

LIQUID INDUSTRIAL BY-PRODUCTS HOLDING TANKS

Guidance

Holding tanks are sometimes referred to as “pump and haul tanks.” They are used to accumulate and store liquid industrial by-product until it is shipped off-site for proper recycling or disposal. Holding tanks are available in many different shapes, sizes, and materials. They are usually made out of fiberglass, plastic, or steel. Holding tanks do not discharge wastewater to surface or groundwater or onto the surface of the ground. Several agencies have oversight of regulations pertaining to holding tanks. There are different requirements depending on whether the tanks are installed aboveground or underground and what is stored in them.



INJECTION WELLS

The U.S. Environmental Protection Agency (U.S. EPA) considers the floor drains at locations that service vehicles, farm equipment, and airplanes to be motor vehicle waste disposal wells that are regulated as Class V injection wells if they lead to septic systems, dry wells, cesspools, pits, drain tile/leach fields, etc. Those locations are required to plug off the drains or install a holding tank to collect the wastewater. Make sure to meet the federal requirements, close the drains and document the closure even if you have not received a letter or visit from the U.S. EPA. More information is available at www.epa.gov/r5water/uic/uic.htm and www.epa.gov/uic/motor-vehicle-waste-disposal-wells. In most cases, the facility will need to install a holding tank as part of an alternative waste management practice. If the facility is connected, or has the option to connect, to a municipal wastewater treatment system, get approval from the sewer authority to discharge your waste to that system. If you are considering a Department of Environment, Great Lakes, and Energy (EGLE) groundwater discharge permit for the business as an option, first discuss your situation with EGLE’s Water Resources Division, [Groundwater Discharge](#) Program, [permit staff](#).

BEFORE INSTALLING A HOLDING TANK

1. Look at your current practices to see if there are ways to reduce the amount of wastewater or liquid waste that is generated. This will save you money by having lower waste disposal costs and also by being able to install a smaller holding tank system.

For less wastewater from floor cleaning, avoid using hoses to “wash down” the floors. Use dry mopping and biodegradable floor detergents instead of degreasers and solvents, when possible. Another recommendation is to use a three-mop system for shop floor care and spill management at repair shops. Having three dedicated mops enables waste segregation and avoids mixing wastes. One mop should be dedicated for antifreeze spills, one for soapy water to mop shop floor, and a hydrophobic mop that absorbs only oil, not water, or antifreeze. Wring out absorbed fluid into suitable containers for recycling or disposal. By using this system of mops, a shop can keep this waste out of their holding tanks reducing the volume of waste liquids collected and the cost of disposal. If oil is present, mop it up first. Use a hydrophobic mop for oil spills and restrict back-and-forth movement of mop to avoid spreading the spill. If antifreeze is present, mop it up using a dedicated cloth mop. Use a wet mop only if necessary for final cleaning—use a mild non-caustic detergent.

2. Determine which EGLE program regulates the wastewater and meet that program's requirements. This guidance summarizes requirements and recommendations for holding tanks containing liquid industrial by-products regulated under [Part 121](#) of Public Act 451 of 1994, as amended. Liquid industrial by-products include discarded liquids from other types of businesses and government operations in addition to industrial operations. Liquid industrial by-products include commercial and industrial wastewaters and sludges that must be hauled over public roadway from operations like food processing or commercial animal boarding, breeding, and sale; car wash, laundromat, and power washing wastewaters and sludges; antifreeze, leachate, and other wastewaters and sludges from service operations generated by non-households. Liquid industrial by-products also include fats, oils, and grease or other domestic wastewaters not subject to septage regulation, Part 31 wastewater discharge permitting via permit, rule or order; or the Bodies of Dead Animals Act implemented by the Michigan Department of Agriculture and Rural Development.

This guidance does NOT apply to the following materials but may provide helpful information for evaluating tank design considerations:

- **Hazardous waste:** See the [Waste Characterization](#) guidance, if you haven't determined what kind of waste you have. If you need further assistance with this contact your waste consultant, disposal and recycling company, or call the EGLE Materials Management Division District Office to discuss your situation.
- **Medical waste:** Non-hazardous medical wastewaters include accumulated wastewaters from healthcare (dental, veterinarian, family medicine, etc.), funeral homes, and animal processing. Medical wastewaters that are also subject to hazardous waste regulations must be managed to meet both the medical waste and hazardous waste regulations that apply.
- **Septage:** Septage includes only food establishment septage, domestic septage, domestic treatment plant septage, or separate sanitary sewer cleanout septage, or any combination of these. On-site septic systems are permitted and inspected by the local health departments and only designed to handle sanitary wastewaters from bathrooms, kitchens, and laundry devices. These tanks must meet the local health department, local building office, and Drinking Water and Municipal Assistance Division, Onsite Wastewater Program requirements. Go to Michigan.gov/EGLESeptage for more information, including how to find a licensed septage hauler.
- **Regulated substances:** Regulated substances are overseen by the Department of Licensing and Regulatory Affairs (LARA), Bureau of Fire Services, [Storage Tank Program](#). The holding tank is subject to the LARA, Bureau of Fires Services, Storage Tank Program requirements if the stored material:
 - Has a flashpoint below 200 degrees Fahrenheit and/or,
 - Contains a [regulated substance](#) stored in an underground storage tank. This includes substances listed in the federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), specific chemicals listed under the Clean Air Act, or petroleum materials. Find the link to the regulated substances list on the LARA web pages describing their [Underground Storage Tank Program](#).

