



August 28, 2006

TO: All properties in the City of Fort Worth with Ethanol bulk storage and/or transfer operations.

RE: Official notification of requirement for Fort Worth Fire Code compliance.

Since the removal of MTBE from fuel in the North Texas Area, Ethanol is being utilized throughout the area as a replacement. The Fort Worth Fire Prevention Bureau has become aware of several locations within the city conducting bulk storage and/or transfer of Ethanol without Fire Department approval and without an applicable Hazardous Materials Permit. This is an attempt to notify all of those properties within the city currently conducting these operations as to the requirements of the Fort Worth Fire Code.

Any property in the City of Fort Worth conducting bulk storage and/or transfer of Ethanol shall apply for a Hazardous Materials Permit from the Fort Worth Fire Department's Fire Prevention Bureau at 1000 Throckmorton St., Public Safety Building – 4th Floor, Fort Worth, TX 76102 (817-392-6830). This is regardless of any previous permits applied for, issued, reviewed, approved, etc.

If Ethanol storage and/or transfer operations are currently being conducted on your property without full compliance with the Fort Worth Fire Code, including the required Hazardous Materials Permit and Alcohol-Resistant Foam on-site, notify the Fort Worth Fire Prevention Bureau immediately at 817-392-6830. Until such time as the Fort Worth Fire Department can schedule a meeting with you at your facility, you are required to provide an immediate fire watch at the facility.

This fire watch may be conducted by a facility employee. The following requirements apply:

- The person(s) only function is to identify emergency situations, such as fire, and contact the Fire Department immediately.
- This person(s) shall be capable of speaking English, detecting a fire, notifying the occupants and the Fire Department (VIA 911) of an incident.
- This person(s) shall also be capable of using a fire extinguisher and be well versed in exits and exit paths in and out of the area.
- Enough personnel shall be provided so that all areas can be visually checked continuously.
- These times/dates shall be logged and documented for Fire Department's Inspection.
- The Fire Department may perform unannounced visits to verify compliance with this notice at any given time.
- This Fire Watch will be necessary until the Hazardous Materials Permit is formally approved upon receipt of all necessary information and provision of all necessary fire protection features.

For approval of such Hazardous Materials Permit, compliance with the Fort Worth Fire Code is required.

TRANSFER OPERATIONS:

Compliance with Section 3406.5 of the Fort Worth Fire Code for the bulk transfer of Ethanol is required. This section has been copied for your use below. As part of the permit application, provide documentation indicating compliance with all issues, including a site plan indicating the location and volume of secondary containment, a site plan indicating fire hydrant locations, and a site plan indicating

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electrical classification zones. Provide UL Listing of pumping mechanism and associated hoses or manufacturer's data indicating UL Listing for use of the equipment for the transfer of Ethanol. Provide documentation indicating compliance with all requirements listed under Section 3406.5.

On-site alcohol-resistant fire fighting foam is required. Consult with a foam specialist to determine the appropriate amount of alcohol-resistant foam needed, based on NFPA 11 requirements. Submit this data to the Fire Prevention Bureau for approval as part of the permit application. In some cases, a foam trailer may be required, such that it could be moved around the site for flexibility.

Fort Worth Fire Code, Section 3406.5:

“3406.5 Bulk transfer and process transfer operations.

Bulk transfer and process transfer operations shall be approved and be in accordance with Sections 3406.5.1 through 3406.5.4.4. Motor fuel-dispensing facilities shall comply with Chapter 22.

3406.5.1 General.

The provisions of Sections 3406.5.1.1 through 3406.5.1.18 shall apply to bulk transfer and process transfer operations; Sections 3406.5.2 and 3406.5.2.1 shall apply to bulk transfer operations; Sections 3406.5.3 through 3406.5.3.3 shall apply to process transfer operations and Sections 3406.5.4 through 3406.5.4.4 shall apply to dispensing from tank vehicles and tank cars.

3406.5.1.1 Location.

Bulk transfer and process transfer operations shall be conducted in approved locations. Tank cars shall be unloaded only on private sidings or railroad-siding facilities equipped for transferring flammable or combustible liquids. Tank vehicle and tank car transfer facilities shall be separated from buildings, above-ground tanks, combustible materials, lot lines, public streets, public alleys or public ways by a distance of 25 feet (7620 mm) for Class I liquids and 15 feet (4572 mm) for Class II and III liquids measured from the nearest position of any loading or unloading valve. Buildings for pumps or shelters for personnel shall be considered part of the transfer facility.

