



UPDATE

Fuels Safety Edition

SAFETY UPDATES

Director's Orders and Advisories

By **Sandra Cooke**, Technical Leader, Fuels Safety Program

Please see our website for the latest news and more detailed information.

Pre-1957 refrigerators

Propane and gas Servel vent-free refrigerators manufactured before 1957 must be either:

- taken out of service; or
- taken out of the living quarters and placed in a shed, garage or open porch.

Oil tanks labeled for indoor use

Technical Standards and Safety Authority (TSSA) has found no difference between indoor and outdoor oil tanks with respect to construction and testing requirements; therefore, oil tanks labeled for indoor use may continue to be used outdoors as long as they are inspected every year by the fuel distributor.

Natural gas and propane, natural draft residential boilers

Due to the high number of carbon monoxide (CO) incidents, a Director's Order effective January 13, 2006 to May 1, 2006 requires all technicians to do a CO check in the boiler's flue when this type of boiler is present in a home they have entered to do maintenance, service or emergency response. The gas technician must also visually examine the boiler and take action if there are signs of spillage or poor operation.

The Director's Order has been well accepted and technicians are continuing to find issues with this type of boiler. As a result, TSSA will likely continue to expand the program.

Ethanol-blended gasoline and fibre-reinforced plastic tanks

TSSA has finished working with the risk reduction group to evaluate the impact of the Ministry of the Environment's ethanol in gasoline regulation. The regulation, which becomes effective January 1, 2007, requires an average of 5% ethanol in Ontario's gasoline pool.

Please note the following if you will be using ethanol enriched gasoline:

- fibre-reinforced plastic (FRP) tanks manufactured prior to 1979 are not compatible with ethanol; the number of existing tanks is low (approximately 120) and they will need to be replaced or upgraded;
- FRP tanks built from 1979 to 1986 will have some strength reduction; however, there have been no known ruptures and they are not predicted to fail; and
- lined steel tanks may have compatibility issues depending on the lining used.

Owners/operators are reminded of the requirement for a leak detection system and to report if a leak occurs. Further, when a lined steel tank fails, all other lined steel tanks on the facility must be removed within six months of the failure.



Hotdog carts and other mobile food service equipment

All new hotdog carts, coffee trucks, chip wagons and hamburger carts must now be approved for their intended use before being put into service. New and existing mobile food service equipment must be inspected annually by a TSSA certified gas technician according to a comprehensive checklist.

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Oil Inspection Deadline Approaches

By E. Richard Huggins, PEng., Fuels Safety Engineer

There has been some concern expressed recently among fuel distributors with respect to homeowner confusion regarding the upcoming deadline for comprehensive inspections...

There is a requirement that licensed oil distributors only deliver oil to systems that are safe. Specifically, the Fuel Oil Regulation (Ontario Regulation 213/01) requires that distributors must have inspected a system at least once in the last ten years before they can make an oil delivery. This regulation went into effect in 2001.

Understandably, this put oil distributors into a tight spot. They were faced with doing thousands of inspections in a short time period. TSSA and industry discussed this issue and determined that there were no immediate safety concerns; therefore, distributors were granted more time to complete inspections.

Deadlines for comprehensive inspections

May 1, 2007

The alternative inspection program requires that all systems had a basic inspection by May 1, 2004 and have a comprehensive inspection by May 1, 2007. All new customers (from May 1, 2004) require an immediate comprehensive inspection.

May 1, 2006

Some groups of distributors preferred to eliminate basic inspections and move up the deadline for all comprehensive inspections to May 1, 2006. TSSA supported these variations.

What if an inspection is not done?

After these dates, oil distributors will be unable to deliver oil without a satisfactory inspection.



For Homeowners

If you have any questions about what system your distributor is under, what the inspections include and what the costs may be, please call your distributor directly. They will have the answers to these and any other fuel oil questions that you may have.

What if my inspection is unsatisfactory?

If a system is in an "unacceptable condition" but is not an "immediate hazard", then oil will be delivered; however, the owner of the system will be given up to ninety days to correct the problem. If this grace period ends without some form of resolution, then there will be no new deliveries of oil.

What if a system is an immediate hazard?

An oil distributor will not, and may not, deliver oil to a system that presents an "immediate hazard". In these cases, they are also required to immediately take such steps as are reasonable in the circumstances to shut off the supply of fuel oil to the facility, appliance or tank system.