NOTE: A holding tank would become a regulated underground storage tank if it contains 110 gallons or more petroleum products. Oil water separators and holding tanks collecting the separated liquid, if the tank, no matter the size, would never have more than 110 gallons of regulated substance in it when full, then it is exempt by definition. So, if a 2,000 gallon tank is installed, it will be exempt as long as the fluid going into the tank has less than 5.5% ($2,000 \times .055 = 110$) petroleum products in it. If it ever gets to or goes over that percentage, then it will become a regulated underground tank. Percentages will vary by tank size. If you had an emergency spill of petroleum products into the holding tank, then there is an exemption that allows that it would not become a regulated storage tank if the tank was pumped out within 10 days of the spill.

Call the Storage Tank Program at 517-241-8847 about storage tank requirements for regulated substances including plan review and tank permits.

Additional resources that may be helpful in determining the EGLE regulations that apply to accumulated wastewaters include:

- [Wastewater Receiving Facility Reporting Regulations Guide](#)
 - [Dental Office Frequently Asked Questions](#)
 - [Funeral Home Frequently Asked Questions](#)
3. Check with the building/plumbing inspector about local requirements including the installation of holding tanks, oil/water separators and grit or sand/water separators. If the tank will be connected to the local sewer system for controlled discharges to that system, also contact the [wastewater treatment plant authority](#) for their requirements. If the tank will be installed at a public school, you will probably need to obtain an application for site review and construction permit from the Department of Licensing and Regulatory Affairs, [Bureau of Construction Codes](#).
 4. Contact your insurance company to see if they have any special risk control requirements to ensure you have insurance coverage.
 5. Discuss your proposed holding tank design with the liquid industrial by-product DEQ permitted and registered transportation company to make sure they can service it the way you are planning on installing it.
 6. Obtain several bids regarding your tank installation project. Some tank supply companies offer consultation services to help identify site conditions and restrictions, location suitability, alternative tank site locations, plumbing considerations, foundation and soil stability observations, permit acquisition, storage alternatives, tank delivery issues with highway and street route access, and other cost-saving suggestions.

CONSTRUCTION RECOMMENDATIONS AND REQUIREMENTS

The specific design and construction methods will depend on the waste that will be stored in the tank, but the following design recommendations provide optimum protection against inadvertent releases. Less protective designs may be used as long as the liquid industrial by-product is kept out of the environment. However, using less protective designs may present an increased potential for inadvertent releases with clean-up liability and costs for the site owner/operator.

1. Install and/or construct the holding tank according to local requirements. Obtain necessary building permits from local authorities.
2. Must meet the liquid industrial by-product regulation requirements so tanks are:
 - **Labeled** with words that identify their contents.
 - **Protected from weather, fire, physical damage, and vandals.** Add enough space in the tank to protect it from the contents expanding by freezing and heat. Use a very heavy lid or a locked cover to restrict access especially protecting it against access by children. Ensure it is not located in a high traffic area and if a traffic area is unavoidable, install barriers to protect the tank.
 - **Kept closed** at all times except when waste is being added or removed. It may be as simple as a floor drain plug or a ball valve or some other type of closure device between the floor drain and tank. Depending on the liquid industrial by-product, a conservation vent, or two-way closer, may be needed for proper tank venting or a trap in the pipes heading to the tank to prevent odors. Do not use an open top tank.

- **Compatible with the waste.** You can usually find compatibility information in the Safety Data Sheets (SDS), or you can discuss compatibility with your consultant, design engineer, and tank manufacturers and vendors for recommendations. For example, fiberglass tanks are generally not compatible with wastewater, which may contain acetone, as found at auto body shops. Cement is not compatible with acidic wastewater or with wastewater containing gasoline or solvents.

