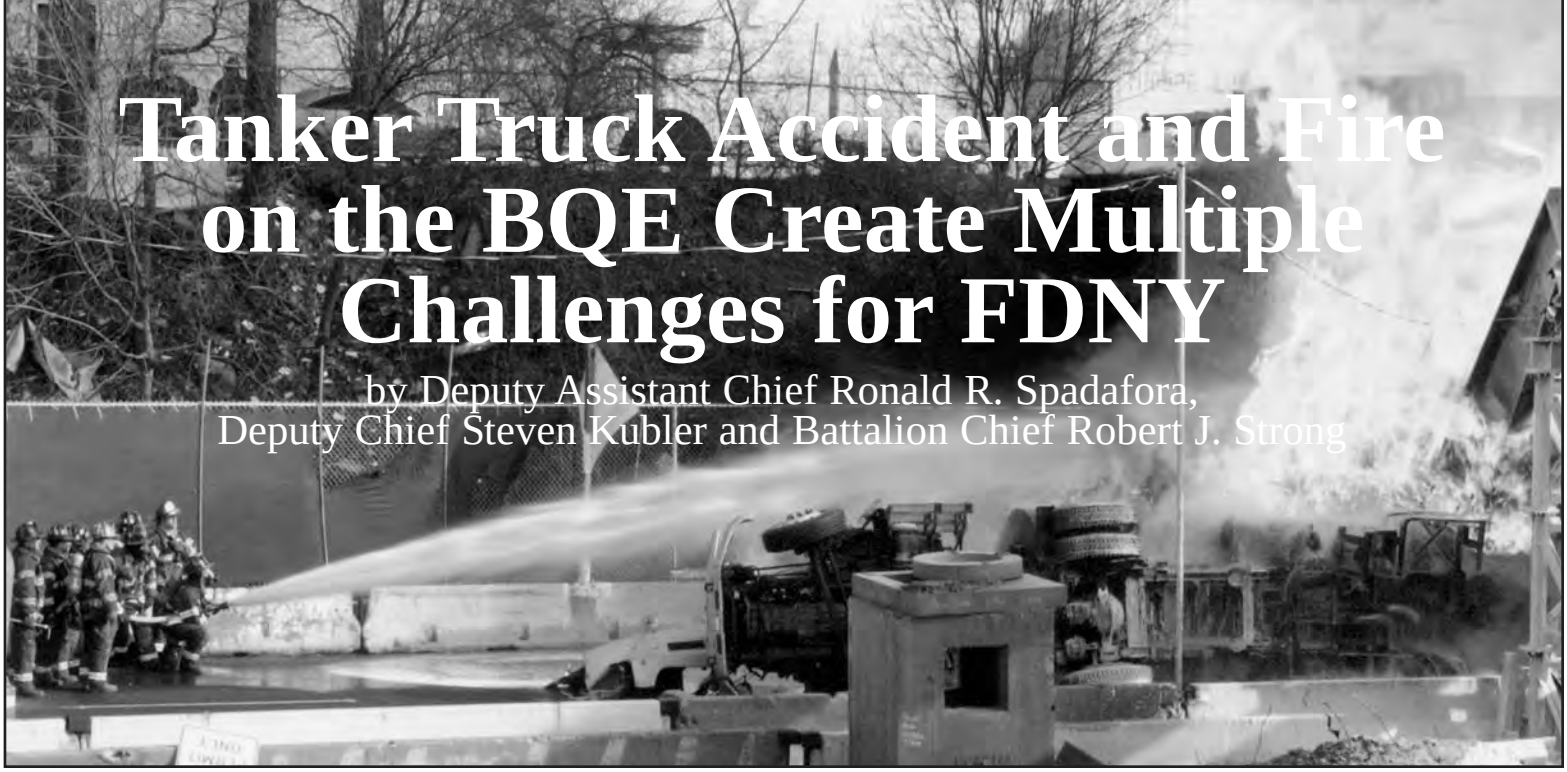


Tanker Truck Accident and Fire on the BQE Create Multiple Challenges for FDNY

by Deputy Assistant Chief Ronald R. Spadafora,
Deputy Chief Steven Kubler and Battalion Chief Robert J. Strong

