Guidance

Heating Oil Tank Decommissioning Guidance for Homeowners

Oregon Administrative Rule 340-177-0025

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State of Oregon Department of Environmental Quality

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Disclaimer

If, after reviewing all applicable laws and rules, you're determined to proceed with your own heating oil tank decommissioning, DEQ offers this guidance to complete your job. However, by offering this guidance, DEQ assumes no liability for the safe and successful completion of your tank decommissioning. A simplified guide as presented below cannot substitute for a full and complete understanding of applicable local, state and federal laws and rules, industry-recommended practices and knowledge gained through experience.

General Discussion

Homeowners occasionally ask DEQ if they can decommission their own heating oil tank. It is legal for a homeowner to decommission their HOT, assuming they perform the work themselves and comply with all applicable local, state and federal rules. It is not legal to complete the work by serving as a general contractor and hiring subcontractors to complete portions of the job. To do so transfers liability for improper work by the subcontractors to the homeowner.

Further, homeowners who plan to contract the decommissioning work out must contract with a licensed HOT Tank Services Provider so that the contractor is complying with the HOT tank service provider law and rules found in Oregon Revised Statute 466.862 and Oregon Administrative Rules Chapter 340 – Division 163.

Before deciding to decommission a heating oil tank, DEQ encourages homeowners to read this guide and the related DEQ *Cleanup Guidance for Homeowners* document to appreciate the full extent of applicable requirements and recommended practices, construction and safety skills and operation of specialized equipment needed to complete the decommissioning in a timely and safe manner. Many decommissionings will likely involve a HOT cleanup as well. In addition to knowing the heating oil tank laws (ORS Chapters 465 and 466) and rules (OAR Chapter 340 – Divisions 177 and 122), homeowners will need to have or learn at a minimum:

- An understanding of the toxic characteristics of heating oil, potential health and environmental effects from exposure to those toxic substances, and possible ways that people or the environment may be exposed to these toxic substances.
- An understanding of any local building, planning or fire codes that apply to the HOT decommissioning.
- An understanding of a National Code of Practice for decommissioning petroleum tanks.
- Safe methods to access a HOT to clean it prior to removal from the pit or filling it with an inert substance for an in-place decommissioning.
- Safe methods for excavating around the tank and hauling it out of the pit, if the HOT is decommissioned by removal.
- Proper methods to safely backfill the tank pit and compact the backfill for site stability.
- Safe methods for transporting a HOT on public roads.
- Proper methods to collect, store and transport soil, and, if necessary, groundwater samples.
- Proper methods to decontaminate construction and sampling equipment to insure no environmental contamination occurs and that representative soil and groundwater samples are collected.
- An understanding of how to interpret laboratory soil and groundwater sample results.
- An understanding of how to write a report describing the decommissioning results to obtain DEQ's registration for a voluntary decommissioning.
- An understanding of how to know if a release or a leak is present, and the release reporting requirements.

In addition to obtaining the requisite knowledge, homeowners must have the following equipment to decommission a heating oil tank:

- A backhoe to excavate soil above the tank to expose the tank's top for in-place decommissioning, or around the sides and bottom of the tank in case of removal. A shovel may also work, but that is physically demanding and time consuming.
- A combustible gas indicator to insure there's not a flammable air mixture present inside the tank.

- An explosion-proof tool to cut off pipes, cut a hole in the top of the tank for cleaning and for easy filling; cutting holes to collect samples or cutting the tank into pieces for transport to a recycling facility.
- Equipment to haul the HOT out of pit (if the tank is to be removed).
- Equipment to load the tank onto a truck or trailer to transport it for recycling or disposal (if HOT is removed).
- An auger or other tools to collect soil samples and, if necessary, groundwater samples.

If soil or groundwater contamination is found, the *Cleanup Guidance for Homeowners* document lists additional information and equipment needed to complete a successful cleanup.

Laws, Rules and National Codes of Practice

Oregon laws covering the voluntary decommissioning of heating oil tanks are in Oregon Revised Statute 466.858 to 466.882. Oregon rules covering the voluntary decommissioning of HOTs are found in Oregon Administrative Rules Chapter 340 – Division 177 and, by reference, OAR Chapter 340 – Division 122. Oregon rules covering contractors offering heating oil tank services are in OAR Chapter 340 – Division 163. Oregon rules administered by the Oregon Water Resources Department covering the construction, maintenance and abandonment of monitoring wells, geotechnical holes and other holes are in OAR Chapter 690 – Division 240.

