Requirements for Waste Dangerous Goods Storage

As of April 1, 1995 all waste dangerous goods storage facilities must comply with the regulatory requirements of *The Hazardous Substances and Waste Dangerous Goods Regulations.* If an existing structure doesn't meet these requirements, needed upgrading must have been completed by this date.

Common types of waste dangerous goods generated and stored in Saskatchewan include waste lubricating oil and oil filters, waste automotive batteries, paint and paint related materials (solvents), waste naptha petroleum (varsol), and waste perchloroethylene (generated at dry cleaning facilities).

Waste dangerous goods storage facilities consist of waste dangerous goods stored in:

- underground storage tanks regardless of capacity;
- above ground storage tanks regardless of capacity except above ground tanks on farms where
- the waste is generated from farming operations only; or
- containers where the total quantity of waste dangerous goods stored does not exceed: a) 500 kilograms (500 litres) of waste oil or waste antifreeze at any one time, or b) 100 kilograms (100 litres) of all other waste dangerous goods combined;
- stockpiles

Before You Begin

Before construction or upgrading begins, an application, including site plans and drawings, must be submitted to Saskatchewan Environment for approval. Approval may also be required

from municipal authorities. More information regarding specific construction requirements is available on request.

Note: The regulations require the use of qualified persons for the installation, construction and decommissioning of underground and many above ground waste dangerous goods storage tank systems. A list of certified contractors is available from the department on request.

Key Requirements

Containers

- Waste dangerous goods container storage areas must be equipped with some form of secondary containment to prevent waste dangerous goods from entering any storm, sanitary sewage or water supply system or from contaminating any other area. The secondary containment must be impermeable (leak tight) and constructed of a material compatible with the waste being stored.
- For small quantities of container storage, the capacity of the secondary containment must be 10 per cent of the total volume of waste stored plus the size of the largest container. Examples of small quantity storage secondary containment include overpack drums and spill containment pallets or spill trays manufactured from steel or plastic.
- When storing larger quantities of waste dangerous goods in containers, the secondary containment features should be constructed to a minimum height of 15 cm above the surrounding floor or grade. This may be achieved by the inclusion of non-combustible sills, curbs, ramps or dykes (steel or concrete) as part of the facility's construction. Other types of dyke and liner systems may also be acceptable in certain instances. The containment area must be free of drains which connect directly or indirectly to a storm or sanitary sewer system.
- If storing containers outside for long periods of time, it is beneficial to provide shelter from rain and snow to prevent corrosion. Frequent inspections and maintenance of the secondary containment should be performed to prevent accumulation of rain, snow and debris.

- The container storage area must be surrounded by a fence (outdoor) or enclosure (building). If a facility's outdoor compound is completely fenced, additional fencing around the immediate storage area is not required.
- The fence or enclosure must be posted with at least one sign warning of stored waste dangerous goods and displaying an emergency telephone number.
- Containers must be clearly marked or labelled as required by the Transportation of *Dangerous Goods Act (Canada)*.
- In container storage facilities where the quantity of waste oil or waste antifreeze exceeds 2000 kilograms, or the quantity of all other stored waste dangerous goods combined, exceeds 200 kilograms, indoor storage must be situated at least 100 metres from residences, hospitals, senior citizen care homes, schools, day-care centres or prisons, and the warehouse must be constructed according to Table 1. When exceeding these quantities in outdoor storage, the outdoor yard storage facility must be situated at least 500 metres from these same areas.
- Options for the upgrading or construction of indoor waste dangerous goods container storage facilities (single storey construction) beyond the 100 metre isolation distance are summarized in Table 1.

