



Public Safety
Canada

Sécurité publique
Canada

ARCHIVED - Archiving Content

Archived Content

Information identified as archived is provided for reference, research or recordkeeping purposes. It is not subject to the Government of Canada Web Standards and has not been altered or updated since it was archived. Please contact us to request a format other than those available.

ARCHIVÉE - Contenu archivé

Contenu archivé

L'information dont il est indiqué qu'elle est archivée est fournie à des fins de référence, de recherche ou de tenue de documents. Elle n'est pas assujettie aux normes Web du gouvernement du Canada et elle n'a pas été modifiée ou mise à jour depuis son archivage. Pour obtenir cette information dans un autre format, veuillez communiquer avec nous.

This document is archival in nature and is intended for those who wish to consult archival documents made available from the collection of Public Safety Canada.

Some of these documents are available in only one official language. Translation, to be provided by Public Safety Canada, is available upon request.

Le présent document a une valeur archivistique et fait partie des documents d'archives rendus disponibles par Sécurité publique Canada à ceux qui souhaitent consulter ces documents issus de sa collection.

Certains de ces documents ne sont disponibles que dans une langue officielle. Sécurité publique Canada fournira une traduction sur demande.



INTERNAL SERVICES DIRECTIVE 318-8

In Effect: 2014-01-20

Last Review: 2014-01-20

Due for Review: 2016-01-04

Environmental Management of Petroleum Storage Tank Systems

PROGRAM ALIGNMENT

Internal Services

OFFICE(S) OF PRIMARY INTEREST

Environmental Protection Programs

ONLINE @

- <http://infonet/cds/cds/318-8-isd-eng.pdf>
- <http://infonet/cds/cds/318-8-isd-fra.pdf>
- <http://www.csc-scc.gc.ca/text/plcy/cdshtm/318-8-isd-eng.shtml>
- <http://www.csc-scc.gc.ca/text/plcy/cdshtm/318-8-isd-fra.shtml>

AUTHORITIES

- [*Canadian Environmental Protection Act, 1999*](#) (CEPA)
- [*Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations, 2008*](#)
- [*Fisheries Act, R.S.C. 1985, c. F-14*](#)
- [*National Fire Code of Canada, 2010*](#) (NFC)

PURPOSE

- To protect the natural environment, specifically soil and the water resources, from adverse effects that may result as a consequence of operating [storage tank systems](#). This includes avoiding the contamination and negative ecological impacts from potential leaks and spills, and/or fires and explosions resulting from the release of [petroleum products](#) and/or [allied petroleum products](#)
- To mitigate the potential financial impacts, particularly due to spills and leaks as a result of the regular operations of storage tank systems at CSC institutions, facilities, Community Correctional Centres (CCC), Corcan operations, and other buildings that operate storage tank systems (all of the above will be referred to in this directive as institutions)
- To ensure that petroleum storage tank systems are operated, maintained and monitored by CSC in accordance with standardized preventive practices
- To maintain an up-to-date official registry of the petroleum storage tank systems owned and operated by CSC and Corcan

APPLICATION

Applies to staff managing CSC and Corcan owned and/or operated petroleum storage tank systems

CONTENTS

SECTIONS	
1 – 2	Responsibilities
3 – 29	Procedures
3 – 4	General Requirements
5 – 26	Specific Requirements
5 – 7	Storage Tank Systems Registration
8 – 10	Design and Installation
11	Product Transfer Areas
12 – 15	Risk Assessment and Storage Tank System Emergency Plan
16 – 20	Leak Detection and Monitoring
21 – 26	Withdrawal from Service
27 – 28	Data Management and Reporting
27	Records
28	Reporting
29	Non-Compliance
30	Enquiries
Annex A	Cross-References and Definitions
Annex B	List of Petroleum and Allied Petroleum Products
Annex C	Product Transfer Area Containment Options

NOTE

Environment Canada's ***Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*** (referred to as the "Regulations" henceforward) **will in all cases take precedence over** this Internal Services Directive. Institutions should always refer to the Environment Canada Regulations for detailed clarification on specific storage tank systems management issues pertaining to applicability, scope, and required technical specifications.

