

## 1100.20 UNDERGROUND TANKS

@ NDEQ has a website ([www.deq.state.ne.us](http://www.deq.state.ne.us)) which is an excellent environmental and underground storage tank reference.

Underground Storage Tanks (USTs) represent one of the more common environmental problems encountered. USTs may have been (or may currently be) used to store almost any kind of viscous material including petroleum products, chemicals, and discarded wastes (some of which could be classified as hazardous). Leaks from these tanks or their auxiliary components (i.e., piping, couplings, pumps, and valves) are not uncommon.

An Underground Storage Tank (UST) is defined as a tank and associated piping with 10% or more of its volume below the ground which has stored or is storing a regulated substance. Regulated substances include petroleum based substances (motor fuels, motor oil, home heating fuels, solvents, etc.) and any other substance which, if released into the environment may present substantial danger to public health, welfare, or the environment.

## 1100.21 REGISTRATION

EPA established a program for regulating Leaking Underground Storage Tanks (LUSTs). Under this program the design, installation, maintenance, monitoring, and failures of LUSTs are regulated. In Nebraska, this federal program is administrated by DEQ. All underground storage tanks are required to be registered with the State Fire Marshal Office. Tanks that have been registered should have a metal tag affixed to the fill pipe. Owners (including NDR) of underground storage tanks must:

- A. Register existing tanks, previously removed tanks, and abandoned tanks. (The "registration" of a tank includes "any" tank from a tank at a gas station to one located in the middle of Timbuktu.)

In Nebraska, the registration includes attaching a numbered metal tag to the fill pipe of any underground tank. The lack of a tag does not necessarily mean the tank is not registered, but obviously the presence of a tag indicates it is registered. If there is a question about registration, contact the Construction Division. This office has access to the registration file at State Fire Marshal Office via computer, and can look up any registered tank with minimal basic information.

NOTE: Currently in Nebraska, there is a registration exclusion for tanks:

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- Farm tanks holding 835 gal (3164 L) or less.
- Tanks on or above the floor of underground areas such as basements.
- Tanks storing home heating oils used on the premises where it is stored.

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- Tanks holding 110 gal (416 L) or less.

- B. Meet tank performance standards for new installations.
- C. Make tanks leak proof for their entire life.
- D. Install leak detection systems.

- E. Keep operational records.

## 1100.22 REMOVAL OF USTs

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The following procedure for removing underground tanks is based on **State Fire Marshall (SFM)** regulations. For clarity, the following has been divided into known tank locations and unknown tank locations. (The law considers both the same. But because of bid items, contract administration requires them to be treated differently.) For all removals of underground tanks, follow appropriate Supplemental Specification.

### Removal of Known Tanks

These tanks are the ones identified on the project plans and will be noted for removal.

#### A. Removal Process

IMMEDIATELY upon starting any project requiring UST removal, check the tankfill pipes for a metal Registration Tag.

- If tank has a registration tag, note its number in the inspectors daily diary.
- If the tank does not have a registration tag, the Project Manager must notify the Construction Division immediately. This notification will allow the Construction Division to check Fire Marshal records for a valid registration. Also, it will allow time for registration should the tank not be listed with the Fire Marshal.

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Note: Nonregistered tanks cannot be removed until after they have been registered, and that process can take a couple of weeks to complete. In addition, the Construction Division must submit a closure notification to **SFM and Closure Assessment Report (CAR)** as specified on the permit to close.

#### B. Closure Notification

- The Project Manager must initiate and submit a "Notification of Tank Closure or Change-in-Service" to the Construction Division 35 days prior to removal.
- After the form has been submitted and processed, **SFM** will send removal information and instructions directly to the Project Manager.

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#### C. Tank Removal

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Contractor's consultant is required to **have certified Closure Individual** with the **SFM on site during the entire removal process. The contractor shall provide the NDOR Project Manager a photocopy of the individual's card and also Contractor's license to close tanks.**

- Tanks must have ALL liquids **and** any explosive vapors REMOVED prior to extracting the tank.
  1. All removed liquids must be disposed in accordance with DEQ regulations.