Some Oregon cities, fire districts or counties may have local building, zoning, permitting or codes of practice that apply to the decommissioning of HOTs. Before starting work, please contact the building, planning and fire agencies in your area to find out about any applicable local requirements. Rule OAR 340-177-0025 (2) requires that decommissioning work follow a national code of practice such as *Removal and Disposal of Used Underground Storage Tanks* by the American Petroleum Institute 1604 (March 1996) or the *Uniform Fire Code Article 79.*

Finally, before digging into the ground, especially in or near any public or private utility easement, or if you don't know if there's a public utility on or near your property, please contact the Oregon Utility Notification Center or call 1-800-332-2344 for information on this important safety program. For a copy of the "call before you dig" rules, please contact the notification center. It's important to note, however, that utility locate services do not locate the individual gas, water, telephone or other utility lines that go from the street to the meter on the side of the house. It's up to the homeowner to know where the lines on the homeowner's property actually run. Also make note of any overhead wires that may be located over or near the construction site. These overhead wires may present safety hazards or could be damaged if struck by construction equipment such as the bucket of a backhoe.

Where to Start – Locating the Tank

Heating oil tanks are generally located within two feet of the structure they serve and buried approximately two feet below land surface. Most HOTs are 46 inches in diameter and vary in length from four feet (340 gallons) to eight feet (675 gallons). HOTs are usually in a location convenient for filling, and close to where the furnace is located within the home.

Although heating oil tank installations vary from home to home, the following outlines some general steps in locating the tank.

Step 1 - Locate the fill pipe or vent pipe
The best way to locate a buried HOT is to first locate the fill pipe or vent pipe. The fill pipe will generally be close to the ground and often marked so the delivery person can quickly and easily identify it. However, when a HOT has been abandoned for some time, it's common for the fill pipe to become obscured with grass, dirt, plants, etc.

If you can't locate the fill pipe, the vent pipe will almost always be visible. The vent pipe will be approximately 1.25 to 1.5 inches in diameter and is usually visible up the side of the house. The vent will extend above ground approximately two to eight feet and should have a small vent cap on it.

Step 2 - Locate the heating oil tank
Once you identify either the fill or vent pipe, you can locate the tank by digging along the pipe. You may need to dig down about two feet, but the fill and vent pipes are usually less than five to 10 feet from the HOT.

In some cases, it may be helpful to use a small metal rod to push into the ground in the area where you suspect the tank is located. If you do this, be very careful not to push the rod hard enough that it punctures the tank or damages any underground utilities.

Decommissioning the Heating Oil Tank

General considerations

Why decommission heating oil tank?

HOTs can contaminate the soil and groundwater and may pose a fire and explosion hazard under certain conditions. Heating oil contains some cancer-causing chemicals which can, if leaks occur, migrate in gaseous or vapor phase into the home or contaminate groundwater. If heating oil leaks into a basement or crawl space, it may be difficult to bring the house back to a livable condition.

HOTs also corrode and over time may weaken to the point where they may collapse. Tanks should be decommissioned when they're no longer used or when there are questions about their structural integrity or ability to hold product without leaking.

Finally, from time to time, errors are made and heating oil is delivered to abandoned tanks that are not structurally sound, causing significant contamination.

Safety precautions

Accidents from fire, explosion, excavation cave-in, accidental contact with overhead or underground power or gas lines and other hazards can occur during HOT decommissioning. DEQ recommends following procedures described in this document or in references listed in "Additional Guidance and Reference Documents" section near the end of this document, to prevent such accidents and to protect life and property.

All persons doing HOT decommissioning work should know and adhere to: all applicable environmental, fire, health and safety rules and practices; proper procedures for operating equipment and for freeing HOTs of vapors and testing for combustible vapors, and the proper handling and disposal of wastes likely to be encountered.

The following safety and health hazards are of particular concern:

Open Flames and Sparks - Open flames, including oxygen/acetylene torches, matches, cigar and cigarette lighters, candles, burning tobacco, etc., should not be present near any HOT or HOT excavation. Electrical switches, equipment and electrical motors used near any HOT or HOT excavation should meet the National Electrical Code's explosion-proof requirement.

Static Electricity - Electrically ground all tools, piping and electrical equipment used in the vicinity of HOTs to prevent ignition of heating oil vapors by static electricity.