Above Ground Storage Tanks

- Operators are allowed to upgrade existing waste oil storage tanks provided the tank was manufactured for the purpose of storing waste oil or petroleum products and was built according to applicable standards at the time of manufacture. The tank must be in good condition (no dents, holes, rivets, bolts, or modifications to the tank shell).
- Above ground waste oil storage tanks should be designed and constructed to comply with one of the following construction standards:
  - ULC CAN4-S601-M84 (horizontal tanks)
  - ULC CAN4-S630-M84 (vertical tanks)
  - ULC-S643-,1989 (utility tanks)
  - ULC/ORD-C142.3-1991 (contained tank)
  - ULC/ORD-C142.23-1991 (used oil tank)
  - CAN/ULC-S602-M92 (fuel oil/lube oil tanks) or other approved design
- Tanks with a capacity greater than 10,000 litres require a thickness test after 20 years from the date of manufacture, and every 10 years thereafter. If the tank is found to have less than 10 years of remaining working life, it must be refurbished by the manufacturer or replaced.
- Where susceptible to external corrosion, tanks should be coated with a rust resistant material.
- Installation of suction tubes fitted with leak tight couplings is required on systems which are emptied using vacuum suction to prevent having the product removal suction hose on waste oil hauler's vehicles submersed into the waste oil.
- Manually top-filled waste oil storage tanks should be equipped with a minimum 25 litre capacity funnel inlet with a mesh screen opening and lockable funnel inlet cover.
- Tanks filled by remote piping or manifold should be equipped with a high level alarm or overfill prevention system; they must also be equipped with transfer spill preventer or be constructed to prevent spillage at the off-load connection point.
- Tanks should be clearly marked to identify the contents.
- Tanks should be equipped with secondary containment. Acceptable containment systems include: double wall tanks, containment dykes constructed from steel, concrete, earthen dyke and liner systems, or other systems which meet the following minimum requirements:
  - the containment material must be compatible with the product stored
  - the capacity of the containment for single tanks must be a minimum of 110% of the capacity of the tank;
  - the containment must be leak tight;
  - the containment must be constructed so as to be strong enough to hold the capacity of the storage tank in the event of a leak.

Underground Storage Tanks

- Underground waste oil storage tanks should be designed and constructed to comply with one of the following construction standards: ULC CAN4-S603.1-M85 (cathodically protected steel tanks), or ULC CAN4-S615-M83 (fibreglass reinforced plastic tanks).
- Note: Unprotected underground steel tanks older than 25 years of age, or of unknown or undocumented age, are to be replaced with the type of underground tank listed above or an acceptable above ground storage tank system.
- Tanks should be equipped with cathodically protected steel piping or fibreglass reinforced pipes.

- Storage tank systems must be equipped with an acceptable leak detection system (as a minimum, monitor wells or test holes should be designed and installed according to Saskatchewan Environment guidelines).
- Underground tanks and piping located at class "A" sites must be equipped with acceptable secondary containment (which can be accomplished either through the use of double-wall tanks and piping or a secondary containment liner) and an interstitial leak detection system.
- Manually filled waste oil storage tanks should be equipped with a minimum 25 litre capacity funnel inlet with a mesh screen opening and lockable funnel inlet cover.
- Tanks which are not manually filled by a gravity flow system should be equipped with a high level alarm or overfill prevention system.
- Installation of suction tubes fitted with leak tight couplings is required on systems which are emptied using vacuum suction to prevent having the product removal suction hose on waste oil hauler's vehicles submersed into the waste oil.

Additional Considerations

Some additional requirements may apply when upgrading both above ground and underground waste dangerous goods storage tanks other than waste oil tanks.

The amendments to *The Hazardous Substances and Waste Dangerous Goods Regulations*, which came into effect in January 1995, include a revised description of exemptions related to the oil and gas industry in Saskatchewan. The amendment provides clarification on what types of storage facilities are exempt from the regulations. The regulations state "storage facilities that store or transport crude oil, natural gas or production water and that are subject to *The Oil and Gas Conservation Act* are exempt from the regulations. This means that all other hazardous substances are regulated, and storage of most waste dangerous goods, require compliance with *The Hazardous Substances and Waste Dangerous Goods Regulations.*

Table 1: Waste Dangerous Goods Warehouse Storage Requirements

Distance	**Non-combustible construction**	**Combustible construction**
100 metres from residences, 100 to less than 500 metres from schools, hospitals, senior citizen homes etc.	One hour fire rating on exterior walls, roof assembly (ceiling), load bearing walls, columns and arches. Monitored fire alarm required. Note: if total floor area is less than 100 square metres, no fire ratings on the structure are necessary, however a monitored fire alarm is still required.	One hour fire rating on exterior walls, roof assembly (ceiling), load bearing walls, columns and arches. Monitored fire alarm required.
100 metres from residences and 500 metres from schools, hospitals, senior citizen homes etc.	No fire rating required. Monitor fire alarm is required.	One hour fire rating on exterior walls. Monitored fire alarm is required.

Note: The requirements of the National Building Code of Canada will prevail in instances where fire ratings of the exterior walls are more stringent because of spatial separation from other buildings and property.

More info?

Contact the Saskatchewan Ministry of Environment
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