



**City of Durham Fire Department
Fire Prevention Division**
 2008 E. Club Blvd.
 Durham, NC 27704
 Office (919) 560-4233
 Fax (919) 560-4256
<http://www.durhamfd.org>

AST/UST REMOVAL PERMIT APPLICATION

In accordance with the provisions of the North Carolina State Fire Prevention Code and the City of Durham Ordinance, a Tank Removal Permit must be obtained from the City of Durham Fire Dept. before a person is authorized to remove any storage tanks within the city limits of Durham.

All information must be completed before the processing of a Tank Removal Permit application will proceed. This permit application and supporting documentation must be submitted via email to DFDInspect@durhamnc.gov in advance of planned removal operations. Failure to obtain the required permits will result in a \$500 fine.

1. Subject Property

Location / Name GPS #1
GPS #2

2. Applicant (Person or Firm Responsible for Tank Removal Operations)

Permittee's Name _____
 Company Name _____
 Address _____
 City _____ State _____ Zip _____
 Daytime Telephone: () - _____ Fax: () - _____
 Emergency Telephone: () - _____

3. Property Owner

Name _____
 Address: _____
 City _____ State _____ Zip _____
 Daytime Telephone: () - _____ Fax: () - _____

4. Contractor (If Different from Applicant**)**

Name _____ Title _____
 Company Name _____
 Address _____
 City _____ State _____ Zip _____
 Daytime Telephone: () - Fax: () -
 Emergency Telephone: () -

5. Permit Type (Fees apply to each jurisdiction and may differ)

AST Removal UST Removal

6. Project Description

Estimated Start Date		Estimated End Date
Describe the project and storage tank usage and reason for removal:		

7. Submission Requirements

This application shall be accompanied by the following information, unless otherwise specifically modified by the Fire Marshal or his designee:

- The tank removal must be within the City of Durham jurisdiction.
- Flammable and Combustible liquids shall be removed from the tank and connected piping.
- Must comply with NFPA 326 Chapters 6 and 7 referenced from NFPA 30 for vapor removal and testing. **(SEE ATTACHMENT #1)**
- All AST/UST Removals must also comply with the requirements of 2018 NC Fire Code Chapter 57
- Piping at tank openings that is not to be used further shall be disconnected.
- Piping shall be removed from ground. **Exception:** Piping is allowed to be abandoned in place where the Fire Code Official determines that removal is not practical. Abandoned piping shall be capped and safeguarded as required by the Fire Code Official.
- Tank openings shall be capped or plugged leaving a 1/8" to 1/4" diameter opening for pressure equalization.
- Tanks shall be purged of vapor and inerted prior to removal.
- All exterior above-grade fill and vent piping shall be permanently removed. **Exception:** Piping associated with bulk plants, terminal facilities and refineries.
- Tanks shall be disposed of in accordance with Federal, State, and Local Regulations.

8. Permit Conditions

1. The Fire Marshal's Office retains the right to revoke, suspend, or terminate any permit where the listed requirements are not adhered to or where any unforeseen hazards may arise.
2. Permit fees are non-refundable and valid for 30 days from issuance.
3. No person shall remove an AST/UST within this jurisdiction without a permit from the City of Durham Fire Marshal's Office.
4. Must comply with NFPA 326 Chapters 6 and 7 referenced from NFPA 30 for vapor removal and testing. **(SEE ATTACHMENT #1)**

5. All AST/UST Removals must also comply with the requirements of 2018 NC Fire Code Chapter 57.

11. Permit Approval

The Fire Code Official will deliver the permit via email to the Contractor once final approval is given to conduct tank removal operations. Any failure to provide the requested information and documentation may lead to a delay in processing and issuance of a permit.

12. Certification and Signature

I hereby certify that I have read and examined this application and its attachments and that all of the information contained therein is true and correct. Furthermore, I certify that the proposed tank removal will fully comply with the requirements contained in The North Carolina State Fire Prevention Code, City of Durham Ordinance 9-27 and applicable requirements of NFPA 30. I agree to indemnify, save harmless, and defend the City of Durham, its agents and employees, from all claims, damages, costs, expenses, and charges, including attorney's fees which arise out of or by reason of this removal operation.

