Overview of the storage tank regulations

canada.ca/en/environment-climate-change/services/pollutants/storage-tanks-petroleum-allied-products/regulations.html

The *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*, under the *Canadian Environmental Protection Act 1999* (CEPA), establish requirements for storage tank systems under federal jurisdiction. Some of these requirements are found in the Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products (PDF, 749KB), parts of which are incorporated by reference in the regulations.

The regulations came into force in 2008 to help reduce the risk of releases of petroleum products, such as leaks and spills. At the time, about 15% of systems under federal jurisdiction were more than 20 years old and had no leak detection, corrosion protection, or structures to contain releases.

This section will help you become more familiar with the requirements set out in the regulations and help determine when they apply and how to comply with them. Other reliable and useful tools include a video that explains the application of the regulations, a video on the identification requirements for storage tank systems and a User's Guide for the Online Federal Identification Registry for Storage Tank Systems (PDF, 438KB).

▼ Scope of the regulations

Tank tip 1: Overview of the storage tank regulations [PDF (Portable Document Format) - 895 KB (Kilobyte)]

The regulations **apply to** storage tank systems that (section 2):

- are comprised of tanks that have a capacity of more than 230 litres and are designed to be installed in a fixed location
- contain petroleum products such as used oil, home heating oil, jet fuel, diesel and gasoline, or allied petroleum products such as biodiesel, general-purpose thinners for lacquers, isopropanol, uninhibited ethylene glycol and E85 fuel (see Schedule 1 of the regulations for a complete list of allied petroleum products)
- are either:
  - located on **aboriginal land**, including systems owned or operated by band councils or private businesses such as gas stations
  - located on **federal land**, including systems in federal parks owned or operated by private companies
  - operated by a **federal department, board or agency**, or owned by the Crown regardless of where the systems are located
  - operated to provide a service to, or belongs to, a **federal work or undertaking**, including a railway, a port authority, or an airport

The following storage tank systems **do not** fall under the regulations:

- storage containers with a capacity of 230 litres or less
- indoor storage tank systems where the building provides the required level of secondary containment
- pressurized tanks (e.g., for propane)
- aboveground tanks that have a total combined capacity of 2,500 litres or less and are connected to a heating appliance or an emergency generator
- storage tank systems regulated by the *National Energy Board Act* or the *Canada Oil and Gas Operations Act*

▼ New storage tank system installations

Tank tip 2: New storage tank system installations [PDF (Portable Document Format) - 1.35 MB (Megabyte)]

The *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* establish requirements for new storage tank systems, such as:

- a professional engineer must stamp the design documents for the system (section 34)
- a person approved to do so by the province or territory in which the system will be installed must perform the installation or a professional engineer must supervise the installation if there is no person approved to do so (section 33)
- the product transfer area must be designed to prevent releases in liquid form from reaching the environment during the transfer process
- an emergency plan must be in place before the first transfer of product to the storage tank system
- records of the design and installation of the system must be kept for the duration of its lifetime, including one showing that the system was installed by an approved person and "as-built" drawings that have the stamp and signature of a professional engineer (section 46)

Tanks and components

Inadequate or badly installed tanks and components constitute a common source of leaks and can cause significant contamination of soil and groundwater. All components of a storage tank system must carry a **certification mark** showing that they meet the standards set out in section 14 of the regulations.

Underground and aboveground storage tank systems must have:

- corrosion protection or cathodic protection
- spill containment
- containment sumps (as applicable)
- liquid- and vapour-tight connections
- overfill protection
- secondary containment (aboveground tanks only)
- double-walled (underground tanks only)

Aboveground tanks include field-erected and shop-fabricated tanks: field-erected storage tanks are usually constructed on-site (e.g., API-653), whereas shop-fabricated storage tanks are manufactured off-site and brought on-site (e.g., ULC-S601).

Piping

New piping **must**:

- have no buried or concealed mechanical joints
- be made of copper or carry a **certification mark** showing that it meets one of the standards specified in either:
    - the regulations, either ULC/ORD-C971 or CAN/ ULC-S660-08, whichever was the most recent at the time the piping was manufactured
    - section 5.2.1(1) (a), (b), (c), or (g) of the Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products (PDF, 749KB)

Underground piping up to and including 75 mm in diameter must have secondary containment. **Underground piping larger than 75 mm** in diameter must have secondary containment or cathodic protection.

▼ Identifying your system

Tank tip 3: Identifying your system [PDF (Portable Document Format) - 1.35 MB (Megabyte)]

The *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* require that storage tank system owners identify their system and display the identification number issued for it before the first transfer of product into the system.

It is important to note that:

- product delivery may be refused to a storage tank system that does not have a **valid identification number displayed in a readily visible location** on or near it
- only an identification number issued by Environment and Climate Change Canada meets section 28 of the regulations

The Federal Identification Registry for Storage Tank Systems (FIRSTS), an online application, is the easiest and fastest way to register your system and obtain an identification number.

To open a FIRSTS account, send an email request to ec.registrereservoir-tankregistry.ec@canada.ca including the following information:

- confirmation that the company, organization or individual owns a storage tank system which is subject to the regulations
- legal name of the company, organization or individual that owns the system (this will be the account name), their mailing address and phone number
- name of the person who will coordinate the identification of storage tank systems for the company, organization or individual (this will be the account administrator), their mailing address, e-mail address and phone number. Note that the administrator must confirm the validity of the request if it comes from a different individual

Steps to identify a storage tank system

- log into FIRSTS
- click “New Identification”
- enter the required information, as listed in Schedule 2 of the regulations
- click “Submit Identification”
- certify the submitted information
- take note of the identification number generated by FIRSTS

Identifying a system through FIRSTS takes about half an hour per system. If you do not have internet access, call **1-844-672-8038** to request an identification form (PDF, 1.2MB) by fax or mail. In this case, obtaining an identification number may take up to 3 weeks.