Exposure to Petroleum Products – Exercise care to minimize exposure to petroleum products such as heating oil as well as soil and water contaminated with these products. Avoid inhaling heating oil vapors and exposing skin to direct contact with heating oil when decommissioning HOTs. For information about possible health effects from exposure to heating oil, read the following facts sheets of the federal Agency for Toxic Substances and Disease Registry:

- *Frequently Asked Questions About Hazardous Materials*
- *Benzene*
- *Fuel oils*
- *Total Petroleum Hydrocarbons*

In addition, the American Conference of Governmental Industrial Hygienists recently published an occupational exposure standard for persons coming in contact with diesel fuel, which includes exposure to heating oil. Information on buying copies of their standard is available in the "Additional Guidance and Reference Documents" section near the end of this document.

Methods of heating oil tank permanent decommissioning

HOT decommissioning by removal

1. Obtain the necessary local permits. Contact your local fire, planning and building departments for information on local requirements and the Oregon Utility Notification Center to identify buried lines in public or private easements. From the street, map out the gas, water, telephone and other utility lines that run to the meters typically located on the side of the house. Take note of any overhead wires that may be located over or near the construction site.
2. Drain and flush all piping into the tank, being careful to avoid spilling.
3. Remove all liquid from the tank, even liquid requiring a hand pump to remove. Look in your local phone directory under "Oils - Waste" for companies that can help with proper disposal of the unused heating oil and rinse water from cleaning the tank.
4. Carefully dig down to the top of the tank. Note any potentially contaminated soils and separate them from clean soils. Contaminated soils must be disposed of according to applicable state and local regulations. Look under "Environmental & Ecological Services" in your phone directory or contact your local solid waste disposal facility for information.
5. Remove the product lines and other HOT fixtures up to the building foundation, then flush the remaining pipe and permanently cap the pipe ends.
6. Cap or remove any non-product lines, leaving the vent line open until after the HOT is purged of vapor (i.e. inerted). Temporarily close off all openings in the tank except the vent line so that all vapors can be purged or so that oxygen may be displaced during the inerting process.
7. Inert or render vapor free a HOT that contained combustible and flammable liquids, using ONE of the methods described below. Refer to American Petroleum Institute document 1604 mentioned above for detailed guidance.
   A. Inert the heating oil tank with dry ice (1.5 pounds per 100 gallons of tank capacity). The dry ice should be evenly distributed over the whole area of the tank bottom and allowed to completely evaporate prior to working on the tank. It can take up to 12 hours for dry ice to completely evaporate. During the inerting process, take necessary precautions to prevent ignition in the entire area that might be affected by the vapors.
   B. Ventilate the tank with air using an eductor-type air mover. Such a device usually uses compressed air to cause vapors to draw out of the tank. Discharge the vapors a minimum of 12 feet above the ground surface using an eductor extension.
   C. Ventilate the tank with air, using a diffused air blower. The air pressure must not exceed 5 psig (pounds per square inch gauge). Install a 5 psig relief valve on the tank to prevent rupturing from overpressure.
   D. Inert the tank with a non-reactive gas such as carbon dioxide or nitrogen. Again the internal tank pressure should not exceed 5 psig.

CAUTION: Do not enter tanks inerted with carbon dioxide, dry ice or nitrogen as there will not be enough oxygen to support life.

8. Monitor vapor concentration levels in the tank and in the excavation area using a combustible gas indicator that has been maintained and calibrated according to the manufacturer's instructions. Once the indicator shows levels below 20 percent of the Lower Explosive Limit EL), the HOT is considered inerted and safe for removal.
9. Plug or cap all holes, leaving a 1/8-inch vent hole to prevent differential pressures from building up due to temperature differences.

