriculture and Rural Development
DEQ .....Michigan Department of Environmental Quality
DLARA .....Michigan Department of Licensing and Regulatory Affairs

EA.....Environmental Assessment
EAP .....Environmental Assistance Program (of the OEA)
EHS .....Extremely Hazardous Substance
EMS.....Environmental Management System
EMU .....Environmental Monitoring Unit
EPCRA .....Emergency Planning and Community Right-To-Know Act
ERC.....Emission Reduction Credit
ESA .....Environmental Site Assessment

F .....Fahrenheit

FDA .....United States Food and Drug Administration
FL/CL.....Flammable and Combustible Liquids
FP.....Flashpoint
FR.....Federal Register
FRP .....Facility Response Plan

GEM .....Groundwater Education in Michigan

HAPs .....Hazardous Air Pollutants
HAZWOPER ....Hazardous Waste Operations and Emergency Response
HBV.....Hepatitis B Vaccination
HCFC .....Hydrochlorofluorocarbons
HVAC .....Heating, Ventilation, and Air Conditioning

ICP .....Integrated Contingency Plan
IPP.....Industrial Pretreatment Program
IRSL .....Initial Risk Screening Level
ISO .....International Organization for Standardization
ITSL.....Initial Threshold Screening Level

LAER.....Lowest Achievable Emission Rate
LDR .....Land Disposal Restriction
LEPC.....Local Emergency Planning Commission
LPG .....Liquefied Petroleum Gas
LUST .....Leaking Underground Storage Tanks

MAC .....Michigan Administrative Code
MACT .....Maximum Achievable Control Technology
MAERS.....Michigan Air Emissions Reporting System
MBP3.....Michigan Business Pollution Prevention Partnership
MCL.....Michigan Compiled Laws
MEK.....Methyl Ethyl Ketone
MIOSHA .....Michigan Occupational Safety and Health Act
MOT .....Materials of Trade
MSP.....Michigan State Police
MUSTA.....Michigan Underground Storage Tank Authority
MUSTR.....Michigan Underground Storage Tank Regulations

N.....Nitrogen
NAAQS.....National Ambient Air Quality Standards
NARA .....National Archives and Records Administration
NARM.....Naturally occurring and Accelerator-produced Radioactive Material
NAICS .....North American Industrial Classification System
NESHAPs.....National Emission Standards for Hazardous Air Pollutants
NFIP .....National Flood Insurance Program
NFPA.....National Fire Protection Association
NIOSH.....National Institute for Occupational Safety and Health
NPDES .....National Pollutant Discharge Elimination System

NOx .....Nitrogen Oxide
NO_2 .....Nitrogen Dioxide
NOI .....Notice of Intent
NSF .....National Science Foundation
NSPS.....New Source Performance Standards
NRC.....National Response Center (of the USCG)
NRC.....Nuclear Regulatory Commission
NREPA .....Natural Resources and Environmental Protection Act (Public Act 451 of 1994)

OGM.....Oil, Gas, and Minerals
OSWER.....Office of Solid Waste and Emergency Response (U.S. EPA)
O2 .....Oxygen
OPIM .....Other Potentially Infectious Materials
ORM .....Other Regulated Material
OSHA .....Occupational Safety and Health Administration or Occupational Safety and Health Act

P2 .....Pollution Prevention
P2-TAPN .....Pollution Prevention Technical Assistance Providers Network
Pb .....Lead
PCB .....Polychlorinated Biphenyl
PEAS.....Pollution Emergency Alerting System
PEL .....Permissible Exposure Limits
Perc .....Perchloroethylene
PID .....Photoionization Meter
PIPP .....Pollution Incident Prevention Plan
PM .....Particulate Matter
POTW .....Publicly Owned Treatment Works
PPE .....Personal Protective Equipment
PPM.....Parts Per Million
PRCS .....Permit-Required Confined Space
PSD .....Prevention of Significant Deterioration
PSI .....Pounds per Square Inch
psia.....Pounds per Square Inch-Atmosphere
PTE .....Potential to Emit

QC .....Qualified Consultant

RACT.....Reasonable Available Control Technology
RAM .....Radioactive Material
RBCA .....Risk Based Corrective Action
RBSL.....Risk Based Screening Level
RCRA .....Resource Conservation and Recovery Act
RD .....Remediation Division (of the DEQ)
RETAP .....Retired Engineer Technical Assistance Program
RMP .....Risk Management Plan
RMU .....Radioactive Materials Unit (of the DEQ's Radiological Protection Program)
ROP.....Renewable Operating Permit
RQ .....Reportable Quantity

SARA .....Superfund Amendments and Reauthorization Act of 1986
SBIR .....Small Business Innovation Research Program
SCC.....Source Classification Code
SCF .....Standard Cubic Foot
SCFM .....Standard Cubic Feet per Minute
SDS .....Safety Data Sheet
SERC .....State Emergency Response Commission
CET .....Consultation Education & Training Division (of MIOSHA)
SIC .....Standard Industrial Classification Code
SNAP.....Significant New Alternatives Policy
SO2 .....Sulfur Dioxide
SPCC .....Spill Prevention, Control, and Countermeasures
SRSL.....Secondary Risk Screening Level
STEL .....Short-term Exposure Limits
STTR.....Small Business Technology Transfer Program
STU .....Storage Tank Unit
SWPPP .....Storm Water Pollution Prevention Plan

TAC .....Toxic Air Contaminant
T-BACT .....Best Available Control Technology for Toxics
TCE .....Tetrachloroethylene
TCLP .....Toxicity Characteristic Leaching Procedure (RCRA)
TLV.....Threshold Limit Value
TPQ .....Threshold Planning Quantity
TQ .....Threshold Quantity
TRI.....Toxic Release Inventory
TSCA .....Toxic Substances Control Act
TSDF .....Treatment, Storage, and Disposal Facility
TWA .....Time Weighted Average

USC.....United States Code
USCG .....United States Coast Guard
USACE.....United States Army Corps of Engineers
U.S. EPA .....United States Environmental Protection Agency
U.S. DOT .....United States Department of Transportation
UST .....Underground Storage Tank
UV .....Ultraviolet

VD .....Vapor Density
VOC .....Volatile Organic Compound

Michigan Guide to Environmental, Health, and Safety Regulations

Appendix B

Definitions of Regulated Materials

APPENDIX B: DEFINITIONS OF REGULATED MATERIALS

Regulated Material	Definition
CAA Section 112(r) Substances	Any of 77 toxic substances and 63 flammable substances regulated under the accident prevention provisions of Section 112(r) of the Clean Air Act (CAA) and listed in Title 40, Part 68 of the Code of Federal Regulations. The list of CAA Section 112(r) substances is included in the "List of Lists" described below.
Extremely Hazardous Substances (EHSs)	A substance defined in SARA Title III, Section 302. The EHSs are listed in Appendices A and B of Title 40, Part 355 of the Code of Federal Regulations. The EHSs are included in the "List of Lists" described below.
Flammable and Combustible Liquids (FL/CL)	As defined by the Michigan Fire Prevention Code, Public Act 207 of 1941, flammable and combustible liquids have a flashpoint below 200 degrees Fahrenheit. The local authorities oversee Part 2 of the FL/CL Rules that apply to individual containers and drums 60 gallons and smaller and portable tanks 660 gallons and smaller. The Department of Licensing and Regulatory Affairs, Storage Tank Program oversees containers and tanks larger than these volumes. Also see Chapter 34 for MIOSHA flammable and combustible liquid regulations.
Flammable and Combustible Liquids-Act 207	As defined by the Michigan Fire Prevention Code, Public Act 207 of 1941, as amended (Act 207). "Flammable liquid" is a liquid having a flashpoint (FP) below 100° Fahrenheit and a vapor pressure not exceeding 40 pounds per square inch absolute at 100° Fahrenheit. "Combustible liquid" is a liquid having a FP at or above 100° Fahrenheit and below 200° Fahrenheit.
Flammable and Combustible Liquids-MIOSHA	As defined by Part 75 of the MIOSHA, General Industry Safety Standards. "Flammable liquid" is a liquid with an FP below 100° Fahrenheit except any mixture having components with FP of 100° Fahrenheit or higher, the total volume of which make up 99% or more of the total volume of the mixture. "Combustible liquid" is a liquid with FP at or above 100° Fahrenheit. See Chapter 34 for a more detailed definition.
Hazardous Air Pollutants (HAPs)	187 air contaminants identified in the Clean Air Act Amendments of 1990 that may cause serious illnesses and environmental damage.
Hazardous Chemicals	As defined by the Emergency Planning and Community Right-To-Know Act (EPCRA), "hazardous chemical" has the meaning given in Title 29, Section 1910.1200(c) of the Code of Federal Regulations. They are any substance for which your facility must maintain a SDS under OSHA's Hazard Communication Standard/Employee Right-To-Know but does not include the following: (1) Any food, food additive, color additive, drug, or cosmetic regulated by the Food and Drug Administration; (2) any substance present as a solid in any manufactured item to the extent exposure to the substance does not occur under normal conditions of use; (3) any substance used for personal, family, or household purposes, or is present in the same form and concentration as a product packaged for distribution and use by the general public; (4) any substance used in a research laboratory or a hospital or other medical facility under the direct supervision of a technically qualified individual; (5) any substance used in routine agricultural operations or fertilizer held for sale by a retailer to the ultimate customer.

APPENDIX B: DEFINITIONS OF REGULATED MATERIALS (continued)

Regulated Material	Definition
Hazardous Chemicals-OSHA	For the purposes of Sections 311 and 312 of SARA Title III, the term "hazardous chemical" has the meaning given in Title 29, Section 1910.1200(c) of the Code of Federal Regulations. It is any substance for which your facility must maintain a SDS under OSHA's Hazard Communication Standard/Employee Right-To-Know but does not include the following: (1) any food, food additive, color additive, drug, or cosmetic regulated by the Food and Drug Administration; (2) any substance present as a solid in any manufactured item to the extent exposure to the substance does not occur under normal conditions of use; (3) any substance used for personal, family, or household purposes, or is present in the same form and concentration as a product packaged for distribution and use by the general public; (4) any substance used in a research laboratory or a hospital or other medical facility under the direct supervision of a technically qualified individual; (5) any substance used in routine agricultural operations or fertilizer held for sale by a retailer to the ultimate customer.
Hazardous Materials-DEQ	As defined by the Hazardous Materials Transportation Act, Public Act 368 of 1999, as amended; “hazardous materials” include hazardous waste and liquid industrial waste.
Hazardous Materials-Act 207	As defined by the Michigan Fire Prevention Code, Public Act 207 of 1941. "Hazardous materials" are explosives, pyrotechnics, flammable gas, flammable compressed gas, nonflammable compressed gas, flammable liquid, combustible liquid, oxidizing material, poisonous gas, poisonous liquid, irritating material, etiologic material, radioactive material, corrosive material, or liquefied petroleum gas.
Hazardous Material-USDOT	As defined in Title 49, Part 171.8 of the Code of Federal Regulations. A "hazardous material" is a substance or material that has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce and that has been so designated. The term includes **hazardous substances-CERCLA**, **hazardous waste,** marine pollutants, and elevated temperature materials. The table of hazardous materials is contained in 49 CFR 172.101, and is available at **www.gpoaccess.gov/cfr/index.html**.
Hazardous Substances-CERCLA	A substance subject to reporting requirements under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and listed in Title 40, Part 302, Table 302.4 of the Code of Federal Regulations. The list of CERCLA hazardous substances is included in the "List of Lists" described below.
Hazardous Substances-MIOSHA	Means any of the following substances, exposure to which results in or may result in adverse effects on the health and safety of employees: • Any hazardous substances-CERCLA; • Any biological agent and other disease-causing agent; • Hazardous Material as defined in Title 49, Part 171.8 of the Code of Federal Regulations. A ""hazardous material"" is a substance or material that has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce and which has been so designated. The term includes **hazardous substances-CERCLA**, hazardous wastes, marine pollutants, and elevated temperature materials. A table of hazardous materials is contained in 49 CFR 172.101, which can be accessed via the Internet at **www.gpoaccess.gov/cfr**. • Hazardous waste as defined in 40 CFR 261.3 and 49 CFR 171.8.