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2. Vapors are typically evacuated by placing dry ice into the tank. As the ice evaporates, carbon dioxide is released and the **fuel** vapors are displaced.
- State Fire Marshal **may** be on site to inspect the removal.
  - Removed tank must be stenciled according to **SFM** requirements.
  - Any registration tags must be removed and retained by the project inspector. These tags are to be submitted to **(SFM)** when the closure report is filed.
  - Any extracted tanks should be removed from the site on the day of removal.
  - A "Certificate of Destruction" must be completed for each tank at the time the tank is disposed.

D. Sampling

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- All removals require soil and/or water samples to be taken by the contractor's consultant and analyzed for potential contamination.
  - DEQ requires samples collected from tank sites to be analyzed using specific laboratory methods.
  - Soil sampling locations are identified in the removal information and instructions furnished by DEQ. **Soil samples may be required below the Static groundwater table. The water shall be sampled if water is encountered during excavation.**
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E. Contamination

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- If contamination is found or suspected during the tank extraction, contact the Construction Division immediately. If appropriate Construction Division personnel are not available, the Project Manager shall notify DEQ directly. The telephone number for DEQ's tank section is **(402) 471-4230**. (The contractor's consultant will provide site information based on air monitoring if there are any questions.)
  - The NDR has 24 hours to report this contamination unless an immediate threat exists. In that case, reporting times are reduced to 6 hours.
  - Immediate threat means a potential exists for explosive conditions, immediate danger to life or health, or an immediate threat to water supplies.

- F. Site Safety

1. If, based on site conditions and situations, the inspector or contractor feels there is an immediate threat for **explosion**, the contractor shall:

- Immediately shut-off all operating equipment, extinguish all sources of ignition (i.e., cigarettes etc.), and evacuate the area. This includes all personnel.
- After the site is evacuated, establish controls to prevent site access and contact local **and state** authorities.
- **No smoking signs must be in place. (No smoking within 50 feet).**

The inspector shall contact the Construction Division.

2. If, based on site conditions and situations, the inspector or contractor feels there is an **immediate** danger to life or health **other than** by explosion, the contractor shall:

- Immediately evacuate the area. This includes all personnel and could include equipment.
- After the site is evacuated, establish controls to prevent site access.

The inspector shall contact the Construction Division.

3. If, based on site conditions and situations, the inspector or contractor feels there is an immediate danger to a water supply, the contractor shall:

- Using whatever means are available, immediately establish positive restrictions to limit or prevent migration of contamination to a water supply. **(If threats to life or health from explosion are not present).**
- Watch for changing conditions which could present threats due to explosion and/or danger to life or health. If site conditions change, implement the appropriate response as noted above.

The inspector shall contact the Construction Division.

- G. Removal of Contaminated Soil

If the site is determined to be contaminated, one method of remediation is to overexcavate. Contaminated soil which has been over-excavated must be "properly" disposed. **(DEQ may provide approval to over-excavation--see pages 3-5 of the DEQ "Petroleum Contaminated Soils Guidance for Leaking USTs".)**

- H. Disposal Options

There are several approved methods for disposal, however, DEQ must preapprove any disposal option. Some options which have been successfully used include:

1. Removal of soil and disposing in a **licensed** landfill. This not only requires prior approval by DEQ, but also approval from the local receiving landfill.

@ Typical costs for this option range from \$15 to \$40/yd<sup>3</sup> (\$15 to \$40/m<sup>3</sup>) plus trucking.

2. Another option which is limited by physical location is that of "soil burning." The process involves treating petroleum contaminated soil by passing it through a rotating drum where there is high heat and flame. (It is a converted asphalt drum dryer.) During "treatment," soil moisture is driven off, combustible products in the soil are first volatilized and then flashed off. The result is dry "petroleum" free soil.

@ While the remedial concept is reasonably sound, the cost for this remediation is very expensive (costs range from \$30 to \$70 per Ton (Megagram) ) not to mention trucking costs to the plant. However, if a project is in that area, "soil burning" is one option available for remediation.

For completeness, a word of caution must be included about this process. The process, if properly operated, removes petroleum contamination, however, it does not remove other potential contaminants (i.e., heavy metals, pesticides/herbicides, etc.) Often the plant requests anyone bringing soil to the plant to back haul "processed" soil. Obviously, clean/remediated soil is a by-product of this operation. **DO NOT AGREE TO BACK HAUL ANY "REMEDiated" SOIL FROM THIS OPERATION WITHOUT FIRST CONTACTING THE CONSTRUCTION DIVISION.** This does not mean the facility should not be used, or that the remediated soil is not clean. DEQ needs to be sure there are adequate and quantifiable analytical results to assure back-hauled soils are not contaminated with other substances.

