Purpose: Develop a comprehensive response and operational policy for emergency incidents at Crestwood LPG Distribution Facility, located at 14 Moscrip St., North Kingstown, R.I.

Background

Crestwood stores liquefied petroleum gas (LPG) and fills over the road tanker tractor trailers for distribution of LPG in the Northeastern region of the U.S.

Crestwood LPG has a *maximum on-site storage capacity of 420,000 gallons* of LPG and/or butane product.

Crestwood LPG has a storage capability of up to 240,000 gallons of LPG and/or butane product in large storage tanks.

The storage and filling areas are secured by fences and have locking gates.

There are two (2) types of fixed storage tanks on site:

- Three (3) 60,000-gallon fixed storage tanks (fill yard)
- Two (2) 30,000-gallon fixed storage tanks (rail yard)

*Note - 60,000-gallon tanks routinely filled to a maximum of 85 percent capacity (51,000 gallons). Capacity gauges are located at the north end of each tank and under normal conditions are visible from Moscrip St.

Emergency Response References:

- CAMEO Chemicals for Propane or Butane
- The DOT number for propane and butane is 115.
- The UN number for propane is 1075.
- The UN number for butane is 1075 & 1011.

The Crestwood Facility

Key Safe (Knox Box) Locations

There are three (3) key safe locations on site:

- Main office entrance inside fence-line.
- Main office pedestrian gate.
- Main vehicle access gate.

Off-Loading Procedures (Railcars)

LPG and butane are transported into the Crestwood site by railcar and offloaded into either the three (3) 60,000-gallon storage tanks or the two (2) 30,000-gallon tanks.

A maximum of six (6) railcars typically containing between 25,000 - 31,000 gallons of propane or butane can be located within the facility at any one time.

- Of these six (6) railcars some may be staged in-line for off-loading, in the process of off-loading, or empty within the Crestwood facility.
- Railcars are off-loaded (pumped) into storage tanks via a series of underground and above-ground pipes.

Filling Procedures (Tractor Trailers)

LPG and butane are transported out of the Crestwood site by tractor trailer tanker trucks that typically have a capacity of 13,500 gallons. Most tractor trailer tankers carry between 9,000 and 10,000 gallons of LPG.

*Note - The time needed to fill an 11,000-gallon tanker is approximately twenty (20) minutes.

Fire Detection Systems (Exterior)

There is a fire detection system consisting of (a) “fire eyes” (flame sensors) and (b) LEL detectors. These sensors and detectors are located in key areas throughout the loading and off-loading area to detect gas leaks or fire.

When activated the above detection systems:

- Stop the flow of gas via automatic air-actuated shut-off valves within LPG the piping network.
- Transmit alarm signal to NKFD via radio box #1648.

LEL Detection System

LEL detectors are located at:

- The base of each rail tower
- Adjacent to all five (5) storage tanks
    - Three (3) 60,000-gallon tanks
    - Two (2) 30,000-gallon tanks

LEL detectors lower explosive range settings are fifty percent (50%) and have a digital readout to display detected concentration.

Infrared Flame Detector Sensor (“Fire-Eyes”)

Automatic infrared flame detector sensors (“fire-eyes”) are located in the tanker truck loading area.

Fire Detection Systems (Interior)

The main office building contains a Fire Alarm Control Panel (FACP) that monitors LEL detectors, fire-eyes, emergency shut-offs, heat and smoke detectors, and one (1) manually activated pull-station.

Fire detection for the office area consists of heat and smoke detectors, and one (1) pull-station.

Manually Activated Emergency Gas Shut-Offs

There are easily identifiable (yellow in color) manually activated emergency shut off switches located throughout the facility.

Manually activated emergency shut off switches:

- Stop the flow of gas utilizing air-actuated automatic shut-off valves within LPG the piping network.
- Transmit alarm signal to NKFD via radio box #1648.

Fire Protection Systems

There are two (2) separate cooling systems installed in the Crestwood LPG facility.

- One (1) cooling system protects the rail off-loading line and the two (2) 30,000-gallon (earth mounded) storage tanks.
- One (1) cooling system protects the truck filling facility and the three (3) 60,000-gallon storage tanks.

Both cooling systems are supplied via four (4) inch Stortz style Fire Department Connections (FDCs) located at the entrance to the facility off Genoa Dr.

Both FDCs are clearly labelled indicating the area they are designed to protect, water flow capabilities (GPM), and required engine company operating pressure (PSI).

Both FDCs are equipped with check valves that allow pumping operations to begin with only one feeder line in operation.

Hydrant is located directly across from the FDCs.

One (1) FDC labelled “CRESTWOOD DRY MONITOR FDC FOR 60K GAL LPG TANKS. SUPPLY WITH 1500 GPM @ 170 PSI” supplies the cooling system that protects the truck filling facility and the three (3) 60,000-gallon storage tanks.