APPENDIX B: DEFINITIONS OF REGULATED MATERIALS (continued)

Regulated Material	Definition
Hazardous Substances-Part 201	As defined under Part 201 (Environmental Remediation) of Public Act 451. "Hazardous substance" means one or more of the following, but does not include fruit, vegetable, or field crop residuals or processing by-products, or aquatic plants, that are applied to the land for an agricultural use or for use as an animal feed, if the use is consistent with generally accepted agricultural management practices developed pursuant to the Michigan Right to Farm Act: (i) any substance that the department demonstrates, on a case-by-case basis, poses a threat to the public health, safety, or welfare or the environment, considering the fate of the material, dose-response, toxicity, or adverse impact on natural resources; (ii) **hazardous substance-CERCLA** (2001 version of 40 CFR 302, Table 302.4); (iii) **hazardous waste-DEQ**, (iv) petroleum as described in Part 213 of Act 451. These regulations can be accessed on the Internet at **www.michigan.gov/deq**.
Hazardous Waste	"Hazardous waste" is waste or a combination of waste and other discarded material including solid, liquid, semisolid, or contained gaseous material that, because of its quantity; quality; concentration; or physical, chemical, or infectious characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious irreversible illness or serious incapacitating but reversible illness, or may pose a substantial present or potential hazard to human health or the environment if improperly treated, stored, transported, disposed of, or otherwise managed. Hazardous waste that is subject to the hazardous waste manifest requirements is a **hazardous material-US DOT**. To determine if a discarded material a hazardous waste that must be documented on a manifest for disposal, see Chapter 2.4.
Highly Hazardous Chemicals	A substance possessing toxic, reactive, flammable, or explosive properties and listed in MIOSHA General Industry Safety Standard - Part 91, Process Safety Management of Highly Hazardous Chemicals. To obtain a copy of Part 91, see **www.michigan.gov/miosha**.
Liquid Industrial By-product	"Liquid industrial by-product" or "by-product" means any material that is produced by, is incident to, or results from industrial, commercial, or governmental activity or any other activity or enterprise, that is determined to be liquid by method 9095 (paint filter liquids test) as described in "Test methods for evaluating solid wastes, physical/chemical methods," U.S. EPA publication no. SW-846, and that is discarded. Liquid industrial by-product does not include any of the following: (i) Hazardous waste regulated and required to be manifested under part 111. (ii) Septage waste regulated under part 117. (iii) Medical waste regulated under part 138 of the public health code, 1978 PA 368, MCL 333.13801 to 333.13832. (iv) A discharge to the waters of the state in accordance with a permit, order, or rule under part 31. (v) A liquid generated by a household. (vi) A liquid regulated under 1982 PA 239, MCL 287.651 to 287.683. (vii) Material managed in accordance with section 12102a.

APPENDIX B: DEFINITIONS OF REGULATED MATERIALS (continued)

Regulated Material	Definition
List of Lists	The U.S. EPA has consolidated the listed chemicals into one document known as the "List of Lists." This document contains the lists of **extremely hazardous substances**, **hazardous substances-CERCLA**, **CAA Section 112(r) substances**, and **toxic chemicals**. There is a link to the "List of Lists" document as well as the searchable database on the DEQ, Michigan SARA Title III Web site at **www.michigan.gov/deqsara**.
Medical Waste	In accordance with Part 138 (Medical Waste Regulatory Act) of the Michigan Public Health Code, Public Act 368 of 1978, as amended, "medical waste" means any of the following that are not generated from a household, a farm operation or other agricultural business, a home for the aged, or a home health care agency: (a) Cultures and stocks of infectious agents and associated biologicals, including laboratory waste, biological production wastes, discarded live and attenuated vaccines, culture dishes, and related devices; (b) Liquid human and animal waste, including blood and blood products and body fluids, but not including urine or materials stained with blood or body fluids; (c) Pathological waste; (d) Sharps; (e) Contaminated wastes from animals that have been exposed to agents infectious to humans, these being primarily research animals.
Oil-DEQ Part 5	As defined by R 324.2001(e). Oil means oil of any kind or in any form, including but not limited to, any of the following: petroleum, gasoline, fuel oil, grease, oily sludges, oil refuse, oil mixed with waste, used oil, vegetable oil, and animal fats.
Oil-U.S. EPA	Section 311(a)(1) of the Clean Water Act defines "oil" as "oil of any kind or in any form including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil." EPA interprets this definition to include crude oil, petroleum and petroleum-refined products, as well as non-petroleum oils such as vegetable and animal oils.
Petroleum-DEQ	As defined under Part 211 (Underground Storage Tank Regulations) of Public Act 451 of 1994. "Petroleum" includes crude oil or any fraction of crude oil that is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute). Petroleum includes but is not limited to mixtures of petroleum with de minimis quantities of other regulated substances, and petroleum-based substances composed of a complex blend of hydrocarbons derived from crude oil through processes of separation, conversion, upgrading, or finishing such as motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, and petroleum solvents.
Polluting Materials	As defined in the Part 5 rules pursuant to Part 31 (Water Resources Protection) of Public Act 451 of 1994, polluting materials include **oil-DEQ Part 5**, **salt**, regulated materials listed in R 324.2009 Table 1, and any compound or products that contain 1% or more by weight of these materials based on the material safety data sheet formulation.
Salt	Defined in R 324.2002(c) of the Part 5 rules pursuant to Part 31 (Water Resources Protection) of Public Act 451 of 1994, Salt means sodium chloride, potassium chloride, calcium chloride, and magnesium chloride, and solutions or mixtures of 1 percent or more of these compounds in solid or liquid form.
Toxic Air Contaminants	Defined in R 332.1120(f) of the Michigan Air Pollution Control Rules as any substance that is or may become harmful to public health or the environment except for 40 substances that have been specifically excluded.
Toxic Chemicals	Chemicals or chemical categories defined in Section 313 of the SARA Title III. Toxic chemicals, including those identified as persistent, bioaccumulative and toxic (PBT), are listed in Title 40, Part 372.65 of the Code of Federal Regulations. The list of toxic chemicals is included in the "List of Lists" described below.

Michigan Guide to Environmental, Health, and Safety Regulations

Appendix C

DEQ and MIOSHA Overview

APPENDIX C: DEQ and MIOSHA OVERVIEW

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

The mission of the Department of Environmental Quality (DEQ) is to *conserve, manage, protect and promote Michigan's environmental, natural resources and related economic interests for current and future generations. This includes implementing an ecosystem-based strategy for resource management, effectively using natural resources in a sustainable manner, and providing for continuous improvement in Michigan's air, water and soils while facilitating and encouraging economic growth.*

OVERVIEW

The Department of Environmental is responsible for the administration of the Natural Resource and Environmental Protection Act, Public Act 451 of 1994, as amended, and the administrative rules promulgated under its authority.

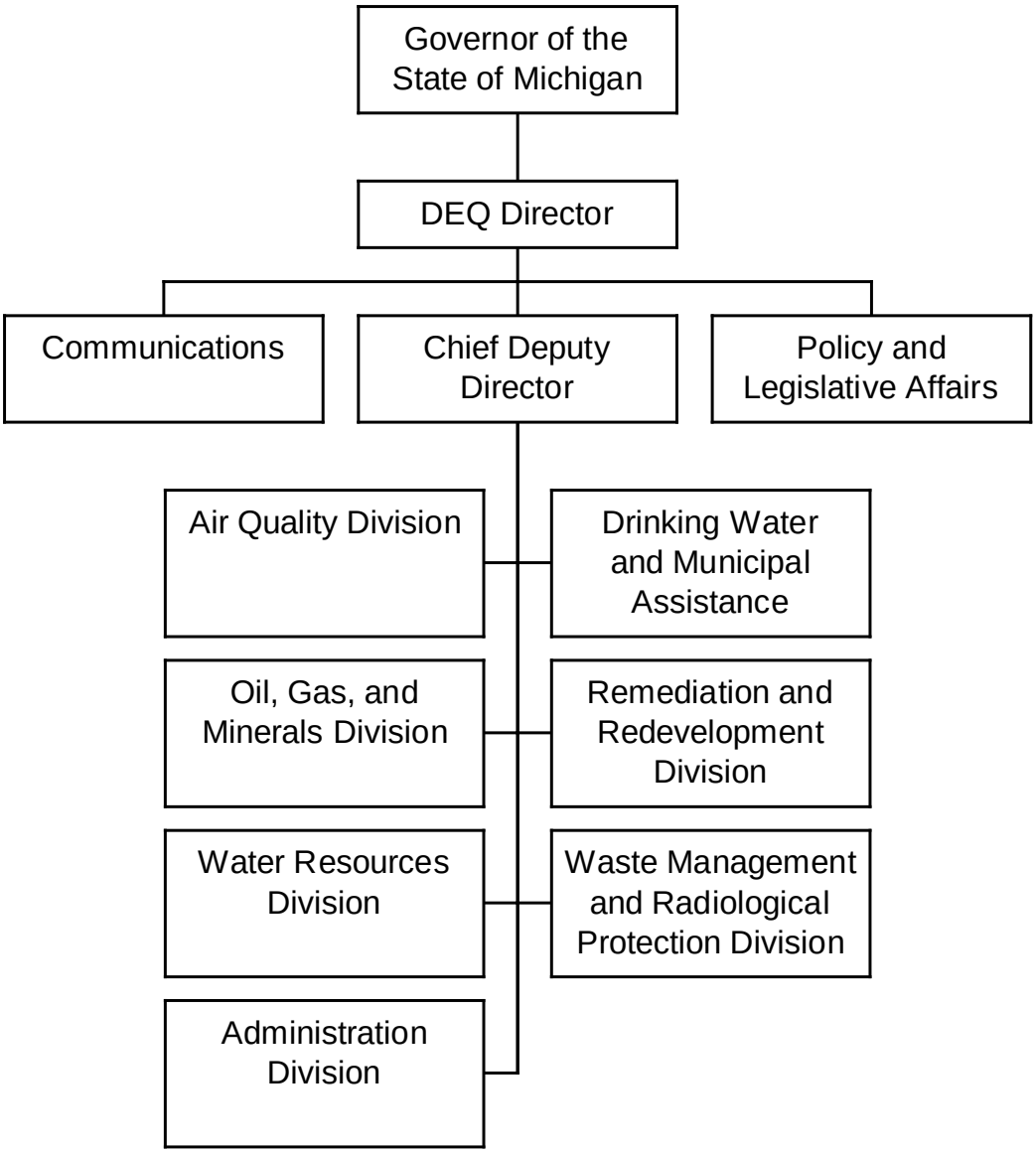
The DEQ has field staff located in eight district offices throughout Michigan. See Table C-1 for the district contact list and Figure C-2 for the district boundaries and office locations.