_____ Applicant Company	_____ Property Owner's Signature
By: _____	Date: / / _____
Date: / / _____	_____

13. ATTACHMENT #1

Chapter 6 Testing Procedures

6.1 General Procedures

6.1.1 To determine that an atmosphere is safe for the designated entry, cleaning, or repair work, tests for oxygen and for flammable, combustible, or other hazardous substance vapors, fumes, or dusts shall be made with an appropriate instrument as follows:

- (1) Before entry or re-entry
- (2) Before start of alterations or repairs
- (3) Before and during any hot work, cutting, welding, or heating operations
- (4) Continuously or periodically during the course of the work, as determined by a qualified person (see 6.1.3 and 6.1.6)
- (5) After cleaning the interior of each tank or container to determine that the cleaning procedures have been effective
- (6) After any process or activity has occurred that might change the atmosphere within the tank or container

6.1.2 Precautions listed in this chapter shall be taken to ensure that tanks or containers that have held liquids with high flash points do not become hazardous during cutting and welding operations.

6.1.3. The qualified person shall determine whether or not continued testing for flammable vapor and toxicity is required if previous testing indicates that vapor or toxicity associated with former product storage has been eliminated or is not capable of regeneration above permissible exposure levels.

6.1.4 The qualified persons responsible for testing shall be trained or educated in the use of the instruments, be aware of their limitations, and have an understanding of the significance of their readings.

6.1.5* All tests for oxygen and flammable or toxic vapors and gases shall be conducted using a calibrated and adjusted instrument.

6.1.5.1 The instrument shall be calibrated with a calibration gas that is appropriate to the potential hazards.

6.1.5.2 The adjustment of the instrument shall be checked before each day's or shift's use or more often if the tester or qualified person determines there is a need to do so.

6.1.5.3 The calibration of the instrument shall be performed prior to its first use.

6.1.5.4 Recalibration of the instrument shall be done on a regular basis thereafter, as determined by the user's procedures, the manufacturer's recommendations, historical data regarding need to recalibrate, and before its use following an extended period of non-operation.

6.1.5.5 The instrument shall be maintained in accordance with the manufacturer's recommendations.

6.1.6 The number and location of sampling points shall be determined by the qualified person based on the size and configuration of the tank or container so as to provide a representative determination of the atmosphere in the tank and potential hazards of the area around the tank.

6.2 Testing for Oxygen Content

6.2.1 A calibrated oxygen indicator shall be used to determine oxygen content.

6.2.2. The following precautions shall apply:

- (1) When a tank or container contains an inert gas or other oxygen-displacing or-generating material, a combustible gas indicator shall not be relied on to give a correct reading.
- (2) An oxygen indicator shall be used prior to testing for combustible gas to ensure that the correct amount of oxygen is present, in accordance with the instrument's manufacturer, to provide an accurate reading of the gas or vapor being measured.

6.3 Testing for Flammable Vapors

6.3.1 To determine flammable vapor content, a calibrated and adjusted combustible gas indicator shall be used.

6.3.2* All work in or around the tank or container shall be stopped immediately when the flammable vapors in the atmosphere exceed 10 percent of the lower flammable limit (LFL). The source of the vapors shall be located and eliminated or controlled.

6.3.3. Equipment that can provide a source of ignition shall not be permitted within the safeguarded area of a tank or container being cleaned, entered, or repaired until the area has been tested (see Section 4.2) and found to be vapor free in accordance with 8.2.4 and a hot work permit has been issued by a qualified person.

6.3.4 During ventilation or purging of any tank or container, the flammable vapor concentration of the effluent shall be tested as often as required by the qualified person to determine the flammability and toxicity of the vented vapors.

6.3.5 The qualified person shall determine the direction of the vented effluent to ensure that it does not reach a source of ignition.

6.3.6* If an eductor is used for ventilation, the eductor shall create a vacuum that draws air through at least one tank or container opening and discharges through the opening to which it is attached.