LIVESTOCK BARN UPDATE

Heating the Hogs – A Safer Alternative

By Ruud Berkel, Team Leader, Fuels Safety Program

Recently, TSSA inspected a hog barn that had been rebuilt for the second time, after devastating fires. The heaters are now mounted on the outside of the building. This alternative is becoming increasingly popular in many parts of the world. Here's why.

There are many advantages to installing heaters on the outside of a barn.

1. Heaters and gas piping are not exposed to the corrosive barn environment.
2. Heaters take in fresh air for cleaner combustion.
3. The likelihood that heaters will take in air with a high level of methane is greatly reduced.
4. The total installation cost is reduced. No piping is required in the barn and



the supply tank can be placed close to the heaters, requiring a minimal amount of piping.

5. Maintenance can be done outside, increasing bio-security.

Most manufacturers of agricultural direct-fired heaters have an outdoor kit or a model designed for mounting on the outside of a building. According to one

industry source, other jurisdictions are moving in this direction. Statistics reported to TSSA indicated that in the United States, about 20% of heaters are mounted on the outside of the barn. In Italy, outdoor installation of the heaters is required and the rest of Western Europe is following their lead.

The insurance industry has reported to TSSA that losses due to barn fires resulting from indoor heaters are in the tens-of-millions-of-dollars over the last several years.

One builder of agricultural buildings has made the decision to strongly recommend that direct-fired heaters are mounted outside of the building. They have also changed the design of the buildings, where possible, to include natural ventilation, reducing the risk of methane buildup.

As a result of everyone working together – industry, manufacturers, builders, insurers and TSSA – industry practices are changing to improve safety.

<<< Heater mounted on the outside of the barn takes in fresh air



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under PRESSURE

Reducing Risk at Locations with Indoor Service Regulators

By **Sandra Cooke**, Technical Leader, Fuels Safety Program

A new Director's Order addresses the potential hazard of an uncontrolled release of natural gas within a building where the utility service regulator is located indoors.

To address this risk, the following requirements have been made.

For new installations

Effective January 31, 2006, all new pipelines where a service regulator is

located indoors must have:

- an excess flow valve with automatic shutoff, or other suitable risk mitigation to address the potential of an uncontrolled release of gas indoors; and
- gas service must be clearly marked with permanent yellow markings on the outside wall where the pipe enters the building, or on the service piping visible outdoors, or on the

pavement marking where the service line is located.

For existing premises where a service regulator is located indoors

Effective March 31, 2006, warning markings as previously described are required to be in place.

LIVESTOCK BARN UPDATE

Heating the Hogs – A Safer Alternative *continued from page 3*

In response to your questions...

TSSA received a number of questions in response to the article regarding heaters in hog barns in the winter edition of the Fuels Safety Newsletter.

TSSA is not making direct-fired heaters inside the barn illegal; however, the installer must ensure that the installation is in compliance with the

code and the manufacturer's instructions.

The incidents that TSSA has investigated to date have resulted from the operator failing to follow standard industry practices. One fire was caused by overfilling the liquid manure tank, which blocked the vents. Other fires were caused by the shutdown of the ventilation

system. Lack of maintenance was listed as a possible cause in a chicken barn fire.

Installing heaters on the outside of a barn is gaining popularity worldwide and is considered to be safer than indoor direct-fired heaters.

<<< Heater duct inside of the barn

“As a result of everyone working together – industry, manufacturers, builders, insurers and TSSA – industry practices are changing to improve safety.”



Fill'er Up?

Not without a variance

Re-use of underground single-wall tanks

By Ann-Marie Barker, Fuels Safety Engineer

TSSA FUELS SAFETY INSPECTORS ARE FINDING GAS STATIONS OPERATING WITHOUT A LICENSE. THESE ARE TYPICALLY INSTALLATIONS WITH SINGLE-WALL TANKS AND PIPING (CURRENT CODE REQUIRES DOUBLE-WALL SYSTEMS). TO OBTAIN A LICENSE, A FACILITY OWNER MUST EITHER APPLY FOR A VARIANCE OR REPLACE THE TANKS.

Illegal tanks are a serious risk to public safety and the environment. When discovered, these facilities are ordered to obtain a license.

If a facility is unlicensed for:

- less than one year, a license can be reinstated based on prior approval under a previous code which allowed single-wall systems; and
- longer than one year, the facility must meet the current code requirement for double-walled underground tank systems – unless a variance is obtained.

“If a variance is granted, the facility owner is usually required to make upgrades such as replacing galvanized product pipe with approved double-wall pipe and installing an electronic in-tank leak detection system.”