You are required to ensure the information submitted in FIRSTS to obtain an identification number for your storage tank system is up-to-date. You have **60 days** following any change of information to:

- log into FIRSTS
- find the applicable storage tank system using its identification number and click “Select”
- update the changed information
- click “Submit Identification”
- certify the submitted information

Enforcement actions may be taken against:

- **you**, if you do not identify your storage tank system (in violation of section 28)
- **suppliers** who supply product to a regulated storage tank system that has not been identified. See the "If you deliver products" section for more information

▼ Leak detection and monitoring

Tank tip 4: Leak detection and monitoring [PDF (Portable Document Format) - 1.31 MB (Megabyte)]

The *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*, require that owners and operators of storage tank systems be able to detect leaks from their systems.

Leak detection and monitoring can alert owners and operators of leaks and, with a well-implemented emergency plan, give them a chance to prevent or limit environmental damage, minimize the danger to people, and reduce the clean-up costs and liability of a leak. If a system has tanks, piping or sumps listed below, leak detection and/or monitoring requirements apply.

Single-walled underground tanks

All single-walled underground tanks should **now be removed**, with the exception of steel tanks that have cathodic protection and tanks made of a material other than steel. Both of which must also have one of the following:

- leak detection
- groundwater monitoring wells
- vapour monitoring

For exempted systems, you should by now have completed an **initial tank precision leak test**, and you must have in place an **ongoing leak detection program** using one of the following methods:

- an annual precision leak detection test
- automatic tank gauging
- continuous in-tank leak detection

If your **single-walled underground tank leaks**, you must withdraw it from service immediately and permanently. You have two years from the date the leak is detected to remove it.

Single-walled underground piping

Single-walled underground piping should **now be removed**, with the exception of steel piping that has cathodic protection and non-metallic or copper piping. All of which must also have one of the following:

- leak detection
- groundwater monitoring wells
- vapour monitoring wells
- single vertical check valves

- mechanical line-leak detection devices

For exempted piping, you should by now have completed an **initial piping precision leak test**, and you must have in place an **ongoing leak detection program** using one of the following methods:

- an annual precision leak detection test
- continuous external leak monitoring
- automatic tank gauging
- continuous in-tank leak detection

If your **single-walled underground piping leaks**, you must immediately withdraw it from service. You must either replace the piping with approved piping, or permanently withdraw the system from service. In the latter case, you have two years from the date the leak is detected to remove it.

Horizontal aboveground tanks without secondary containment

By now, you should have completed an **initial visual inspection** of your tanks' walls for leaks and you must have in place an **ongoing leak detection program** using one of the following methods:

- an annual precision leak detection test
- a monthly visual inspection of the walls of the tanks along with inventory reconciliation
- continuous in-tank leak detection
- continuous external leak monitoring

Aboveground piping without secondary containment

By now, you should have done an **initial visual inspection** of the piping for leaks and have in place an **ongoing leak monitoring program** using one of the following methods:

- an annual precision leak detection test
- a monthly visual inspection
- continuous external leak monitoring
- a corrosion analysis program that is developed and conducted by a corrosion expert and includes at least an annual inspection

Vertical aboveground tanks without secondary containment

By now, you should have completed an **initial visual inspection** of the tanks or of the tank floors and have in place an **ongoing leak detection program** using one of the following methods:

- an inspection of the tanks or the tank floors every 10 years from the date of the initial inspection
- continuous in-tank leak monitoring
- continuous external leak monitoring

Sumps

By now, you should have completed an **initial visual inspection** of your system if it has turbine, transition, dispenser, or pump sumps, and have in place an **ongoing leak monitoring program** using one of the following methods:

- annual visual inspection of the sumps
- continuous leak monitoring of the sumps

▼ Handling leaks

Tank tip 5: Handling leaks [PDF (Portable Document Format) - 887 KB (Kilobyte)]

The *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*require that owners and operators of storage tank systems take immediate action if they discover or suspect a leak.

Temporary withdrawal

You may have reasonable grounds to believe your storage tank system is leaking. For example, if your fuel inventory does not reconcile or you can smell fuel around your site, there might be a leak. In all such cases, you must **immediately take the system or the affected component out of service** (subsection 3(1)) as well as:

- keep a record of the date the system or component was withdrawn
- maintain the cathodic protection if applicable (subsection 43(a))
- affix a label to the system's fill pipe stating that the system is temporarily out of service (subsection 43(d));this will help avoid mistakenly filling a leaking system

If the leaking component can be isolated and kept isolated until it is repaired or replaced, you may continue to operate your system.

If circumstances make it **impossible to temporarily withdraw** the component or system from service, you must without delay (subsection 3(4)):

- **Minimize any immediate or long-term harm to the environment and human life or health**, until it becomes possible to comply fully. This means doing all you can to reduce the amount of product that reaches the environment. For example, if your leak is partway up a tank, you could reduce the volume of product so that the level sits below the leak
- **Notify** Environment and Climate Change Canada in writing, explaining the circumstances and the measures taken at ec.registrereservoir-tankregistry.ec@canada.ca or by fax at **819-938-4454**

You must notify your provincial authority responsible for environmental emergency notifications of any release or the likelihood of a release of product to the environment. See the "Reporting a release" section for more information.

Testing and inspection

The component, which is leaking or suspected to be leaking, must undergo the **proper leak test or inspection** before resuming service:

Underground tanks and piping

Someone trained in the procedure must do a precision leak test, using a documented and validated method.

Aboveground vertical tanks

Someone trained in the procedure must immediately inspect the tank or floor of the tank.

Aboveground horizontal tanks

You must do a thorough visual inspection of the tank walls, looking closely for signs of leakage.