Figure C-1 is the Organizational Chart of the DEQ as of January 2016.

Figure C-1

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
ORGANIZATIONAL STRUCTURE

June 2018



CONTACT THE DEQ

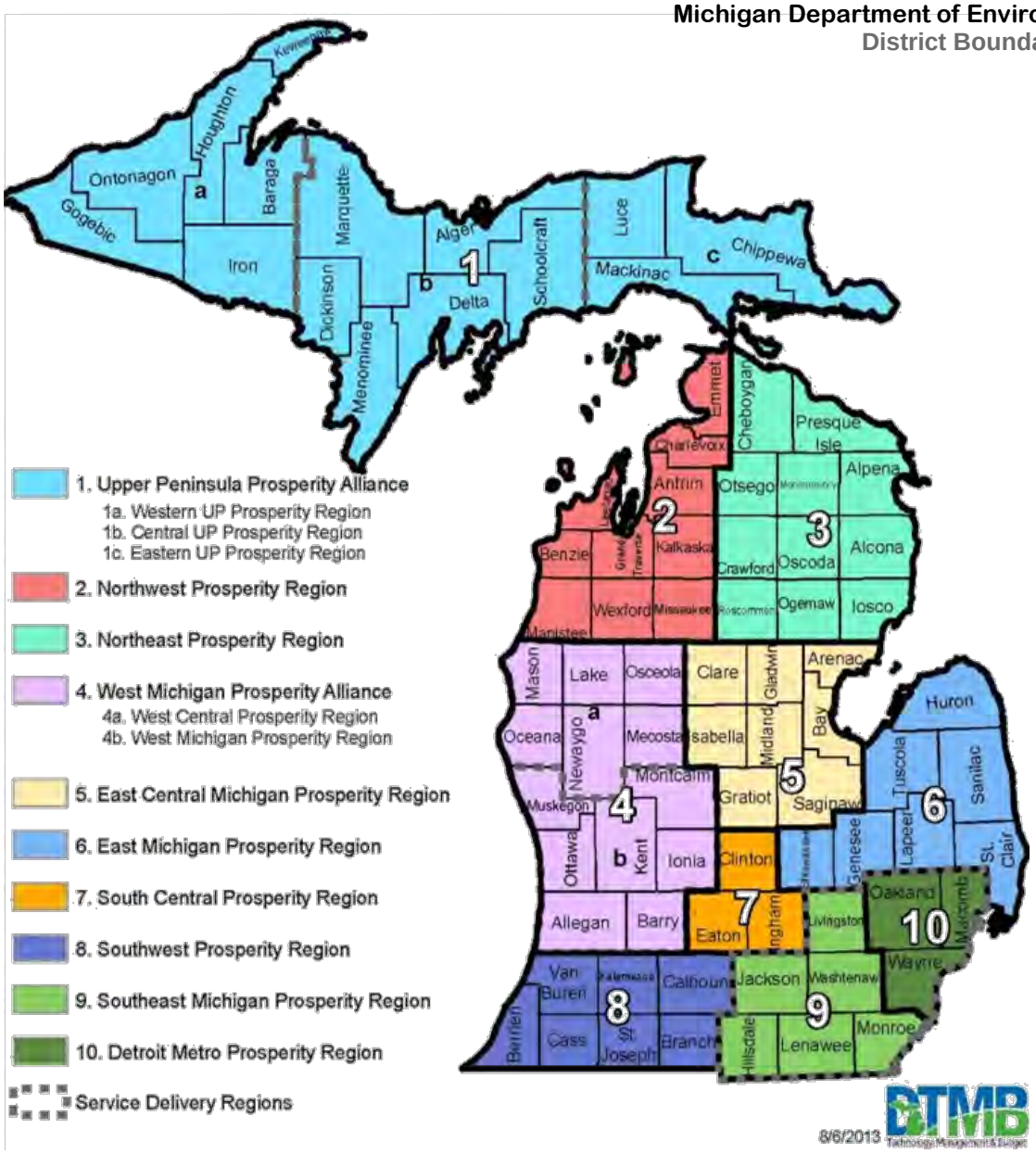
Michigan Department of Environmental Quality (DEQ)
Constitution Hall
525 W. Allegan
P.O. Box 30473
Lansing, Michigan 48909-7973

Environmental Emergency Contacts
To report an environmental emergency situation, dial the 24-hour Pollution Emergency Alert System (PEAS) at: **800-292-4706** (within Michigan) **or 517-373-7660** (outside Michigan)
During daytime hours, you may also contact the appropriate district office directly.

Contact the Environmental Assistance Center
For information, questions, or if you would like to comment or express your concerns regarding a DEQ issue, please call 800-662-9278 or email the DEQ-Environmental Assistance Center at **deq-assist@michigan.gov.**

District Office Locations
The Michigan Department of Environmental Quality has established district and field offices to provide department services throughout the state. District and field office employees provide information about department programs, review and process permit applications, provide pollution prevention assistance to regulated entities, assess the compliance status of regulated entities, and meet with stakeholder groups to encourage public participation in the regulatory process. The following page provides the District Boundaries and District Office contact information.

Michigan Department of Environmental Quality
District Boundaries and Offices



Region 1 - Upper Peninsula District Office
1504 West Washington Street
Marquette, MI 49855
Phone: 906-346-8300

Region 2 - Cadillac District Office
120 West Chapin St.
Cadillac, MI 49601
Phone: 231-775-3960

Region 3 - Gaylord Field Office
2100 West M-32
Gaylord, MI 49735
Phone: 989-731-4920

Region 4 - Grand Rapids District Office
350 Ottawa Avenue, NW, Unit 10
Grand Rapids, MI 49503-2341
Phone: 616-356-0500

Regions 5 & 6 - Saginaw Bay District Office
401 Ketchum Street, Suite B
Bay City, MI 48708
Phone: 989-894-6200

Region 7 - Lansing District Office
Constitution Hall, 1st Floor South
525 West Allegan Street
Lansing, MI 48933
Phone: 517-284-6651

Region 8 - Kalamazoo District Office
7953 Adobe Road
Kalamazoo, MI 49009-5025
Phone: 269-567-3500

Region 9 - Jackson District Office
301 East Louis Glick Highway
Jackson, MI 49201-1556
Phone: 517-780-7690

Region 10 - SE Michigan District Office
27700 Donald Court
Warren, MI 48092-2793
Phone: 586-753-3700

Detroit Field Office
Cadillac Place
3058 W. Grand Blvd., Ste. 2-300
Detroit, MI 48202
Phone: 313-456-4700

DEQ LANSING HEADQUARTERS

Michigan Department of Environmental Quality
Constitutional Hall
525 W. Allegan Street
P.O. Box 30473
Lansing, MI 48909-7973
800-662-8278

DEQ DISTRICT OFFICES

Upper Peninsula District
1504 W. Washington St.
Marquette, MI 49855
906-228-4853
Counties: Entire Upper Peninsula

Cadillac District
120 W Chapin Street
Cadillac, MI 49601-2158
231-775-3960
Counties: Benzie, Grand Traverse, Kalkaska, Lake, Leelanau, Manistee, Mason, Missaukee, Osceola, Wexford

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Gaylord Office
2100 West M-32
Gaylord, MI 49735-9282
989-731-4920
Counties: Alcona, Alpena, Antrim, Charlevoix, Cheboygan, Crawford, Emmet, Montmorency, Oscoda, Otsego, Presque Isle, Roscommon

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Saginaw Bay District
Saginaw Bay District Headquarters
401 Ketchum St., Ste. B
Bay City, MI 48708
989-894-6200
Counties: Arenac, Bay, Clare, Gladwin, Huron, Iosco, Isabella, Midland, Ogemaw, Saginaw, Sanilac, Tuscola

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Grand Rapids District
350 Ottawa NW
Grand Rapids, MI 49503
616-356-0500
Counties: Barry, Ionia, Kent, Mecosta, Montcalm, Muskegon, Newaygo, Oceana, Ottawa

DISTRICT OFFICE LOCATIONS *(continued)*

Kalamazoo District
7953 Adobe Road
Kalamazoo, MI 49009-5026
269-567-3500
Counties: Allegan, Berrien, Branch, Calhoun, Cass, Kalamazoo St. Joseph, Van Buren

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Lansing District
Constitution Hall
525 W. Allegan St., 1S
P.O. Box 30242
Lansing, MI 48909-7742
517-284-6651
Counties: Clinton, Eaton, Genesee, Gratiot, Ingham, Lapeer, Livingston, Shiawassee

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Jackson District
State Office Building, 4th Floor
301 E Louis B Glick Highway
Jackson, MI 49201-1556
517-780-7690
Counties: Hillsdale, Jackson, Lenawee, Monroe, Washtenaw

Southeast Michigan District
27700 Donald Court
Warren, MI 48092-2793
586-753-3700
Counties: Macomb, Oakland, St. Clair

Detroit Office
Cadillac Place, Suite 2-300
3058 West Grand Blvd.
Detroit, MI 48202-6058
313-456-4700
Counties: Wayne

MICHIGAN OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

MISSION

The mission of the Michigan Occupational Safety and Health Administration (MIOSHA) is to help assure the safety and health of workers.

OVERVIEW

The Michigan legislature created the modern Michigan Occupational Safety and Health Act, Public Act 154 of 1974, in order to better prevent workplace injuries, illnesses and fatalities in Michigan by: setting and enforcing occupational safety and health standards; promoting safety and health training and education; and working with partners to develop innovative programs to prevent workplace hazards. P.A. 154 went into effect for private sector employers on January 1, 1975 and for public sector employers on July 1, 1975.

