

Policy: Hazardous Materials Storage Tanks Installation and Removal	Effective Date: January 1, 2019	Revised: 01/01/2019
Policy Number: POLICY FP004	Section: Fire Prevention	Prior Policy Number: N/A
Department: District	Initial Policy Date: 11/16/2011	Prior Effective Date: 11/16/2011

Objective:

To develop a standardized and consistent guidelines for the proper installation, removal and/or use of tanks and containers used for the storage of hazardous materials liquids within the Windsor Severance Fire Rescue response area.

Policy:

It shall be the responsibility of the storage tank owner and the project general contractor to follow these guidelines in installing, modifying, and/or removing any storage tank that contains hazardous materials requiring permits, as established within the adopted International Fire Code (IFC) within the Windsor Severance Fire Rescue’s district. This policy addresses above-ground storage tanks (ASTs), underground storage tanks (USTs), and containers intended for the storage of hazardous materials.

Abandonment-in-place of underground storage tanks may be allowed if appropriate permits are obtained from the State of Colorado and the municipality of jurisdiction.

Required Permits:

- Construction Permits are required for new permanent installations that have the capacity to contain any hazardous material liquid, as defined in Chapter 1 of the adopted IFC. Once installation is complete, all permanent installations must maintain annual Operational Permits.
- Temporary Permits may be issued for installation and use of containers, tanks or systems for a time period not to exceed 90 days.
- Operational Permits must be maintained by the property owner in compliance with all conditions and restrictions included on the permit.

This document is not inclusive of all requirements for installation and/or operation of ASTs and/or USTs. All installation and operation must adhere to all applicable chapters and sections of the adopted 2012 IFC (e.g., Chapters 23, 50, 57), as well as the most current version of NFPA 30 and NFPA 30A.

A separate permit is required for removal of any AST and/or UST.

Plan Review Requirements:

All applications for installation and/or operation of ASTs and USTs for the storage of hazardous material liquids require an initial application procedure that must be followed by the individual property owner.

1. In general, storage of flammable and/or combustible liquids of 500 gallons or more require a hazardous materials permit from the WSFR Life Safety Division.
2. Prior to installation of any new AST or UST, the property owner/operator must comply with plan review processes of the Planning/Zoning and/or Building Department of the government entity with primary jurisdiction (e.g., Town of Windsor, Town of Severance, Larimer County, Weld County) as well as with plan review requirements of WSFR.
3. WSFR plan review requirements include:
 - a. Complete and accurate site plan with scale showing proposed AST and/or UST location(s) in relation to adjacent buildings, lots lines, etc, and
 - b. Locations of all fire suppression equipment that is required by the IFC, and
 - c. Engineering schematics and listing information for proposed AST/UST, and
 - d. All applicable structural, mechanical, and electrical requirements as specified by the manufacturer of the AST/UST, and
 - e. Description of the proposed use of the AST/UST, including applicable Safety Data Sheets (SDS) for the product(s) to be stored within the AST/UST, and
 - f. Hazardous materials management plans and inventory statements, and
 - g. Details of all signs/placards that are required by the IFC.

Installation or other work may not commence without prior approval from both the WSFR Life Safety Division and the appropriate local government.

Plan reviews and permits may be required by other jurisdictional entities such as the State of Colorado Division of Oil and Public Safety, state or county health departments, etc. It is the responsibility of the property owner/operator to obtain all other required permits prior to installation and operation.

Spill Control and Secondary Containment:

Overfill protection shall be provided for ASTs in accordance with Chapters 50 and 57 of the IFC. All outdoor tanks, vessels or containers which exceed 55 gallons individual capacity, or 250 gallons aggregate capacity shall be provided with spill control and secondary containment, as defined and described in the IFC. The containment system shall be designed to contain a spill from the single largest container plus the volume of a 24-hour rainfall as determined by a 25-year storm.

Provisions shall be made to drain accumulated water.

Drainage and diking are not required for tanks that have an integrated, listed method of secondary containment.