Aboveground piping

You must do a careful visual inspection of the walls of the piping, looking for signs of leakage

Turbine, transition, dispenser or pump sumps

Someone trained in the procedure must immediately test the sump, using a static liquid media leak detection test and validated method.

Oil-water separator

You must measure the thickness of the oil and solids layers.

See section 26 and subsection 35(2)of the regulations for more details. Records of these tests and inspections must be kept. See the "Record keeping for your storage tank system"section for more information.

Return to service

The component or system can be returned to service if you make the **necessary repairs** to ensure it no longer leaks within the two years allowed for a temporary withdrawal.

However, if a **single-walled underground tank leaks**, the system must be:

- permanently withdrawn from service immediately and
- removed within two years from the date the leak was detected

If **single-walled underground piping leaks**, you must immediately permanently withdraw it from service and either:

- replace it with approved piping
- permanently withdraw the system and remove it within two years from the date the leak was detected

▼ Preparing your emergency plan

Tank tip 6: Preparing your emergency plan [PDF (Portable Document Format) - 901 KB (Kilobyte)]

The *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* require that you have an emergency plan for **each** of your storage tank systems. This plan must be ready to be implemented **before the first transfer of product into the system**.

Releases, leaks, fires and other accidents can happen, and you must have an emergency plan to prevent and limit environmental damage, and minimize the danger to people. Developing a plan will also help reduce your clean-up costs and liability by allowing you to respond to emergencies safely, quickly, and effectively.

You must **adapt your plan to the characteristics of your system and its surroundings:**

- assess different emergency scenarios or possible situations that could be dangerous to people or the environment
- identify ways to prevent, warn about, prepare for, respond to, and recover from different scenarios, which could include fires, catastrophic tank failures, overfilled tanks, ruptured pipes or hoses, etc.

It is strongly recommended that you get appropriate help when preparing your emergency plan, which may include hiring an emergency planning professional. If you have an existing plan that meets all of the regulations' requirements, you may use it as your emergency plan.

Implementation

You must always be ready to implement your plan, and ensure that it is easily accessible, at all times, to the people who are required to carry it out. You must keep a copy at the location of your system, if it is a place of work. You must also keep it up to date, including contact information for emergency team members.

You must provide the civic address of each location where a copy of the plan is kept through the Federal Identification Registry for Storage Tank Systems (FIRSTS).

Content of the plan

Product information

Properties and characteristics of the products stored in your system's tanks. You can find this information on the safety data sheet provided by your product supplier.

Tank system capacity

Maximum amount of product you expect to store in each of the system's tanks at any time during any calendar year. In most cases, this will be the manufacturer's suggested fill limit (usually a certain percentage of a tank's nominal capacity).

Site characteristics

Pay special attention to factors that increase the risk of harm to the environment and/or human health. Is your system near a wetland or above an aquifer used for drinking water? Is it located on a hill so that spilled product would flow down the slope? Is there a populated area or underground utility close to the location? Are there any potential hazards nearby? In most cases, you should include a drawing of the site and the surrounding area as well as a description, noting any relevant characteristics. Extra information such as aerial photographs may also be helpful.

Emergency response measures

Emergency scenarios that could result in harm to people or the environment, and a step-by-step description of what you intend to do to prevent, warn about, prepare for, respond to, and recover from them.

Emergency response team and training

List of people designated to carry out the plan (title/position and/or name), their roles and responsibilities, and any training they need to perform their duties.

Emergency response equipment

Type and location of equipment used in your emergency response (for example, shovels, spill kits, fire extinguishers). You can describe in writing where the equipment is kept or show locations on a diagram or map for easier and quicker reference.

Notification of affected public

Ways to notify members of the public who may be adversely affected by an emergency, including emergency announcements on local radio and television; door-to-door notification; and use of emergency email, text messages or other social media.

Please refer to sections 30 to 32 of the regulations for more details. **Enforcement actions** may be taken against owners or operators of systems that do not have emergency plans or if your plan does not meet all the requirements.

▼ Containment of releases at transfer areas

Tank tip 7: Containment of releases at transfer areas [PDF (Portable Document Format) - 900 KB (Kilobyte)]

Section 15 of the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* requires that product transfer areas be designed to prevent releases in liquid form from reaching the environment. This applies to your system if the aggregate capacity of its tanks is more than 2 500 litres.

The regulations define a transfer area as “the area around the connection point between a delivery truck, railcar, aircraft or vessel and a storage tank system [...]”. In other words, it is the area where product is transferred **to or from** a railcar, aircraft, vessel, or delivery truck. The product can be any petroleum or allied petroleum product subject to the regulations.

Effective product transfer area

You must be able to demonstrate that you have ensured the design of the product transfer area is **capable of preventing releases** that may occur during the transfer process from reaching the environment. For example, you may include a combination of permanent or temporary physical containment, operating procedures and training (fig. 1).

▼ Figure 1 - Text Version

A combination of physical containment, operating procedures and training.