The MIOSHA Act established the General Industry Safety Standards Commission, the Construction Safety Standards Commission, and the Occupational Health Commission. The commissions are responsible for developing standards in consultation with advisory committees whose members represent the major interests affected by the proposed standard. The standards are intended to protect the health and safety of Michigan's employees.

Among the most significant changes since MIOSHA's inception are:

- Act 105 of 1991 amended Act 154 of 1974 and provided for the increase in the MIOSHA civil penalties to the level identical to the federal penalties
- The MIOSHA Act was amended again in 1986 by Public Act 80 - the Michigan Right to Know Law. This amendment included requirements for the communication of information regarding the safe handling of hazardous chemicals present in Michigan workplaces.

MIOSHA was administered by the Michigan Department of Public Health, Occupational Health Division and the Michigan Department of Labor, Bureau of Safety and Regulation until 1996 when Governor John Engler issued Executive Order 1996-1 which transferred occupational health responsibilities to the Bureau of Safety and Regulation.

In 2003, Governor Jennifer M. Granholm signed Executive Order 2003-14 creating the Department of Labor and Economic Growth (DLEG). The department was created by renaming the Department of Consumer and Industry Services (CIS) and merging many Department of Career Development functions into the new department along with several other key programs from other departments.

Effective December 8, 2003, the MIOSHA program reorganized its operational structure by creating the Management & Technical Services Division and combining enforcement divisions. The General Industry Safety Division, Construction Safety Division and the Occupational Health Division became the General Industry Safety & Health Division (GISHD) and the Construction Safety and Health Division (CSHD). The MIOSHA Information Division became the Management Information Systems Section and the MIOSHA Standards Division became the MIOSHA Standards Section. Both are administered by MTSD. The Employee Discrimination Division became the Employee Discrimination Section and is administered by GISHD. The Asbestos program is administered by CSHD. In addition,

the program name changed from the Bureau of Safety and Regulation to the Michigan Occupational Safety and Health Administration (MIOSHA).

On December 28, 2008, Governor Jennifer M. Granholm signed Executive Order 2008-20 creating the Department of Energy, Labor & Economic Growth (DELEG). The department was created by renaming the Department of Labor and Economic Growth (DLEG) and ensuring efficient administration and effectiveness of government.

Effective April 24, 2011, Governor Rick Snyder signed Executive Order 2011-4 creating the Department of Licensing & Regulatory Affairs (LARA). The department was created by renaming the Department of Energy, Labor & Economic Growth (DELEG) and reorganizing functions among state departments to ensure efficient administration. Included in this Executive Order, the Wage & Hour Division joined the Michigan Occupational Safety & Health Administration (MIOSHA).

MIOSHA DIVISIONS

Appeals Division

The Appeals Division represents the General Industry Safety & Health and the Construction Safety & Health divisions in prehearing conferences and formal administrative hearings related to contested MIOSHA citations. Questions concerning the administrative process relative to prehearing conferences or formal hearings can be directed to the MIOSHA Appeals Division. Questions concerning case scheduling should be directed to the Bureau of Hearings.

Construction Safety and Health Division

The Construction Safety and Health Division is one of two standards enforcement divisions of MIOSHA. The division enforces safety and health standards in the construction industry defined in the MIOSHA statute as work activity designated in major groups 15, 16, and 17 of the *Standard Industrial Classification (SIC) Manual.* All construction types are inspected including projects such as:

- road and bridge projects
- sewer, water, gas, and electric utility lines
- power plants
- waste and water treatment plants
- high rise construction
- factory and other building additions
- communication and power transmission towers
- single family homes

Construction standards apply when the ***type of work being done*** is construction work designated by one of the above SIC groups. For example, a general industry employer who has almost all employees engaged in a manufacturing operation must comply with the MIOSHA general industry standards applicable to the manufacturing processes. However, if several of the general industry employer's workers are, for example, pouring a concrete press pit or performing electrical work, the MIOSHA Construction Safety Standards applicable to the concrete or electrical work must be followed.

In a similar way, a municipal employer may have employees performing work covered by General Industry Standards such as trimming trees or collecting trash and may assign the same employees to later perform work covered by the Construction Standards such as repair a water line or grade gravel shoulders. Again, it is the ***type of work being done*** that determines which standard is applicable.

The Construction Safety and Health Division addresses safety hazards such as fall, electrical, excavation and other types of physical hazards, as well as occupational exposure of Michigan construction workers to substances or work conditions such as air contaminants, noise, ergonomic hazards, bloodborne pathogens, and ionizing and non-ionizing radiation. The division is also responsible for enforcing MIOSHA rules that contain control measures used to reduce employee exposure to such substances/work conditions, including engineering controls (e.g., industrial ventilation, enclosures, etc.), administrative controls (e.g., employee rotation, hazard communication, housekeeping, etc.), and personal protective equipment (e.g., gloves, hard hats, eye protection, respiratory protection, hearing protection, chemical protective clothing, etc.). The Construction Safety and Health Division also administers the Asbestos Program which licenses asbestos abatement contractors, accredits asbestos abatement workers and enforces MIOSHA asbestos standards in both construction and general industry.

Consultation Education and Training Division

The Consultation Education and Training Division (CET) services are provided throughout the state by an in-house staff of professional occupational safety consultants, occupational safety specialists and industrial hygienists. The staff in the CET Division are non-enforcement personnel. These consultants and specialists are located throughout Michigan and collectively they serve the employers and the employees in all 83 Michigan counties.

CET services are funded through a special Michigan worker's disability compensation levy assessment that provides CET restricted use funding. This funding is also supplemented by federal funds. No Michigan general fund money is used to provide CET services. The majority of CET services are provided to Michigan employers or employees at no additional cost beyond the levy assessment. Co-sponsors of CET public seminars may charge a nominal fee to cover the costs of equipment rental, room rental, and lunch/refreshment charges.

Employee Discrimination Section

The Employee Discrimination Section (EDS) provides protection through investigations of complaints by workers who have been allegedly discriminated against for exercising rights under the Michigan Occupational Safety and Health Act, Act 154 of Public Acts of 1974, as amended, commonly referred to as MIOSHA.

Some examples of discrimination are firing, demotion, transfer, layoff, losing the opportunity for overtime or promotion, assignment to an undesirable shift, denial of benefits such as sick leave or vacation time, damaging credit at banks or credit unions and reducing pay or hours.

Workers have the right to complain to MIOSHA and seek an EDS investigation. Section 65 of the Michigan Occupational Safety and Health Act authorizes MIOSHA to investigate employee complaints of employer discrimination against those who are involved in safety and health activities. An employee or the authorized representative of an employee who participates in an investigation shall not suffer a loss of wages or fringe benefits, or be discriminated against in any manner, for time spent participating in the inspection, investigation, or related conference. The most important thing to remember is the complaint must be filed within **thirty (30) days** of the event or occurrences and it must stem from a safety and health issue.

Complaints may involve retaliation against employees or their representative because the employee refused to perform a job duty they believe to be life threatening or of an imminent danger. Refusing to do a job because of potentially unsafe workplace conditions is not ordinarily an employee right under

the MIOSH Act. Refusing to work may result in disciplinary action by the employer. However, if the employee refuses in good faith to expose him/herself to a dangerous condition and does not have a reasonable alternative, they would be protected against subsequent discrimination under MIOSHA.

Other complaints stem from employees who have been discriminated against because they testified in a MIOSHA proceeding, filed a complaint with a state or federal agency, complained to outside sources such as radio, television, or newspaper reporters, or made verbal complaints to other employees, management, or employee group representatives about unsafe or unhealthy working conditions.

After EDS investigates a complaint a determination is issued. This determination is subject to appeal by the employer, the employee or both. Either party, the employer or employee, may request a review of the department's determination. The employee, employer and the department become parties to a proceeding before an administrative law judge with the State Office of Administrative Hearings and Rules as a result of a request for review. The hearings officer shall issue a decision which becomes the final agency order upon receipt by the parties. These decisions are also subject to appeal by the employer or the employee to the circuit court where the employee is a resident, where the employment occurred or where the employer has a principal place of business.

If an employee believes their employer has treated them differently because they exercised their safety and health rights, they should contact the Employee Discrimination Section right away.

General Industry Safety and Health Division

The General Industry Safety & Health Division conducts inspections and investigations in places of employment within the state of Michigan. This includes both public sector employers and private employers. The division responds to complaints from employees or their representatives, investigates accidents including fatalities and catastrophes, and responds to referrals of unsafe or unhealthy conditions from other agencies.

The division addresses the occupational exposure of Michigan's employees to substances of work conditions such as air contaminants, noise, ergonomic hazards, bloodborne pathogens, and ionizing and nonionizing radiation. It is also responsible for enforcing MIOSHA rules that contain control measures used to reduce employee exposure to such substances/work conditions, including engineering controls (e.g., industrial ventilation, enclosures, etc.,) administrative controls (e.g., employee rotation, hazard communication, housekeeping, etc.,), and personal protective equipment (e.g., respiratory protection, hearing protection chemical protective clothing, etc.).

The division also conducts unannounced inspections at facilities throughout the state in accordance with current priority inspection guidelines. The General Industry Safety & Health Division also administers the Employee Discrimination Section.

Management Information Services Division

The **Management Information Systems Section (MISS)** is responsible for compilation of accurate and timely injury and illness data, provides information to MIOSHA clients about recordkeeping requirements, prepares statistical information and reports to programs about enforcement activities, monitors data related to MIOSHA strategic planning activities, and provides computer and software support to other MIOSHA programs.

Management and Technical Services Division

The **Management and Technical Services Division (MTSD)** is responsible for a variety of services to MIOSHA staff and clients. MTSD staff prepare and administer most of the grants and contracts related to the federal programs that MIOSHA supports and monitor budget activity. The program areas include:

- The **Laboratory and Equipment Services Section (LESS)** includes an industrial hygiene laboratory, which is accredited by the American Industrial Hygiene Association, for analysis of air and material samples for occupational exposure to air and physical contaminants. LESS also includes an instrument calibration and maintenance program for providing field instrumentation to MIOSHA industrial hygienists and safety officers to assess exposure to chemical and physical hazards in the workplace.
- The **Management Information Systems Section (MISS)** is responsible for compilation of accurate and timely injury and illness data, provides information to MIOSHA clients about recordkeeping requirements, prepares statistical information and reports to programs about enforcement activities, monitors data related to MIOSHA strategic planning activities, and provides computer and software support to other MIOSHA programs.
- The **MIOSHA Standards Section (MSS)** provides services for the promulgation of Michigan occupational safety and health standards and rules. MSS coordinates the activities of three commissions (the Construction Safety Standards Commission, the General Industry Safety Standards Commission, and the Occupational Health Standards Commission) and related advisory committees, and also conducts other activities, such as public hearings to receive comments on draft standards.
- The **Freedom of Information Section** coordinates and prepares most of the responses from MIOSHA for requests for information under the Michigan Freedom of Information Act. FOIS also supports MIOSHA staff with information for depositions and subpoenas. Click here to submit a MIOSHA FOIA Request for Public Records.
- The **Consultation Education and Training (CET) Grants Administrator** manages the CET Grant Program. The CET Grants supplement MIOSHA activities by providing competitive grants to nonprofit organizations to provide training and education in emerging safety and health issues, to address particularly dangerous occupations, and to extend MIOSHA's impact through "train-the-trainer" projects and for difficult to reach target groups.

