

## SECONDARY CONTAINMENT

### What is secondary containment?

It is a second barrier or an outer wall of a double enclosure which will contain any leak or spill from a storage container. Secondary containment helps protect the surface water, groundwater, and soils and reduce worker exposure to regulated substances. This enclosure is usually needed wherever regulated substances are being handled and stored in tanks, totes, drums, small pails, or other containers.

Secondary containment systems can be very simple or complex. The containment area may be in a detached shed or building, an open area outdoors, an underground vault, in a separate room, or in a dedicated portion of a larger space. It may include liquid tight storage cabinets, berms, curbs, sills, sunken floors, special liners, drip pans or buckets, double-walled tanks, or other structures. Containment systems can be purchased as ready-made units or custom built on site.

### Are you required to have secondary containment?

The answer is probably yes if your business has any of the following regulated substances:

- Flammable and combustible materials
- Hazardous substances
- Hazardous waste
- Materials included on the federal CERCLA list
- Materials included on the state Critical Materials Register
- Oil and other petroleum based products or waste
- Salt (calcium chloride and sodium chloride)

The various statutes and rules define regulated substances differently. Substances may be regulated if they have been included on regulatory lists or by their flammability, corrosivity, reactivity, and/or toxicity characteristics. These substances can be found in ingredients, final products, or wastes.

Even if you are not required to have secondary containment, you are encouraged to have it as a safety precaution. The cost of installing and maintaining secondary containment will be less than the cost associated with spill cleanup activities. Remember, the purpose of secondary containment is to provide environmental and worker protection...not to just meet another regulatory requirement!

### What are the regulations that address secondary containment?

The regulatory requirements and the agencies which oversee those requirements vary with the type and volume of material you have. Secondary containment is required by several state and federal regulations. In addition, you may have to meet local requirements often incorporated into zoning, building, fire protection, or other regulations. You **will need to incorporate the most stringent requirements in your secondary containment system if you have substances that are regulated by more than one agency or under different regulations.** It is highly recommended that you contact all the involved agencies, and if necessary, schedule a joint meeting to discuss what would be best for your situation.

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Secondary containment regulations overseen by the Department of Environmental Quality (DEQ) and the regulating division include:

- Part 5 Rules promulgated under Part 31 of 1994 PA 451, as amended. These regulations are under revision — Surface Water Quality and Waste Management Divisions
- Part 111 of 1994 PA 451, as amended, and Rules; and federal Resource Conservation and Recovery Act (RCRA) 40 CFR Parts 260 to 299 — Waste Management Division
- Part 211 of 1994 PA 451, as amended, and Michigan Underground Storage Tank Rules. These regulations are under revision — Underground Storage Tank Division
- 1941 PA 207, as amended; and Michigan Storage and Handling of Flammable and Combustible Liquids (FL/CL) Rules — Underground Storage Tank Division NOTE: This program was transferred from the Department of State Police, Fire Marshal Division to DEQ on 10/1/97.

Other secondary containment regulations and the regulating agencies include:

- 1974 PA 154, as amended; Part 75 Flammable and Combustible Liquid Rules; Rule 3220, “open-surface tanks”; along with federal safety standard 29 CFR 1910.106, “flammable and combustible liquids”; and 29 CFR 1910.119, “process safety management of highly hazardous chemicals” — Department of Consumer and Industry Services, Bureau of Safety and Regulation (MIOSHA)
- Clean Water Act, under the Spill Prevention, Control, and Countermeasure (SPCC) requirements, 40 CFR Part 112 — US Environmental Protection Agency

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**The remainder of this publication applies to the regulations overseen by the Waste Management Division. Regulatory citations are provided in brackets for those who want to refer to the specific regulation. Reliance on information from this document is not usable as a defense in any enforcement action or litigation. Additional information is provided in the “Guide to Understanding Secondary Containment Requirements in Michigan.” Call 800-662-9278 or contact your DEQ Waste Management Division District Office to obtain a copy. Or contact the regulating agency to discuss your situation.**

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The **HAZARDOUS and UNIVERSAL WASTE** regulations are found under Part 111 of 1994 PA 451, as amended, hazardous waste rules, and RCRA. The specific hazardous waste regulations you must follow depend on if you are a:

- Generator and how much hazardous waste you create in a month and accumulate at your facility [40 CFR 265.175 and R 299.93061; or
- Transporter [R 299.9404 and 9405]; or
- Treatment, storage, or disposal facility [R 299.9616, 9617, and 9620].