3. Another option is to remove the soil (over-excavate) and spread it out on the surface. This method is called Land Application and also requires preapproved permit from DEQ. The land application of petroleum contaminated soil provides an effective means of treatment through volatilization and biodegradation. Land application has been used successfully in situations where NDR owns (not by temporary easement) a parcel of excess right-of-way.

In situations where contaminated soil must be remediated, the Project Manager should look for and identify suitable locations to the Construction Division. Criteria for land application are:

- @ • Maximum application rate is 4 inches (100 mm) thick **OR** 500 tons/acre(1.12 Gg/hectare). Based on an estimated excavation volume, the inspector can calculate approximate remediation area.
- Petroleum saturated soil cannot be land applied. (The KEY is "petroleum saturated" not "moisture saturated." Soil excavated below the water table may be land applied, as long as it does contain free (decantable) petroleum products.
- Petroleum contaminated soil cannot be applied any closer than:
  - @ a. 525 ft (160 m) from a well.

- b. 200 ft (61 m) from an occupied residence.
- c. 200 ft (61 m) from a stream, river, lake, pond, sinkhole, or down gradient intake for a tile line or culvert.

- Slopes must be less than 5%.

- Potential land farming areas with sandy, sandy loamy, and high silty soils are not acceptable. There also must be at least 6 ft (2 m) of existing topsoil over bedrock.
- Obviously the site must be accessible to trucks or hauling equipment and have no other planned traffic or activity during the remediation time.
- Soil for remediation will have to be leveled and disced at least two times during the course of remediation. One discing needs to be soon after placement and leveling, the other about 2 months later. Once the soil has been tested and analytical results indicate it is clean, the area should be fertilized and seeded with a suitable stabilization crop.

I. Closure Report

- Contractor and/or the contractor's environmental consultant are responsible to complete the closure report.
- The report shall locate all removed tank locations by station and offset.
- Closure reports are to be submitted to the Project Manager within 20 days of completion of sample analysis. The Project Manager shall keep a copy of all reports in the project files and forward original to the Construction Division within 5 days of receipt. The State Fire Marshall's Office must receive a copy of the closure report before the deadline listed in the permit to close, usually 45 days from date of tank removal.

Closure reports are to contain:

1. Completed preprinted SFM closure forms. Check to be sure the following information is included:
  - a. All lab reports.
  - b. Construction details.
  - c. Scale dimensional site drawing showing location and depth, location and depth of all piping, location and depth of all sampling and monitoring well locations. NOTE: All locations are to be referenced by station and offset from mainline or side road survey.
2. Tank registration tags.

## Removal/Discovery of Unknown Tanks ("Orphan" Tanks)

For the purposes of this chapter, "unknown" tanks should be considered those tanks not identified on the plans but encountered during a project. Most likely the discovery of an unknown tank will come at the worst time. For example, machinery running, work time in a crunch, and "any" appreciable delay will work a severe hardship on the contractor. Therefore, timeliness and notification become critical in dealing with the issues.

Upon finding a previously unknown tank, follow these guidelines:

**FIRST:** Immediately stop all work in and around the tank.

**SECOND:** Determine the site conditions. For example:

A. Note tank condition and damage. Is liquid leaking from the tank? If so:

1. If fuel is released, call:

- NDEQ at (402) 471-4230 during office hours or (402) 471-4545 NSP (State Patrol) afterhours. [Leaking Underground Storage Tank/Release Assessment Section \(LUST/RA\)](#).
- State Fire Marshal's Office ([SFM](#))  
Flammable Liquid Storage Tank Division  
(402) 471-9465 Clark Conklin
- Construction Division (402) 479-4532

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2. If, based on site conditions and situations, the inspector or contractor feels there is an immediate threat for **explosion**, the contractor shall:

- Immediately shut-off all operating equipment extinguish all sources of ignition (i.e., cigarettes etc.) and evacuate the area. This includes all personnel.
- After the site is evacuated, establish controls to prevent site access and contact local authorities.

The inspector shall contact the Construction Division.