CONTACT MIOSHA

Michigan Department of Licensing and Regulatory Affairs (LARA)
Michigan Occupational Safety & Health Administration (MIOSHA)
P.O. Box 30643
7150 Harris Drive
Lansing, Michigan 48909-8143

MIOSHA's e-mail address is: **mioshainfo@michigan.gov**

MIOSHA's Web site is: **www.michigan.gov/miosha**

The Standards Section Web site is: **www.michigan.gov/mioshastandards**

To receive electronic public notices on standards, signup at: **www.michigan.gov/miosha**

The Asbestos Program Web site is: **www.michigan.gov/asbestos**

Phone Numbers:

MIOSHA Toll-Free Number.....800-TO-MIOSH or 800-866-4674

MIOSHA Fatalities/Catastrophes 800-858-0397

Severe Injury Reporting 844-464-6742

Appeals Division 517-284-7711

Asbestos Program 517-284-7680

Construction Safety and Health Division 517-284-7680

Consultation Education & Training Division (CET) ...517-284-7720

CET Grant Program.....517-284-7811

Employee Discrimination Section.....313-456-3109

Freedom of Information Request 517-335-3327

General Industry Safety & Health Division 517-284-7750

Recordkeeping 517-284-7788

Radiation Safety Section 517-284-7820

Regulatory Services Section.....517-284-7740

Technical Services Division 517-284-7790

Mailing Addresses:

Michigan Department of Labor and Regulatory Affairs (DLARA)
7150 Harris Drive

Appeals Division
P.O. Box 30643
Lansing, MI 48909-8143

Construction S & H
P.O. Box 30643
Lansing, MI 48909-8143

CET Division
P.O. Box 30645
Lansing, MI 48909-8145

Employee Discrimination
24155 Drake Road
Farmington, MI 48335-3168

General Industry S & H
P.O. Box 30644
Lansing, MI 48909-8144

Mgt. & Tech. Services
P.O. Box 30649
Lansing, MI 48909-8149

MIOSHA Information
P.O. Box 30643
Lansing, MI 48909-8143

Standards Section
P.O. Box 30643
Lansing, MI 48909-8143

Michigan Guide to Environmental, Health, and Safety Regulations

Appendix D

Federal and State Laws and Rules

APPENDIX D – FEDERAL AND STATE LAWS AND RULES

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Overview

Laws and administrative rules give the government the authority to regulate manufacturing activities. Laws are public acts or statutes that are created by a legislative body such as Michigan's State Legislature or U.S. Congress. An "administrative rule" is a regulation written by an agency that implements or applies a law. Laws and rules are created and administered at both the state and federal level. Throughout this guidebook a number of regulations are cited. The purpose of this appendix is to help you understand what these citations mean. Additionally, this appendix should increase your understanding of how laws and rules are published and cited, as well as where they can be found using the Internet.

Federal Laws

All laws enacted by the United States Congress are compiled into the United States Code (USC). The USC is divided into 50 titles by subject matter. Subjects dealing with environmental topics are listed predominantly in USC Title 42, "The Public Health and Welfare," but may be found in other titles as well. Labor issues are located in Title 29, "Labor."

Federal laws are cited by their popular name followed by a reference to the USC. The Clean Air Act is located in 42 USC 7401 et seq. Here "42 USC" refers to Title 42 of the United States Code entitled, "The Public Health and Welfare." "7401 et seq." refers to the first section within Title 42 that pertains to the Clean Air Act and the following sections. The proper citation would read:

The Clean Air Act, 42 USC 7401 et seq.

All of the federal laws cited in this guidebook are listed in Table D-1.

TABLE D-1 FEDERAL LAWS CITED IN THIS GUIDEBOOK
• The Clean Air Act (CAA), 42 USC 7401 et seq. • The Clean Water Act (CWA), 33 USC 121 et seq. • Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 USC 9601 et seq. • The Emergency Planning and Community Right-To-Know Act (EPCRA), 42 USC 11011 et seq. • The Federal Hazardous Materials Transportation Act, 49 USC 5101 et seq. • The National Environmental Policy Act (NEPA), 42 USC 4321 et seq. • The Occupational Safety and Health Act (OSHA), 29 USC 651 et seq. • The Pollution Prevention Act (PPA), 42 USC 13101 and 13102 • The Resource Conservation and Recovery Act (RCRA), 42 USC 6901 et seq. • The Safe Drinking Water Act (SWDA), 43 USC 300f et seq. • The Superfund Amendments and Reauthorization Act (SARA), 42 USC 9601 et seq. • The Toxic Substances Control Act (TSCA), 15 USC 2601 et seq.

Federal Rules

Federal rules are promulgated by agencies within the federal government such as the U.S. Environmental Protection Agency or the Occupational Safety and Health Administration. Federal rules are compiled into two documents: The Federal Register and the Code of Federal Regulations.

Federal Register

The Federal Register (FR) is a daily publication used to notify the public of official federal government actions. It is published by the Office of the Federal Register, U.S. National Archives and Records Administration (NARA), every Monday through Friday except federal holidays. The

FR is the official publication for presidential documents and executive orders as well as notices, rules, and proposed rules from federal agencies and organizations.

How to Use the Federal Register

A typical first page of a Federal Register follows. See numbers to match referenced explanations.

> [Federal Register: June 8, 1998 (Volume 63, Number 109)] ❶
> [Proposed Rules]
> [Page 31197]
>
> ---
>
> ENVIRONMENTAL PROTECTION AGENCY
>
> 40 CFR Parts 72 and 75 ❷
>
> [FRL-6109-1] ❸
> RIN 2060-AG46
>
> Acid Rain Program; Continuous Emission Monitoring Rule Revisions ❹
>
> AGENCY: Environmental Protection Agency (EPA) ❺
>
> ACTION: Proposed rule; correction. ❻

❶ A regulation in the Federal Register is cited by the date of issue, volume, number, and the page on which the regulation appears.

❷ A reader's aid section serves as an index and lists the CFR titles and parts that have been affected for that particular month, up to the date of printing.

❸ It lists the page number in the register where you can find the details of the revision.

❹ The title of the document follows, ❺ then the issuing agency.

❻ Lastly, the action of the document (i.e., proposed rule, final rule, notice, correction, etc.).

Code of Federal Regulations

The Code of Federal Regulations (CFR) is an annual codification of the general and permanent rules established in the Federal Register by the executive departments and agencies of the federal government. The CFR, like the USC, is divided into 50 titles that represent broad areas subject to Federal Regulation. Environmental regulations are contained primarily in Title 40 entitled, “Protection of Environment.” Regulations pertaining to occupational safety and health are located in Title 29 entitled, “Labor.” Each title of the CFR is published in separate volumes that are revised once each calendar year to add amendments published in the Federal Register. Title 40 and Title 29 are issued every July 1.

Each title of the CFR is divided into subtitles and chapters that usually bear the name of the issuing agency (e.g., the Environmental Protection Agency or the Occupational Health and Safety Administration). Chapters may be divided further into subchapters that cover specific regulatory areas and organize parts by topic area. Chapters and subchapters are divided into parts (large parts are sometimes divided into subparts). All parts are organized into sections; most references in the CFR will be to the section level. Below is the CFR hierarchy for the U.S. Environmental Protection Agency (U.S. EPA) and Occupational Health and Safety Administration (OSHA).

U.S. EPA	**OSHA**
Title 40 – Protection of the Environment	Title 29 – Labor
Chapter I – Environmental Protection Agency	Subtitle B – Regulations relating to labor
Subchapter A – R	Chapter XVII – Occupational Safety and Health Administration
Parts – 1-799	Parts – 1900-1999
Subparts – further divide parts	Subparts – further divide parts
Sections – numbered and cover specific areas such as applicability, definitions, standards, etc.	Sections – numbered and cover specific areas such as applicability, definitions, standards, etc.

To locate a specific regulation, the most important divisions of the CFR are the title, part/subpart, and section. To find a particular regulation in the CFR, you have to first understand how it is cited. Usually, a reference to the CFR is cited to a particular section or subpart. “40 CFR 261.10” refers to a specific section. Here, “40 CFR” refers to Title 40 of the CFR and “261.10” denotes the section. The number to the left of the decimal, “261,” refers to the part. The number to the right of the decimal, “10,” identifies the particular section within that part. To reference a broader portion of the CFR, you would reference an entire subpart. Consider “40 CFR 162(C)”. Here “162(C)” refers to Part 162, Subpart C.

A typical first page from the CFR is illustrated as follows:

Code of Federal Regulations]
[Title 40, Volume 5, Parts 61 to 71]
[Revised as of July 1, 1996]
From the U.S. Government Printing Office via GPO Access
[CITE: **40 CFR 63**]

[Page 667-674]

TITLE 40—PROTECTION OF ENVIRONMENT

CHAPTER I—ENVIRONMENTAL PROTECTION AGENCY

PART 63—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES—Table of Contents

Subpart M—National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities

Source: 58 FR 49376, Sept. 22, 1993, unless otherwise noted.

Sec. 63.320 Applicability.

How to Access Federal Laws and Rules

By following the steps outlined in this section you will be able to locate any federal law or administrative rule via the Internet. Federal laws can be located through the U.S. EPA and OSHA Web sites. These Web sites give you direct access to all the popular federal statutes administered by these agencies as well as many other page links that can assist you in gaining information. In addition, by using these Web sites you can search Federal Register and CFR documents for federal rules.

Locating Federal Laws

By accessing the U.S. EPA Web site, you can locate a number of federal statutes pertaining to the environment. If you're searching for federal statutes regarding labor issues like the Occupational Safety and Health Act, you should access the Occupational Safety and Health Administration's (OSHA) Web site.

Environmental Laws

Enter the following Web site: **www.epa.gov/laws-regulations**. This page allows you to access all the major federal laws that address the environment.

Occupational Safety and Health Administration Laws

Enter the following Web site: **www.osha.gov/law-regs.html**. From this site you may access the Occupational Safety and Health Act (OSH Act) or find links to other relevant pages including the Department of Labor (DOL) Web site which contains additional statutes.

Locating Federal Rules

You can find federal rules using the Federal Register, which is published daily or by reviewing the Code of Federal Regulations (CFR), which is updated regularly. The Environmental Protection Agency Web site and the Occupational Safety and Health Administration Web site give you direct access to these documents.

