Home Heating Fuel Tanks: Guidance Document

Even well-maintained oil tanks can leak; an improperly installed or poorly maintained oil tank greatly increases the chance of a leak or spill. The cost to clean up the spill can be expensive, and remediation cost is the responsibility of the person who had care and control of the fuel at the time the spill.

Unfortunately there has been a marked increase in spills from home heating oil tanks over the past few years, due to higher corrosion rates from increased incidences of Microbial Influenced Corrosion (MIC). The most serious rust damage on a tank occurs from the inside out, due to condensation of water collecting on the bottom of the tank, creating perfect conditions for bacteria that feed on the oil. In the past, oil had a higher sulphur content which destroyed the bacteria, but in an effort to reduce carbon dioxide emissions, the level of sulphur in fuel was reduced.

This fact sheet is intended to help you prevent a leak or spill from your home heating fuel tank. Knowing what to do can help you protect your health, your home and property, your neighbours’ properties and potential damage to the environment.

CHECK YOUR TANK OFTEN!

Ensure your heating oil tank and accessories are kept in good working order and are in compliance with current regulations and codes of practice. (Older installations should be brought into compliance.) It is recommended to hire a Certified Oil Burner Mechanic to do an inspection of your heating oil tank and supply lines so that any potential problems can be caught early, before they become costly.

Routine Maintenance Checklist

1. Prevent water condensation and subsequent tank corrosion. In order to do this, keep the tank full of oil, keep water out of the tank by sloping the tank towards the drain, use a tank that drains from the bottom instead of the top of the tank, and use a fuel additive to emulsify the water. Oil tanks should be drained of accumulated water at least once per year. Early fall is a convenient time to remove the water from your oil tank, at the same time as the pre-winter servicing of your furnace.

2. Ensure your oil level gauge is working. All tanks must be fitted with a fully functioning oil level gauge; these can become cracked, stuck, or frozen. Monitor the gauge for a few weeks during the winter – if the reading does not change, there may be a problem with the gauge. The
gauge should always be equipped with a heavy, steel gauge protector to prevent accidental damage from vandalism, falling ice and other accidents.

3. **Check certification plates.** Check for a metal plate that shows ULC (Underwriters’ Laboratories of Canada), or CSA (Canadian Standards Association) certification. Consult a Certified Oil Burner Mechanic if you don’t have any documentation in your home files, or check the tank label to verify that it has been installed in accordance with CAN/CSA B139 “Installation Code for Oil-Burning Equipment”.

4. **Check physical condition of tank.** Observe the tank’s surface for rust, corrosion and dents that may weaken the tank and leave it susceptible to rupture and leakage. Look for bent or pinched lines, cross-threaded fittings, a broken or cracked gauge, cracked or weeping weld seams and a broken or heaved base support. Remember that the most serious rust damage to oil tanks occurs from the inside out, due to a yearly build-up of condensation that collects on the bottom of the tank. If you notice a dark line along the bottom of the tank, it is likely on the verge of rupturing and should be replaced without delay.

5. **Drain and/or remove the drip leg.** A drip leg collects water so it can be drained off rather than causing rust at the bottom of the tank; condensation in an oil tank settles into the drip leg because water is heavier than oil and the drip leg is the lowest point. However, the drip leg should be drained before freeze-up each fall to prevent accumulated water from freezing, expanding and bursting the drip leg, otherwise oil from the fuel tank quickly drains onto the ground. If your tank has a drip leg, it is strongly recommended to have it removed. Hire a Certified Oil Burner Mechanic to perform this task. (New oil tank installations should not have a drip leg.)

6. **Check tank slope.** Your tank should be sloped towards the outlet to aid in water drainage; it must slope at least ¼ inch per foot towards the outlet. A bottom outlet is preferable to a side outlet.

7. **Use proper tank support.** When full, an average fuel tank (1135 litre / 300 gallon capacity) weighs about 1 tonne. Unless properly anchored, a standard metal tank is unstable and top-heavy. Tank stands should be bolted to a solid concrete pad. The ground under the tank must be prepared by tamping (which may not be possible next to a wooden foundation house). Proper drainage must be installed before the concrete pad is paced or the pre-case concrete pad is installed. The tank stand should be located in a well-drained area and not in the path of spring melt water channels. Other threats to residential oil tank stands involve wind and the weight of ice, snow or children climbing on them. Safeguard your tank to prevent it from toppling and spilling.

8. **Proper tank location.** Heating oil tanks should be located as close as possible to the heating appliance and in a location where it will be safe from vehicle impact or other physical hazards.
   - Indoor tanks should be located in the lowest level of the building, and inspected regularly for signs of leakage such as oil stains and odours in the basement.
   - Outdoor oil tanks should be located above ground and should never block doorways and windows (including basement windows). Tanks must also respect the B139 Standard, local zoning and the National Building Code of Canada requirements for distance from property lines and other energy source connection lines and storage systems (e.g. power poles).
   - Underground storage tanks installed since 2001 must be double-walled. Many insurance companies are no longer providing insurance coverage for underground tanks.

