

Staten Island Box 1194: FDNY Handles Damaged Haz-Mat Container on Docked Cargo Ship

by Battalion Chief John A. Calderone

At 2107 hours on the evening of March 11, 2014, Engines 158, 154 and 157, Ladders 86 and 83, Battalion 22, Marine 9, the Marine Battalion and Tactical Support Unit 2 were dispatched to Staten Island Box 1194, 500 Western Avenue. That address is the main entrance to the New York Container Terminal, formerly known as the Holland Hook Marine Terminal.

This 187-acre facility is located in the northwest corner of Staten Island, just north of the Goethals Bridge, and is served directly by railroad from New Jersey via the Arthur Kill Bridge. There are three deep-water berths for ocean-going container ships that stretch along 2500 feet of waterfront, as well as six gantry (a bridge-like frame over which a traveling crane moves) cranes to unload containers. There are two large warehouse buildings, a maintenance and repair shop, an office building, a refrigerated warehouse and a deep-freeze warehouse. U.S Customs and Border Protection also has a presence at the facility to conduct inspections. It is operated under a lease agreement with the Port Authority of New York and New Jersey.

The initial dispatch information was vague and lacked essential specifics to determine the actual location of the incident at the large facility and perform an initial size-up while responding. The only information provided to units was that there was a leaking container of cyclopentane (see box below) in a cargo hold; no container size, ship name, berth location or any other useful information was given.

Immediately on leaving quarters in response to this alarm, Battalion Chief John A. Calderone, Battalion 22, requested that the dispatcher attempt to determine additional information and, based on the limited information available, requested Rescue 5 and Engine 165, both Haz-Mat Technician Units, and Engine 163 with their dry chemical (Purple-K) apparatus, be assigned to this incident.

While units were responding, the dispatcher was able to provide the name of the vessel, the *Hyundai Voyager*, but no other in-

formation. The *Hyundai Voyager* is a 940-foot-long container ship built in 2008. It is capable of carrying 52,580 tons of cargo and is registered in Panama. It was staffed by a Korean crew.

The first-to-arrive units initially were delayed at the main entry gate by New York Container Terminal security personnel, who advised that there was no incident at the facility and there was no ship by that name berthed at the facility. After much delay and discussion, a Port Authority police officer arrived and escorted FDNY units out to the vessel.

A marine salvage company was on-scene, along with representatives of the ship and the Container Terminal and longshoremen. Despite a language barrier with the crew, it was quickly determined that the incident occurred at approximately 1300 hours--eight hours prior to the call being dispatched--when the ship was still in the open ocean and reportedly was struck by a rogue wave. The reported location of the involved container was inside the #1 hold, on the port side of the vessel at the bow. What was not obvious was how many and what type containers were involved and if there was an actual leak. The marine salvage company had decided not to take any action until daybreak. Despite this, when considering the negative potential of a possible cyclopentane leak, Rescue 5 was assigned to survey the damaged area to determine what the actual conditions were and if there was an actual leak.

The members of Rescue 5, under the command of Lieutenant Thomas Clair, made their way up to the main deck, along the main deck toward the bow and then 16 feet down into the #1 hold. These members were equipped with meters to determine the presence of any foreign substance that would indicate a leak.

Deputy Chief John Hodgens, Division 8, arrived and assumed command. He was briefed on the information available and actions in progress. Battalion Chief Donald Hayde, Rescue Battalion, arrived and was assigned to supervise Rescue 5 in the hold.

Thermal imaging cameras were used during the initial survey. After conducting an extensive size-up, Rescue 5 reported that a cable reel had broken free, struck a conventional container and dislodged that container which, in turn, struck the container of cyclopentane. The cyclopentane container was double-walled with insulation between the walls. The outer wall had been punctured by the conventional container. The insulation between the walls was visible, but the inner wall was intact and there was no leak.

The conventional container was placarded with UN #1266. The shipping papers showed that this container held perfume products with flammable solvents. The shipping papers also showed that the capacity of the cyclopentane tank was 20,000 liters (approximately 5300 gallons). Rescue 5 made entry into the conventional container and determined that while the contents had been thrown about and were dislodged, nothing was leaking. After determining with meters that the atmosphere was free of flammable vapors, Rescue 5 took digital photographs to document conditions in the hold. This information proved useful to Chief Officers at the Command Post. Haz-Mat 1 assisted in monitoring the area with meters.

Cyclopentane (UN #1146) is classified as a flammable liquid. It is colorless with a mild petroleum odor. Its liquid and vapor are highly flammable and the vapor is heavier than air. Cyclopentane is used in the manufacture of synthetic resins, rubber adhesives and polyurethane insulating foam.



all photos by FF Mike Hansen, Battalion 22

Following a detailed survey, Rescue 5 members determined that a cable reel had broken free, struck a conventional container and dislodged it. That container then struck the cyclopentane container, which was double-walled with insulation between the walls. The outer wall had been punctured. The insulation between the walls was visible, but the inner wall remained intact and there was no leak.



After assisting with getting the first foam line into position (above), members of Ladder 86 functioned as an elevated observation post to monitor removal of the containers from the ship's hold to the pier deck (right).



With a clear picture of conditions, a conference was held in the captain's stateroom. Included were the Fire Department as the lead agency, the U.S. Coast Guard, Port Authority, the ship's captain, the marine salvage company, Container Terminal personnel and the longshoremen. Since there were no leaks and conditions below deck were stable, there was no urgency to act. The longshoremen, who would be responsible to off-load the damaged containers, wanted to wait until daylight to do this. All involved agreed. Following this conference, Chief Hodgson held a separate conference with Chief Officers and EMS personnel to decide on resources needed and formulate an action plan for operations in the morning.