Environmental Rules

Access the U.S. EPA Laws and Regulations Web site at: **www.epa.gov/laws-regulations**. From this page you can access the Federal Register documents issued by the U.S. EPA. You can also access the CFR. Both the official CFR, which is typically not updated until July of the current calendar year and the e-CFR, which is an up-to-date, unofficial version of the CFR, can be accessed here.

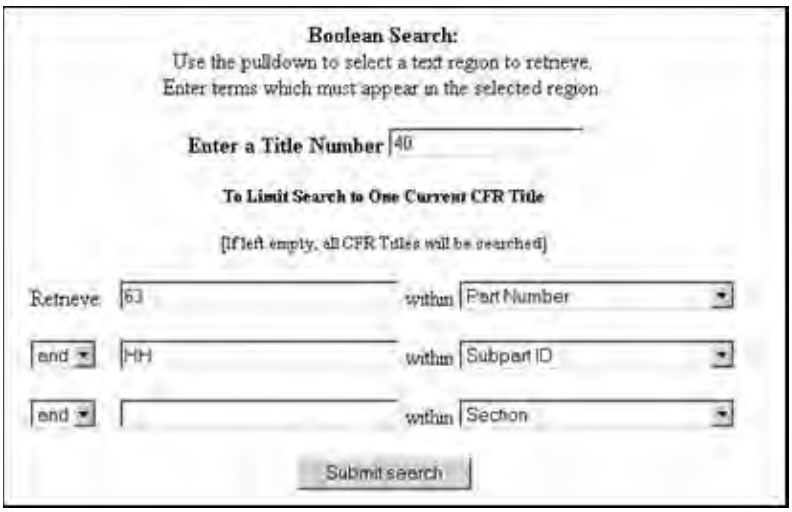
Occupational Safety and Health Administrative Rules

Access the OSHA Laws and Regulations Web site at: **www.osha.gov/law-regs.html**. From this site you may find Federal Register documents pertaining to OSHA as well as links to relevant CFR documents and standards.

Other Federal Rules

Enter the following Web site: **www.ecfr.gov**. Using the dropdown list select the CFR title you want to search under. For example, Environmental Regulations are found in Title 40, OSHA regulations are found in Title 29, and USDOT regulations are found in Title 49.

Note: The best way to view or print an entire subpart and nothing but the subpart is to use the Search feature of the e-CFR. Select "Boolean search" from the side bar on the e-CFR page. Enter the number of the CFR title. In the first long rectangular box, give the part number, and select “Part Number” from the drop-down menu. In the second search box, enter the letters of the Subpart heading and select “Subpart ID” from the drop-down menu. (If your subpart has no ID number [like “A”, “B”, or “GGG”], use most or all of the subpart heading and select within “Subpart heading.”) Click on “Submit Search.”



Michigan Laws

After the Governor signs a bill into law, it is assigned a public act number and then added to the Michigan Compiled Laws (MCL). The MCL is a collection of all state laws currently in force through a particular publication date. It not only includes public acts enacted by the Legislature, but also The Michigan Constitution of 1963, as amended; and Executive Reorganization Orders issued by the Governor. The MCL is organized into three levels: chapters, acts, and sections.

The MCL is comprised of 830 chapters that address various subjects. Within each chapter is one or more public acts. The Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended is found in Chapter 324; and the Michigan Occupational Safety and Health Act (MIOSHA), Public Act 154 of 1974, as amended is found in Chapter 408. Public Acts may be divided into parts or articles that are divided further into sections. Each section within the MCL is assigned a “compilation number.” This number serves as a reference to assist in locating any section of law. Essentially, if you know the section compilation number, you can easily locate the law in the MCL. The following example illustrates the components of a section within the MCL. This particular section is taken from Michigan’s Occupational Safety and Health Act (MIOSHA):

408.1012 ❶ Duties of employee ❷.

Sec. 12. ❸ An employee shall:
(a) Comply with rules and standards promulgated, and with orders issued pursuant to this act.
(b) Not remove, displace, damage, destroy, or carry off a safeguard furnished or provided for use in a place of employment, or interfere in any way with the use thereof by any other person.

History: 1974, Act 154, Eff. Jan. 1, 1975. ❹

❶ "408.1012" is the section compilation number, which describes where this piece of law is located in the MCL. The numbers to the left of decimal, "408," refer to a chapter of the MCL. Here, "408" refers to Chapter 408 of the MCL entitled "Labor." The numbers to the right of the decimal, "1012," represent the specific section and serve to further organize the section within the chapter. ❷ To the right of the section number is the "catchline," a brief description of the section's content. ❸ "Sec. 12" is the internal section number within the Act itself and immediately precedes the text of the section. ❹ Following the text of the section are editorial notes. There are seven types of editorial notes that may follow a section: history notes, compilers notes, constitutionality notes, transfer of power notes, former law notes, cited in other section notes, and cross-reference notes. The history note in this example lets the reader know that this section comes from Act No. 154 of 1974 and became effective January 1, 1975.

Citing Michigan Laws

A law may be cited to a public act in its entirety or a particular division. Following are examples of how a state law may be cited. In this guidebook most references to state laws will be to an entire public act or part of an act.

An act referenced in its entirety will reference the act's popular name, number, and year of enactment as in the following: The Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451). Any further reference to the same citation might be abbreviated to just the act number, for example, Act 451.

When a specific part of an act is referenced, it is cited to the public act by the part number and title as in the following: Part 115 (Solid Waste Management) of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451). Any further reference to that same citation might be abbreviated to include just the part number, for example, Part 115 of Act 451.

Michigan Administrative Rules

Once a law is enacted, state administrative agencies such as the DEQ are charged with the duty of making sure the law is implemented. Statutes, like the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended, give agencies the authority to promulgate administrative rules. Although they are not technically laws, when rules are properly processed and enacted, they have the same force and effect as law. The Administrative Procedures Act, Public Act 306 of 1969, as amended, was enacted to address the procedures that govern the creation, processing, and publication of rules. This act outlines the entire rule making process, from the initial request to finalization.

Understanding the DEQ's Administrative Rules

Michigan's Department of Environmental Quality has the authority to promulgate rules under Act 451. Each division within the DEQ administers its own set of rules. For example, the Air Quality Division administers a set of rules known as the "Air Pollution Control Rules." An agency will typically organize its administrative rules into parts. The Air Pollution Control Rules are divided into parts concerning issues such as emission limitations and prohibitions, monitoring, and permitting. Like all administrative rules, the DEQ's rules are compiled in the Michigan Administrative Code.

Understanding MIOSHA Standards

Section 18(c) of the Occupational Safety and Health Act allows states to assume responsibility for the development and enforcement of occupational safety and health standards. There are 21 states, including Michigan, that are known as "State Plan States." Michigan's Occupational Safety and Health Act (MIOSHA), Public Act 154 of 1974, as amended, gives the Department of Licensing and Regulatory Affairs (LARA) the authority to create its own and/or adopt federal standards. LARA, MIOSHA rules are organized into four broad standards: General Industry Health, General Industry Safety, Construction Health, and Construction Safety. The MIOSHA General Industry and Construction Safety Standards are divided into parts. Within each of these standards are rules that address various subjects. For example, Part 90 of the General Industry Safety Standards contains a number of rules regarding "Confined Space Entry."

It is important for anyone who is involved in general industry or construction activities to be aware of all the standards that may affect them. You should not only consider the standards that may apply to your operation in general, but also specific situations as well. For instance, a manufacturing plant must comply with all applicable General Industry Standards; however, if at some point employees of that plant engage in construction activities within the plant, then the Construction Standards become applicable as well.

Michigan Administrative Code

The Michigan Administrative Code (MAC) is the collection of all permanent administrative rules. The Office of Regulatory Reinvention (ORR) keeps the MAC up to date daily at its Web site **www.michigan.gov/orr.**

Rules are organized into the MAC by their "R" number. To help us better understand its usage, consider the example below, which is an excerpt from Michigan's Air Pollution Control Rules:

> *R 336.1901 ❶ Air contaminant or water vapor; when prohibited.❷*
> *Rule 901. ❸ Notwithstanding the provisions of any other commission rule, a person shall not cause or permit the emission of an air contaminant or water vapor in quantities that cause, alone or in reaction with other air contaminants, either of the following:*
> *(a) Injurious effects to human health or safety, animal life, plant life of significant economic value, or property.*
> *(b) Unreasonable interference with the comfortable enjoyment of life and property. ❹*
>
> *History: 1979 ACS 1, Eff. Jan. 19, 1980. ❺*

❶ “R 336.1901” is referred to as the “R” number. This number describes where the rule may be found in the MAC. Most R numbers consist of two numbers separated by a decimal point. The MAC is organized numerically in ascending order, first by the left side of the R number and then by the right. The number to the left of the decimal point generally refers to the chapter of the MCL containing the statutory authority to which an agency promulgated the rule. In this example, “336” refers to Chapter 336 of the Michigan Compiled laws entitled “Air Pollution.” The numbers to the right of the decimal point correspond to the digit or digits in the rule number. ❷ To the right of the R number is what is referred to as the “catchline,” which is a short statement explaining the topic of the rule. ❸ Preceding the text is the actual rule number, “Rule 901,” which is usually some variation of the right side of the R number, depending on how the agency has organized its rules. ❹ This is the text of the rule. If the rule is rather large, it may be divided into a series of independent statements that pertain to the preceding material. ❺ At the end of each rule is a history note that contains the rule’s effective date, its origin, and any amendments. The history note in this example informs readers that the rule originated in 1979 Administrative Code Supplement Number 1 and became effective on January 19, 1980. Any amendment effective dates follow this date.

Table D-2, which can be found at the end of this appendix, contains a summary of all of the laws and rules referenced in this guidebook. The table shows the relationship between the statutes, the rules, and the agencies that implement them.

How to Access State Laws and Rules

You can obtain a state law by going directly to the Michigan Compiled Laws (MCL). State rules are obtained from the Michigan Administrative Code (MAC). You may search the entire MCL through the “Michigan Legislative Information Web Server” at **www.michiganlegislature.org** and MAC through the Office of Regulatory Reinvention (ORR) Web site **www.michigan.gov/orr**.

Locating Michigan Environmental Laws and Rules

The Department of Environmental Quality has a very useful Web site that can assist in your search to find a particular environment-related law or rule. This site lists all of the DEQ’s environmental regulations by division, as well as many statutes and links to federal environmental sites. Go to **www.michigan.gov/deq** and select “Laws & Rules” at the bottom of the page.

Locating Michigan Health and Safety Laws and Rules

If you are interested in finding specific administrative rules and standards promulgated under Michigan’s Occupational Safety and Health Act (MIOSHA), follow the steps below to search the MIOSHA Web site:

Step 1: Go to the Michigan Occupational Safety and Health Administration (MIOSHA) Web site: **www.michigan.gov/miosha**.

Step 2: Scroll down to select “Standards and Legislation” from the left navigation menu.

Step 3: This page displays a number of standards that MIOSHA administers. Find the standard you would like to view and click on it.