It also depends on if you are accumulating hazardous waste in containers or tanks, what those wastes are, and if those wastes are in a liquid or solid form [R 299.9614 and 9615, and 40 CFR 265.175, 265.191, 265.192, 265.193, and 265.1961. It may be difficult to quickly detect any leaks when using underground storage tanks to accumulate hazardous waste. If you have tanks; or are a transporter; or are a treatment, storage, or disposal facility, discuss your requirements with the Waste Management Division District Office staff.

Large quantity generators (LQG) accumulating any amount of hazardous waste and small quantity generators (SQG) accumulating over 2,200 pounds of nonacute hazardous waste must have secondary containment for the following:

- Containers holding hazardous waste with free liquids
- Hazardous waste with the codes of F020, F021, F022, F023, F026, or F027
- Acute or severely toxic hazardous waste if more than 2.2 pounds is stored

The containment must be able to hold 100% of the largest container or 10% of the volume of all the containers in the system, whichever is larger. You also have to include enough capacity to hold any precipitation that may accumulate in the containment area. If you have hazardous waste in a solid form and it is not one of the above hazardous waste codes, the regulations do not specify a secondary containment volume. Conditionally exempt small quantity generators (CESQG) do not have specific secondary containment requirements unless they accumulate more than 2,200 pounds

of nonacute hazardous waste or 2.2 pounds or more of acutely and severely toxic hazardous waste. But CESQG hazardous waste must be managed to prevent any release into surface or groundwater, or into drains or sewers.

#### **Hazardous Waste Generator Categories**

In ONE month, the total amount of ALL nonacute hazardous waste is generated at the following volumes:

**LQG:** more than 2,200 pounds [and/or 2.2 pounds or more of acutely and severely toxic hazardous waste is generated]

**SQG:** 220 pounds to less than 2,200 pounds. Accumulation never exceeds 13,200 pounds.

**CESQG:** less than 220 pounds. Accumulation never exceeds 2,200 pounds.

There are also accumulation time limits.

Regulated generators are required to accumulate wastes in an area that is designed and operated to remove any spilled or leaked waste and accumulated precipitation in a timely manner to prevent any overflow of the system. The containers need to be elevated or otherwise protected from contact with any accumulated liquid [40 CFR 264.1751. The accumulation area must also be protected from weather, fire, physical damage, and vandals [R 299.9306(1)(e)].

In addition, large quantity generators are required to conduct weekly inspections of the accumulation area and keep written records of those inspections for at least 3 years [R 299.9306(1)]. They are also required to have a 50 foot isolation distance from property lines for ignitable and reactive hazardous waste storage [40 CFR 265.1761.

There are no specific secondary containment requirements for universal waste being managed under R 299.9228 unless there are signs of leakage, spillage, or damage to the container which could lead to leakage. Those materials would have to be put in another container which can prevent further release. All universal wastes need to be managed in a manner that prevents releases. Any release that does occur must be immediately contained [40 CFR 273].

Universal waste includes batteries, electric lamps, mercury switches, thermostats and thermometers, other devices containing elemental mercury, and some pesticides.

The state regulations covering **OIL, POLLUTING MATERIALS ON THE CRITICAL MATERIALS REGISTER, AND SALT** are overseen by both the Surface Water Quality Division and the Waste Management Division. These regulations are found under Part 31 of 1994 PA 451, as amended, and the Spillage of Oil and Polluting Materials Part 5 Rules. These regulations apply to the following items at an oil storage facility or on-land facility:

- Oil (means any kind or any form, including petroleum, gasoline, fuel oil, grease, sludge, oil refuse, and oil mixed with waste) in volumes greater than 40,000 gallons unless the DEQ determines a lesser volume for a particular location due to environmental risk [R 323.1156 and R 323.1159 (2)]. (If you have oil, also check if the federal SPCC and fire prevention requirements apply to your situation.)
- Polluting materials, in solid or liquid form, listed on the Critical Materials Register [R 323.11581. This includes not only "pure" product or waste but also applies to materials included as an ingredient or component of another product or waste. Currently there are no volume or concentration levels specified in the rules.
- Salt in liquid and solid form. Sodium chloride and calcium chloride in solid form are regulated under these rules if stored for over 15 days [R 323.11571. Currently there are no volume or concentration levels specified in the rules.

An on-land facility includes any temporary or permanent location situated where any loss of oil or polluting materials could directly or indirectly reach surface or groundwater.

The Part 31 regulations do not include specific requirements on how the containment must be constructed, but it must be able to prevent any release into any sewer system or surface water or groundwater. Following are the containment capacities specified in the rules.