10. Complete the excavation and remove the tank. As a safety precaution the tank should be secured with wood blocks to prevent it from rolling after it is removed.
11. After checking to make sure the tank is still properly inerted (see Step 7 above), cut an access hole in the top of the tank so that any residual solids or sludge can be removed. Remove any solids or sludge. Any material which cannot be recycled must be disposed of in accordance with applicable federal and state laws. Look under "Environmental & Ecological Services" in your local phone directory or contact the local solid waste disposal facility to get recommendations for disposal options.
12. If there are no indications of heating oil contamination and no water is present in the tank pit, collect two soil samples from native soils six to 12 inches below each end of the tank. If there's evidence of contamination such as petroleum odors or staining of the soil, you must collect additional soil samples from each distinct area where contamination is observed. Refer to the Sampling and Analysis section of this report for more details about sampling and analysis requirements. If heating oil contamination is detected in any of the soil samples at a concentration greater than, or equal to 50 mg/kg by method NWTPH-Dx, a release has occurred. You must report all releases to DEQ within 72 hours of discovery. Refer to the Evaluating Site Conditions and Sample Results section of this report to learn how to report a release.
13. Investigation and cleanup may be necessary if contamination is detected in the soil samples, so it may be advisable to delay backfilling the excavation until after reviewing the sampling results. If the excavation is left open, make sure the tank pit is adequately secured or fenced so nobody can accidentally fall into the open hole.
14. Before transporting the heating oil tank off-site for recycling or disposal, contact the recycling or disposal facility for any requirements they may have for receiving a decommissioned heating oil tank. When transporting to a recycling or disposal facility, secure the tank on the truck so that the 1/8- inch vent hole is located at the tank's highest point.

HOT decommissioning by filling in place

Follow the same procedures described in steps 1 through 8 in the section above entitled **HOT decommissioning by removal**, then:

9. Clean the tank and associated piping as thoroughly as possible to remove all product, sludge and/or water rinsate. When the top of the tank is accessible, carefully dig down to the tank's top. Note any potentially contaminated soils and separate them from clean soils. You must dispose of contaminated soils according to applicable state and local regulations. Look under "Environmental & Ecological Services" in your phone directory or contact your local solid waste disposal facility for information.

Following the safety precautions and inerting procedures noted above, cut open the top of the tank. This allows access to the tank to ensure that all remaining product and sludge is removed and makes filling the tank easier.

10. Fill the tank with a non-reactive solid material, such as:
    A. SAND: Sand that is free from rocks is suitable for filling. Open the top of the tank so that it can be filled completely. Fill the tank to nearly full and wash sand into it with a small amount of water, puddled to cause the sand to flow to the tank ends. Avoid using large amounts of water.
    B. SAND AND SOIL: Fill the tank with sand to nearly 80 percent of its capacity and fill the remaining capacity using a mixture of soil and water in a free-flowing mud.
    C. PEA GRAVEL AND SOIL: Fill the tank with pea gravel to nearly 80 percent of its capacity and fill the remaining capacity using a mixture of soil and water in a free-flowing mud.

D. CONCRETE SLURRY MIX: Fill the tank with concrete slurry mix. Add a wetting agent to the mixed concrete to reduce separation of the water from the sand and gravel.

11. Plug or cap all openings in the tank, including the vent line.

Sampling and analysis

Required samples when HOT decommissioning is by removal

Site assessments performed at sites where the tank has been removed from the tank pit typically involves collection of three soil samples – one sample of the worst contamination present and two samples below the bottom of the former heating oil tank. Figure 1 illustrates the location of these sampling points. The worst-case sample (Sample 1) will generally be collected where heating oil first entered the soil profile, either near the fill or vent lines due to overfilling or surface spillage or from the area around a tank leak. The results of this sample are most often used to select an appropriate treatment or disposal facility that can receive any excavated contaminated soils. The other two required samples (Samples 2 and 3) must be collected in native soils between six inches and one foot below each end of the former tank. Results from these samples are used to determine compliance with the decommissioning standards. Soil samples must be analyzed by an accredited laboratory for Diesel/Lube Oil Range Hydrocarbons by Method NWTPH-Dx.

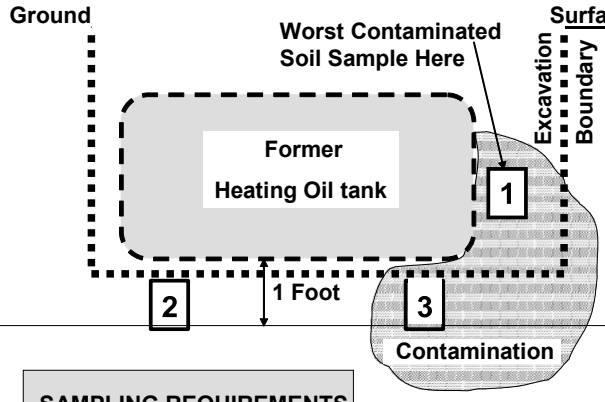
If groundwater enters the tank pit, you must also collect a groundwater sample. This sample must be analyzed for benzene, toluene, ethylbenzene and total xylenes and polynuclear aromatic hydrocarbons. For a more complete understanding of sample collection, handling and analytical methods and requirements, please review OAR 340-122-0218, -0340 and -0345 or call DEQ's heating oil tank staff for technical assistance.