Calculate adequate storage capacity for the amount of waste you will be accumulating before the waste is picked up. When deciding on size, a good starting point is to estimate the average amount of wastewater generated per day and multiply it by the preferred number of days between pumping. Consider additional volume in case winter weather conditions prohibit a regular scheduled pickup. The smaller the holding tank, the more frequent the pumping schedule resulting in higher disposal costs. However, an oversized tank and infrequent pumping schedule can cause odors to form in the stagnant wastewater. Proper sizing and installation should help avoid having problems with settling or affecting buildings on the site. If you have questions how to size or install the holding tank, work with an engineer or building contractor.

3. Tanks should be made from a leak-proof material. Consider using aboveground storage tanks (AST) instead of underground tanks. ASTs are preferred because it is easier to promptly detect and correct any leaks. It is recommended to use a double-walled tank or conduct annual water-tightness tests for single-walled tanks. Do not use flammable waste traps as holding tanks. Do not use concrete vaults, including septic tanks, as the primary tank. Concrete can easily crack and is pervious to certain solvents. Concrete joints are also avenues for leaks, especially if solvent materials are present. Concrete vaults can be used to provide secondary containment for another tank placed inside the vault if the vault is constructed with water stop joint design and the concrete is coated with an impermeable material compatible with the waste, and you perform inspections periodically to ensure there aren't cracks or other problems with the containment.

For underground tanks, it is important that the holding tank be accessible at ground level. Generally, this is accomplished using a catch basin riser and access cover. The holding tank also needs to be "tight" – ensuring that it does not leak through its sides, bottom, seams or top and there is no entrance for storm water, surface or groundwater. Below ground tanks in vehicle traffic areas must withstand appropriate loading and the holding tank foundation must be able to both support the holding tank when it is full of the liquid industrial by-product and prevent uplift when it is empty. Adhering to proper backfill standards will minimize any potential shifting or cracking of the tank. Steel piping is also not recommended but if it is used, it should be provided with cathodic protection.

To find tank suppliers, search the internet using keywords like industrial waste holding tank or look in industrial magazines that include advertisements for stainless steel, fiberglass, or other tanks.

NOTE: If you install an aboveground tank and it contains oily liquid industrial by-product (which also include fuels like gasoline, diesel fuel, lubricating oils, etc.), and you have 1,320 gallons or more storage capacity for all oils on-site, there are federal and state regulations that apply when the contents contain 1 percent (%) or more of petroleum products. The state rules also apply if the contents contain 1 percent (%) or more of the regulated chemicals listed in the state's Part 31, Water Resource Protection, Part 5 rules. Access to these regulation and more Information is available at www.michigan.gov/part5 or in [Chapter 4](#) of the [Michigan Manufacturers' Guide to Environmental Safety and Health Regulations \(Michigan.gov/EHSguide\)](#).

4. Install an audio and visual alarm or level detection device to prevent overflows. One suggestion is to have a warning system installed that alerts users when the tank is 75% of its total capacity. If the tank does not have an alarm system, then liquid levels should be measured manually ("sticking" the holding tank) at least monthly during the first few months of installation to gauge rate of fill. One advantage of translucent, aboveground holding tanks is that alarms are less critical as the wastewater levels can be determined by visual inspection.
5. Secondary containment is recommended and is required for outdoor aboveground tanks when the waste contains 1 percent (%) or more of a polluting material as listed in the Water Resources Division Part 5 Rules Spillage of Oil and Polluting Material. For more information on the state's Part 31, Water Resource Protection, Part 5 rules, go to Michigan.gov/part5 or see [Chapter 4](#) of the [Michigan Manufacturers' Guide to Environmental Safety and Health Regulations](#). If it is brine waste, you may also want to see the [Salt and Brine Storage Guidance for Road Agency Maintenance and Other Facilities](#) guidance.

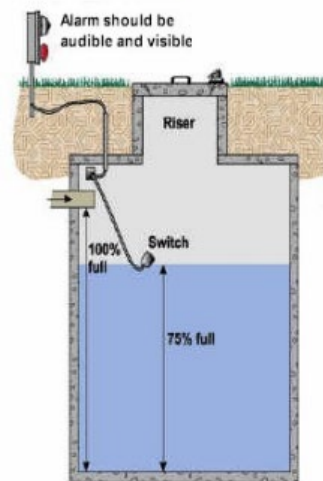
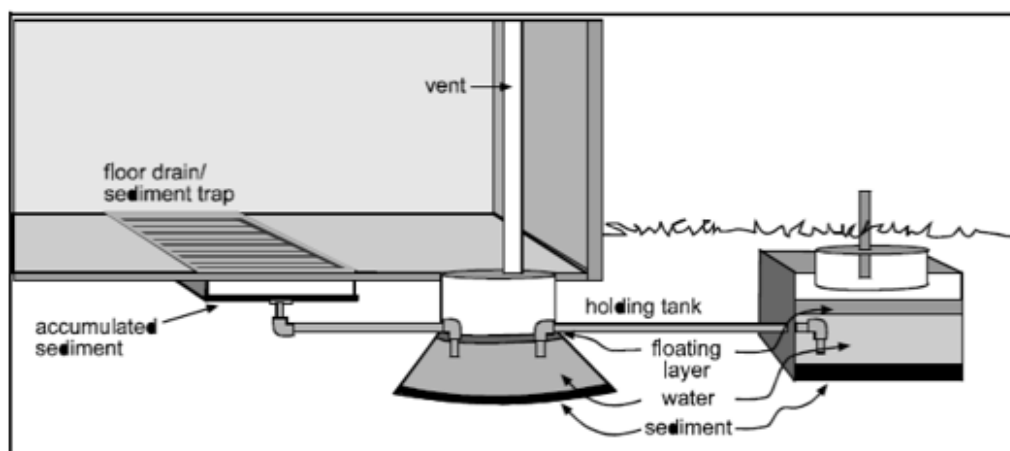