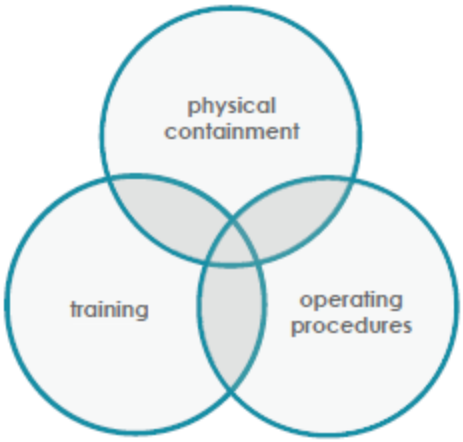
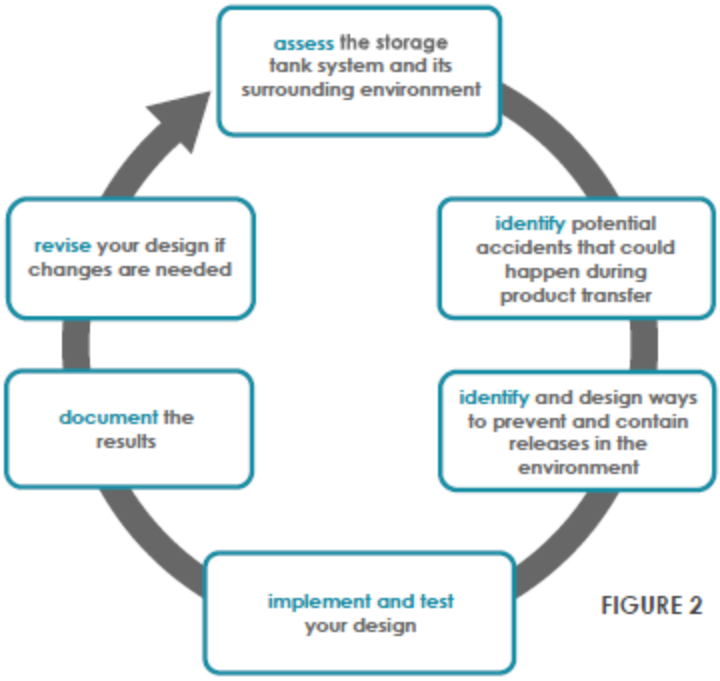


FIGURE 1

A product transfer area needs to be designed taking into consideration the particular characteristics of the storage tank system (e.g. location, capacity). Since each tank system is different, each product transfer area will also be different.

Taking a step-by-step approach can help you design a product transfer area (fig. 2).

Remember that you should keep records of this process. You may have to produce them if your product transfer area is inspected.



▼ Figure 2 - Text Version

Suggested steps in designing a product transfer area are the following:

- **Assess** the storage tank system and its surrounding environment
- **Identify** potential accidents that could happen during product transfer
- **Identify** and design ways to prevent and contain releases in the environment
- **Implement and test** your design
- **Document** the results
- **Revise** your design if changes are needed

Physical containment

A **spill box alone is not enough** to ensure the efficacy of a product transfer area. Similarly, a spill kit is an important part of your emergency plan, but it does not prevent releases. Even though some items of a spill kit can be used to contain certain releases, the kit is more often used for cleaning up after product has been released inside your transfer area.

According to the characteristics of the storage tank system (frequency of use, etc.) a transfer area may consist of permanent physical containment, such as a concrete pad with sides, or temporary physical containment, such as berms that are inflated during fuel delivery. If temporary physical containment is implemented, keep records of its use.

Operating procedures

You may also decide to implement operating procedures to ensure, for example, that the chosen physical containment is used properly and performs as intended. However, errors in carrying out the operating procedures are the most common cause of spills at transfer areas.

A design to contain releases at a product transfer area involving a combination of procedures, training and physical containment may help reduce the risk of errors leading to releases to the environment.

Training

Training for employees responsible for operating storage tank systems can turn out to be important in the prevention of releases and the reduction of risks to human health and safety. You could plan for different levels and types of training according to the users to ensure that they are well aware of the operating procedures and the measures to take to prevent releases.

▼ Reporting a release

Tank tip 8: Reporting a release [PDF (Portable Document Format) - 911 KB (Kilobyte)]

The *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* require that owners and operators notify their provincial authority responsible for environmental emergency notifications of all releases in liquid form to the environment.

Releases that must be reported

The regulations prohibit any release to the environment of a petroleum product or allied petroleum product in liquid form from a storage tank system. The following releases are not considered to have gone into the environment and do not have to be reported:

- a release that occurs within the secondary containment of a system
- a release contained within the transfer area of a system

However, you must enact your emergency plan for these situations. You must in particular:

- empty the secondary containment of product if applicable (section 13)
- withdraw the leaking component if the release is the result of a leak (see the "Handling Leaks" section for more information)

For the purposes of reporting, releases to the environment include everything from **slow leaks in piping, to catastrophic tank failures, to overflow or discharges beyond your system's secondary containment or transfer area**. The *Canadian Environmental Protection Act (1999)* defines a release as including "discharge, spray, inject, inoculate, abandon, deposit, spill, leak, seep, pour, emit, empty, throw, dump, place and exhaust."

Verbal notification

You must **notify as soon as possible** your provincial authority responsible for environmental emergency notifications, listed below, of **any release or the likelihood of a release** of product to the environment. The offices are open 24 hours a day, 7 days a week.

You must also take all reasonable measures compatible with the protection of the environment and public safety to prevent or eliminate any dangerous conditions, or minimize any danger to the environment or to human life or health. This means enacting your emergency plan.

Written notification

If **100 litres or more of product** has been released in the environment, you must follow up the initial verbal notification with a written report to the designated person listed below. See subsection 41(1) of the regulations for the required content of this report.