- Liquid polluting material — 150% of the volume stored or used. A lesser amount can be approved by the Waste Management Division District Supervisor.
- Polluting materials in solid form — capacity not specified. However, the solids must be stored in an area that prevents the loss of these materials to any sewer system or to surface water or groundwater.
- Oil storage facilities — capacity no less than the greatest amount of liquid that could be released from a single tank in the system. If more than one tank is in the containment area, then the capacity would also need to include the volume occupied by any additional tanks within the diked area in addition to the largest tank volume.
- Salt in a solid form must be managed to prevent any runoff or seepage into the surface water or groundwater. The Michigan Department of Transportation (MDOT) recommends that salt be stored indoors with a catch basin to collect any brine runoff. If you are connected to a municipal wastewater treatment system and have their prior permission, you may be able to discharge collected brine to that system. Otherwise, you will need to have a licensed hauler transport it to a disposal facility. Salt must be stored at least 50 feet from the shore or bank of any stream or lake unless the DEQ has approved a shorter distance. MDOT has staff available to assist municipalities who have maintenance agreements with that agency with road salt storage. Contact them at 517-322-3335.

If you have any of these regulated materials, you are also required to prepare a Pollution Incident Prevention Plan (PI PP) [R323.1162].

**The Part 5 Rules are under revision so contact your Waste Management Division District Office for the current rule status.**

### **How is secondary containment designed and constructed?**

Many options exist for designing and constructing secondary containment systems. The regulations overseen by the Waste Management Division do not specify how a containment area must be built, except to indicate the volume it must hold. To assure that the containment area serves the purpose of preventing leaks or spills, the following should be considered when choosing the system.

### **Size**

Construct the containment area so that it is large enough to meet the regulatory volumes specified for the type of material stored.

### **Squirting Liquids Control**

Design the system so that squirting liquids will be captured and retained within the system if a container ruptures. One suggestion is to use the measurement of the tallest container height as the minimum distance between the stored containers and the edge of the containment area. The use of spill control pallets will not provide adequate squirt protection when used with liquids.

### **Structural Strength**

Build the base and walls so the system is strong enough to support the weight of all the materials and equipment that will enter it. Use long lasting materials that can withstand weathering effects and wear and tear and be able to withstand a full hydrostatic head.

### **Impermeability and Compatibility**

Construct the system so that it is liquid tight. Caulk or coat all joints and cracks. The surface of the system must be resistant to penetration by the materials stored there and be compatible with them. The structure must be made of noncombustible materials if flammable or combustible materials are stored in the area. It will be necessary to separate incompatible materials accumulated in your secondary containment area from other materials by means of a dike, berm, wall, or other device.

### **Integrity**

Design the system so any leaking materials can not be released into the environment or into sewer systems. Side walls and the base should not be penetrated by drains, piping channels, or openings of any kind where liquids may escape. If drains or openings do exist, any discharges into them must be manually controlled. Joints and cracks must be sealed.

### **Precipitation Management**

Include a large enough volume to allow for any precipitation (rain, snow, and stormwater run-on) that may enter containment systems located outdoors in addition to the required containment

volume for stored materials. Use the 25 year, 24-hour storm event volume. In Michigan, this event varies from 3.5 to 4.5 inches of rainfall. In addition, provide sufficient capacity to handle sprinkler water and other water from fire protection efforts. Precipitation must be removed from the sump or collection area in as timely a manner as necessary to prevent overflow of the containment system. This liquid must be properly disposed. This can be done by hiring a licensed transporter, discharging to a wastewater treatment plant after receiving their permission, or obtaining a discharge permit from the DEQ. Floor drains are strongly discouraged in areas storing hazardous substances. In many situations, floor drains would be prohibited.

### **Long Term Maintenance**

Make sure the secondary containment system is functioning properly. Conduct routine inspections, have maintenance programs, and make any necessary repairs. Perform any tank integrity testing as required. Some regulations require that you keep a record of inspections, testing, and repairs.

### **Protection and Security**

Restrict access to the containment system to protect against tampering or trespassers, yet allow access for routine employee and emergency personnel and equipment entry. Meet isolation distance requirements from property lines and streets, alleys, or other public ways and sources of ignition. Meet the requirements for any applicable flammable and combustible liquids which include aisle widths, spacing distances between storage tanks, and limit the stacking of containers.

### **Ventilation and Lighting**

Provide adequate ventilation to avoid the buildup of explosive or flammable fumes and to protect workers entering the area. This can be accomplished by natural or mechanical ventilation with discharge or exhaust to a safe location outside the building. See the flammable and combustible liquid regulations for ventilation rates. Without adequate ventilation, a secondary containment area could become a confined space. These spaces are regulated by the Department of Consumer and Industry Services. The area should also be properly lighted for safety and to deter vandalism.

