

## **Basis of Design**

The purpose of this design guide is to support the development of specifications and designs for the installation or decommissioning of Underground Storage Tanks (USTs) at project sites. Project Managers need detailed project specifications and designs to protect project budgets and schedules.

## **Overview**

USTs in Washington State are subject to state laws and must be installed and decommissioned in compliance with the Department of Ecology (Ecology) UST regulation (WAC 173-360). Residential heating oil tanks are exempt from UST regulations, but fall under local laws.

Local laws administered by the local fire marshal, the local public health department or the local planning department normally require permits to close heating oil tanks.

The University of Washington Environmental Health & Safety Department (EH&S) oversees compliance with these regulations and maintains historical or current information on all USTs such as tank location, name of the operator, size, content and tank leak detection systems.

## **UST installation**

Newly installed and regulated UST systems must meet the performance and operating standards found in the underground storage tank regulations. For instance, all tank systems (tank and pipes) must be properly designed and constructed.

- Tanks must be constructed of fiberglass-reinforced plastic, cathodically-protected steel or a steel-fiberglass-reinforced-plastic composite.
- Piping must be constructed of fiberglass-reinforced plastic or cathodically-protected steel.
- Tanks and piping must be double-walled and contain releases through secondary containment systems or external liners. Precipitation and groundwater must not enter the external liner.
- Secondary spill containment is required under fuel dispensers.
- New tank systems must be designed with automatic tank gauging equipment including interstitial monitoring of tanks and pipes or a containment sump.
- Tank systems must have an automatic shut off device at 95% full to avoid overfilling.
- Tanks systems must have a spill bucket or catchment basin to prevent environmental releases during fill operations.
- Emergency signage must be installed in a prominent area and easily visible to anyone dispensing or delivering fuel. Emergency signage must provide instructions to phone 911

and the 24-hour facility operator in case of emergencies. The sign must identify the location of the nearest fire extinguisher and emergency shut-off device unless the sign happens to be posted next to these devices.

Project Managers should contact EH&S with plans to install a new UST system. EH&S will assist Project Managers and the tank operator with the registration process. A Notice of Intent form must be sent to Ecology at least 30 days prior to installing the UST system.

After installation, a tank addendum form, including the “as-built” drawing and tank registration information, must be submitted to the Department of Revenue, Business Licensing Services.

If all is in order Ecology will issue a paper license listing each regulated tank. The license must be prominently displayed by the tank operator. Ecology will also send a tank tag (a metal plate or tank permit) that must be prominently displayed outdoors for inspectors and fuel vendors. Fuel vendors are not allowed to fill regulated tanks if tank tags are not visible.

### **Decommissioning a regulated UST**

Regulated USTs that are no longer in service must be emptied, triple rinsed and removed from the ground by a certified tank assessor. Piping must also be emptied and removed. Any residual fuel must be managed by a UW approved petroleum recycler.

EH&S has a state contract with a certified tank assessor. A certified tank assessor prepares tank closure paperwork, including:

- a 30-day Ecology notification form,
- a tank closure form for local jurisdictions as needed,
- permits as needed, and
- waste documentation (profile and weigh tickets)

An environmental site assessment is always required during closure of a regulated UST regardless if the tank shows signs of leakage or not. EH&S has a state contract with an environmental consultant who will conduct the environmental site assessment and document any cleanup activities per Ecology requirements.

### **Decommissioning an exempt UST**

Heating oil tanks are exempt from Ecology UST regulations; except, if the tank contains more than 1100 gallons of heating oil then the UST rules for release investigation and reporting still apply. Heating oil tank closures are regulated by local codes and permit requirements. The local Fire Chief or Fire Marshal establishes the requirements or procedures for tank closures. The international fire code requires that a heating oil tank, which has been out of service for a period of one year, must be either removed from the ground, or permanently closed in place.

If an underground heating oil tank is closed in place all of the following requirements must be met:

- Flammable and combustible liquids must be removed from the tank and piping.
- The suction, inlet, gauge, vapor return and vapor lines must be disconnected.
- The tank must be filled completely with an approved inert solid material.
- All remaining underground piping must be capped or plugged.
- A record of the tank size, location and date of abandonment must be retained.
- All exterior above-grade fill piping must be permanently removed.

Soil assessment activities are not normally required when closing heating oil tanks, unless there is evidence of a release; however, in Pierce County soil assessment work is always required when closing heating oil tanks.

EH&S has a state contract with an environmental consultant and a certified tank assessor who will conduct the closure work following local codes and permit requirements.

### **Leaking and Abandoned USTs**

If Project Managers suspect USTs may be present at their project site, due diligence is advised early to avoid construction delays and to protect project budgets. Environmental consultants can arrange for tank location using magnetic and ground penetrating radar.

Leaking or abandoned USTs must be emptied and decommissioned. If you become aware of a leaking or abandoned UST, call EH&S immediately at 206.616.0585.

EH&S must report confirmed environmental releases to Ecology or the Pollution Liability Insurance Agency (heating oil tanks) within 24 hours of discovery. An environmental assessment is required to determine the extent of the release and appropriate cleanup actions.

Cleanup actions must be completed by a qualified and trained environmental contractor following Ecology's Model Toxics Control Act (WAC 173-340). See the Site Contamination Design Guide for more information on managing contamination.