



Tank Tips 8

on *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*

Leak detection and monitoring Storage tank systems that lack secondary containment, have single-walled underground tanks or piping, or make use of sumps pose a greater risk to the environment than other types of installations. Under Environment Canada's *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*, there are now specific leak detection and/or monitoring requirements for these systems. This fact sheet will help you determine if the requirements apply to your storage tank system and give you the steps you must take if they do. You will also find additional information, resources and contact numbers at the end of the fact sheet.

Even with pre-existing corrosion protection and leak detection, all single-walled underground storage tank systems will eventually leak as they age.

What has changed?

On June 12, 2008 Environment Canada put in place new regulations governing storage tank systems under federal jurisdiction as described in the regulations. Prior to these regulations there were no leak monitoring or leak detection requirements for storage tank systems. Under the new regulations certain types of tank systems now have specific requirements around leak detection and monitoring which must be in place by June 12, 2010.

Compliance with the regulations is mandatory.

What systems require leak detection and/or monitoring?

Systems that do not have double walls or secondary containment pose a higher risk to the environment because, in the event of a leak or spill, product is released directly into soil and water. Once there, it can migrate over a considerable distance and cause extensive and long-term damage to the environment. If the system you operate or own has tanks, piping or sumps as described in the list below, then the leak detection and monitoring requirements apply to your installation.

If petroleum products are introduced at any depth within the soil matrix, as in the case of leaks from underground storage tanks, natural weather and biodegradation processes are rendered less effective and the chances are increased that some of the petroleum product fractions may contaminate groundwater.

- single-walled underground tanks
- single-walled underground piping
- aboveground tanks without secondary containment
- aboveground piping without secondary containment
- sumps (turbine, transition, dispenser or pump)

What do you need to do if your system has single-walled underground tanks?

- 1) Carry out a third-party certified tank precision leak test that meets the specifications laid out in section 21 of the regulations by June 12, 2010.
- 2) Immediately following your initial tank precision leak test, set up an ongoing leak detection or monitoring program using one of the three options below: (section 16)
 - carry out a third-party certified tank precision leak detection test once a year (subsection 16(b) and section 21), OR
 - use automatic tank gauging (section 18), OR
 - use continuous in-tank leak detection (section 20).
- 3) Remove your single-walled underground tank no later than June 12, 2012 (section 9). There are two exceptions:
 - Steel tanks that have – as of June 12, 2008 – cathodic protection plus either leak detection, groundwater monitoring wells, or vapour monitoring may stay in place.
 - In addition, single-walled underground tanks made of a material other than steel may stay in place if – as of June 12, 2008 – they have either leak detection, groundwater monitoring wells, or vapour monitoring wells.
- 4) If your single-walled underground tank leaks, immediately and permanently withdraw it from service. You then have two years from the time you found the leak to remove it. (subsection 3(2))

What do you need to do if your system has single-walled underground piping?

- 1) Perform a third-party certified piping precision leak detection test in accordance with section 24 of the regulations by June 12, 2010. (subsection 17(1))

In Canada, pollution of surface water by groundwater is probably at least as serious as the contamination of groundwater supplies.

- 2) Following the initial piping precision leak detection test, immediately set up an ongoing leak detection program using one of the options below:
 - perform an annual third-party certified piping leak detection test (paragraph 17(1)(b) and section 24), OR
 - set up external underground pipe leak monitoring that complies with the requirements in subsection 17(2), OR
 - use automatic tank gauging as described in section 18, OR
 - use in-tank leak detection as described in section 20.
- 3) Remove all single-walled underground piping by June 12, 2012. You may either replace it with piping approved in the regulations (subsection 14(5)), or permanently withdraw your storage tank system from service (section 10). There are two exceptions to the removal requirement (subsection 10(2)) for single-walled piping. You do not need to remove:
 - single-walled steel piping that, as of June 12, 2008, has cathodic protection as well as one of leak detection, groundwater monitoring wells, vapour monitoring wells, single vertical check valves or mechanical line leak detection devices
 - non-metallic or copper piping that – as of June 12, 2008 – has one of leak detection, groundwater monitoring wells, vapour monitoring wells, single vertical check valves or mechanical line leak detection devices.
- 4) If your single-walled piping leaks, immediately and permanently withdraw it from service and remove it (subsection 3(3)). You may either replace the piping with piping approved in the regulations or permanently withdraw the storage tank system from service. If you permanently withdraw the storage tank system from service you have two years from the time you found the leak to remove the system in accordance with the procedures laid out in the regulations (paragraph 3(3)(b)).

