



Canadian	Institut
Petroleum	canadien
Products	des produits
Institute	pétroliers

ABOVE GROUND TANK FACILITIES GUIDE

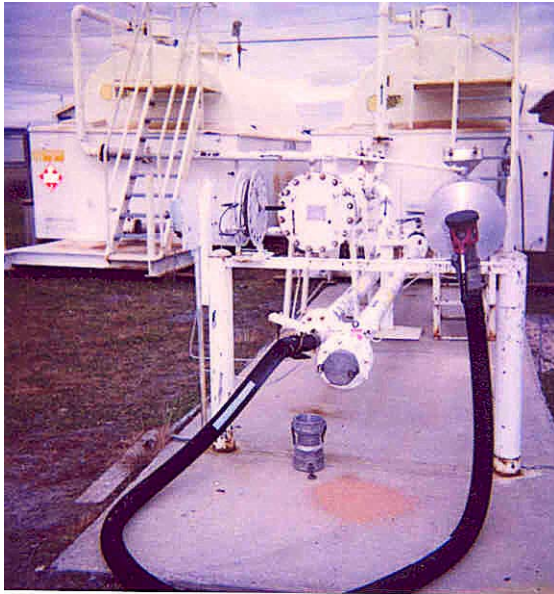
This guide has been prepared to assist in choosing an aboveground tank and related piping and equipment. This choice must be based on economic, operational and safety criteria. This document provides descriptions of the various aboveground tank facilities and the pros and cons of each.

In no event shall the CPPI, its members or the contributing agencies be liable for any claim arising from the use of, or reliance on, this document. Should there be any conflict over the practices recommended by this document, existing legislation and regulations takes precedence.

FACILITY No. 1

Aboveground tank with 3 or 4 inch piping – with integrated pump

This fully stand-alone facility allows product deliveries exceeding 20,400 litres. It features an overfill protection device and a stop valve. Standard delivery equipment enables deliveries at a lower cost. The flow rate will be high and the pump can also be used to supply machinery or equipment. This facility is safe and minimizes environmental hazards.



Unloading to a Lower Point



Unloading Pump

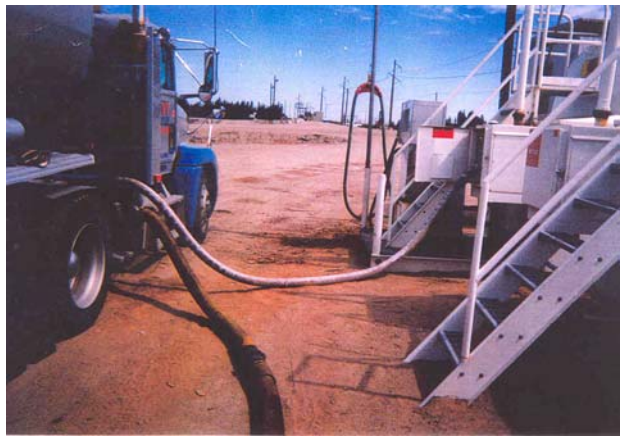
FACILITY No. 2

Aboveground tank with 3 or 4 inch piping– without a pump

This aboveground tank with piping requires that the tank truck be fitted with a pump for unloading.

This facility, like the former, allows product deliveries exceeding 20,400 litres, provided the leak-free connection is located at ground level. An overfill protection device and a stop valve are required.

This facility is less costly, allows drivers to work safely at ground level and permits a higher delivery rate with lower transportation costs.



An ideal facility would include a manual pump to transfer any hydrocarbons in the containment box to the tank (optional).

FACILITY No. 3

Aboveground tank with 3 or 4 inch piping above the tank

An aboveground tank with a 3 or 4 inch down pipe and an integrated overfill protection device would be better if converted to a facility as defined under facilities 1 and 2. Otherwise, deliveries must be made in smaller tank trucks of a maximum capacity of 20,400 litres. The delivery rate will then be lower and transportation costs higher.



Unloading Piping : 3 or 4 inches

With a containment box and a 3 or 4 inch pipe located on top of the tank, the driver **cannot** deliver as illustrated below.



FACILITY No. 4

Aboveground tank with 2-inch down tube and an overfill protection device

This aboveground tank with piping receives product deliveries from the top. The connections (unloading pipes) measure two (2) inches in diameter and an overfill protection device is present.

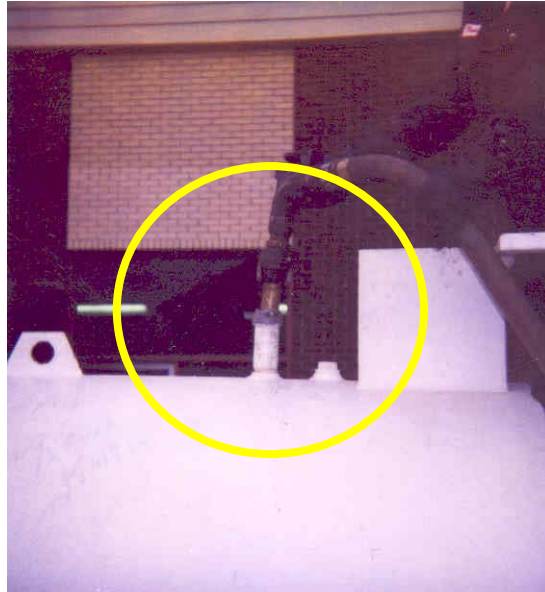
Only tank trucks equipped with a hose reel can make these types of deliveries. This means that deliveries are slower, since the connection is only two (2) inches and the maximum flow rate that can be achieved with a 1 3/8-inch hose is 400 litres/minute. Delivery costs will also be higher since a tank truck equipped with a hose reel has a maximum capacity of 20,400 litres.



Facility recommended for tank truck with hose reel

To be avoided

Drivers should never insert the hose nozzle in the dip hatch since the latter is not equipped with a down pipe and an overfill protection device.



In certain municipalities, gasoline vapours must be recovered. This by-law applies to both underground and aboveground tanks.

The effort to standardize delivery management is very important for oil companies, since it is aimed at ensuring personal safety and environmental protection. The facilities described herein will enable customers to comply with the Petroleum Products Regulation.

The Labour Code requires that a form of protection be installed to prevent falls when work is performed at a height of more than 2.4 metres (federal law). It is recommended that a protective railing be installed as protection against falls.

SUMMARY

Facilities no. 1 and 2 allow:

1. Deliveries exceeding 20,400 litres to be made with a standard tank truck of a maximum capacity of 46,000 litres in diesel fuel or furnace oil
2. Reduced transportation costs
3. Safe deliveries
4. Higher flow rate which reduces delivery time
5. Much lower risk of spills
6. Reduced risk of accident or bodily injury
7. Amortized investment given the benefit of lower transportation costs.

However, to benefit from these advantages, sites must be able to be accessed by seven-axle tank trucks.

Facility no. 4 should exist only if the annual volume does not economically justify facilities 1 and 2.