RESPONSIBILITIES

1. The Institutional Head, his/her delegates (e.g. the Chief, Facilities Management – CFM) and the Corcan Operations Managers are accountable to adhere to the Regulations and to ensure compliance with this ISD.
2. CSC's Environmental Officers will provide guidance and advice relating to this ISD. NHQ Environmental Protection Programs Division will act as the Registrar for Environment Canada's Federal Identification Registry for Storage Tank Systems ([FIRSTS](#)).

PROCEDURES

General Requirements

3. An inventory of all on-site storage tanks containing petroleum or allied petroleum products must be kept up to date. The inventory will be placed in the appropriate file 590-08 of the institution's [Environmental Management System](#) (EMS). The inventory of all tanks requiring registration must concur with the information found in FIRSTs.
4. Copies of documents that are essential to the management of the institution's petroleum storage tank systems (e.g. registrations, reports of leaks/spills, spill response drills, etc.) must be sent to the CSC's NHQ and RHQs to ensure reporting requirements are met according to the Regulations. These documents should also be placed in the appropriate file of the institution's [EMS](#).

Specific Requirements

Storage Tank Systems Registration

5. In order to obtain an Environment Canada issued storage tank system identification number, it is the responsibility of the institutions to ensure that all storage tank systems meet the following criteria:
 - a. contain (refer to [Annex B](#) for a full listing of products):
 - i. petroleum products, or
 - ii. allied petroleum products
 - b. have a capacity greater than 230 L and be located outside
 - c. be vented to the atmosphere (operate at atmospheric pressure)
 - d. be designed and installed in a fixed location.
6. The following storage tank systems are exempt from the Regulations (pursuant to [subsection 2\(2\)](#) of the Regulations):
 - a. [aboveground storage tank systems](#) (AST) with a capacity of less than 2,500 L that are located

outside of a building and connected to a heating appliance or emergency generator

- b. indoor storage tank systems (i.e. located within a building with a basement) which meet the specified Environment Canada minimum guidelines for [secondary containment](#).
7. The institutions must comply with the following deadlines as outlined in the Regulations:
- a. Environment Canada must be informed within 60 days of the following changes to the existing storage tank system:
 - i. changes to the registration information
 - ii. storage tank system replacement
 - iii. storage tank system modification
 - iv. storage tank system withdrawal from service – temporarily (less than two years) or permanently (two years or more)
 - b. new storage tank systems must be registered with Environment Canada's [FIRSTS](#) before the first fill
 - c. it is the responsibility of institutions, via the Regional Coordinator, Environmental Programs, to complete the [Registration of a Storage Tank System for Petroleum Products and Allied Petroleum Products](#) (CSC/SCC 1265-02) form for new storage tank systems and to provide this information to NHQ Senior Environmental Officer
 - d. NHQ will register the [tank](#) or [storage tank system](#) on [FIRSTS](#) and will forward the Environment Canada identification number issued for the registration. It is the responsibility of the institution to display the Environment Canada number on or near the storage tank system.

Design and Installation

8. Institutions must include the following design requirements for new field-erected and shop-fabricated AST:
- a. spill containment (e.g. [spill containment device](#), [product transfer area](#), etc.)
 - b. corrosion protection (e.g. painted, etc.)
 - c. secondary containment (e.g. double walled, etc.)
 - d. overfill protection (e.g. [overfill protection device](#), product transfer area, etc.).
9. Institutions must ensure that the oil found in the oil-water separator (of a storage tank system) is removed automatically or manually:

- a. free oil layer must not exceed 50 mm in thickness
 - b. separate solids must not exceed 150 mm in thickness.
10. The installation of single-walled [underground storage tanks \(UST\)](#) or underground single-walled piping is prohibited.

Product Transfer Areas

11. All storage tank systems must have product transfer areas that are designed to contain spills and overfills that occur in the area around the connection point between a delivery truck and the storage tank system during the transfer process (refer to [Annex C](#) for examples of containment options).