Required samples when HOT decommissioning is by filling in place – DEQ preferred method

To most accurately assess environmental conditions where a heating oil tank is to be left in the ground, DEQ recommends that the tank be entered and internally inspected for obvious corrosion holes. First, dig down and expose the top of the tank. After the tank has been emptied of any residual fuel oil and appropriately inerted to prevent any safety or fire hazards, cut a hole into the top of the tank large enough to insert a ladder and have room to safely enter.

Because the tank has been inerted for safety reasons, the homeowner will need to arrange an air supply to work inside the tank. After entering the tank, clean all tank surfaces so a visual inspection can be made for corrosion holes. At least two soil sampling holes should be cut into the tank's bottom – See

Figure 1



SAMPLING REQUIREMENTS

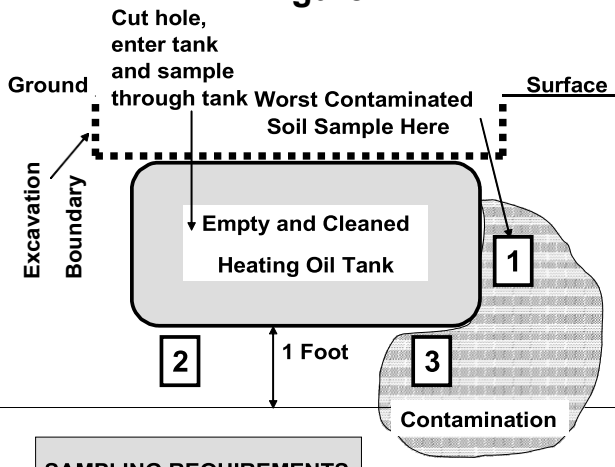
>> 6 Inches into native soils below excavation

>> No more than 1 foot below the bottom of the former tank

>> In addition to two samples below tank, areas of worst contamination based on visual observations or odors

>> If groundwater is encountered, groundwater must be sampled

Figure 2



SAMPLING REQUIREMENTS

>> 6 inches into native soils below the bottom of the tank

>> No more than 1 foot below the bottom of the tank

>> In addition to the two samples below the tank, areas of worst contamination based on examining the inside of the tank for obvious corrosion holes

>> If groundwater is encountered, groundwater must be sampled

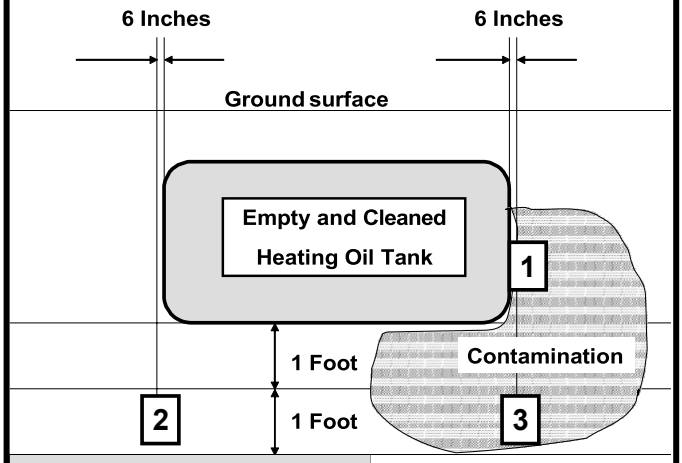
Figure 2. In addition, additional samples must be collected where obvious sources of contamination are present. In our example, Sample 1 is collected through the tank's side, where an obvious corrosion hole was found. Samples 2 and 3 are collected through the bottom of the tank, one at each end. If there are no sign of obvious corrosion holes, only the two bottom samples need to be collected. Results of these samples are used to determine compliance with the decommissioning standards. Soil samples must be analyzed by a laboratory for Diesel/Lube Oil Range Hydrocarbons by Method NWTPH-Dx.

If groundwater enters any of the sampling holes, a groundwater sample must also be collected. This sample must be analyzed for benzene, toluene, ethylbenzene and total xylenes and polynuclear aromatic hydrocarbons. For a more complete understanding of sample collection, handling and analytical methods and requirements, please review OAR 340-122-0218, -0340 and -0345 or call DEQ's heating oil tank staff for technical assistance.