Pacific and Yukon Region

British Columbia
Emergency Management BC
24-hour verbal notification telephone number: 1-800-663-3456

Yukon
Yukon Department of Environment
24-hour verbal notification telephone number: 867-667-7244

Written report designated person

Regional Director
Environment and Climate Change Canada
101-401 Burrard Street
Vancouver BC V6C 3R2
Fax: 604-666-9059

Prairie and Northern Region

Alberta
Alberta Ministry of Environment and Parks
24-hour verbal notification telephone number: 780-422-4505 or 1-800-222-6514*

Saskatchewan
Saskatchewan Ministry of Environment
24-hour verbal notification telephone number: 1-800-667-7525

Manitoba
Manitoba Ministry of Sustainable Development
24-hour verbal notification telephone number: 204-944-4888 (collect calls accepted within the province)

Northwest Territories
Northwest Territories Department of Environment and Natural Resource
24-hour verbal notification telephone number: 867-920-8130

Nunavut
Northwest Territories Department of Environment and Natural Resource
24-hour verbal notification telephone number: 867-920-8130

Written report designated person

Regional Director
Environment and Climate Change Canada
Eastgate Building
9250 49 Street NW
Edmonton AB T6B 1K5
Fax: 780-495-2444

Ontario Region

Ontario
Spills Action Centre
24-hour verbal notification telephone number: 416-325-3000 or 1-800-268-6060*

Written report designated person

Regional Director
Environment and Climate Change Canada
WTC Building
867 Lakeshore Road
Burlington ON L7S 1A1
Fax: 289-313-6709

Quebec Region

Quebec
National Environmental Emergencies Centre
24-hour verbal notification telephone number: 514-283-2333 or 1-866-283-2333*

Written report designated person

Regional Director
Environment and Climate Change Canada
105 McGill Street (3rd floor)
Montreal QC H2Y 2E7
Fax: 514-496-2087

Atlantic Region

Newfoundland and Labrador
Newfoundland and Labrador Regional Office Canadian Coast Guard
24-hour verbal notification telephone number: 709-772-2083 or 1-800-563-9089*

New Brunswick
Maritimes Regional Office Canadian Coast Guard
24-hour verbal notification telephone number: 902-426-6030 or 1-800-565-1633*

Nova Scotia
Maritimes Regional Office Canadian Coast Guard
24-hour verbal notification telephone number: 902-426-6030 or 1-800-565-1633*

Prince Edward Island
Maritimes Regional Office Canadian Coast Guard
24-hour verbal notification telephone number: 902-426-6030 or 1-800-565-1633*

Written report designated person

Regional Director
Environment and Climate Change Canada
Queen Square
45 Alderney Drive
Dartmouth NS B2Y 2N6
Fax: 902-426-7924

*accessible only within province

▼ Withdrawal and removal of storage tank systems

Tank tip 9: Withdrawal and removal of storage tank systems [PDF (Portable Document Format) - 905 KB (Kilobyte)]

The *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* set out requirements for the withdrawal from service and removal of a storage tank system or component.

Whether active or inactive, a storage tank system is always a potential hazard. Removing a system or withdrawing it from service must be done properly to ensure there is no danger to people or the environment. Some provinces and territories license or certify persons to remove storage tank systems. **In these provinces and territories, only such persons can permanently withdraw a system from service, or remove it**. In other provinces or territories, this work must be supervised by a professional engineer. A list of provinces and territories that license or certify persons is available on our website, see the webpage on certified storage tank installers for more information. Some provincial and territorial authorities provide online directories to help you find a certified person.

Temporary withdrawal from service

Section 43 of the regulations requires that you:

- maintain and operate the cathodic protection (if present) during the entire period the system is withdrawn
- attach a label to the system's fill pipe saying that the system is temporarily out of service (to prevent from mistakenly filling a system that has been withdrawn from service for repairs)
- keep a record of the date you withdrew the tank or component from service

If your **system or component has been withdrawn from service for more than a year**, you must inspect it or test it for leaks before returning it to service. The test you do will depend on the tank type:

- underground tanks (except vertically oriented underground tanks) or shop-fabricated aboveground tanks require a tank precision leak detection test
- field-erected aboveground tanks or vertically oriented underground tanks require an inspection of the floor

A **temporary withdrawal must last less than two years**. A system that is withdrawn for two or more years must be permanently withdrawn.

Permanent withdrawal from service

Per section 44 of the regulations, you must **keep a record** of the date on which the permanent withdrawal of the storage tank system took place and a **record** (for example, an invoice) showing that the withdrawal was carried out by an approved person or supervised by a professional engineer, as applicable.

In addition, you must ensure that:

- all the liquids and sludge are properly removed and disposed of
- the tank is purged (emptied) of vapour to less than 10% of the lower flammability limit, and the presence of vapour is checked with a combustible gas meter
- the withdrawal is done in such a way that it poses no short- or long-term threat to the environment or to human health or safety
- a label is attached to the fill pipe saying that the tank system is permanently out of service
- Environment and Climate Change Canada is notified of the system withdrawal from service within 60 days, by updating your tank system identification file through the online Federal Identification Registry for Storage Tank Systems (FIRSTS)

Removal

The regulations require that you **remove storage tank systems and their components if you permanently withdraw them from service**. The requirements for removal depend on the tank type:

- for underground and shop-fabricated aboveground tanks, remove all tanks, piping and components
- for field-erected aboveground tanks, remove all piping and components outside the tanks. The tanks themselves may remain in place

As for the permanent withdrawal, you must **keep a record** of the date on which the removal of the storage tank system took place and a **record** (for example, an invoice) showing that the removal was carried out by an approved person or supervised by a professional engineer, as applicable.

Compulsory withdrawal and removal

The following pose a risk to the environment and any such existing installations should have been permanently withdrawn from service and removed by now:

- single-walled underground tanks or piping without leak detection and cathodic protection (that is, protection against corrosion)
- aboveground tanks installed underground and underground tanks installed aboveground
- partially buried tanks

▼ If you deliver products

Tank tip 10: If you deliver products [PDF (Portable Document Format) - 911 KB (Kilobyte)]

The *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*set out requirements for the delivery of petroleum or allied petroleum products to regulated storage tank systems.

If you deliver such products to storage tank systems subject to these regulations (see the "Scope of the regulations" sectionto determine to which systems the regulations apply), you must:

- **immediately report** to the system operator:
  - any release that reaches the environment during the transfer
  - any evidence observed of a leak or of any release
- **keep a record** of the identification number issued by Environment and Climate Change Canada of the system (the letters EC followed by a dash and 8 digits, e.g. EC-00001234)

You are **prohibited from filling storage tank systems subject to the regulations that do not have a visible identification number** issued by Environment and Climate Change Canada. If you fill such systems, you may be in violation of section 29 of the regulations and may be subject to enforcement measures as outlined in the Compliance and Enforcement Policy for the Canadian Environmental Protection Act, 1999.