Locating Other State Laws

There are two ways you can search the MCL for a law. The first is by referencing the compiled law number (compilation number). Second, you can also search by public act number and year.

By far the easiest and most up-to-date method is by using the Internet. Accessing the MCL Web site is much easier to use than the multiple volumes of the MCL and can be done at your home or office. Following is an explanation of how to find a particular law on the Internet.

Searching the Michigan Compiled Laws (MCL)

Step 1: Enter the following Web site: **www.michiganlegislature.org**.

Depending upon what information you are given, you may now choose to search for a reference to a law by the MCL number or the Public Act itself:

If you know the compilation number (e.g., 408.1012):

Step 2: Type the MCL number (408.1012) into the box titled “MCL Section.”

Step 3: Click on “Search.” The results of your search will now be displayed.

If you know the Public Act (e.g., Public Act 154 of 1974):

Step 2: Select “Public Act MCL” from the left side bar under “Laws.”

Step 3: Enter the “Public Act Number” (e.g., “154”) and "Public Act Year" (e.g., "1974")

Step 4: Click on “Search.”

Step 5: You may now locate a specific part, section or other division of the Act.

Locating Other State Rules

If you know the “R” number of the rule, for example R 336.1901, all you have to do is find that number on the ORR Web site.

Searching the Michigan Administrative Code

Step 1: Enter the following Internet address: **www.michigan.gov/orr**.

Step 2: Select “MI Administrative Code (Rules).” From here you may search for a rule by state department or number.

If you know the R number (e.g., R 336.1901):

Step 4: Click on “Numeric.”

Step 5: Click on the range of numbers that would encompass the rule number you are searching for.

Step 6: Scroll down the screen until you find the next range of numbers that contain the rule you are searching for.

Step 7: You are now looking at the rules the way that they appear in the MAC. You may have to scroll down to find the particular rule you are looking for.

If you know the state department that administers the rule:

Step 4: Select “Department.”

Step 5: Select the department that you wish to search (e.g., “Natural Resources and Environment”).

Step 6: Select the division that administers the rule (e.g., Air Quality Division).

Step 7: This page lists all the rules administered by that particular agency by subject matter.

If do not have access to the Internet and you need a paper copy of an environmental law or rule, contact DEQ's Environmental Assistance Center at 800-662-9278.

Copies of all MIOSHA standards are available from MIOSHA. The standards are updated frequently, so it is recommended that you get on their mailing list to receive notification that revised standards are available.

Contact the MIOSHA Standards Section at 517-284-7740 to be placed on the mailing list for notification of new or amended standards and public hearing announcements.

Summary of State Laws and Rules Applicable to Businesses

Table D-2: DEQ General Statutes

STATUTE (as amended)	Common Name	Michigan Compiled Laws (MCL) Citation	Rule Citation	Rule Title
PA 96 of 1987	The Mobile Home Commission Act	125.2301…125.2350	R 325.311…325.3393	Mobile Home Park and Seasonal Mobile Home Parks
PA 138 of 1998	Hazardous Materials Transportation Act	29.471 - 29.480		
PA 204 of 1987	Low-Level Radioactive Waste Authority Act	333.26201 - 333.26226		
PA 207 of 1941	Fire Prevention Code	29.1 - 29.34		
PA 236 of 1961	Revised Judicature Act	600.101 - 600.9948		
PA 239 of 1982	Bodies of Dead Animals	287.651 - 287.683		
PA 288 of 1967	Land Division Act	560.101 - 560.293	R 560.301 560.304 R 560.401…560.427	Subdivision of Land, Part 3 Subdivision of Land, Part 4
PA 306 of 1969	Administrative Procedures Act	24.201 - 24.328		
PA 381 of 1996	Brownfield Redevelopment Refinancing Act	125.2651 - 125.2672		
PA 384 of 1996	Beverage Containers	445.573f		
PA 390 of 1976	Emergency Management Act	30.401 - 30.421		
PA 396 of 2002	Great Lakes Water Quality Bond Authorization Act	324.95201 - 324.95208		
PA 399 of 1976	Safe Drinking Water Act	325.1001 - 325.1023	R 325.10101…325.12820	Supplying Water to the Public
PA 442 of 1976	Freedom of Information Act (FOIA)	15.231 - 15.246		

Table D-3: Public Health Code, PA 368 of 1978 (MCL: 333.1101 - 333.25211)

STATUTE (as amended)	Common Name	Michigan Compiled Laws (MCL) Citation	Rule Citation	Rule Title
Part 125	Campgrounds, Swimming Areas, and Swimmers' Itch	333.12501…333.12546	R 325.1551…325.1599	Campgrounds
			R 325.2111…325.2199	Public Swimming Pools
			R 325.2101…325.2103	Public Bathing Beaches
Part 127	Water Supply and Sewer Systems: Well Construction Code and Public Sanitary Sewer Systems	333.12701…333.12771	R 325.421…325.426	Outhouses
			R 325.1601…325.1781	Groundwater Quality Control
Part 133	Dry Cleaning	333.13301…333.13325	R 325.17101…325.18104	Dry Cleaning Establishments Utilizing Class I, II, III, and IV Solvents
Part 135	Radiation Control	333.13501…333.13537	R 325.5001…325.5721	Ionizing Radiation Rules for Radioactive Material
Part 138	Medical Waste	333.13801…333.13832	R 325.1541…325.1549	Medical Waste Producing Facilities

Table D-4: Natural Resource and Environmental Protection Act

NREPA PART	TITLE	MCL Citation	Rule Citation	Rule Titles
Part 13	Permits	324.1301...324.1311		
Part 14	Clean Corporate Citizens	324.1401…324.1429		
Part 15	Enforcement	324.1501…324.1511		
Part 17	Michigan Environmental Protection Act	324.1701...324.1706		
Part 18	Uniform Transboundary Pollution Reciprocal Access	324.1801...324.1808		
Part 25	Environmental Education	324.2501...324.2521		
Part 27	Program Review	324.2701 … 324.2707		

NREPA PART	TITLE	MCL Citation	Rule Citation	Rule Titles
Part 31	Water Resources Protection	324.3101...324.3134	R 323.1041 - 323.1117	Part 4 – Water Quality Standards
			R 324.2001 - 324.2009	Part 5 – Spillage of Oil and Polluting Materials
			R 323.1201 - 323.1221	Part 8 – Water Quality-Based Effluent Limit Development for Toxic Substances
			R 323.1251 - 323.1259	Part 10 – Treatment Plant Operators
			R 323.1311 - 323.1329	Part 13 – Floodplains and Floodways
			R 323.2101 - 323.2197	Part 21 – Wastewater Discharge Permits
			R 323.2201 - 323.2240	Part 22 – Groundwater Quality
			R 323.2301 - 323.2317	Part 23 – Pretreatment
			R 323.2401 - 323.2418	Part 24 – Land Application of Biosolids
Part 33	Aquatic Nuisance Control	324.3301...324.3315	R 323.3101 - 323.3110	Aquatic Nuisance Control
Part 35	Use of Water in Mining Low-Grade Iron Ore	324.3501...324.3508	R 323.1351 - 323.1354	Part 15 – Iron Ore Beneficiation
Part 37	Water Pollution Control Facilities; Tax Exemption	324.3701...324.3708		
Part 39	Cleaning Agents	324.3901...324.3906	R 323.1171 - 323.1181	Part 6 – Cleaning Agents and Water Conditioners
Part 41	Sewerage Systems	324.4101...324.4113	R 299.2901 - 299.2974	Sewerage Systems
Part 43	Waterworks Systems, Sewers, and Disposal Plants	324.4301...324.4312		
Part 45	Bonds For Prevention and Abatement of Water Pollution	324.4501...324.4511		
Part 47	Sewage Disposal and Water Supply Districts	324.4701...324.4712		
Part 49	Construction of Collecting Sewers	324.4901...324.4912		
Part 51	Wastewater Disposal	324.5101...324.5103		
Part 52	Strategic Water Quality Initiatives	324.5201...324.5206	R 323.951 - 323.965	State Revolving Loan Fund
Part 53	Clean Water Assistance	324.5301...324.5317		
Part 54	Safe Drinking Water Assistance	324.5401...324.5419		
Part 55	Air Pollution Control	324.5501...324.5542	R 336.201 - 336.205	Annual Reporting

NREPA PART	TITLE	MCL Citation	Rule Citation	Rule Titles
			R 336.1101 - 336.1128	Part 1 - General Provisions
			R 336.1201 - 336.1299	Part 2 - Air Use Approval
			R 336.1301 - 336.1374	Part 3 - Emission Limitations and Prohibitions—Particulate Matter
			R 336.1401 - 336.1430	Part 4 - Emission Limitations and Prohibitions—Sulfur-Bearing Compounds
			R 336.1601 - 336.1669	Part 6 - Emission Limitations and Prohibitions—Existing Sources of Volatile Organic Compound Emissions
			R 336.1701 - 336.1710	Part 7 - Emission Limitations and Prohibitions—New Sources of Volatile Organic Compound Emissions
			R 336.1801 - 336.1834	Part 8 - Emission Limitations and Prohibitions—Oxides of Nitrogen (NOx)
			R 336.1901 - 336.1972	Part 9 - Emission Limitations and Prohibitions—Miscellaneous
			R 336.2001 - 336.2060	Part 10 - Intermittent Testing and Sampling
			R 336.2101 - 336.2199	Part 11 - Continuous Emission Monitoring
			R 336.2401 - 336.2420	Part 14 - Clean Corporate Citizen Program
			R 336.2501 - 336.2514	Part 15 - Emission Limitations and Prohibitions—Mercury
			R 336.2601 - 336.2608	Part 16 - Organization, Operation, and Procedures
			R 336.2701 - 336.2706	Part 17 – Hearings
			R 336.2801 - 336.2823	Part 18 - Prevention of Significant Deterioration of Air Quality
			R 336.2901 - 336.2908	Part 19 - New Source Review for Major Sources Impacting Nonattainment Areas
Part 57	Small Business Clean Air Assistance	324.5701...324.5708		
Part 59	Air Pollution Control Facility; Tax Exemption	324.5901...324.5908		