6.3.6.1 Testing for flammable vapors shall be conducted using a combustible gas indicator with its probe inserted into the probe hole provided in the side of the eductor.

6.3.6.2 Testing shall be performed with the eductor on and tightly secured and bonded to the tank or container.

6.3.6.3 When a reading of 10 percent or less of the LFL is obtained, the eductor shall be shut off and readings taken again after a few minutes' waiting time.

6.3.6.4 If the readings in the tank or container are taken through the fill opening, any fill tube that extends into the tank or container shall be removed prior to purging or ventilation operations.

6.3.6.5 The eductor shall be immediately turned on after the last test in the tanks or containers and the tank's or container's effluent shall be tested thereafter as long as ventilation continues and as often as determined necessary by the qualified person.

6.3.7* If an air blower is used for ventilation, the blower shall force air into the tank or container through at least one tank or container opening and discharge through another opening.

6.3.7.1 Testing for flammable vapor concentrations shall be performed with a combustible gas indicator whose probe is placed in the tank's or container's discharge opening.

6.3.7.2. When a reading of 10 percent or less of the LFL is obtained, the air blower shall be shut off and readings taken again after a few minutes' waiting time.

6.3.7.3 If readings in the tank or container are taken through the fill opening, any fill tube that extends into the tank or container shall be removed prior to purging or ventilation operations.

6.3.7.4 The air blower shall be immediately turned on after the last test in the tank or container and the tank's or container's effluent shall be tested thereafter as long as ventilation continues and as often as determined necessary by the qualified person.

6.3.8* When a tank or container is tested prior to the start of hot work, any indication of flammable gas or vapor in excess of the established allowable limits shall require additional ventilation, purging, re-cleaning, or further safeguarding by one of the methods described in this standard, as specified by the qualified person, prior to the issuance of a hot work permit.

6.3.9* When testing a tank or container during hot work, any indication of flammable gas or vapor in excess of the established allowable limits shall require the immediate cancellation of the hot work permit.

6.3.10* Additional ventilation, re-cleaning or any additional further safeguarding by one of the methods described in this standard, as specified by the qualified person, shall be conducted prior to retesting and reissuance of the hot work permit.

6.4 Testing for Toxic Vapors and Gases

6.4.1 This section shall not apply to substances that do not have adverse health effects.

6.4.2 Testing for toxic vapors and gases with appropriate instrumentation shall be required to identify the level of exposure.

Chapter 7 Control or Removal of Vapors

7.1 General.

7.1.1* Flammable vapors in a tank or container shall be permitted to be vented with air or purged with inert gas, water, or steam (see also Section 10.5).

7.1.2 The qualified person shall select the method of ventilating or purging the tank or container on which work will be performed in accordance with regulatory requirements, facility and contractor programs, and procedures and industry standards.

7.1.3 Flammable or combustible liquids or vapors found in spaces adjacent to or within the space containing or having contained hazardous substances shall be removed or controlled prior to proceeding. Such spaces shall include, but not be limited to, interstitial spaces, columns, floats, hollow structures, floating roofs, pontoons, tank floors, multiple-compartment tanks or containers, vapor seals, pipe supports, and any other areas where vapors or residues can be trapped.

7.1.4 Other hazardous substances and vapors that are not flammable or combustible but have adverse environmental or human health effects shall be eliminated or controlled prior to proceeding.

7.1.4.1 The methods identified in Sections 7.2 through 7.5 shall apply to the removal or control of these other hazardous substances whether they be liquids, solids, vapors, dusts, fumes, mists, or gases.

7.1.4.2 The specific hazardous substances and the methods of their removal or control shall be identified by the qualified person prior to proceeding with ventilation or purging.

7.1.5 Prior to removal of vapors from a tank or container, applicable regulations, codes, and standards shall be reviewed by the qualified person, who shall identify any specific requirements for the handling, degassing, or discharging of vapors or liquids while the activities described in this standard are conducted and indicate appropriate requirements or controls on the permit.