Help your customers comply

Share the following information with your customers! Owners of unidentified storage tank systems can easily identify them through the Federal Identificaton Registry for Storage Tank Systems (FIRSTS). FIRSTS generates an identification number as soon as the required information is submitted. Owners that do not have Internet access can request that an identification form (PDF, 1.2MB) be sent to them by fax or mail by calling 1-844-672-8038. The "Identifying your system" section has more information for your customers.

▼ Record keeping for your storage tank system

Tank tip 11: Record keeping for your storage tank system [PDF (Portable Document Format) - 900 KB (Kilobyte)]

The *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* require that you maintain specific records for your system and keep them at your place of work nearest to the system.

Records that you must keep until the system is removed (subsection 46[2])

All systems	Vertical aboveground tanks without secondary containment	Aboveground piping without secondary containment	New systems (installed after June 12, 2008)
The emergency plan	All inspection, detection, monitoring and test records	All inspection records relating to a corrosion analysis program	Records relating to as-built drawings and installation

Records that you must keep for five years (subsection 46[1])

- inspections and tests carried out (except for those of vertical aboveground tanks without secondary containment) including leak tests on tanks, piping or other components
- operation and maintenance of oil-water separators
- disposal of water from tank bottoms
- inspections relating to a corrosion analysis program (except for those of aboveground piping without secondary containment)
- temporary or permanent withdrawal from service of a system or component
- removal of a system or component

Records relating to drawings and the installation of new systems (section 34)

The as-built drawings must carry the stamp and signature of a professional engineer and show:

- outline of all tanks
- centreline of all piping
- centreline of all underground electrical power and monitor sensor conduits
- building foundation outlines
- property lines
- secondary containment systems

These as-built or record drawings must be kept up to date. If you change your system in any way that affects the required information, the drawings must be updated and they must be once more stamped and signed by a professional engineer.

You must also keep a record of who installed your storage tank system and proof that this person is approved to do so by the province or territory in which the system is installed. See the "New storage tank system installations"section for more information.

Records for leak testing and inspection (section 27)

- test or inspection date
- storage tank system identification number
- type of petroleum or allied petroleum product stored in the system
- test or inspection results
- testing method used
- name and address of the person and, if applicable, the company that performed the test or inspection
- components of the corrosion analysis program, if applicable (subparagraph 23[1][a][ii])

Records for oil-water separators (sections 35 to 37)

- quantity of disposed free oil and solids layers, the disposal method and the place where it was disposed
- in the case of a leak or a release, measurements of the free oil and separated solids layers
- monthly measurements of the free oil and separated solids layer, if there is no electronic monitoring

Record for disposal of water from the tank bottom (section 40)

You must dispose of water from the tank bottom in such a way that there is no risk to the environment or human health and keep a record of its disposal, as follows:

- quantity of tank-bottom water removed
- date of its removal
- disposal method
- place where it was disposed
- name and address of the person (and company, if applicable) who removed it

Records for withdrawal and removal of systems or components from service

Temporary withdrawal (less than two years)	**Permanent withdrawal**	**Removal**
Date of withdrawal	Date of withdrawal **and** record showing that the system or component was withdrawn by an approved person or supervised by a professional engineer	Record showing that the system or component was removed by an approved person or supervised by a professional engineer

▼ Storage tank regulations checklists

Tank tip 12: Storage tank regulations checklists [PDF (Portable Document Format) - 973 KB (Kilobyte)]

The Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulationsclassify storage tank systems according to when they were installed:

- if your system was already in place before June 12, 2008, it is an **existing** system
- if your system was installed after that date, it is a **new** system

Some aspects of the regulations apply to all systems, and some apply specifically to new or existing systems. If you are planning to install a new system, it is important that you read the regulations before purchasing and installing equipment.

Checklist 1 summarizes the requirements for **all systems**

Checklist 2 summarizes the requirements for **new systems,** divided into five sections according to the type of system

Checklist 3 summarizes the requirements for **existing systems**, divided into six sections according to the type of system

Note: In some places, the regulations refer to the Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products, PN 1326 (PDF, 749KB) established by the Canadian Council of Ministers of the Environment (CCME Code). The regulations incorporate by reference certain parts of the CCME Code, and these parts become enforceable. The regulations also reference the *Canadian Environmental Protection Act, 1999 (CEPA)*.

Checklist 1: requirements for all systems (existing and new)

✔	Requirements	Regulations	More information
	Identify tank systems ◦ Use the Federal Identification Registry for Storage Tank Systems (FIRSTS) or the identification form (PDF, 1.2MB) ◦ Display the identification number on or near the system ◦ Update FIRSTS within 60 days if any of the information required for the identification changes	Section 28 + Schedule 2	Tank tip 3 Identifying your system