This FDC supplies two (2) self-oscillating nozzles capable of flowing 750 GPM each. The oscillating pattern from these nozzles is intended to cover the three (3) 60,000-gallon tanks and any trucks located in the propane filling area.

One (1) FDC labelled “Crestwood Dry Monitor FDC For Rail Cars and two 30,000 k LPG tanks Supply with 1500 GPM at 150 PSI” supplies water to the cooling system that protects the rail off-loading line and the two (2) 30,000-gallon (earth mounded) storage tanks.

This FDC supplies two (2) monitor style nozzles capable of flowing 750 GPM each. These are not “self-oscillating” type nozzles and must be manually directed at the desired target. Both nozzles can be directed at railcars and/or the 30,000-gallon earth mounded storage tanks.

Operations

Crestwood personnel have been instructed to attempt to extinguish small fires with a portable fire extinguisher or by securing the gas if it can be done in a safe manner.

In the event Crestwood personnel are unable to mitigate a fire or gas release they have been advised to evacuate to a designated muster area.

In the event of an alarm during business hours, a Crestwood representative will notify NKFD personnel upon arrival the following:

- Pertinent information regarding the type, scope, and location of alarm.
- Any corrective actions or mitigation efforts that may have been undertaken by Crestwood personnel prior to FD arrival.

In the event of a small release of LPG vapors or liquids NKFD personnel shall:

- Utilize containment and mitigation procedures consistent with size and scope of the incident.
- Prepare to utilize cooling system as outlined in this document.
- Consult CAMEO Chemicals and the emergency Response (DOT) Guidebook #115 for specific recommendations.

In the event of an uncontrollable release of LPG vapors or liquids from storage tanks or railcars NKFD personnel shall:

- Utilize containment and mitigation procedures consistent with size and scope of the incident.
- Prepare to utilize cooling system as outlined in this document.
- Consult CAMEO chemicals and the emergency Response (DOT) Guidebook #115 for specific recommendations.
    - At a minimum evacuate ½ mile radius from the site of the leak.

In the event of a fire involving LPG vapors or liquids from storage tanks or railcars NKFD personnel shall:

- Utilize containment and extinguishment procedures consistent with size and scope of the incident.
- Utilize appropriate cooling system depending upon the location of the incident.
- Consult CAMEO Chemicals and the emergency Response (DOT) Guidebook #115 for specific recommendations.
    - At a minimum evacuate one (1) mile radius from the site of the leak.

*Note - If a storage tank, rail tank car, or large tanker truck is involved in fire the recommended evacuation distance is a minimum of one (1) mile (1600 meters) in all directions.

Utilizing Cooling System (FDC)

First due Engine Company:

- Stage the apparatus just past the hydrant on Genoa Dr. adjacent to the FDC.
- Personnel in full PPE shall fully dress the hydrant utilizing the hydra-assist valve, hydrant gates and one (1) 4” Stortz adapter.
- Personnel will establish a water supply with a minimum of two (2) 4” large diameter hose (LDH) lines and one (1) 3” hose line.

Second due Engine or Ladder Company:

- Stage the apparatus on Mooring Drive @ Smith St.
- Personnel in full PPE shall assist the 1st due company establishing two (2) 4” LDH supply lines from the 1st due engine to the appropriate FDC.
- NKFD personnel shall assist Crestwood personnel with deploying monitors on the desired location and assuring a full evacuation of the facility.

*Note - Both FDCs are equipped with check valves that allow pumping operations to begin with only one feeder line in operation.

Once the cooling systems are in operation the incident commander shall consider withdrawing personnel to a safer location.

Apparatus Response

Apparatus response to the Crestwood Facility shall be consistent with NKFD SOG's.

CRESTWOOD COOLING SYSTEM FDC FOR THE THREE 60,000 GALLON TANKS AND THE TANK TRUCK FILLING AREA

CRESTWOOD COOLING SYSTEM FDC FOR THE RAILCARS AND THE TWO 30,000 GALLON TANKS

SELF-OSCILATING NOZZLE 750 GPM AT 150 PSI COVERS THE TANK ON THE RIGHT AND THE TRUCKS BEING FILLED

SELF-OSCILATING NOZZLE WITH AN OS&Y 750 GPM AT 150 PSI COVERS THE TWO TANKS ON THE RIGHT

THIS IS A MONITOR NOZZLE TO COVER THE NORTH END OF THE RAIL CAR LINE, THIS NOZZLE CAN BE ADJUSTED DIRECTIONALLY AND ALSO HAS AN OS&Y TYPE VALVE TO OPEN THIS NOZZLE

THIS IS A MONITOR NOZZLE TO COVER THE SOUTH END OF THE RAIL CAR LINE OR TO COVER THE TWO 30,000 GALLON UNDERGROUND TANKS. THIS NOZZLE CAN BE ADJUSTED DIRECTIONALLY AND HAS AN OS&Y TYPE VALVE TO OPEN IT.