3. If, based on site conditions and situations, the inspector or contractor feels there is an immediate danger to life or health other than by explosion, the Contractor shall:

- Immediately evacuate the area. This includes all personnel and could include equipment.
- After the site is evacuated, establish controls to prevent site access.

The inspector shall contact the Construction Division.

4. If, based on site conditions and situations, the inspector feels there is an immediate danger to a water supply, the contractor shall: **(Threats to life or health and explosion are not present.)**
  - Using whatever means are available, immediately establish positive restrictions to limit or prevent migration of contamination to a water supply.
  - Watch for changing conditions which could present threats due to explosion and/or danger to life or health. If site conditions change, implement the appropriate response as noted above.

The inspector shall contact the Construction Division.

- B. If leakage is not apparent determine if any liquid is in the tank.
- C. Attempt to determine the size of the tank (volumetric and/or dimensional size estimation).
- @ D. Is there any indication of past leakage? (Stained **(discolored)** soil or smell of fuel are indicators.)
- E. Establish tank location by station, offset and approximate depth. **Also indicate approximate street address if available.**

**THIRD:** Begin to establish some positive control to eliminate access to the immediate area. (Silt fence, snow fence, or orange safety fencing set on fence posts are examples of temporary restraints.)

**FOURTH:** Notify the Project Manager or supervisor of the discovery and provide site conditions to them. If the Project Manager will not be available for some time (3 to 5 hours), the inspector shall contact the Construction Division directly.

**FIFTH:** The Project Manager shall notify the Construction Division. (**NDOR** has a legal responsibility, and time limit, to report finding previously unknown USTs.)

1. For Reference: Time expired since first discovering the tank shall not be more than 5 hours before contacting the Construction Division.
2. Leave tank in place.
- @ 3. Post "No Smoking Within **50 ft (15m)**" signs near tank and secure from general public. Use snow fence.
4. The **Logistics** Division will apply for a permit to remove tanks as soon as possible. Permit required from Fire Marshal's Office.
5. Removal by licensed contractor (State or private company) will be scheduled as soon as possible.
- @ 6. The firm or person in charge of tank removal must notify the Fire Marshal's Office **72** hours before taking out the tank and give the DEQ a minimum of 24 hours advance notice. **If NDOR completes a Closure Assessment Report, DEQ advance notice is not needed.**



7. Tanks removed from the ground shall be stored in a secure location inaccessible to the general public.
8. A licensed certified closure individual must be present during excavation and tank removal.
9. If contamination is present in the excavation, the State Fire Marshal and the Department of Environmental **Quality** must be notified within 24 hours if they are not present during the scheduled time of tank removal.
- @ 10. Soils will be disposed of as directed by the **NDEQ**. Land farming may be required. Contact **Waste Management Section of NDEQ** (402) 471-4210.
11. The excavated area should be backfilled with clean soil and compacted as required by the Project Manager.
12. For more information, refer to Title 159, Rules and Regulations for Underground Storage Tanks. A copy is available in the Lincoln **Logistics Division** Office.
13. If fuel contaminated soils are encountered during normal construction activities, notify the Lincoln **Construction** Office even if no tank is found. The Lincoln Office will notify the **NDEQ LUST/RA Section and Waste Management Section**.

### Recap:

- All construction activity around the area of the tank shall be halted, and remain that way, pending further investigation.
- Preliminary site assessment shall be completed. Included in this assessment shall be an evaluation for imminent dangers.
- Site "SPILL CONTROL" measures should be implemented if needed.
- Positive constraints shall be in place to prevent free public access of the site.
- The Construction Division shall be notified of the discovery.

### What Happens Next?

- Construction Division notifies **NDEQ and SFM** about finding an unknown UST.
  - **DEQ does not need to be notified about an unknown UST unless there has been a release or unless DOR will not be completing a Closure Assessment Report.**
- Construction Division will determine if the UST is registered. If not, a registration process will be initiated. (An unregistered UST cannot be removed until after it is registered.)
- The Construction Division will request **SFM's** approval to remove the tank, once registration status is resolved.

- The Project Manager needs to use this time to negotiate an Change Order for tank removals.

Once **SFM** authorizes removal, a notice will be provided to the Project Manager. Removal from this point forward is outlined in **SFM** approval documents.