	Product delivery personnel fill tanks only if they see an identification number on or near the system	Section 29	Tank tip 10 If you deliver products
	Product delivery personnel notifies the operator if a release in liquid form to the environment occurs, or if they see any sign of a leak or any release	Section 29	Tank tip 10 If you deliver products
	Prepare and keep up-to-date an emergency plan for each storage tank system	Sections 30-32	Tank tip 6 Preparing your emergency plan
	Design product transfer areas to prevent releases in liquid form from reaching the environment	Section 15	Tank tip 7 Containment at product transfer areas
	Perform leak tests immediately if a tank system is suspected to be leaking and does not have continuous leak monitoring	Section 26	Tank tip 5 Handling leaks
	Immediately withdraw from service leaking systems or components until leaks are repaired	Subsection 3(1)	Tank tip 5 Handling leaks
	Releases to the environment are prohibited ◦ Notify your provincial authority responsible for environmental emergency notifications of any release to the environment ◦ For releases over 100 litres, also send a written report to Environment and Climate Change Canada	Section 2.1 ◦ CEPA Paragraph 212(1)(a) ◦ Section 41	Tank tip 8 Reporting a release
	Keep regular records including: ◦ Inspections ◦ Installation ◦ Operation and maintenance	Section 46 ◦ Section 27 ◦ Subsection 33(2) + Section 34 ◦ Subsection 40(2)	Tank tip 11 Record keeping for your storage tank system
	Maintain oil-water separator according to the regulations: ◦ Take monthly measurements of layers or have a continuous monitoring system ◦ Have procedures for the proper disposal of free oil, separated solids and discharged water ◦ Keep records of any operation and maintenance	Sections 35–39	Tank tip 11 Record keeping for your storage tank system

	Have procedures for the proper disposal of tank bottom water	Subsection 40(1)	N/A
	Follow procedures specified in the regulations for temporary withdrawal from service of a system or component Put the system or component back into service within two years. Otherwise, the withdrawal becomes permanent	Sections 42–43	Tank tip 9 Withdrawal and removal of storage tank systems
	Follow procedures specified in the regulations for permanent withdrawal or removal of a system or component Only a person designated under the regulations is permitted to permanently withdraw or remove a system or component from service	Sections 44–45	Tank tip 9 Withdrawal and removal of storage tank systems
	Products stored in the system are compatible with the materials used in the manufacturing of the system	Section 11	N/A
	System has a fill pipe and vent line, and all other openings are sealed or connected to piping	Section 12	N/A
	Do **not** use secondary containment area for storage	Section 13	N/A

Checklist 2: requirements for new systems

General requirements

✔	**Requirements**	**Regulations**	**More information**
	Corrosion protection	Section 14	Tank tip 2 New storage tank system installations
	Overfill protection	Section 14	Tank tip 2 New storage tank system installations

	Containment sumps, as applicable	Section 14	Tank tip 2 New storage tank system installations
	Certification mark indicating tank design meets a standard referenced in the regulations	Section 14	Tank tip 2 New storage tank system installations
	Design stamped by a professional engineer	Subsection 34(1)	Tank tip 2 New storage tank system installations
	As-built drawings stamped by a professional engineer	Subsection 34(2)	Tank tip 2 New storage tank system installations
	Identification number in place before the first fill	Section 28	Tank tip 2 New storage tank system installations
	System installed by a person designated under the regulations	Subsection 33(1)	Tank tip 2 New storage tank system installations
	Oil-water separator meets the requirements of the regulations, as applicable	CCME Code Sentences 3.10.2, 3.10.3 and 8.7.2	Tank tip 2 New storage tank system installations
	The cathodic protection system, if applicable, is tested within one year after installation, and maintenance checks done once a year after that	CCME Code Section 8.6	N/A

Section 2.1 - Requirements for new shop-fabricated aboveground storage tanks

✔	Requirements	Regulations	More information
	Spill containment device	Subsection 14(2) (see regulations for exceptions)	N/A
	Secondary containment	CCME Code Part 3	N/A
	Horizontal tanks are supported above grade	CCME Code Sentence 3.4.2	N/A

Section 2.2 - Requirements for new field-erected aboveground storage tanks

✔	Requirements	Regulations	More information
	Secondary containment	CCME Code Part 3	N/A

Section 2.3 - requirements for new underground storage tanks

✔	Requirements	Regulations	More information
	Location and maintenance allows the removal of the system when it is permanently withdrawn	CCME Code Sentence 4.2.7	N/A
	Double-walled tanks with monitorable interstitial space	CCME Code Sentence 4.2.4	Tank tip 2 New storage tank system installations
	Spill containment device on the fill pipe	CCME Code Sentence 4.2.4	Tank tip 2 New storage tank system installations
	Liquid and vapour-tight connections	CCME Code Sentence 4.2.4	Tank tip 2 New storage tank system installations

	Overfill protection device	CCME Code Sentence 4.2.4	Tank tip 2 New storage tank system installations
	Corrosion protection, as applicable	CCME Code Sentence 4.2.4	Tank tip 2 New storage tank system installations
	Steel tanks are equipped with a corrosion-resistant coating and cathodic protection	Subsection 14(4)	Tank tip 2 New storage tank system installations
	Additional requirements for new underground storage tanks that store used oil: ◦ A 50 mm suction pipe for product removal that can be taken off to clear a blockage ◦ Product-removal or transfer connections located inside a spill containment device ◦ An overfill device if tank is filled by pump or remote manual fill ◦ If fill port is outside, it is equipped with a spill containment device with a capacity of at least 25 litres, a rain cover and a screen to prevent objects from entering the tank ◦ In-take vent with an open area of at least twice the open area of the suction pipe to avoid vacuum collapse	CCME Code Sentence 4.2.4	N/A