NREPA PART	TITLE	MCL Citation	Rule Citation	Rule Titles
Part 61	Emissions from Vessels	324.6101...324.6102		
Part 63	Motor Vehicle Emissions Testing for West Michigan	324.6301...324.6321		
Part 65	Motor Vehicle Emissions Testing for Southeast Michigan	324.6501...324.6539		
Part 82	Conservation Practices	324.8201...324.8208		
Part 87	Groundwater and Freshwater Protection	324.8701...324.8717		
Part 88	Water Pollution Prevention and Monitoring	324.8801...324.8808	R 324.8901 - 324.8920	Clean Water Fund
			R 324.8801 - 324.8810	Clean Michigan Initiative Nonpoint Source Pollution Control Grants
Part 89	Littering	324.8901...324.8907		
Part 91	Soil Erosion and Sedimentation Control	324.9101...324.9123a	R 323.1701 - 323.1714	Part 17 – Soil Erosion and Sedimentation Control
Part 93	Soil Conservation Districts	324.9301...324.9313		
Part 95	Watercraft Pollution Control	324.9501...324.9510		
Part 111	Hazardous Waste Management	324.11101...324.11153	R 299.9101 - 299.11007	Hazardous Waste Management
Part 113	Landfill Maintenance Trust Fund	324.11301...324.11304	R 299.4101 - 299.4922	Solid Waste Management
Part 115	Solid Waste Management	324.11501...324.11550		
Part 117	Septage Waste Servicers	324.11701...324.11720		
Part 119	Waste Management and Resource Recovery Finance	324.11901...324.11908		
Part 121	Liquid Industrial By-Products	324.12101...324.12118		
Part 143	Waste Minimization	324.14301...324.14306	R 324.14501-324.14508	Small Business Pollution Prevention Assistance Loan Fund
Part 145	Waste Reduction Assistance	324.14501...324.14514		
Part 147	Chemical Substances	324.14701...324.14725		
Part 148	Environmental Audit Privilege and Immunity	324.14801...324.14810		
Part 161	Plastic Products Labeling	324.16101...324.16104		
Part 163	Plastic Degradable Containers	324.16301...324.16303		
Part 165	Office Paper Recovery	324.16501...324.16503		
Part 167	Used Oil Recycling	324.16701...324.16705		

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NREPA PART	TITLE	MCL Citation	Rule Citation	Rule Titles
Part 169	Scrap Tires	324.16901...324.16911		
Part 171	Battery Disposal	324.17101...324.17107		
Part 172	Mercury - Added Products	324.17201...324.17206		
Part 191	Clean Michigan Fund	324.19101...324.19121		
Part 193	Environmental Protection Bond Authorization	324.19301...324.19306		
Part 195	Environmental Protection Bond Implementation	324.19501...324.19513		
Part 196	Clean Michigan Initiative Implementation	324.19601...324.19616		
Part 197	Great Lakes Water Quality Bond Implementation	324.19701...324.19708		
Part 201	Environmental Remediation	324.20101...324.20142	R 299.51001 - 299.51021	Property Owner or Operator Obligations under Section 20107A of the Act
			R 299.1 - 299.50	Cleanup Criteria Requirements for Response Activity
Part 203	Volunteer Immunity	324.20301...324.20302		
Part 211	Underground Storage Tank Regulations	324.21101...324.21113		
Part 213	Leaking Underground Storage Tanks	324.21301...324.21331		
Part 215	Underground Storage Tank Corrective Action Funding	324.21501...324.21563		
Part 301	Inland Lakes and Streams	324.30101...324.30113	R 281.811 - 281.846	Inland Lakes and Streams
Part 303	Wetlands Protection	324.30301…324.30329	R 281.951 - 281.961	Wetland Mitigation Banking
			R 281.921 - 281.925	Wetlands Protection
Part 307	Inland Lake Levels	324.30701...324.30723		
Part 309	Inland Lake Improvements	324.30901...324.30929		
Part 311	Local River Management	324.31101...324.31119		
Part 313	Surplus Waters	324.31301...324.31314		
Part 315	Dam Safety	324.31501...324.31529	R 281.1301 - 281.1313	Dam Safety
Part 317	Aquifer Protection and Dispute Resolution	324.31701…324.31713		
Part 321	The Great Lakes Compact Authorization	324.32101...324.32107		

NREPA PART	TITLE	MCL Citation	Rule Citation	Rule Titles
Part 322	Great Lakes Basin Compact	324.32201...324.32206		
Part 323	Shorelands Protection and Management	324.32301...324.32315	R 281.21 - 281.26	Great Lakes Shorelands
Part 325	Great Lakes Submerged Lands	324.32501...324.32516	R 322.1001 - 322.1018	Great Lakes Submerged Lands
Part 326	Great Lakes Submerged Logs Recovery	324.32601...324.32615		
Part 327	Great Lakes Preservation	324.32701...324.32730		
Part 328	Aquifer Protection	324.32801...324.32803		
Part 331	Regional Great Lakes Protection Fund	324.33101...324.33105		
Part 333	Coastal Beach Erosion	324.33301...324.33301		
Part 339	Control of Certain State Lands	324.33901...324.33939		
Part 342	Great Lakes-St. Lawrence River Basin Water Resources Compact	324.34201		
Part 353	Sand Dunes Protection and Management	324.35301...324.35326		
Part 601	Geological Survey	324.60101...324.60108		
Part 615	Supervisor of Wells	324.61501...324.61527	R 324.101 - 324.1406	Oil and Gas Operations
Part 616	Orphan Well Fund	324.61601...324.61607		
Part 617	Unitization	324.61701...324.61738		
Part 619	Drilling in The Pigeon River State Forest	324.61901...324.61904		
Part 621	Interstate Oil and Gas Compact	324.62101...324.62103		
Part 625	Mineral Wells	324.62501...324.62518	R 299.2301 - 299.2531	Mineral Wells
Part 631	Reclamation of Mining Lands	324.63101...324.63223	R 425.1 - 425.49	Ferrous Mineral Mining
Part 632	Nonferrous Metallic Mineral Mining	324.63201...324.63223	R 425.101 - 425.602	Nonferrous Metallic Mineral Mining
Part 633	Mining Authorization, Multiple Owners	324.63301...324.63306		
Part 325	Great Lakes Submerged Lands	324.32501...324.32516	R 322.1001 - 322.1018	Great Lakes Submerged Lands
Part 326	Great Lakes Submerged Logs Recovery	324.32601...324.32615		
Part 327	Great Lakes Preservation	324.32701...324.32730		
Part 328	Aquifer Protection	324.32801...324.32803		

NREPA PART	TITLE	MCL Citation	Rule Citation	Rule Titles
Part 331	Regional Great Lakes Protection Fund	324.33101...324.33105		
Part 333	Coastal Beach Erosion	324.33301...324.33301		
Part 635	Surface and Underground Coal Mine Reclamation	324.63501...324.63549		
Part 637	Sand Dune Mining	324.63701...324.63714	R 281.401 - 281.413	Sand Dune Areas
Part 761	Aboriginal Records and Antiquities and Abandoned Property	324.76101...324.76118	R 299.6001 - 299.6013	Great Lakes Bottomlands Preserve
Part 901	Repeal of Certain Acts	324.90101...324.90106		
Part 635	Surface and Underground Coal Mine Reclamation	324.63501...324.63549		

Table D-3: DLARA Bureau of Construction Codes and Fire Safety and MIOSHA Administrative Authority

Statutory Authority	MCL Sections	Administrative Rules
Public Act 1 of 1966 (Utilization of Public Facilities by Physically Limited)	125.1351-125.1356	R 125.1001-125.1026 (Barrier Free Design Board)
Public Act 733 of 2002 (State Plumbing Act)	338.3511–338.3569	R 338.921-338.932 (State Plumbing Board Licenses)
Public Act 217 of 1956 (Electrical Administrative Act)	338.881-338.892	R 338.1001a-338.1099 (Electrical Administrative Board General Rules)
Public Act 192 of 1984 (Forbes Mechanical Contractors Act)	338.971-338.988	R 338.901-338.914 (Board of Mechanical Rules Licensing Examination Rules)
Public Act 96 of 1987 (Mobile Home Commission Act)	125.2301-125.2350	R 408.30601-408.30636 (Mobile Home Code) R 125.1101-125.3069 (Manufactured Housing General Rules)
Public Act 230 of 1972 (State Construction Code Act)	125.1501-125.1531	R 408.30101-408.31194 (Construction Code Commission General Rules) R 408.30901-408.30998 (Mechanical Code) R 408.30801-408.30880 (Electrical Code) R 408.30701-408.30796 (Plumbing Code)
Public Act 54 of 1986 (Building Officials & Inspectors Registration Act)	338.2301-338.2313	R 408.30001-408.30055 (Blg. Officials, Plan Reviewers & Insp.)
Public Act 345 of 1990 (State Survey and Remonumentation Act)	54.261-54.279	R 54.201-54.210 (Survey and Remonumentation Rules)
Public Act 290 of 1965 (Boiler Act of 1965)	408.751-408.776	R 408.4001-408.5507 (Board of Boiler General Rules)

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Statutory Authority	MCL Sections	Administrative Rules
Public Act 333 of 1976 (Elevator Licensing) Public Act 227 of 1967 (Elevator Safety Board)	408.801-408.824	R 408.7001-408.8695 (Elevator Safety Board General Rules)
Public Act 207 of 1941 (MI Fire Prevention Code) Public Act 291 of 1966 (Michigan Fire Fighter Training Council Act)	29.1-29.34 29.361-29.377	R 29.501-29.508 (Fire Inspector Certification) R 29.1501-29.1509 (State-Owned and Leased Buildings Fire Safety) R 29.1601-29.1641 (Fire Prevention) R 29.1701-29.1733 (New and Existing Penal Institutions Fire Safety) R 29.1801-29.1861 (Health Care Facilities Fire Safety) R 29.1901-29.1934 (New and Existing School, College, and University Fire Safety) R 29.2001-29.2032 (Dormitory Fire Safety for Schools, Colleges, and Universities) R 29.2801-29.2814 (Fire Alarm and Fire Suppression Certification) R 29.3101-29.3501 (Organization, Operation, and Procedure) R 400.11201-400.11227 (Children's and Adult Foster Care Camp) R 400.18101-400.18702 (Adult Foster Care Facilities)
Public Act 154 of 1974 (Michigan Occupational Health & Safety Act) (MIOSHA)	408.1001-408.1094	R 408.10001-408.19301(General Industry Safety Standards)
		R 408.1101-408.49102 (Construction Safety Standards)
		R 325.3451-325.77115, R 408.22101-408.22162, R 408.22201-22251 (Occupational Health Standards)
		R 325.52501-325.52506, R 408.19301-408.19301, R 408.22301-408.22361 (Occupational Safety and Health)

[1] Where Statutory Authority refers to a "Part" (e.g. Part 201, Part 55) it is referring to a Part of Public Act 451 of 1994, as amended, the Natural Resources and Environmental Protection Act.
[2] MCL sections can be found online at **www.michiganlegislature.org**. Citations for state environmental laws reference only a single chapter of the Michigan Compiled Laws (MCL) (Chapter 324), whereas citations for Rules reference many different chapters. The difference in citation stems from the creation of the Natural Resources and Environmental Protection Act (NREPA). Before the Act was created in 1994 all environmental statutes were housed in different chapters throughout the MCL (336, 299, 325, etc.). NREPA consolidated almost all the Acts in these chapters into one chapter - Chapter 324. However, as rules are created they are given an "R" number that still references the old chapter titles, even though most of the Acts within these chapters have been rescinded. The Table below contains the original MCL chapters referenced in the above state agency rules.