Diagram from Maine Holding Tank guidance

If installing a secondary containment structure outdoors, make sure to size it to deal with rain and snow melt and provide a sump to allow easy removal of the precipitation and any material that may have leaked or spilled.

6. Use double walled piping leading from the floor drains to the holding tank. Buried piping should have some type of leak detection system provided.
7. Determine if venting is needed. Normally if a vented and water-sealed flammable waste trap is installed in the line before wastewater enters the tank, venting for the tank is not required. If you are installing a new holding tank, no flammable waste trap is needed as long as the tank is vented and has a water seal to prevent vapors from re-entering the buildings. See the drawing from the Maine Department of Environmental Protection's Holding Tank Guidance below.



Simplified Diagram of a Plumbing System Connected to a Holding Tank

8. If installing an oil water separator in conjunction with the holding tank, see the [Oil Water Separator](#) guidance.
9. Design the tank system to allow easy access to allow cleaning and repair in the event that a leak does occur. Place the tank near a driveway if possible so it is easy to bring in a truck to pump it out. However, be aware that vehicular traffic may affect the tank, see item 2 above.

10. If a holding tank is used in wet areas with a high-water table, anchor the tank to prevent flotation. With the anchor, the empty tank could float and lift out of the ground or at least shift breaking the piping.
11. Document the installation of underground holding tanks for future potential use including when it was installed, what it was made of, etc. Take pictures to show there is not an outlet or discharge before backfilling.

OPERATION AND MAINTENANCE RECOMMENDATIONS AND REQUIREMENTS

- Follow tank manufacturer’s operation and maintenance recommendations.
- Regularly inspect the tank system (perhaps even hydraulically test it) to verify its continued structural integrity. Keep a record of the inspections.
- Regularly confirm the alarm system is working or manually check the level of waste in the tank. Keep a record of tests and tank volumes.
- Label the holding tank or place a sign near the access cover with words that describe the contents of the tank like floor wash water, spent antifreeze, or used oil. While the sign serves as a reminder for employees, it also alerts emergency first responders who are unfamiliar with your site.
- If the tank is considered a [confined space](#), make sure to meet MIOSHA entry requirements. Call their Consultation, Education and Training Division at 517-284-7720 or General Industries Division at 517-284-7750 for more information.
- Implement good workplace practices, such as storing all petroleum products, solvents and hazardous materials in areas where there are no floor drains, to reduce contamination potential of the waste in the holding tank.
- Have the contents removed by a permitted and registered liquid industrial waste transporter on a regular basis so it does not overflow. There are no state time limit requirements on storing liquid industrial waste at your facility, but local ordinances may have time limits in place.
- Be sure to meet the transportation and [shipping document requirements](#) when transporting or offering liquid industrial by-product(s) for transport. See the [Liquid Industrial Waste Generator](#) guidance and Frequently Asked Questions for information about shipping, transporting and receiving liquid industrial by-products. You may also find [Chapter 2](#) of the [Michigan Manufacturers’ Guide to Environmental Safety and Health Regulations](#), and the [recorded webinars](#) in the Hazardous Waste and Liquid Industrial By-products Webinar Series helpful.
- Remove precipitation from the secondary containment area in a timely manner. See the Part 5 Rules Information Packet for information about discharging from the containment area.
- Train employees about spill prevention and clean-up to minimize the possibility contaminants entering the holding tank, and, in the event of a leak or spill, appropriate response measures to collect, contain, and clean-up the industrial waste.
- If a spill occurred into or from the holding tank, meet any release reporting requirements. See information at [Michigan.gov/EGLErelease](#) or refer to your facility’s spill response plan, if one was prepared. Call the EGLE District Office or to the Environmental Assistance Center at 800-662-9278 with questions about the regulatory requirements. Discuss construction questions with your engineer or building contractor.

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