Applying for a variance

A variance application will be considered only if all of the following documents can be provided:

- an environmental assessment report meeting the TSSA guidelines entitled “Environmental Assessment Requirements to Abandon an Underground Fuel Storage Tank in Place or Re-

Use an Abandoned Tank”;

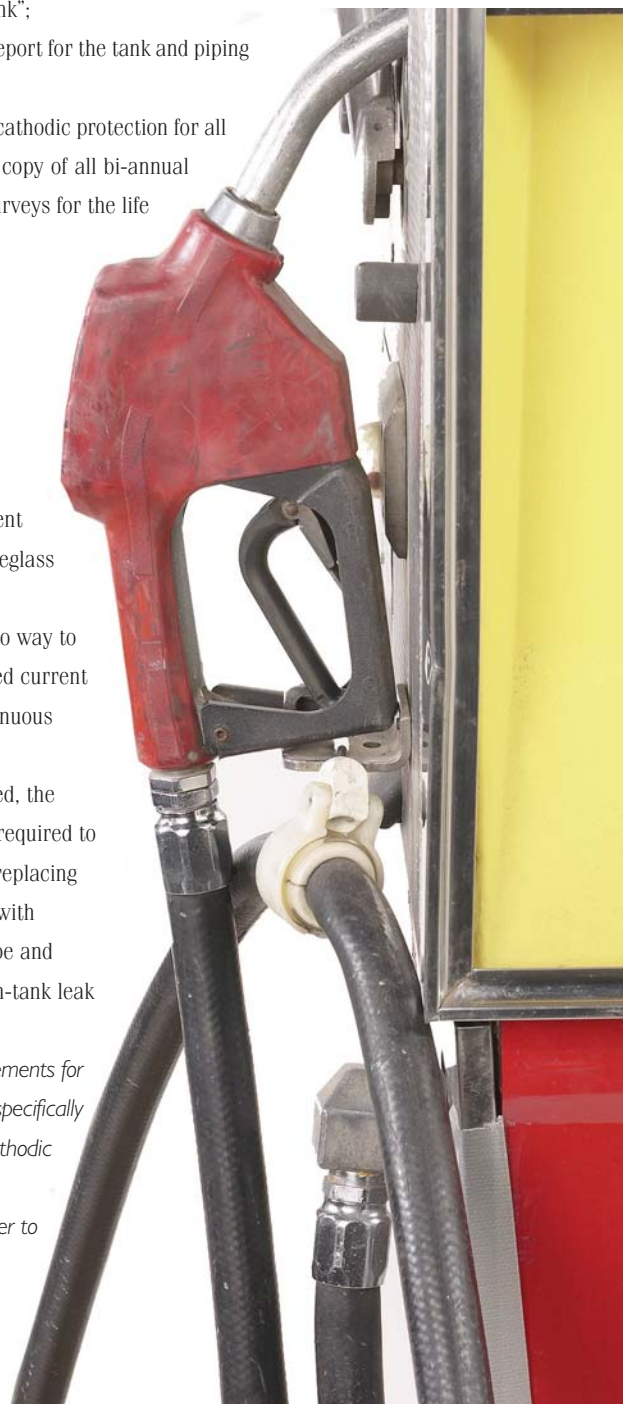
- a precision leak test report for the tank and piping system; and
- a complete history of cathodic protection for all steel tanks, that is, a copy of all bi-annual cathodic protection surveys for the life of the tank.

PLEASE NOTE: A

variance will not be considered for any tank system that has been upgraded with fibreglass lining or impressed current cathodic protection. Fibreglass lining has proven to be ineffective and there is no way to confirm that an impressed current system has been in continuous operation.

If a variance is granted, the facility owner is usually required to make upgrades such as replacing galvanized product pipe with approved double-wall pipe and installing an electronic in-tank leak detection system.

Given the strict requirements for the variance application (specifically the complete history of cathodic protection for steel tanks), facility owners may be wiser to replace single-wall, underground steel tanks.



KEEP YOUR EYE ON THE PUMPS

Guidelines for Video Monitoring at Self-Serve Stations

By **Ann-Marie Barker**, Fuels Safety Engineer

The following guidelines apply to new and existing facilities, except where noted.

Continuous View of All Dispensing Positions:

The view of each dispensing position must be continuous. Monitors that switch views every few seconds are not acceptable.

Size:

The image displayed on the monitor must be of adequate size to allow for effective surveillance.