### **Loading and Unloading**

Consider how materials will be safely handled when being moved in and out of the containment system and in the dock area. These areas need to have safe approaches, and adequate space for vehicle access and maneuvering room. Avoid excessive sill height which would hinder movement. However, the flammable and combustible liquid regulations do include specific curb heights if you are storing those types of materials. Prohibit any spilled material in a dock area from entering public sewers, drainage systems, or waterways.

Besides following the regulatory requirements, you may find it helpful or even necessary to hire professional assistance in designing and constructing your secondary containment system. Check the yellow pages for environmental engineering or consulting firms. You may also want to consider asking similar companies what they are using and what, if any, changes they would make if they were designing a new containment system.

### **What must be done if leakage is found in the containment area?**

- ✓ Remove collected materials as quickly as possibly to avoid overflow.
- ✓ Determine if the precipitation and/or other materials collected would be hazardous waste. If it is, then manage it according to Part 111 of 1994 PA 451 requirements. If the fluid is not hazardous waste, you may be able to discharge it to a municipal wastewater sewer system if you have their prior permission. Otherwise, you will need to hire a licensed waste hauler to pump out the material and haul it to a licensed treatment, storage, or disposal facility.

Report spills as required. Know what is required to be reported before a spill occurs. Cleanup any contamination. Check the regulations and/or discuss the requirements with the appropriate DEQ District Office staff.

A *Spill Reporting Requirements* publication is available from the DEQ District Office or by calling 800-662-9278. It includes a spill report form and summary of reporting requirements, but it does not include a list of reportable quantities.

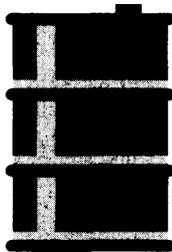
**What needs to be done if a storage area is no longer being used?**

The requirements will depend on what was kept in the area and what types of containers were used. Many of the regulations are too complex to adequately summarize in this document so you need to talk to the regulating agency for specific requirements.

If **you** are a **hazardous waste generator**, the requirements vary depending on whether containers or tanks were used to store the hazardous waste. The accumulation area must be closed in a manner that will result in no further maintenance and that will control any future release of hazardous waste or related substances. You will need to remove or decontaminate all waste residues, equipment, structures, and soils. In addition you will need to properly handle any waste generated according to the applicable regulations. It is necessary to keep written documentation of your closure activities. Contact your DEQ Waste Management Division District Office for more information about closing accumulation areas or transfer locations.

General practices for **closing a container accumulation area** include the following:

- ✓ Ensure that all the cracks and joints are sealed to prevent the rinsewater and any contamination from seeping into the soil.
- ✓ Evaluate the site for existing contamination. Conduct sampling and testing of the soil under or near the storage pad as necessary.
- ✓ Scrub any solid residues or stained areas in the storage pad until the stains are no longer visible.



- ✓ Triple-rinse, at a minimum, with high-pressure steam or other appropriate cleaning technique to decontaminate the area.
- ✓ Determine if the rinsewater is a hazardous waste before disposing of it. If it is hazardous waste, then handle it according to Part 111 of 1994 PA 451. Depending on the situation, you might be able to discharge that rinsewater to a municipal wastewater system if you have their prior permission or it will need to be hauled by a licensed waste transporter.

If the facility was a, **hazardous waste treatment, storage, or disposal facility (TSDF)**, the site must be closed in a manner that will result in no further maintenance and that will control any future release of hazardous waste or related substances. TSDFs have more operating and closure requirements than hazardous waste generators.

- **Licensed facilities** will need to follow the closure plan identified in the license and notify the DEQ Waste Management Division.
- **Facilities never licensed (i.e.: interim status)** will need to submit a closure plan to the Waste Management Division and follow the appropriate closure procedures for the facility. Before “closing” a site, talk to the DEQ Waste Management Division permit engineer to determine what will be necessary. In addition, you must notify DEQ staff at least six working days before starting any closure activities to enable staff scheduling time to sample or observe activities. Laboratory testing may be needed to determine if contamination exists. If contamination exists, you will be required to clean up the site.

This document was printed in September 1997. It was produced by the MDEQ Waste Management Division in conjunction with the Environmental Assistance Division. Partial funding was provided by an US EPA grant.



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Printed by authority of PA 451 of 1994, as amended  
Total number of copies printed:5000 Total Cost: \$682.95 Cost per copy: \$.14

**DEQ** Michigan Department of Environmental Quality