Risk Assessment and Storage Tank System Emergency Plan

12. Institutions must apply a risk management methodology to their inventory of storage tank systems. A Risk Assessment (RA) must be performed for each storage tank system at the institution (contact NHQ Senior Environmental Officer or RHQ Regional Coordinator, Environmental Programs, for the RA template) in order to:
- a. identify potential risk sources
 - b. determine potential sources of spread of petroleum or allied petroleum product
 - c. identify the potential consequences of storage tank system emergencies
 - d. identify current storage tank system risk mitigation (reduction) strategies
 - e. assess the health and safety and environmental risk consequences of storage tank system emergencies (e.g. leaks and spills, fires and explosions).
13. Following the Risk Assessment, institutions must ensure that storage tank system Emergency Plans are completed, regularly updated and operational at all times (contact NHQ Senior Environmental Officer or RHQ Regional Coordinator, Environmental Programs, for the Emergency Plan template).
14. The storage tank system Emergency Plan will be unique for each storage tank system and must include the following items:
- a. properties and characteristics of the petroleum product or allied petroleum product stored in each tank of the system (refer to the Material Safety Data Sheets, if available)
 - b. the maximum quantity of product stored in the system
 - c. characteristics of the place and surrounding area of where the system is located (including areas sensitive to the environment or human health)
 - d. measures to prevent, respond to, and recover from an emergency spill/overflow

- e. a list of individuals, with roles and responsibilities, to carry out the plan
 - f. training requirements
 - g. a list of emergency response equipment
 - h. measures to notify public in cases of emergencies.
15. The storage tank system Emergency Plan must be ready to be implemented before the first transfer of petroleum products or allied petroleum products into a storage tank system.

Leak Detection and Monitoring

16. Institutions with underground storage tank system and/or piping must have automatic gauging or continuous leak detection or must conduct annual precision leak detection tests. All methods require recording of the results.
17. Institutions with horizontal aboveground storage tank system without secondary containment must visually inspect the exterior walls of the tanks once per month, perform inventory reconciliation and annual leak detection tests. All methods require recording of the results.
18. Institutions with vertical aboveground storage tank system without secondary containment must initially inspect the walls and afterwards set up an ongoing leak detection or monitoring program.
19. Institutions with a storage tank system that has aboveground piping without secondary containment must:
- a. use continuous external aboveground pipe leak monitoring, or
 - b. have a corrosion analysis program
 - c. visually inspect the piping monthly, or
 - d. annually perform a piping precision leak detection test.
20. Institutions with a storage tank system that has a [sump](#) must:
- a. use continuous leak monitoring, or
 - b. visually inspect annually.

Withdrawal from Service

21. If there is a leak in the storage tank system or one of its components, it must be immediately withdrawn from service until the leak is repaired, unless circumstances make it impossible to comply (refer to [section 3\(4\)](#) of the Regulations for the conditions).

22. It is prohibited to abandon a storage tank system in place.
23. For temporary withdrawal of storage tank system (less than two years), institutions must adhere to [section 43](#) of the Regulations, including [cathodic protection](#) on the tank (if the system is equipped), label fill pipe, leak test, avoidance of short and long-term harm to the environment and/or human health. An inspection must be conducted before the tank is put back in service.
24. For permanent withdrawal of storage tank system, institutions must adhere to [section 44](#) of the Regulations, including removal and disposal of liquids and sludge, purging of vapours, labeling fill piping, and withdrawal completed in such a manner that poses no short- or long-term threat to the environment and/or human health [refer to the form [Deregistration of a Storage Tank or System for Petroleum Products and Allied Petroleum Products](#) (CSC/SCC 1265-04)].
25. Institutions must complete without delay a [Deregistration of a Storage Tank or System for Petroleum Products and Allied Petroleum Products](#) (CSC/SCC 1265-04) form and forward it to NHQ and RHQ so that Environment Canada can be notified via FIRSTS.
26. The following tanks or components must be permanently withdrawn from service and removed:
- a. single-walled underground tanks that lack corrosion protection (for steel tanks) and leak detection, groundwater monitoring wells or vapour monitoring wells
 - b. single-walled underground piping that lacks corrosion protection (for steel piping), leak detection, groundwater monitoring wells, vapour monitoring wells, single vertical check valves or mechanical line leak detection devices
 - c. AST installed underground
 - d. UST installed aboveground
 - e. partially buried tanks.