Required samples when HOT decommissioning is by filling in place – alternative method

Sometimes conditions at a site prevent cutting a hole in the top of the tank. Site assessments performed at these sites where the tank has been filled in place will also typically involve collection of three soil samples – one sample of the worst contamination present and two samples collected from within six inches of each end of the tank. Figure 3 illustrates the location of these sampling points. The worst-case sample (Sample 1) will generally be collected based on visual and odor observations as the soil is removed from the site assessment boring. The results of this sample are most often used to select an appropriate treatment or disposal facility that is used to receive any excavated contaminated soils. The other two required samples (samples 2 and 3) must be collected within six inches of each end on the tank and at least one foot but not more than two feet below the bottom of the tank. Results from these samples are used to determine compliance with the decommissioning standards. Soil samples must be analyzed for Diesel/Lube Oil Range Hydrocarbons by Method NWTPH-Dx.

Figure 3



SAMPLING REQUIREMENTS

>> 6 Inches from each end of tank

>> 1 Foot but not more than 2 feet below the bottom of the tank

>> In addition to two samples below tank, areas of worst contamination based on visual observations or odors

>> If groundwater is encountered, groundwater must be sampled

If groundwater enters the site assessment holes, a groundwater sample must also be collected. This sample must be analyzed for benzene, toluene, ethylbenzene and total xylenes and polynuclear aromatic hydrocarbons. For a more complete understanding of sample collection, handling and analytical methods and requirements, please review OAR 340-122-0218, -0340 and -0345 or contact DEQ staff for technical assistance.

Sample collection procedures

Laboratories capable of analyzing soil and water samples are in your local phone directory under "Laboratories – Analytical." Most environmental laboratories will provide homeowners with appropriate sampling containers, written instructions for collecting valid samples and chain-of-custody forms to document who collected the samples and when. Chain-of-custody forms are very important to document when the samples were collected, to uniquely identify each sample collected and to show when the samples were delivered to the laboratory for analysis.

It's also important when collecting samples to not cross contaminate samples. DEQ advises collecting each sample with a clean set of disposable nitrile gloves. The containers must be filled

to the top with soil or groundwater to avoid the heating oil from dissipating into the air above the sample and ending up with an inaccurate result.

It's also important to clean any sampling equipment between samples by washing in clean, soapy water and rinsing in distilled water. Finally, immediately after the samples are collected, they should be stored in an ice chest with ice to keep the samples at 4 degrees centigrade. After samples are collected they should be delivered to the lab as soon as possible. DEQ will reject results in which samples were not collected, delivered to the laboratory and analyzed within 14 days, because too much time between collection and testing can lead to inaccurate results.

Evaluating site conditions and sample results

If you observe on-site or document by testing any of the following criteria, a confirmed heating oil release has occurred:

- Heating oil contamination observed in soil or groundwater as a sheen, stain or petroleum odor.
- Petroleum contamination detected in soil by the Northwest Total Petroleum Hydrocarbon Identification Analytical Method (NWTPH-HCID, DEQ, December 1996). (This is an allowed initial screening method.)
- Analytical results indicate that 50 parts per million or greater of diesel/lube oil range hydrocarbons are present in the soil as measured by DEQ Method NWTPH – Dx (DEQ, December 1996). (This is the recommended method.)
- Concentrations of heating oil constituents detected in groundwater by any appropriate analytical method specified in OAR 340-122-0218.

If a confirmed heating oil release has occurred, report it to DEQ within 72 hours by:

- Calling DEQ at 503-229-6170 if a heating oil tank release is confirmed in the Portland area during the work week.
- Calling DEQ at 800-742-7878 if a tank release is confirmed outside of the Portland area during the work week.
- Submitting a report by fax to 503-229-6945 using the Heating Oil Release Reporting Form
- Calling Oregon Emergency Response System at 800-452-0311 if a heating oil tank emergency release happens on a weekend or if there's a release from an above-ground heating oil tank.

Completing project as a heating oil tank decommissioning or a HOT cleanup

To complete this project as a voluntary decommissioning project, samples results must adhere to the following:

- If only NWTPH-HCID tests were run on the soil samples, all results must be non-detect for gasoline, diesel and heavy oil range petroleum hydrocarbons. If any petroleum hydrocarbons were detected, they must by confirmed by testing the samples using DEQ Method NWTPH-Dx.
- Sample results by DEQ Method NWTPH-Dx must be 49 ppm or less.
- If groundwater was encountered and sampled, all groundwater results must be non-detect for the applicable constituents analyzed.