3406.5.1.2 Weather protection canopies.

Where weather protection canopies are provided, they shall be constructed in accordance with Section 2704.13. Weather protection canopies shall not be located within 15 feet (4572 mm) of a building or combustible material or within 25 feet (7620 mm) of building openings, lot lines, public streets, public alleys or public ways.

3406.5.1.3 Ventilation.

Ventilation shall be provided to prevent accumulation of vapors in accordance with Section 3405.3.7.5.1.

3406.5.1.4 Sources of ignition.

Sources of ignition shall be controlled or eliminated in accordance with Section 2703.7.

3406.5.1.5 Spill control and secondary containment.

Areas where transfer operations are located shall be provided with spill control and secondary containment in accordance with Section 3403.4. The spill control and secondary containment system shall have a design capacity capable of containing the capacity of the largest tank compartment located in the area where transfer operations are conducted. Containment of the rainfall volume specified in Section 2704.2.2.6 is not required.

3406.5.1.6 Fire protection.

Fire protection shall be in accordance with Section 3403.2.

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3406.5.1.7 Static protection.

Static protection shall be provided to prevent the accumulation of static charges during transfer operations. Bonding facilities shall be provided during the transfer through open domes where Class I liquids are transferred, or where Class II and III liquids are transferred into tank vehicles or tank cars which could contain vapors from previous cargoes of Class I liquids.

Protection shall consist of a metallic bond wire permanently electrically connected to the fill stem. The fill pipe assembly shall form a continuous electrically conductive path downstream from the point of bonding. The free end of such bond wire shall be provided with a clamp or equivalent device for convenient attachment to a metallic part in electrical contact with the cargo tank of the tank vehicle or tank car. For tank vehicles, protection shall consist of a flexible bond wire of adequate strength for the intended service and the electrical resistance shall not exceed 1 megohm. For tank cars, bonding shall be provided where the resistance of a tank car to ground through the rails is 25 ohms or greater.

Such bonding connection shall be fastened to the vehicle, car or tank before dome covers are raised and shall remain in place until filling is complete and all dome covers have been closed and secured.

Exceptions:

1. Where vehicles and cars are loaded exclusively with products not having a static-accumulating tendency, such as asphalt, cutback asphalt, most crude oils, residual oils and water-miscible liquids.
2. When Class I liquids are not handled at the transfer facility and the tank vehicles are used exclusively for Class II and III liquids.
3. Where vehicles and cars are loaded or unloaded through closed top or bottom connections whether the hose is conductive or nonconductive.

Filling through open domes into the tanks of tank vehicles or tank cars that contain vapor-air mixtures within the flammable range, or where the liquid being filled can form such a mixture, shall be by means of a downspout which extends to near the bottom of the tank.

3406.5.1.8 Stray current protection.

Tank car loading facilities where Class I, II or IIIA liquids are transferred through open domes shall be protected against stray currents by permanently bonding the pipe to at least one rail and to the transfer apparatus. Multiple pipes entering the transfer areas shall be permanently electrically bonded together. In areas where excessive stray currents are known to exist, all pipes entering the transfer area shall be provided with insulating sections to isolate electrically the transfer apparatus from the pipelines.

3406.5.1.9 Top loading.

When top loading a tank vehicle with Class I and II liquids without vapor control, valves used for the final control of flow shall be of the self-closing type and shall be manually held open except where automatic means are provided for shutting off the flow when the tank is full. When used, automatic shutoff systems shall be provided with a manual shutoff valve located at a safe distance from the loading nozzle to stop the flow if the automatic system fails.

When top loading a tank vehicle with vapor control, flow control shall be in accordance with Section 3406.5.1.10. Self-closing valves shall not be tied or locked in the open position.

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3406.5.1.10 Bottom loading.

When bottom loading a tank vehicle or tank car with or without vapor control, a positive means shall be provided for loading a predetermined quantity of liquid, together with an automatic secondary shutoff control to prevent overfill. The connecting components between the transfer equipment and the tank vehicle or tank car required to operate the secondary control shall be functionally compatible.

3406.5.1.10.1 Dry disconnect coupling.

When bottom loading a tank vehicle, the coupling between the liquid loading hose or pipe and the truck piping shall be a dry disconnect coupling.

3406.5.1.10.2 Venting.

When bottom loading a tank vehicle or tank car that is equipped for vapor control and vapor control is not used, the tank shall be vented to the atmosphere to prevent pressurization of the tank. Such venting shall be at a height equal to or greater than the top of the cargo tank.

3406.5.1.10.3 Vapor-tight connection.

Connections to the plant vapor control system shall be designed to prevent the escape of vapor to the atmosphere when not connected to a tank vehicle or tank car.

