

Tactical Plans for Flammable Liquid Incidents

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Flammable liquids present particular problems for fire protection, health, safety, and environmental protection. The frequency of encounters with flammable liquids makes them a particular concern for the Fire Department.

The main operational problems with flammable liquids are fire extinguishment, ignition prevention, and disposal of spills. All three of these may be involved in the same incident.

EXTINGUISHMENT

The principal agent for flammable liquid firefighting is AFFF (Aqueous Film Forming Foam). This agent is available on all Union Vale engines; Initial attack on any flammable liquid fire should be made with AFFF.

The extinguishing action of AFFF is based on its ability to rapidly cover the flammable liquid surface with a film. This film prevents the escape of flammable vapors but may have difficulty sealing against hot metal surfaces. The application of AFFF should be gentle to avoid breaking the seal and agitating the liquid below.

Some flammable liquids are difficult or impossible to extinguish with AFFF, including alcohols, gasohol, ketones, and other polar solvents. It may be possible to extinguish some of these liquids with a higher application rate of regular AFFF. A supply of alcohol-type foam concentrate (AFFF/ATC) is available to be used on alcohol and polar solvent incidents.

Gasohol is gasoline containing approximately 10% alcohol. If AFFF will not extinguish a gasohol fire, it may be possible to use a short application of water to separate the gasoline from the alcohol. The alcohol and water will sink, allowing the fire to be extinguished as an ordinary gasoline fire.

SPILLS

Flammable liquid spills include spills without fire and any remaining fuel after a fire has been extinguished.

In both of these cases, the liquid must be protected to prevent ignition until it can be picked up or removed.

All personnel working around spills must wear full protective clothing to afford protection in case of possible ignition. SCBA must be used in vapor areas.

1. Cover spills immediately with AFFF to seal vapors. The application may need to be repeated regularly, as the seal will break down in 10 to 20 minutes. For Bi-polar liquids use Alcohol-Type Concentrate AFFF. Check for escaping vapors with a combustible gas indicator to judge when the seal is breaking down.
2. Control ignition sources in the area of the spill. Extinguish pilot lights, flares, open flames, etc. Prohibit smoking. Position vehicles to prevent contact of vapor with running engines or exhaust. Disconnect electrical power from a remote location to prevent arc-caused ignition.
3. Do not permit the flammable liquid to run-off into storm drains, sewers, or drainage systems. Dam the run-off and cover the spill with AFFF pending disposal.

DISPOSAL

- 1) Large quantity spills should be picked up with a tanker truck whenever possible. This requires a fuel transfer pump or vacuum truck and personnel familiar with fuel transfer precautions. A private contractor must be contacted to conduct this operation. Contacting of a private contractor should be done with consultation of spiller and NYS D.E.C., and Dutchess County Hazardous Material Team.
- 2) Smaller spills, which cannot be picked up with a tanker, must be absorbed or emulsified.
 - a) Absorbent materials, in rolls and pads, may be used to absorb small spills.
 - b) Emulsifying agents may be mixed with hydrocarbon fuels, allowing them to be diluted with water. This method should be used only for small spills, which can be flushed into a storm drain or dispersed in a safe open area. A small spill is one which is too small to be retrieved by other means (absorbent or tank truck).

SAFETY

All personnel working around a flammable liquid spill must wear full protective clothing. This includes SCBA when working in and around areas where flammable vapors are present.

Unless absolutely necessary, personnel shall not work in a spill area. When this is necessary to perform a rescue or control a leak, the spill must be covered with AFFF and all possible precautions against ignition must be taken. The area shall be monitored with a combustible gas indicator. The use of portable oxygen near any combustible spill is not advised. Should the incident commander decide to permit the use of oxygen, extreme vapor suppression measures will be required.

Personnel in full protective clothing using 1 3/4 inch lines will perform Flushing of small spills. Personnel will not walk or stand in the spill during this process. The runoff must be monitored to be sure it is thoroughly mixed and diluted and flows to a safe location.

The number of exposed personnel must be kept to a minimum.