Clarity:

The attendant must be able to read a license plate image (applies to new facilities) on the monitor display. For existing facilities, the test for clarity is the ability to distinguish a five-litre jerry can placed in the fuelling area. These tests must be satisfactory without the use of zooming.

Position:

The monitor must be located so that the attendant can easily look at it during the normal course of his or her duties. The image quality should not be affected by glare from sunlight or overhead lights.

Dedicated:

The monitor must show only the gas pumps and car wash, not in-store views.

Interlocking Shutdown:

Cameras must be interlocked to shut down the dispensers on loss of video signal.

Questions?

Please contact TSSA's fuel safety program at **1-877-682-8772** or visit our website at **www.tssa.org** for more information.

INTRODUCING... the new TSSA Field Approval Code

By **Zenon Fraczkowski**, Special Labels Engineer

THE TSSA FIELD APPROVAL CODE CONSOLIDATES THE REQUIREMENTS FOR THE APPROVAL OF NATURAL GAS, PROPANE AND FUEL OIL APPLIANCES IN ONTARIO. FOR THE FIRST TIME, THERE ARE UNIQUE REQUIREMENTS FOR CLASS A APPLIANCES, HIGHER STANDARDS FOR FUEL OIL APPLIANCES, AS WELL AS THE REQUIREMENT THAT ALL APPLIANCES HAVE REDUNDANT SHUTOFF VALVES.

The new TSSA Field Approval Code is available on the TSSA website at www.TSSA.org/regulated/fuels/fuelsField.asp. It adopts the following codes and regulations with amendments:

- CSA B149.3-05 for natural gas and propane;
- NFPA 85 – 2004 for fuel oil; and
- NFPA 86 – 2003 for Class A appliances.

CSA B149.3-05 highlights

TSSA accepts the national standard by adopting CSA B149.3-05, and stays a step ahead by adopting proposed

revisions to CSA B149.3-05 intended for publishing in 2007.

Although this 2005 CSA code looks very different because its format and numbering systems have been revised, there are only a few substantial changes, as follows:

- valve train diagrams are no longer mandatory;
- provisions for valve proving systems (VPS), definition in 3, requirements in 4.5.1 and 5.3.8 to 5.3.10;
- test firing valve no longer lubricated plug; and
- programmable logic controllers (PLC) and distributed control

systems (DCS), clauses 1.5 and 9.7.

NFPA 86 – 2003 for Class A appliances

This is the first time the TSSA field approval program has addressed Class A appliances. While TSSA expects to lead Canadian code development in this area in the future, existing U.S. regulations are being adopted with amendments for immediate use. Ontario code being proposed to the National Committee will likely be published in 2010.

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Help Wanted

Call the Petroleum Hotline

By Kendall Miles, Petroleum Team Leader

Today, the petroleum industry is more complex than ever. That's why we created a dedicated petroleum team, with eight inspectors across the province. But we need your help. Talk to us about your concerns, problems and ideas. Report any leaks, spills and equipment failures. Let's work together to make our industry safer.

In August 2005, TSSA created a petroleum-specific inspection team, as a result of rapidly advancing technology, rising standards and increased expertise required by trade personnel. The inspectors comprising the team bring nearly 100 years of combined industry experience, and each participates in an extensive training program addressing both new technology and improving inspection procedures.

The formation of the Ontario Petroleum Contractors Association (OPCA) also illustrates the growing importance of the petroleum contractor sector. Through the OPCA, industry has

benefited from training programs, industry recognition and a professional image admired by the rest of Canada. The partnership with the OPCA is both a valued asset and a well used tool for TSSA.

Together, we can improve safety

The combination of a professional trade association, registered contractors, certified tradespeople and an effective inspection team goes a long way to ensuring that the consumer will receive a product that is safe and of good quality. But, with all that is going on, TSSA's petroleum team needs your help. We need to know about spills, leaks and equipment failures as well as your overall concerns. The information passed on to TSSA assists in improving product quality and trade practices. It also alerts us to areas of the industry requiring additional attention.

Call us at 1-877-682-TSSA (8772)

Our Customer Contact Centre is open five days a week from 8:00 am to 5:00 pm excluding statutory holidays. We value your input and our Customer Services Advisors are available to answer your call, respond to your questions and resolve issues. After hours, a voice mailbox is available for your convenience. You may also contact us by email at customerservices@tssa.org or by choosing the Contact Us page at www.tssa.org.

We look forward to hearing from you soon!

Please note:

To report an incident or spill related to fuels, please call the Spills Action Centre (SAC) of the Ministry of the Environment immediately at 1-800-268-6060 (24 hours/7days).