Data Management and Reporting

Records

27. Institutions must keep records of operation and maintenance programs, including inventory reconciliation, temporary or permanent withdrawals, oil-water separator measurements, corrosion protection, as-built drawings, as well as all relevant documentation, for a minimum of five years and up to the lifetime of the storage tank system.

Reporting

28. Any episode involving a [major petroleum product leak](#), spill, fire or explosion (i.e. an incident that had or could have significant environmental impact or that requires the intervention of external expertise and equipment to confine and recover the contaminants) requires completion of an [Environmental Incident Report](#) (CSC/SCC 1265-03). This report must be given to CSC's Regional

Coordinator, Environmental Programs. Where applicable, depending on the nature and severity of the incident, the appropriate CSC authorities will provide a written report to Environment Canada. In cases of major spill, institutional authorities must advise immediately by telephone Environment Canada (Regional Environmental Emergencies Division).

Non-Compliance

29. In the event of non-compliance with the Regulations, it is the prerogative of the Environment Canada inspector to issue warning letters or non-compliance orders, or to sanction monetary penalties pursuant to [CEPA](#).

ENQUIRIES

30. Environmental Protection Program
National Headquarters
Email: GEN-NHQ-ENV@csc-scc.gc.ca

Assistant Commissioner,
Corporate Services

Original Signed by:
Liette Dumas-Sluyter

ANNEX A

CROSS-REFERENCES AND DEFINITIONS

CROSS-REFERENCES

[CD 318 – Environmental Programs](#)

[Registration of a Storage Tank System for Petroleum Products and Allied Petroleum Products \(CSC/SCC 1265-02\)](#)

[Deregistration of a Storage Tank or System for Petroleum Products and Allied Petroleum Products \(CSC/SCC 1265-04\)](#)

The federal government's tank registration and other requirements are summarized in the *Tank Tips* bulletins at: <http://www.ec.gc.ca>.

[Canadian Council of Ministers of the Environment](#)

DEFINITIONS

The following definitions apply to this ISD. For additional definitions, refer to the above-mentioned Regulations and authorities.

Aboveground storage tank (AST): a tank that operates at atmospheric pressure and that has all of its volume either above grade or encased within an unfilled secondary containment.

Allied petroleum product: a mixture of hydrocarbons other than a petroleum product, that may be water miscible and may have a density greater than water.

Cathodic protection: a method of preventing or reducing corrosion of a metal surface by making the metal a cathode, using an impressed direct current or attaching sacrificial anodes.

Environmental Management System (EMS): a tool for ensuring that an institution meets all of the environmental legislation and performance requirements.

FIRSTS: the Federal Identification Registry for Storage Tank Systems is Environment Canada's inventory of storage tank systems that are subject to the federal Regulations. All storage tank systems covered by the Regulations must be identified in this inventory.

Major petroleum product leak: if 100 L or more of product is released into the environment (i.e. beyond the secondary containment area), institutions are required to follow up with a written report to Environment Canada.

Overfill protection device: an electrical or mechanical device that is installed in a storage tank, fill tube or vent which helps prevent a storage tank from being overfilled.

Petroleum product: a single product or mixture of at least 70% hydrocarbons, refined from crude oil,

with or without additives. It includes such products as gasoline, diesel fuel, aviation fuel, kerosene, naphtha, lubricating oil, fuel oil, and engine oil (new or used), and excludes propane, paints and solvents.

Product transfer area: the area around the connection point between the delivery truck and a storage tank system in which the tanks have an aggregate capacity of more than 2,500 L.

Secondary containment: an area that prevents liquids that leak from a storage tank system from reaching the surrounding environment and includes double-walled tanks and piping, liners, and impermeable barriers.