What do you need to do if your system has horizontal aboveground tanks without secondary containment?

- 1) Visually inspect the walls of your tank for leaks by June 12, 2010. (section 19)
- 2) Immediately following your visual inspection set up an ongoing leak detection program by one of the following methods:

When petroleum products are released directly into water through spills or leaks, certain petroleum fractions will float in water and form thin surface films. Other heavier fractions will accumulate in the sediment at the bottom of the water, which may affect bottom-feeding fish and organisms.

- carry out an annual third-party certified tank precision leak test as described in section 21, OR
- visually inspect the walls of the tanks once per month and do an inventory reconciliation as detailed in subsection 19(2), OR
- use continuous in-tank leak detection (section 20), OR
- use continuous external horizontal aboveground tank leak monitoring (subsection 19(3)).

What do you need to do if your system has vertical aboveground tanks without secondary containment?

- 1) Inspect the tank in accordance with subsection 22(2), OR the floor of the tank by the procedure laid out in subsection 22(3) by June 12, 2010.
- 2) Immediately following this inspection set up an ongoing leak detection or monitoring program using one of the following methods/procedures:
 - every 10 years from the date of the initial inspection, inspect the tanks (subsection 22(2)) or the floor of the tanks (subsection 22(3)) following the requirements in the regulations, OR
 - use continuous in-tank leak monitoring as described in section 20, OR
 - use continuous external vertical aboveground tank leak monitoring that complies with the specifications (leak detection rate etc.) laid out in subsection 22(4).
- 3) If your tanks were inspected by one of the approved methods after June 12, 2000, then you must do your initial inspection, and set up your ongoing leak detection/monitoring program, no later than 10 years from the date of that inspection. For example, if you inspected your tanks on July 12, 2004, then your initial inspection under the new regulations must be carried out no later than July 12, 2014, and your ongoing leak detection/monitoring program set up immediately following that inspection (subsections 22(5) and 22(6)).

What do you have to do if your system has aboveground piping without secondary containment?

- 1) Visually inspect the piping for leaks by June 12, 2010 (section 23).
- 2) Following the initial inspection immediately set up a leak monitoring program using one of the four methods/procedures below:
 - carry out an annual piping precision leak detection test in accordance with section 24, OR

The frequency, duration and intensity with which people contact pollutants at a contaminated site are related to the nature of the land use. Also, the critical receptor in any land category is dependent on the ease of public access and the activities inherent to that land use.

- do a monthly visual inspection of the piping (paragraph 23(1)(b)), OR
- use continuous external aboveground pipe leak monitoring (subsection 23(2)), OR
- implement a corrosion analysis program for piping that is developed and conducted by a corrosion expert and includes, at a minimum, an annual inspection (subparagraph 23(1)(a)(ii)).

What must you do if your storage tank system has sumps?

- 1) If you have turbine, transition, dispenser or pump sumps, visually inspect those sumps to determine if they are leaking by June 12, 2010 (subsection 25(1)).
- 2) Immediately following the initial inspection set up an ongoing leak monitoring or detection program using one of the two choices below:
 - visually inspect the sumps annually, OR
 - use continuous sump leak monitoring. If you choose this option, the sump leak monitoring must conform to the specifications laid out in subsection 25(2).

Where do you get more information?

On our website: www.ec.gc.ca/st-rs. If you'd like us to mail you the information below please call: 819-934-2991 (0900 h – 1700 h EST/EDT)

The following documents are available on our website:

- *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*
- *Tank Tips* fact sheets, each one covering a specific part of the new regulations
- *Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products*, Canadian Council of Ministers of the Environment
- *Canadian Environmental Protection Act, 1999*
- *Compliance and Enforcement Policy for the Canadian Environmental Protection Act, 1999*

If you have specific questions on the regulations please contact your regional office.

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