Oil and water separators (OWS) may be required by the municipality to protect municipal stormwater systems. Where an OWS is required by the municipality, the property owner or responsible party shall maintain the OWS in accordance with manufacturer instructions and stormwater requirements from the municipality.

Tank Fill Openings:

Tank fill openings shall be provided with liquid-tight caps and shall be designed so that they may be locked. All tank fill openings shall be closed and locked when not in use. Tank fill openings shall be separate from vent openings.

Venting:

Tank venting systems shall be provided with sufficient capacity to prevent blowback of vapor or liquid at the fill opening while the tank is being filled. Vent pipes shall not be less than ¼ inch nominal inside diameter. The capacity of the vent shall be based on the filling or withdrawal rate, whichever is greater, and the vent line length.

Vent pipes shall terminate outside of buildings at a point such that vapors are released not less than 12 feet above the adjacent ground level. Vent pipes may discharge either horizontally or vertically in order to disperse vapors and shall be arranged so that flammable vapors will not enter building openings, be trapped under eaves or other obstructions, or be discharged into potentially hazardous locations. Vent lines shall not terminate within 5 feet of openings into buildings or within 5 feet of property lines. Vent lines from tanks shall not be used for any other purpose.

Fire Protection:

A fire extinguisher with a minimum rating of 2-A:20-B,C shall be provided and located not more than 75 feet from any dispenser, pump, or tank fill opening.

Vehicle Impact Protection:

Protection from damage, such as from vehicular traffic, shall be provided for the tank and all appurtenant equipment. Physical barriers shall be constructed so as to resist a force of 12,000 pounds applied 36 inches above the ground surface. Minimum standards established in Chapter 3, Section 312 of the IFC include:

1. Guard posts constructed of steel not less than 4 inches in diameter and concrete filled
2. Guard posts spaced not more than 4 feet on center between posts
3. Guard posts set not less than 3 feet deep in a concrete footing of not less than a 15-inch diameter
4. Guard posts set with the top not less than 3 feet above ground

5. Guard posts located not less than 3 feet from the protected object

Annual Operational Permit Renewal:

Every hazardous materials operational permit shall be renewed every 12 months, upon submittal of the required permit application, permit fee, and completion of an inspection by a representative of WSFR. The WSFR inspector will verify the following information prior to approving the renewal of permit.

1. Current and updated Hazardous Materials Management Plan (HMMP) including a Hazardous Materials Inventory Statement (HMIS).
2. The tank and all appurtenances shall be maintained in the same condition as when they were initially installed, as defined on the plan review submittal documents.
3. Safety Data Sheets (SDS) for all products stored within the tank are available on site.

Dispensing Operations:

Dispensing operations involving flammable/combustible liquids are governed by NFPA 30A and Chapter 23 of the IFC. Dispensing operations must be situated within a designated spill control area. Dispensing of flammable and/or combustible liquids shall be accomplished only by means of an Underwriters' Laboratories listed pump or device.

Emergency Stop Switch – All ASTs and USTs shall include a clearly labeled, manually operated emergency pump shut-off switch. This switch shall be provided in an approved location no closer than 20 feet and no farther than 100 feet from the controlled dispenser. The switch shall be clearly labeled "EMERGENCY PUMP SHUTOFF." Where the shut-off switch is not directly visible from dispensers, its location shall be clearly indicated with approved signs. It is recommended that the emergency stop switch be connected to the facility's burglar and/or fire alarm system to provide immediate notification of a fuel emergency.

Emergency Breakaway Device – Dispenser hoses for all ASTs and USTs for Class I and II liquids shall be equipped with a listed emergency breakaway device that is designed to retain liquid on both sides of a breakaway point. Such devices shall be installed and maintained in accordance with the manufacturer's instructions.