If all these criteria are met, complete the project as a voluntary decommissioning project by following the remainder of this guidance document.

If test results show NWTPH-Dx concentrations of 50 ppm or greater, or petroleum constituents are present in groundwater, this project is now a cleanup project and must be completed under state cleanup rules (OAR 340-177-0055). Before proceeding, obtain a copy of the *Cleanup*

Guidance for Homeowners or hire a heating oil tank licensed contractor to complete the project. Instead of submitting a certified Voluntary Decommissioning Report it will be necessary to submit a certified Cleanup Report.

Disposal of heating oil tanks, piping and equipment

Recycling of steel heating oil tanks, piping and other HOT system equipment as scrap metal is the preferred method for disposal. Contact your local scrap metal dealer for more information. Landfill disposal of this material, or fiberglass HOTs, piping or other equipment, is also an acceptable alternative. Contact individual landfill disposal sites for their waste acceptance requirements. Reuse of heating oil tanks for any purpose in not advised; contact DEQ's Northwest Regional Office, Portland, at 503-229-6170 or hotinfo@deq.state.or.us, if you have questions.

Temporary storage of used heating oil tanks

Prior to temporary storage, check the atmosphere inside the tank using a combustible gas indicator to ensure that it's below the lower explosive limit. Block the tank to prevent movement with the 1/8-inch vent hole at the highest point. Alternatively, cut the tank in half or open one end to prevent buildup of combustible or explosive vapors within the tank. Used heating oil tanks should be treated as if they contain explosive vapors at all times. Check used tanks with a combustible gas indicator before doing any work on them. Storage of used tanks at a residential site is not recommended due to potential safety hazards.

Transporting heating oil tanks

Transport tanks from the site as soon as possible after they've been inerted and removed from the ground. Be sure to check the recycling facility's or disposal site's waste acceptance requirements before you load the heating oil tank for transportation.

Prior to transporting, check the atmosphere inside all tanks using a combustible gas indicator to ensure that it's still below the lower explosive limit. Secure tanks on trucks with the vent hole at the highest point on the tanks. Transport the tanks in accordance with all applicable local, state and federal regulations. Check with local building, zoning, fire and highway departments prior to moving the tanks from a site.

Record keeping

The property owner should document and retain permanent records of all decommissioning and cleanup activities, including: names of companies performing work related to the heating oil tanks as well as disposal methods and locations for all liquids, sludges and tank system components such as tanks, piping and other associated equipment. Permanent records should also include the following:

- Photographs of the heating oil tank decommissioning
- Results of all soil analyses and engineering studies
- Chain-of-custody forms for samples collected
- Paid invoices/billings
- Site maps or diagrams
- Methods of cleaning and inerting the heating oil tank

Certified voluntary decommissioning report

To facilitate future property transactions, homeowners should register their voluntary decommissioning with DEQ. To register a voluntary decommissioning requires submitting a HOT Decommissioning Report Form and the additional documentation required by OAR 340-177-0025 and 340-177-0095. Be sure to submit a $100 registration with the report. The registration process is complete when DEQ issues a letter stating the certified decommissioning report has been registered and DEQ files on the decommissioning project have been closed.

For help in completing a certified voluntary decommissioning report, please see the DEQ document *Preparing a HOT Decommissioning Report*, or request a copy via e-mail at hotinfo@deq.state.or.us or request a mailed copy by calling 1-800-742-7878 (toll-free in Oregon), or 503-229-6170 (in Portland area or from outside Oregon).

Additional Guidance and Reference Documents

Please note: The Internet URL addresses listed below are included as a convenience for users of this document. All URL addresses were functional at the time this publication was posted on DEQ's heating oil tank web page. Let DEQ know of any problems you encounter, and it will work to correct it in a timely manner.

- American National Standards Institute/National Fire Protection Association (ANSI/NFPA), "Flammable and Combustible Liquids Code," Pamphlet #30, 1996. 1-800-344-3555.

  NFPA codes can be purchased from National Fire Protection Association at 1-800-344-3555 or online at www.nfpa.org/Catalog, or possibly viewed at a local library or fire station.

- International Conference of Building Officials/International Fire Code Institute (ICBO/IFCI), Uniform Fire Code, Article 79 – Flammable and Combustible Liquids, 2003

  The Uniform Fire Code can be purchased from the International Code Council at 1-888-699-0541 or online at www.iccsafe.org/Store/Pages/eCodes.aspx, or possibly viewed at a local library or fire station.