7.1.6 Where a tank is located indoors or in an enclosed or confined area, including but not limited to under a building, under a stairwell, or in an open-sided shed, the qualified person shall stipulate the measures to be taken to prevent the accumulation of flammable or toxic vapors and gases within the building or enclosed or confined area.

7.2 Removal of Flammable Vapors by Displacement with Air (Ventilation)

7.2.1 Where there are openings large enough to accept them, approved air movers (eductors and blowers) that do not provide an ignition source shall be attached so that air is drawn through or pumped into one opening and the atmosphere within the tank or container is discharged through another opening a sufficient distance away from the first opening to provide for cross ventilation in the tank.

7.2.2. If openings cannot accommodate an air mover, the tank or container shall be ventilated to remove flammable vapors by introducing fresh air that will circulate through the tank or container and be degassed or discharged to the outside.

7.2.3 Precautions shall be taken to control or remove all ignition sources from the area since vapors can be present in the flammable range both inside the tank or container and at the point of discharge.

7.2.4 A bond shall be maintained between the air mover and the tank or container being ventilated in order to reduce the chance of static electric ignition.

7.2.5* Precautions shall be taken to control static electricity accumulation through bonding and grounding in order to prevent the possibility of static electric discharge during ventilating operations.

7.2.6 Where ventilating a tank with air, the air pressure in the tank shall not exceed the allowable maximum design pressure for the tank.

7.2.6.1 To prevent excess air pressure, the vent line shall be checked to make certain it is free of blockages, obstructions, or traps.

7.2.6.2 All discharges or venting to the atmosphere during ventilation shall be at a minimum of 3.7 m (12ft) above the ground surface and away from any areas that might contain sources of ignition.

7.2.7 Displacement of the tank or container atmosphere with air shall be accomplished by one of the following methods:

- (1) A negative pressure or vacuum shall be used to pull out- side air into the tank or container using an eductor air mover or other equipment.
- (2) *A positive pressure or diffused air blower shall be used to push outside air into the tank or container.

7.2.7.1. When the method described in 7.2.7 is used, the following shall apply:

- (1) The connection between the eductor and the tank or container shall be airtight.
- (2) Air shall be drawn through the tank or container to allow cross ventilation and removal of vapors.
- (3) All equipment shall be bonded to prevent static electric discharges.

7.2.7.2. When the method described in 7.2.7 is used, the following shall apply:

- (1) If a fill opening that extends into the tank or container is used as an air supply point, the portion of the fill pipe that extends into the tank shall be removed.
- (2) The air shall be supplied from a compressor or blower that has been checked for delivery of clean air that is free of flammable or toxic vapors.
- (3) The air-diffusing pipe, if used, shall be bonded to the tank or container to prevent static electric discharges. 326-12

7.3* Removal of Flammable Vapors by Displacement with Inert Gas

7.3.1 When a tank or container is to be inerted for purposes other than entry, the qualified person shall be familiar with the limitations and characteristics of the inert gas being used.

7.3.2. Upon completion of inerting, the oxygen content shall be monitored as often as necessary as determined by the qualified person and maintained at either less than 8 percent total oxygen or less than 50 percent of the minimum oxygen concentration required to support combustion, whichever is less.

7.3.3 The condition specified in 7.3.2 shall be maintained during the entire period that work is in progress and until the tank or vessel is returned to service or cleaned and taken out of service. (See the procedures for inerting in 7.3.4 through 7.3.14.)

7.3.4 All openings in the tank or container shall be securely closed, except for the access opening and vent.

7.3.5 The inert gas shall be introduced into the tank or container through a pipe or hose that extends to a point that is near the bottom of the tank and as far away as possible from the portion of the tank where repairs or other activities will be conducted, in order to allow for uniform reduction of oxygen in the tank or container.

7.3.6 The inert gas shall be introduced into the tank in a manner that allows distribution of the inert gas throughout the tank or container, based on the internal structure of the tank or container.