Signs, Placards and Labels – The tank shall be clearly marked on all visible/exposed sides to indicate its contents. If the tank is located behind a fence or other structure that prevents it from being readily visible from a distance of 100 feet along the normal route of vehicle travel, there shall be a placard placed on that fence or other structure at the point of vehicle entry. The placard shall conform to the requirements established in NFPA 704: Standard System for the Identification of the Fire Hazards of Materials.

Weather Protection – A suitable structure, such as a roof, may be constructed to protect the facility from inclement weather. Design of this structure shall comply with the IFC and must be approved prior to construction by WSFR and the Building Department with jurisdiction.

Control of Ignition Sources

Open Flame – Smoking, open flames, or other ignition sources shall be prohibited within 25 feet of storage, use or dispensing areas. Legible signs with the words “NO SMOKING” shall be posted in conspicuous locations around storage, use and dispensing areas.

Electrical Devices – All electrical wiring and equipment shall be installed in accordance with the National Electrical Code, the International Electrical Code and the most current version of NFPA 30.

Electrical Controls – When an electric pump is used, a control shall be provided that will permit the pump to operate only when a dispensing nozzle is removed from its bracket or non-dispensing storage position and the switch on the dispensing unit is manually activated. The master switch, or the primary circuit breaker, for all pumps and dispensing devices shall be set in the “off” position at any time the dispenser is closed for use.

Unattended Fuel Station Requirements:

As a general rule, most fuel stations hire attendants to monitor/supervise fueling activities and to manage daily business. However, fuel stations may apply for status as unattended fueling stations. All fuel stations seeking to implement unattended fueling operations must contact WSFR prior to beginning such operation.

Unattended fuel stations must meet the following additional requirements:

1. There must be at least one 2-A:20-B:C fire extinguisher on each fuel island.
2. Fuel pumps must be programmed for automatic shut-off at 25 gallons. The user may be allowed to manually continue fueling beyond 25 gallons.
3. There must be an emergency phone clearly marked for use to contact the fire department in the event of a spill or fire. This phone may not require coins for this purpose.
4. An emergency fuel disconnect switch shall be installed within visible sight of all dispensing locations. The disconnect switch shall be clearly identified by means of a sign stating “EMERGENCY FUEL SYSTEM SHUTOFF.” The switch shall be only resettable manually.
5. An emergency procedures sign shall be clearly displayed in a conspicuous location and shall read:

IN CASE OF FIRE, SPILL OR RELEASE

1. USE EMERGENCY FUEL SYSTEM SHUTOFF,
2. REPORT THE EMERGENCY!

FIRE DEPARTMENT PHONE NUMBER: 911

FACILITY ADDRESS: _____

Safe Job Site Requirements:

Prior to the initiation of any work on the job site, the general contractor will take steps to ensure a safe working environment:

1. Prohibit smoking within 50 feet of any tanks.
2. Prohibit all open flame and spark-producing equipment within 50 feet of any tanks.
3. Remove electrical and internal combustion equipment from the job site unless it is designed to be "explosion proof."
4. Allow only non-sparking tools to expose tank fittings and prepare for the vapor freeing procedures.
5. Control static electricity by minimizing agitation or static producing movement whenever possible. Static electricity can be generated by moving liquids or solids. If eliminating the static producing movement is not possible, a conductive path for a continuous "safe" discharge of static electricity, either by bonding or grounding equipment in vehicles, shall be provided.
6. All utility (eg: gas and water) lines on the job site shall be located and marked prior to excavation.

It shall be the responsibility of the general contractor to ensure that there is a qualified person on the job site to operate all atmospheric testing instruments. Representatives of WSFR will not operate testing instruments on a job site and will not furnish testing instruments.