Section 2.4 - requirements for new piping

✔	**Requirements**	**Regulations**	**More information**

	Approved materials: ◦ Copper ◦ ASTM A 53, “Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless” ◦ CAN/CSA Z245.1, “Steel Line Pipe” ◦ CAN/ULC-S633, “Flexible Underground Hose Connectors” ◦ ORD-C536, “Flexible Metallic Hose” ◦ ULC/ORD – C971, Non-metallic Underground Piping for Flammable and Combustible Liquids or CAN/ULC-S660, Standard for Nonmetallic Underground Piping for Flammable and Combustible Liquids whichever was the most recent at the time the storage	Subsection 14(5)	N/A
	Compliant with the National Fire Code of Canada	CCME Code Sentence 5.2.2	N/A
	Secondary containment systems for underground piping, as applicable, are designed and installed so that leaks either accumulate in a containment sump that can be easily inspected, or are detected by a monitoring system	CCME Code Sentence 5.4.5(1)	N/A
	Underground piping up to and including 75 mm in diameter has secondary containment	CCME Code Sentence 5.4.1	N/A
	Underground piping larger than 75 mm in diameter has secondary containment or cathodic protection	CCME Code Sentence 5.4.2	N/A
	Thermal relief valve	CCME Code Sentence 5.2.7	N/A
	Piping located below the maximum product level is equipped with a means to prevent the release of liquid from the tank by syphon flow	CCME Code Sentence 5.2.8	N/A
	Lockable manual shut-off valve (unless attached to heating appliance)	CCME Code Sentence 5.2.8	N/A
	For a tank with a capacity of 5000 L or more, a liquid and vapour-tight connection at the fill point	CCME Code Sentence 5.3.1	N/A

	Mechanical joints are not buried or concealed	Subsection 14(5)	N/A

Checklist 3: requirements for existing systems

Section 3.1 - requirements for existing horizontal aboveground storage tanks

✔	Requirements	Regulations	More information
	Monthly visual inspection or ongoing leak monitoring or detection program in place for horizontal aboveground tanks without secondary containment A visual inspection of the walls of the tanks was completed by June 12, 2010	Sections 19–21	Tank tip 4 Leak detection and monitoring
	Horizontal tanks are supported above grade	Section 7	Tank tip 9 Withdrawal and removal of storage tank systems
	Tanks in contact with the ground, as well as partially buried tanks, are removed	Section 7	Tank tip 9 Withdrawal and removal of storage tank systems
	Aboveground tanks installed below grade or encased within filled secondary containment are removed	Section 5	Tank tip 9 Withdrawal and removal of storage tank systems

Section 3.2 - requirements for existing vertical aboveground storage tanks

✔	Requirements	Regulations	More information

	Ongoing leak monitoring or leak detection program in place for vertical aboveground tanks without secondary containment A visual inspection of the tanks or the floor of the tanks was completed by June 12, 2010	Section 22	Tank tip 4 Leak detection and monitoring

Section 3.3 - requirements for existing underground storage tanks

✔	Requirements	Regulations	More information
	Ongoing leak monitoring or detection program in place for single-walled underground tanks A precision leak test of the tank was completed by June 12, 2010	Section 16	Tank tip 4 Leak detection and monitoring
	Underground tanks installed aboveground or in unfilled secondary containment (e.g. an empty concrete vault) are removed	Section 6	Tank tip 9 Withdrawal and removal of storage tank systems
	Single-walled underground tanks without cathodic protection and/or leak detection are removed	Section 9 (see paragraphs 9(1)(a) and 9(1)(b) for exceptions)	Tank tip 9 Withdrawal and removal of storage tank systems
	Leaking single-walled underground tanks immediately and permanently withdrawn from service and removed within two years of the owner or operator becoming aware of the leak	Subsection 3(2)	Tank tip 4 Leak detection and monitoring

Section 3.4 - requirements for partially buried tanks

✔	Requirements	Regulations	More information

	Partially buried tanks are removed	Section 7	Tank tip 9 Withdrawal and removal of storage tank systems

Section 3.5 - requirements for existing piping

✔	Requirements	Regulations	More information
	Ongoing leak monitoring or detection program of aboveground piping without secondary containment A visual inspection was completed by June 12, 2010	Sections 23–24	Tank tip 4 Leak detection and monitoring
	Single-walled underground piping without cathodic protection and/or leak detection are removed	Subsection 10(1) (see subsection 10(2) for exceptions)	Tank tip 9 Withdrawal and removal of storage tank systems
	Ongoing leak monitoring or detection program for single-walled underground piping A precision leak test according to the regulations was completed by June 12, 2010	Section 17	Tank tip 4 Leak detection and monitoring
	Leaking single-walled underground piping is permanently withdrawn from service and removed within two years of the owner/operator becoming aware of the leak It may be replaced with approved piping	Subsection 3(3)	Tank tip 4 Leak detection and monitoring

Section 3.6 - requirements for existing sumps

✔	Requirements	Regulations	More information
	Ongoing leak monitoring program of sumps according to the regulations A visual inspection was completed by June 12, 2010	Section 25	Tank tip 4 Leak detection and monitoring

▼ Technical requirements for collapsible fabric storage tanks

The *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* set forth requirements for the design and construction of storage tank systems installed on or after the day the regulations came into force. One requirement is that storage tanks must be designed and built to one of the recognized standards identified in the regulations (see the "New storage tank system installations" section).

The regulations outline requirements for storage tank systems designed to be installed in a fixed location. At the time the regulations were published, there was no recognized standard for the design and construction of collapsible fabric storage tanks. In 2014, the Canadian Standards Association (CSA) published the standard: CAN/CSA-B837-14 - Collapsible Fabric Storage Tanks (bladders). Environment and Climate Change Canada recognizes storage tanks that meet the CSA standard as a legitimate option for storing petroleum products and allied petroleum products. The standard is available on the Canadian Standards Association website.

The standard covers minimum requirements for design and construction of a collapsible fabric storage tank that is used for the aboveground storage of petroleum products and allied petroleum products up to and including a capacity of 125,000 L. Installations that have storage tank systems with collapsible fabric storage tanks will be required to meet all applicable sections of the regulations.

If the information you need is not available on our website, contact your regional office or the Storage Tank Program.

Disclaimer: This material has been prepared for convenience of reference and accessibility and does not have an official character. It is of a general nature only. For all purposes of interpreting and applying the regulations, users must consult the official version of the Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations and seek their own legal advice as appropriate.