7.3.7 Any metal components of the equipment used to intro- duce the inert gas shall be bonded to the tank or container.

7.3.8 All spaces to be inerted shall be sufficiently intact to retain the inerting medium.

7.3.9 When inert gas is introduced under pressure, low pressure shall be used in order to reduce the generation of static electricity.

7.3.10 The oxygen content shall be measured directly by means of an oxygen monitor.

7.3.11* A sign shall be conspicuously posted that warns of the hazard of inert gas and forbids entry into the tank by unauthorized persons during the inerting process.

7.3.12 Entry into inert confined spaces for inspection, testing and work shall be allowed only as authorized by an entry permit issued by the qualified person who has determined the hazards and provided for the applicable controls and protection.

7.3.13 When work is completed and prior to entry into the tank without restrictions, inerting media shall be removed to achieve oxygen, vapor, and toxic concentrations in accordance with 8.2.1. If the inerting medium is to remain in the tank, the tank shall be secured and a sign shall be posted in accordance with 7.3.11.

7.3.14 Special Requirements for Carbon Dioxide. When car- bon dioxide is used for inerting, the following shall apply:

- (1) Portable carbon dioxide fire extinguishers shall not be used as the source of the inert gas.
- (2) When solid carbon dioxide is used, it shall be crushed and distributed evenly over the greatest possible area for rapid sublimation.

- (3) *The oxygen percentage shall be permitted to be calculated from the percentage of carbon dioxide in the tank or container measured by means of a carbon dioxide indicator.

7.4 Removal of Flammable Vapors by Displacement with Water, Fuel Oil, or Chemicals

7.4.1 If the flammable, combustible, or other hazardous substance that was previously contained is known to be displaced by or soluble in water, fuel oil, or an approved chemical, then the removal of vapors shall be permitted to be accomplished by completely filling the tank or container with water, fuel oil, or the chemical and draining the tank or container, repeating the operation as necessary to eliminate the flammable atmosphere.

7.4.2 Removal of vapors shall also be permitted to be accomplished by completely filling the tank or container with water, fuel oil, or an approved chemical.

7.4.2.1 If this method is used, the tank or container shall be completely filled with water, fuel oil, or an approved chemical in order to remove all vapors.

7.4.2.2 Extreme care shall be taken to eliminate any vapor spaces by providing venting or by positioning the tank or container during the filling operation or both.

7.4.3 All liquids, rinseates, solid residues, and vapors that are generated as a result of these cleaning and safeguarding procedures shall be disposed of in accordance with the applicable regulatory requirements.

7.4.4 Water, fuel oil, or an approved chemical shall not be used for the removal of vapors if it will adversely react with the flammable, combustible, or other hazardous substance previously contained in the tank or container.

7.5* Removal of Flammable Vapors by Displacement with Steam

7.5.1 The qualified person shall review and approve all procedures to accomplish the task safely.

7.5.2 Displacement shall be accomplished by introducing steam into the tank or container through a pipe inserted through an opening near the bottom of the tank or container.

7.5.3 The pipe or connecting steam line shall be bonded to the tank or container.

7.5.4 A manway, gauging hatch, or other opening that is located at the top of the tank or container and is large enough to prevent excess internal pressure shall remain open during the entire steaming operation to relieve pressure buildup during steaming and vacuum formation during cooling.

7.5.5 In order to remove all flammable vapors, the rate of supply of steam shall exceed the rate of condensation so that the whole tank or container is heated close to the boiling point of water.

7.5.6 The tank or container shall be steamed long enough to vaporize or facilitate the removal of the residues from all portions of the walls (shell and heads).

7.5.7 Because steam displaces oxygen, when the atmosphere in the tank or container is tested with a combustible gas indicator, the tank or container shall be allowed to cool until excess water vapor has condensed, or the sample shall be drawn through a drying tube filled with calcium chloride or other drying agent (see instrument manufacturer's recommendations) to keep water vapor from entering the instrument.

7.5.8 The following precautions shall apply:

- (1) Displacement of flammable and combustible vapors with steam is extremely hazardous and is not recommended if alternate methods can be used.
- (2) Displacement with steam is capable of generating static electric charges.