Tank Installation Procedures:

1. The general contractor shall contact the municipal Building Department to determine permit requirements and applicable timeframes.
2. Copies of all permit materials will be provided to WSFR for planreview.
3. No installation may begin without the general contractor having in his/her possession a current and valid Building Permit (if required) from the municipality and WSFR.
4. For any tanks exceeding 660 gallons, the general contractor shall contact the Colorado Division of Oil & Public Safety (CDOPS) to determine permit/registration requirements. The general contractor shall comply with all CDOPS permit, registration and inspection requirements.
5. The general contractor shall notify WSFR at least 48 hours in advance of the scheduled installation date and time. WSFR inspection of the installation is required before any backfill is placed or any product is delivered to any tank.
6. The general contractor will install the tank(s) according to the installation guidelines provided by the tank manufacturer, as well as requirements from WSFR, the municipality, and CDOPS.

Piping System Primary Inspection:

This inspection occurs after the contractor has installed the piping from the tank(s) to the pump locations. All piping must be fully exposed to complete this inspection. WSFR and an inspector from CDOPS must be present for this inspection.

- a. The contractor will fill the piping with the manufacturer recommended pressure of air and then cap the system.
- b. Spray soapy water over each joint in the pipe and inspect visually and physically for bubbles or air leakage.
- c. Check the air pressure gauge after inspecting all piping to verify that there has been no notable decrease in air pressure.
- d. The contractor will provide the paperwork for the CDOPS inspector to sign-off on the primary inspection.

Piping System Secondary Inspection:

This inspection occurs after the contractor has installed clamshells / secondary containment over each joint in the piping system. WSFR must complete this inspection. A representative from CDOPS is not required for this inspection.

- a. The contractor will fill the piping with the manufacturer recommended pressure of air and then cap the system.
- b. The contractor will fill each overflow/spill container with enough water to cover all internal pipes and connections.
- c. Spray soapy water over each joint in the pipe and inspect visually and physically for bubbles or air leakage. Also visually inspect each overflow/spill container to verify lack of bubbles.

Fuel System Final Inspection:

This inspection occurs after all piping installations have passed primary and secondary inspections. Everything must be in place for the facility to begin operation. WSFR must complete this inspection. A representative from CDOPS is not required for this inspection; however, the fuel pumps must bear current inspection stickers from CDOPS to verify that they meet applicable requirements and have been recently inspected for proper calibration.

- a. The general contractor will trip the fire valve under each fuel pump to verify that it functions properly.
- b. Verify the presence of a quick disconnect at each nozzle. This disconnect may be located at either end of the dispenser hose.
- c. Verify absence of leaks or any obvious problems.

- d. Pumps must be securely mounted.
- e. Calibrators must be sealed.
- f. Check each sump for each product storage tank – verify that in-line detectors and sump leak detectors are present.
- g. Verify presence of overfill valves (flappers or ball valves) on the fill tube for each product storage tank.
- h. Verify presence of interstitial leak monitoring equipment.
- i. Verify vapor recovery connection for unleaded fuel products.
- j. Verify that emergency stop button/switch functions properly.
- k. Verify presence of all required safety signs and fire extinguishers.

Upon successful completion of the fuel system final inspection, WSFR will provide the general contractor / business owner with the facility's Hazardous Materials Operational Permit and provide instructions for annual inspection and renewal of this permit.

Tank Removal Procedures:

1. The general contractor will apply to WSFR for a Tank Removal Permit to remove any above-ground or underground storage tank(s) at least 48 hours prior to the scheduled date and time of the tank removal. A fee of \$100.00 per tank will be assessed prior to the issuance of the permit. The permit shall be on the job site at the time of the tank pull.
2. The general contractor should notify the appropriate County Environmental Health Department at least 48 hours in advance of any tank removal operation to determine if any County permit is required.
3. For any tanks exceeding 660 gallons, the general contractor shall contact the Colorado Division of Oil & Public Safety (CDOPS) to determine permit/registration requirements. The general contractor shall comply with all CDOPS permit, registration and inspection requirements.
4. The general contractor shall notify WSFR at least 48 hours in advance of the scheduled removal date and time. WSFR inspection of the removal is required before any tank leaves the property.
5. The general contractor, or designee, will verify that the tank contents are inert and the oxygen content is below 10% prior to completing excavation/removal of the tank. It is recommended that the general contractor also verify the lower explosive limit (LEL) for the vapor contents inside the tank. The recommended range for the LEL is typically between 10% and 20% for most petroleum products.
6. Before a tank is removed from the job site, the tank atmosphere should be rechecked to ensure that the flammable vapor concentration does not exceed safe levels for transport and that the oxygen level is within acceptable limits.

