



LEAK DETECTION AND MONITORING

Under the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*, you need to be able to detect leaks from your storage tank system. This fact sheet explains leak detection and monitoring requirements.

Tank Tip 8

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

Why do storage tank systems require leak detection and monitoring?

Leak detection and monitoring can alert owners/operators and give them a chance to prevent releases into the environment. Some systems are more of a risk than others. For example, a leak from a single-walled underground tank or piping will release product directly into the soil. The product can then move further, causing extensive and long-term damage.

In order to keep single-walled underground storage tanks or piping that were installed before June 2008, they must have had leak detection, and in the case of a steel system, leak detection and cathodic protection in place as of June 12, 2008. Otherwise, they should have been removed by June 12, 2012.

If the system you operate or own has tanks, piping or sumps described in the list below, then it must have leak detection and/or monitoring.

What is required if your system has single-walled underground tanks?

1. By now you should have removed single-walled underground tanks [sub-section 9(1)] with the exception of:
 - i. Steel tanks that have, as of June 12, 2008, cathodic protection plus one of:
 - leak detection, OR
 - groundwater monitoring wells, OR
 - vapour monitoring.



- ii. Tanks made of a material other than steel may stay in place if, as of June 12, 2008, they have one of:
 - leak detection, OR
 - groundwater monitoring wells, OR
 - vapour monitoring wells.
2. If your single-walled underground tank has not been removed because it was exempted, as above, you should have completed a tank precision leak test, certified by a third party, by June 10, 2010 (section 16).
3. Following the initial tank precision leak test, you must have in place an ongoing leak detection or monitoring program that uses one of the following methods, in addition to the leak detection and/or cathodic protection already in place as of June 12, 2008:
 - a third-party certified, precision leak-detection test of the tank once a year, OR
 - automatic tank gauging, OR
 - continuous in-tank leak detection.
4. If your single-walled underground tank leaks, you must immediately and permanently withdraw it from service. You then have two years from the date the leak was detected to remove it (section 3).

What is required if your system has *single-walled underground piping*?

1. By now you should have removed single-walled underground piping either by replacing it with approved piping, or permanently withdrawing the storage tank system from service (section 10). There are two exceptions to the removal requirement for single-walled piping.
 - i. You do not need to remove single-walled steel piping that, as of June 12, 2008, had cathodic protection and one of the following leak detection methods:
 - groundwater monitoring wells, OR
 - vapour monitoring wells, OR
 - single vertical check valves, OR
 - mechanical line-leak detection devices.
 - ii. You do not need to remove non-metallic or copper piping that, as of June 12, 2008, had one of the leak detection methods mentioned directly above for single-walled steel piping.
2. If your single-walled underground piping has not been removed, you should have completed a tank precision leak test, certified by a third party, by now (section 17).

3. Following the initial precision leak detection test on the piping, you must now have in place an ongoing leak detection program. The program must use one of the following methods, in addition to the leak detection and/or cathodic protection already in place as of June 12, 2008:
 - an annual third-party certified, leak detection test of the piping, OR
 - continuous external underground pipe leak monitoring, OR
 - automatic tank gauging, OR
 - continuous in-tank leak detection.
4. If your single-walled piping leaks, it must immediately be withdrawn from service (section 3). You must either replace the piping with approved piping, or permanently withdraw the storage tank system from service. If you permanently withdraw the system from service, you have two years to remove it, starting from the date you found the leak. When removing it, you must follow the specific procedures in the regulations.

What is required if your system has *horizontal aboveground tanks without secondary containment*?

1. By now you should have completed a visual inspection of your tanks' walls for leaks (section 19).
2. Following your visual inspection, you must now have in place an ongoing leak-detection program using one of the following methods:
 - an annual third-party certified, precision leak test of the tanks, OR
 - a monthly visual inspection of the walls of the tanks along with inventory reconciliation, OR
 - continuous in-tank leak detection, OR
 - continuous external horizontal aboveground leak monitoring of the tanks.

What is required if your system has *vertical aboveground tanks without secondary containment*?

1. By now you should have completed a visual inspection of the tanks or of the tank floors using the method required in the regulations (section 22).
2. Following this inspection, you must now have in place an ongoing leak detection or monitoring program, using one of the following methods:
 - every 10 years from the date of the initial inspection, inspect the tanks or the tank floors, OR
 - continuous in-tank leak monitoring, OR
 - continuous external vertical aboveground leak monitoring of the tanks.

What is required if your system has *aboveground piping without secondary containment*?

1. By now you should have done a visual inspection of the piping for leaks (section 23).
2. Following the initial inspection, you must have in place a leak monitoring program that uses one of the following methods:
 - an annual piping precision leak detection test, OR
 - a monthly visual inspection of the piping, OR
 - a continuous external aboveground pipe leak monitoring, OR
 - a corrosion analysis program for piping that is developed and conducted by a corrosion expert and includes (at a minimum) an annual inspection.

What is required if your storage tank system has *sumps*?

1. By now you should have completed a visual inspection if you have turbine, transition, dispenser, or pump sumps (section 25).
2. Following that initial inspection, you must now have in place an ongoing leak monitoring or detection program that uses one of the following methods:
 - visually inspect the sumps annually, OR
 - continuous leak monitoring of the sumps.



For more information, please visit our website at www.ec.gc.ca/rs-st. If the information you need is not available on our website, please contact your regional office or the Storage Tank Program:

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