9. **Check fittings and valves.** All fittings and valves should be regularly inspected for rust, corrosion or other physical defects. Be sure to check for signs of leakage or weeping, especially if a thin film of oil develops around the joints. It is a legal requirement to have a functioning, approved shut-off valve as
close to the tank outlet as possible. It is advantageous to have an anti-siphon valve located at the tank when the oil level is above the burner.

10. **Inspect flex connectors.** Flex connectors are designed and intended for minor shifting of either the heating oil tank stand and/or the building; they are not intended to compensate for misaligned fittings. The steel weave or corrugation of the flex connector provides its strength. It must fit tightly around the inner lining, and should not be compressed along its long axis. If the metal weave is loose and you can compress the weave by hand, then the flex connector needs to be replaced.

11. **Protect fuel lines and tank.** A fuel line connects your heating oil tank to your furnace or boiler, and ideally should be as short as possible to be less susceptible to damage including vandalism, weather, and ground shifting. All fuel line connections including oil filters should be clean and tight. Home owners should conduct regular inspections of the fuel line and schedule an annual inspection by a Certified Oil Burner Mechanic.

12. **Prevent falling ice and accumulated snow.** Fuel lines and oil tanks are especially susceptible if they are located below the slope of a roof. Clear drifting snow away from the tank and fuel lines to prevent rupturing and ensure the lines are visible for inspection.

13. **Pay attention to temperature change.** Heating oil expands and contracts when the temperature changes, which can cause oil leaks and ruptures. If there is not sufficient headspace in the tank, the oil can expand, back up the fill pipe, and spill onto the ground.

14. **Install a vent whistle.** This will ensure your tank will retain some valuable headspace when it is filled. A vent whistle is a device that fits directly onto the oil tank at the base of the vent pipe; it whistles like a tea kettle while the tank is being filled. The noise stops once the level of the oil reaches the bottom of the whistle, signalling that the tank is full.

15. **Check fill and vent pipes; use a rain cap.** Fill and vent pipes should be part of your regular inspection. The height of the vent pipe above the fill pipe must be at least 6 inches, although it is recommended that it be least 12 inches higher than the fill pipe. Ensure that the heating oil vent pipe is clear and free of obstructions such as snow, leaves, insect nests or other debris. All vent and fill pipes should be fitted with rain caps to prevent water from entering the tank.

16. **Look for drips and ground staining.** Any evidence of leaks and/or drips should be repaired immediately. To protect the ground or floor below the oil tank, a drip tray can be placed under the tank to catch any potential oil drips. Some of these devices come with built-in alarms that alert the homeowner to the presence of a drip.

17. **Talk to your fuel company.** While fuel delivery nozzles are equipped with an automatic shut off, there is no substitute for human supervision ensuring against a tank overfill or other mishap. The person delivering the heating oil is required to stay with the fuel nozzle at all times during the refuelling of your heating oil tank.

18. **Talk to your insurance company.** Many insurance companies do not provide coverage for the cleanup of contaminated soil in your yard. Your policy may cover your neighbour’s yard or damage to your house, but it may not cover your own yard. As cleanup of contaminated soil can cost in the tens to hundreds of thousands of dollars, find out if your insurance covers the costs associated with cleaning up a spill on your property. As a general rule, if the spill was preventable with regular maintenance and inspections, insurance companies are unlikely to pay for cleanup costs.
For more information on the Storage Tank Regulations, please contact:

Environmental Programs Branch (V-8)                           Phone: (867) 667-5683
Environment Yukon                                             Toll Free: 1-800-661-0408 extension 5683
Box 2703                                                      Fax: (867) 393-6205
Whitehorse, Yukon                                             email: envprot@gov.yk.ca
Y1A 2C6                                                  Website: www.env.gov.yk.ca/monitoringenvironment/

Fire Marshal’s Office (C-20)                                  Phone: (867) 667-3874
Community Services                                            Toll Free: 1-800-661-0408 extension 3874
Box 2703                                                      Fax: (867) 667-3165
Whitehorse, Yukon                                             Website: www.community.gov.yk.ca/fireprotection/contact.html
Y1A 2C6

Copies of Yukon regulations may be viewed online at www.environmentyukon.gov.yk.ca/monitoringenvironment/ under the “Standards & Approvals” section, or at any Yukon Public Library, territorial agent, territorial representative or regional services office. You may purchase copies at the Inquiry Centre, Yukon Government Administration Building, 2071-2nd Avenue in Whitehorse, or by mail from the Subscriptions Clerk, Yukon Government Queen’s Printer, Box 2703, Whitehorse, Yukon, Y1A 2C6 (phone (867) 667-5783 or toll free 1-800-661-0408 x5783).