Spill containment device: a container fitted to the inlet or to the suction coupling of a storage tank that helps prevent spills from entering the environment.

Storage tank system: a tank or commonly connected tanks and all piping, vents, pumps, sumps, diking, overfill protection devices, spill containment devices and oil-water separators.

Sump: means a dispenser, pump, transition, or turbine sump.

Tank: a closed container with a capacity of more than 230 L that is designed to be installed in a fixed location.

Underground storage tank (UST): a tank that operates at atmospheric pressure and that has all of its storage volume below grade and completely surrounded by fill.

ANNEX B**LIST OF PETROLEUM AND ALLIED PETROLEUM PRODUCTS****I. PETROLEUM PRODUCTS**

Heavy fuel oil

Diesel

Gasoline

Heating oil

Kerosene

Other (specify in the "Comments" section)

Used oil

II. ALLIED PETROLEUM PRODUCTS

Benzene

Biodiesel

E-85 fuel

CGSB 1-GP-124, Thinner for vinyl coatings

CGSB 15-GP-136, Antiblush thinner for cellulose nitrate lacquer

CGSB 15-GP-50, Acetone, technical grade

CGSB 15-GP-52, Methyl ethyl ketone, technical grade

CGSB 21.1-93, Offset lithographic printing ink

CGSB 3-GP-525, Isopropanol

CGSB 3-GP-531, Methanol, technical grade

CGSB 3-GP-855, Ethylene glycol, uninhibited

CGSB CAN/CGSB-1.110-91, General purpose thinners for lacquers

CGSB CAN/CGSB-1.164-92, Solvent for vinyl pretreatment coating

CGSB CAN/CGSB-1.2-89, Boiled linseed oil

CGSB CAN/CGSB-1.4-92, Petroleum spirits thinner

CGSB CAN/CGSB-1.70-91, High solvency thinner

Oxygenated gasoline

Toluene

ANNEX C

PRODUCT TRANSFER AREA CONTAINMENT OPTIONS

There are two main types of product transfer areas:

1. **Permanent physical containment** – Contains any spills or leaks and prevents product from reaching the environment. For example, curbed and dyked concrete.
2. **Method** – All reasonable risks of product reaching the environment for a given site are identified and appropriately mitigated using a risk management approach. For example, a five-step approach including: i) a description of the storage tank system, its characteristics and how it's filled; ii) identification of potential incidents and potential receiving environment; iii) evaluation of risks and identification of those that need to be addressed; iv) mitigate risks; and v) confirmation of effectiveness of mitigation measures.

When designing a product transfer area, consider the following:

1. What is the volume of the registered tank system?
 - a. If less than 2,500 L, a product transfer area is not legally required
 - b. If greater than 2,500 L, a product transfer area must be designed to contain spills.
2. What is the frequency of deliveries?
 - a. If three or more per year, consider a permanent (for example, concrete curbed and dyked berm) product transfer area design
 - b. If less than three per year, consider implementing a risk management method (for example, standard operating procedures and preventative spill kits) during product transfer.
3. Does the tank system have a functioning overfill protection device?
 - a. If no, need to update or upgrade existing device immediately.
4. Has this tank system had a previous spill during product transfer?
 - a. If yes, need to modify current methodology employed during the product transfer process.
5. What are the risks associated with this tank system?
 - a. Refer to Storage Tank Risk Assessment for your institution
 - b. If high risk, consider a physical confinement design.
6. What are the environmental sensitivities and human health risks associated with this tank system?

- a. Refer to Storage Tank Risk Assessment for your institution
 - b. If tank is located in a sensitive area (for example, near a water body), consider a physical confinement design.
7. Is there a CSC representative overseeing the product transfer?
- a. If no, it is strongly recommended to have a CSC employee present during fuel transfers.

This is not an exhaustive list of considerations. Each site needs to evaluate their own storage tank systems requirements.

In the event of an inspection by Environment Canada, the CSC person designated to guide the enforcement officer at the institution, must be able to substantiate, explain or demonstrate how the product transfer area is designed to contain spills during fuel transfer.