7. Any vapors remaining in the sludge or trapped in the wall scale will still present an explosion hazard if oxygen is reintroduced into the tank. The general contractor will verify that all holes are effectively plugged and that the vent plug is on top of the tank for transportation and storage, as appropriate.
8. The tank shall be labeled with information about the former contents and current vapor state, vapor freeing treatment and date, and a warning against certain types of reuse. It shall be the responsibility of the general contractor to check with the Colorado Department of Transportation for any transportation requirements.
9. The tank should be secured and removed from the site as soon as possible, preferably on the same day that the tank is removed from the ground. In certain cases, it may be required that the tank remain on site. If this is the case, vapors may be regenerated from residuals in an unclean tank and inerting processes may be required to be repeated prior to transportation.
10. It is the responsibility of the contractor to inform a representative of Front Range Fire Rescue, CDOPS, and the County Environmental Health Department of the tank's destination for disposal.



WINDSOR SEVERANCE FIRE RESCUE

100 N. 7th Street • Windsor, Colorado 80550 • 970.686.2626

FLAMMABLE/COMBUSTIBLE LIQUID STORAGE TANK REMOVAL

BUSINESS NAME: _____

ADDRESS: _____

PERMIT NO: _____ DATE / TIME OF TANK PULL: _____

TO BE COMPLETED BY REMOVAL CONTRACTOR

Contractor: _____

Street Address: _____

City, State, Zip: _____

	<u>Tank 1</u>	<u>Tank 2</u>	<u>Tank 3</u>	<u>Tank 4</u>
Capacity	_____	_____	_____	_____
Contents	_____	_____	_____	_____
Manuf.	_____	_____	_____	_____
Serial #	_____	_____	_____	_____
O ₂ Level	_____	_____	_____	_____
% LEL	_____	_____	_____	_____
Time	_____	_____	_____	_____

TANK(S) LABELED AND SECURED FOR TRANSPORT?

CONTENTS	YES	NO
VAPOR FREEING TREATMENT	YES	NO
WARNING AGAINST REUSE	YES	NO

Tank Disposition: _____

Comments: _____

Removal Contractor Signature: _____ Date: _____

Fire Inspector Signature: _____ Date: _____



WINDSOR SEVERANCE FIRE RESCUE

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FLAMMABLE/COMBUSTIBLE LIQUID STORAGE TANK INSTALLATION

Tank Installed at (business name): _____

Address: _____

Business Owner Name: _____ Phone: _____

TO BE COMPLETED BY INSTALLATION CONTRACTOR

General Contractor: _____ Contact Name: _____

Street Address: _____

City, State, Zip: _____

Tank Delivery Driver Name: _____ Date/Time: _____

TANK INSTALLATION INFORMATION:

	Tank #1	Tank #2	Tank #3	Tank #4
Manufacturer:	_____	_____	_____	_____
UL Number:	_____	_____	_____	_____
Tank Capacity:	_____	_____	_____	_____
Intended Contents:	_____	_____	_____	_____
Vacuum Reading:				
At Delivery:	_____	_____	_____	_____
At Placement:	_____	_____	_____	_____
At Backfill:	_____	_____	_____	_____
Visual Inspection:	_____	_____	_____	_____
Anchoring:	_____	_____	_____	Backfill:
	_____	_____	_____	Tank

Installation Date/Time: _____ Piping Primary Inspection: _____

Piping Secondary Inspection: _____ Fuel System Final Inspection: _____

Leak Monitoring Equipment/Location: _____

Installation Contractor Name: _____ Signature: _____ Date/Time: _____

FRFR Inspector Name: _____ Signature: _____ Date/Time: _____