3406.5.1.10.4 Vapor-processing equipment.

Vapor-processing equipment shall be separated from above-ground tanks, warehouses, other plant buildings, transfer facilities or nearest lot line of adjoining property that can be built on by a distance of at least 25 feet (7620 mm). Vapor-processing equipment shall be protected from physical damage by remote location, guardrails, curbs or fencing.

3406.5.1.11 Switch loading.

Tank vehicles or tank cars which have previously contained Class I liquids shall not be loaded with Class II or III liquids until such vehicles and all piping, pumps, hoses and meters connected thereto have been completely drained and flushed.

3406.5.1.12 Loading racks.

Where provided, loading racks, stairs or platforms shall be constructed of noncombustible materials. Buildings for pumps or for shelter of loading personnel are allowed to be part of the loading rack. Wiring and electrical equipment located within 25 feet (7620 mm) of any portion of the loading rack shall be in accordance with Section 3403.1.1.

3406.5.1.13 Transfer apparatus.

Bulk and process transfer apparatus shall be of an approved type.

3406.5.1.14 Inside buildings.

Tank vehicles and tank cars shall not be located inside a building while transferring Class I, II or IIIA liquids, unless approved by the fire code official.

Exception: Tank vehicles are allowed under weather protection canopies and canopies of automobile motor vehicle fuel-dispensing stations.

3406.5.1.15 Tank vehicle and tank car certification.

Certification shall be maintained for tank vehicles and tank cars in accordance with DOTn 49 CFR, Parts 100-178.

3406.5.1.16 Tank vehicle and tank car stability.

Tank vehicles and tank cars shall be stabilized against movement during loading and unloading in accordance with Sections 3406.5.1.16.1 through 3406.5.1.16.3.

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3406.5.1.16.1 Tank vehicles.

When the vehicle is parked for loading or unloading, the cargo trailer portion of the tank vehicle shall be secured in a manner that will prevent unintentional movement.

3406.5.1.16.2 Chock blocks.

At least two chock blocks not less than 5 inches by 5 inches by 12 inches (127 mm by 127 mm by 305 mm) in size and dished to fit the contour of the tires shall be used during transfer operations of tank vehicles.

3406.5.1.16.3 Tank cars.

Brakes shall be set and the wheels shall be blocked to prevent rolling.

3406.5.1.17 Monitoring.

Transfer operations shall be monitored by an approved monitoring system or by an attendant. When monitoring is by an attendant, the operator or other competent person shall be present at all times.

3406.5.1.18 Security.

Transfer operations shall be surrounded by a noncombustible fence not less than 5 feet (1524 mm) in height. Tank vehicles and tank cars shall not be loaded or unloaded unless such vehicles are entirely within the fenced area.

Exceptions:

1. Motor fuel-dispensing facilities complying with Chapter 22.
2. Installations where adequate public safety exists because of isolation, natural barriers or other factors as determined appropriate by the fire code official.
3. Facilities or properties that are entirely enclosed or protected from entry.

3406.5.2 Bulk transfer.

Bulk transfer shall be in accordance with Sections 3406.5.1 and 3406.5.2.1.

3406.5.2.1 Vehicle motor.

Motors of tank vehicles or tank cars shall be shut off during the making and breaking of hose connections and during the unloading operation.

Exception: Where unloading is performed with a pump deriving its power from the tank vehicle motor.”

STORAGE OPERATIONS:

For the construction of any new storage tanks, contact the city’s Development Department at 817-392-7820 to determine the necessary permits for this work and any potential zoning impacts, etc. The Fire Department requires a flammable and combustible liquids tank construction permit for each tank, along with the submission of plans and code analysis. Additional fire protection systems may be required for these storage tanks and associated equipment. These plans must be approved prior to any construction.

For any bulk Ethanol storage tanks, on-site alcohol-resistant foam may be required. This may include automatic systems, such as top-of-seal discharge systems for internal floating roof tanks, etc. This requirement also applies to tanks that have been converted to store Ethanol that previously stored other liquids, such as gasoline or diesel.

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Note that Ethanol is actually Ethyl Alcohol, and as such, typical fire fighting foams are not adequate to fight alcohol fires. Alcohol-resistant foams must be utilized to adequately fight such fires. So, tanks that have existing foam systems are likely not adequate for the storage of Ethanol.

Compliance with Chapter 34 of the Fort Worth Fire Code is required for the bulk storage of Ethanol.

The above requirements are applied to all companies wishing to conduct bulk Ethanol storage and/or transfer operations in the City of Fort Worth.

Thank you for your assistance in this matter. Please feel free to contact the Fort Worth Fire Prevention Bureau with any questions at 817-392-6830.

Submitted by:

Fire Marshal
City of Fort Worth

:BDM

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