- American Petroleum Institute document 1604, "Removal and Disposal of Used Underground Petroleum Storage Tanks," March 1996.

- American Petroleum Institute document 2015, "Cleaning Petroleum Storage Tanks," 1994.

  API documents may be purchased from the American Petroleum Institute at 1-202-682-8000 or online at http://api-ec.api.org/Publications, or possibly viewed at a local library.

- The National Institute for Occupational Safety and Health, "Criteria for a Recommended Standard. Working in Confined Spaces," Publication #80-106, 1980. 1-800-356-4674 or online at www.cdc.gov/niosh/pubs.html.

- American Conference of Governmental Industrial Hygienists "Diesel Fuel: TLV® Chemical Substances 7th Edition Documentation Publication #7DOC-701"

  ACGIH documents may be purchased from the American Conference of Governmental Industrial Hygienists at 513-742-2020 or on-line at www.acgih.org/store/ProductDetail.cfm?id=1457 or possibly viewed at a local library.

  Other ACGIH chemical substance documentation publications can be purchased for gasoline, benzene, toluene, ethylbenzene, xylenes, ethylene dibromide, ethylene dichloride, methyl tert-butyl ether, naphthalene, lead, trimethylbenzene isomers, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene and chrysene at 513-742-2020

or online at www.acgih.org/store/BrowseProducts.cfm?type=cat&id=16, or possibly viewed at a local library.

- Oregon DEQ, "Options for Handling Petroleum-Contaminated Soil from Underground Storage Tank Cleanup Projects," (DEQ-06-LQ-001A June 2007). https://www.oregon.gov/deq/FilterDocs/PCSHandlingOptions.pdf

URL addresses for referenced materials

Agencies
DEQ's Heating Oil Tank Program web page
https://www.oregon.gov/deq/tanks/Pages/hot.aspx

Oregon Emergency Response System
http://cms.oregon.gov/OMD/OEM/Pages/tech_resp/oers.aspx

Laws and Rules
Heating oil tank laws (ORS Chapters 465)
https://www.oregonlegislature.gov/bills_laws/ors/ors465.html

Heating oil tank laws (ORS Chapters 466)
https://www.oregonlegislature.gov/bills_laws/ors/ors466.html

Oregon Administrative Rules Chapter 340 – Divisions 163, 177 and 122
https://secure.sos.state.or.us/oard/displayChapterRules.action?selectedChapter=80

Rules covering the construction, maintenance and abandonment of monitoring wells, geotechnical holes and other holes are found in OAR Chapter 690 – Division 240.
http://arcweb.sos.state.or.us/pages/rules/oars_600/oar_690/690_240.html

Utility Notification Center Serving Oregon
www.callbeforeyoudig.org/index.htm

Guidance Documents
HOT Tank Services Provider
https://www.oregon.gov/deq/FilterDocs/LicensedServiceProviders.pdf

Cleanup Guidance for Homeowners
https://www.oregon.gov/deq/FilterDocs/CUGuidanceHome.pdf

Model HOT Voluntary Decommissioning Report
https://www.oregon.gov/deq/FilterDocs/HOTDecomReport.pdf

Frequently Asked Questions about Hazardous Materials -
www.atsdr.cdc.gov/toxfaqs/index.asp

Health Information about Benzene
www.atsdr.cdc.gov/toxfaqs/tf.asp?id=38&tid=14

Health Information about Fuel oils
www.atsdr.cdc.gov/toxfaqs/tf.asp?id=515&tid=91

Health Information about Total Petroleum Hydrocarbons
www.atsdr.cdc.gov/toxfaqs/tf.asp?id=423&tid=75

Forms
Utility Notification Center Serving Oregon – to have utility locations marked
www.callbeforeyoudig.org/index.htm

HOT Decommissioning Report Form (DEQ-06-LQ-005, January 2006)
https://www.oregon.gov/deq/FilterDocs/HOTDecommissioningReport.pdf

Heating Oil Release Reporting Form (DEQ-06-LQ-010B, May 2007)
https://www.oregon.gov/deq/FilterDocs/HOTReleaseReportingForm.pdf

For More Information:
DEQ heating oil tank rules, guidance documents and forms can be found on the DEQ Information for Homeowners Web Page, obtained by calling the DEQ HOT Helpline if inside Oregon at 1-800-742-7878 (recorder), or by calling 503-229-6170 in Portland.