INTRODUCING... the new TSSA Field Approval Code *continued from page 6*

What is a Class A appliance?

A Class A appliance is an appliance with the potential risk of explosion or fire due to the presence of flammable volatiles or combustible materials processed or heated in the furnace. Exceptions are:

- ovens or furnaces having a concentration of flammable volatiles less than or equal to 0.5% of the lower; and
- explosive level (LEL), and special atmosphere furnaces, oxidizers, cremators and fume incinerators.

Double shutoff valves on all appliances

TSSA is adopting early the following clause.

5.3.2 An appliance that has a maximum rated input up to and including 10 000 000 Btuh (3000 kW), with a single burner or multiple burners with individual burner flame safeguard controls shall be equipped with:

- (a) two automatic safety shut-off valves piped in series and wired in parallel, one of which shall be certified in accordance with ANSI Z21.21/CSA 6.5 and marked C/I; or
- (b) with one automatic safety valve certified in accordance with ANSA Z21.21/CSA 6.5 and marked C/I. The valve shall be equipped with an over-travel proof of closer switch that is connected into the start-up circuit of the combustion safety control, and the holding

circuit used in conjunction with the over-travel proof of closure shall not defeat the proof of closure switch.

The valves specified in Items (a) and (b) shall not be bypassed.

Note: One of the safety shut-off valves should be slow-opening in most design configurations to provide smooth and reliable lighting of the burners.

Recently, concerns have been raised over applying this requirement to low input appliances and, in particular, requiring Commercial Industrial (CI) valves on smaller appliances. To this end TSSA will be reviewing this clause once more in the near future and will advise of the results when this review is completed.



Is your underground fuel oil tank turning 25?

By **Gwen Thong**, Administrative Assistant, Fuels Safety Engineering Program

BY OCTOBER 1, 2006, SINGLE WALL STEEL UNDERGROUND TANKS THAT ARE 25 YEARS OR OLDER – OR OF UNKNOWN AGE – MUST BE REMOVED OR UPGRADED. AS THE DEADLINE APPROACHES, TSSA ADVISES ALL OWNERS OF FUEL OIL HEATING SYSTEMS IN ONTARIO TO CHECK THAT THEIR EXISTING UNDERGROUND STORAGE TANKS ARE REGISTERED AND IN COMPLIANCE WITH PROVINCIAL FUEL SAFETY LAWS.

Register all underground tanks

Under the Ontario Regulation 213/01 (The Fuel Oil Regulation), tank owners must register their underground (buried) tanks with TSSA. Fuel suppliers are not permitted to continue supplying fuel oil to unregistered tanks and registration of existing tanks is free of charge. This requirement does not apply to fuel oil tanks located in basements and aboveground fuel storage tanks.

Remove or upgrade old underground tanks

The Fuel Oil Regulation also addresses the upgrading and removal of old underground storage tank systems. These systems are susceptible to leaks and spills, which can result in serious environmental damage and costly cleanups for the tank owner. The environmental contamination caused by a leaking tank may also subject the owner to provisions under the Ministry of Environment's *Environmental Protection Act*. In case of any fuel oil spills, the tank owner is required to notify the Spills Action Centre of the Ministry of

Environment and Energy at 1-800-268-6060.

By October 1, 2006, single wall steel underground tanks that are 25 years or older, or of unknown age, must be removed or upgraded.

Option A: removal

If a tank is not already cathodically protected, only a TSSA-registered fuel oil contractor may remove it. Upon removal of the tank, the owner must have an environmental assessment report completed which delineates the full extent of any fuel oil product that has escaped into the environment. The assessment must be conducted or supervised by one of the following:

- Professional Engineer;
- Professional Geoscientist;
- Professional Agrologist; or
- Chartered Chemist.

TSSA must be notified once the tank has been removed.

Option B: upgrade

Tank systems that are not removed must be upgraded with:

- overfill protection;

- spill containment; and
- leak detection.

Prior to upgrading, the underground tank is subjected to a precision leak test.

The deadline for removing or upgrading a single wall steel underground storage tank system is as follows:

Age of underground years from date of original installation)	Deadline for or upgrade
25 or more (of if unknown)	October 1, 2006
20 to 24	October 1, 2007
10 to 19	October 1, 2008
0 to 9	October 1, 2009

For more information about underground tank registration, upgrades, or removals, please call TSSA's fuels safety program at 1-877-682-8772 or visit our website at www.tssa.org.



We welcome your comments and story ideas for future editions of this newsletter. Please contact:

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