At 0902 hours the following morning, Battalion 22, Engine 158, Engine 154 with their foam unit, Engine 163 with their dry chemical apparatus, Engine 165 as the Haz-Mat Tech Unit, Ladder 86, Ladder 79 as a SOC Support Unit, Ladder 80 as the FAST unit and Marine 9 were assigned to Box 8510 at the Container Terminal. Chief Hodgson, Acting Staten Island Borough Commander, Deputy Chief Richard Howe, and Foam Manager, Battalion Chief Steve San Filippo, responded. A medical branch consisting of an EMS supervisor, Haz-Tac ambulance and BLS and ALS personnel also were part of the FDNY resources required to fulfill the action plan.

Another meeting was held before any action was taken to ensure that all involved were working from the same Incident Action Plan (IAP). The plan was to remove the damaged containers and place them on the pier where they would be examined and then moved to an isolated area. The normal way of removing containers from the ship's hold was via the crane directly hooking onto lift points atop the container at the corners. Since the conventional container was damaged, it could not be removed in this manner and longshoremen had to enter the hold to hook steel cables from the crane to the container. There was a possibility that either the flammable perfume or the cyclopentane could leak if either container was damaged during removal.

Each unit was pre-positioned before any removal operations were undertaken. Ladder 79 was positioned on the main deck at the open hold to monitor the longshoremen, the removal operations and take meter readings during the container removal. Engine 158 stretched a foam line to the main deck and positioned in the vicinity of the hold where the damaged containers were located in the event of a leak or ignition. Engine 154 stretched a second foam line to the point on the pier to which the containers were to be lowered.

Both foam lines were supplied by Engine 154. Engine 163 positioned their dry chemical apparatus near this second foam line. Chief San Filippo supervised the foam operation. Members of Engine 165 were positioned on the pier to monitor the containers once they were off-loaded from the ship. Ladder 86 assisted in getting the first foam line into position and then served as an elevated observation post to monitor removal of the containers from the ship's hold to the pier deck. Ladder 80 operated as the FAST unit. Marine 9 stood by off the ship's bow in the event there was a mishap during the unloading. Once all units were in position, the off-loading was allowed to proceed.

Once started, the removal operation went quickly and without any hitches. The large hatch cover over the hold, made of heavy steel, was removed by crane. The longshoremen entered the hold, rigged slings and attached the cable reel to the crane. It was removed to a flatbed truck on the pier, inspected and removed a safe distance. Next, the longshoremen addressed the conventional container containing the perfumes. Since it was damaged, deformed and leaning on an angle, it was not possible for the crane to attach to it directly. Again, the longshoremen rigged slings and attached it to the crane. It was removed slowly away from the cyclopentane container, then up and out of the hold and lowered onto a second flatbed.

During this removal, Ladder 79 metered the hold. When the container was set on the flatbed, it was immediately inspected and



Flatbed truck prepares to take the damaged container away from the site.



The removal process proved easier than anticipated. The cable reel and perfume container had to be removed with slings. The cyclopentane container was moved directly by crane. Once removed up and out of the hold, the containers were lowered onto individual flatbed trucks.

metered by Engine 165. Once determined safe, it was allowed to be moved to a safe area. The final removal went easier than expected. Although the cyclopentane tank was damaged, the container's frame was intact. This allowed the crane to hook up directly to the frame and remove the container in the conventional manner.

Again, Ladder 79 metered the hold. When the tank was placed on a third flatbed, Engine 165 conducted a complete, thorough inspection and metered it to determine there were no leaks. Once declared stable, this container was removed to a remote area of the facility. The incident was declared *under control* at 2318 hours.

Coordination was a major component at this incident. There were multiple agencies--including the U.S. Coast Guard, New York Container Terminal, the Port Authority, the marine salvage company, the longshoremen, the port captain and the ship's captain and owners--with a stake in the operation. The Fire Department took the lead and by conducting meetings prior to the operation, kept everyone involved on the same page. This facilitated a smooth operation, conducted without any glitches. All involved were walked through the site and designated areas of responsibility. This permitted any adjustments to be made prior to starting and went a long way to making this a seamless operation. Additionally, since there was no need to rush, there was sufficient time to properly plan and adjust operations before they were initiated.

Lessons learned

- When responding to alarms at large facilities, units should be cognizant of the fact that security may not be aware of the incident.

Members are urged to review the following references:

- "Incident Management--A Key Component of the ICS," by Battalion Chief Andrew Richter, in the 3rd/2002 issue of WNYF.
- *Emergency Response Guidebook*.

In this case, the ship's crew notified the U.S. Coast Guard and marine salvage company directly. The Coast Guard notified the Fire Department. The facility security personnel were bypassed in the process and were skeptical when Fire Department units arrived at the main gate. Units were persistent, yet diplomatic, in dealing with security.

- Despite the information provided to units by the ship's personnel and marine salvage company and their decision not to take action until the following morning, confirmation of the containers leaking or not could not be assured. By having Rescue 5 conduct a survey, accurate, firsthand information was provided to the Incident Commander (IC), which produced a more accurate assessment and development of an Incident Action Plan (IAP).
- Once assured the atmosphere was safe, a digital camera was used to photograph conditions in the hold. These photos provided a clear image of conditions for the IC, reinforcing verbal reports. Haz-Mat Tech units, Squads and Rescue 5 carry digital cameras. Monitoring continued while members were in the hold.
- With the Fire Department taking the lead, involving all concerned parties and organizations in multiple conferences assured that everyone understood the IAP and that the operation was carried out smoothly and without any disruptions.

About the Author...

Battalion Chief John A. Calderone has served the FDNY since 1973. He is assigned to Battalion 22. He holds a degree in Fire Protection from New York City Community College and has written extensively on the subject of fire apparatus. He is a regular contributor to WNYF.