all photos by the FDNY Photo Unit

The Brooklyn-Queens Expressway (BQE), proposed in the 1930s and constructed from 1937 to 1964, traverses 11.7 miles, from the Brooklyn Battery Tunnel in Red Hook, to the Grand Central Parkway in Queens. One of the oldest highways in the City, it was designed to carry both commercial and passenger vehicles east and west through the two boroughs, a first for New York City.

In August 1958, the BQE became Interstate I-278, making it eligible for 90 percent federal funding for reconstruction and improvement. Designed prior to the Interstate Highway System, the BQE was not in compliance with interstate highway standards. Sharp curves, narrow lanes, lack of shoulders and short entrance and exit ramps made the BQE a challenge, even to the most seasoned driver. Currently, the New York State Department of Transportation (NYSDOT) estimates that 120,000 vehicles per day use the BQE through Queens.

Since April 2000, major reconstruction of the BQE has been underway. The most recent phase of construction involves a one-mile stretch of the Expressway from exit 37 (Broadway/Roosevelt Avenue), south to exit 36 (NY 25/Queens Boulevard). The $124 million project includes noise barriers, road repaving and bridge reconstruction at the Roosevelt and 41st Avenues and 70th Street overpasses. The project is scheduled for completion in late 2008.

The tour

Acting Deputy Chief Robert Strong relieved Deputy Chief John Acerno, the 14th Division Commander (now Queens Borough Commander), around 1000 hours. It was Monday, January 16, 2006, Dr. Martin Luther King, Jr., Day. Even though a holiday for some, FDNY regulations require units in the field to carry out many of their routine duties. But in many respects, there are no routine days in the Fire Department. One of the more interesting aspects of being in the fire service is never knowing what challenges the next response will bring.

It was shortly before noon when the Queens dispatcher was transmitting a phone alarm for Box 7850, reporting a transportation fire on the BQE at Roosevelt Avenue. Battalion 46 had two engine and two ladder companies assigned at 1154 hours.

Transportation fires are not unusual in New York City; they occur every day. What was unusual, however, was the column of thick, black smoke that Chief Strong observed from the 14th Division office window. The column of smoke was so large that it dwarfed the six-story apartment building located on 108th Street, across from the firehouse. With the reported location of the fire on the BQE at Roosevelt Avenue a few miles away, whatever was burning was substantial.

Responding from quarters, Battalion Chief John Kleehaas, Battalion 46, observed the same column of smoke. Chief Kleehaas was receiving conflicting information regarding the exact location of a truck fire, as callers were reporting different locations and directions on the Expressway. In addition to the truck fire, he received reports of a possible building fire.

Acting on the information provided by the dispatcher and his physical observations of volume and characteristics of the smoke, Chief Kleehaas requested that Haz-Mat 1 be assigned to the Box, due to the potential involvement of hazardous cargo. This request initiated a Haz-Mat group response consisting of Haz-Mat 1, Squad 288 (Hazardous Technical Unit) and the Haz-Mat Battalion.

Chief Kleehaas responded eastbound on the BQE from the Queens Boulevard entrance and became stuck in heavy traffic. The smoke condition was worsening and responding units were having difficulty gaining access to the scene. Concerned about the deteriorating fire conditions and inability of units to arrive at the scene, Chief Kleehaas transmitted a second alarm at 1204 hours, prior to arrival on-scene.

Engine 307, under the command of Captain Anthony Lipari, was the first unit to arrive. Chief Kleehaas requested a preliminary report from Captain Lipari to get a clearer picture of the current conditions. The Captain reported that a tanker truck had rolled over on its side and was fully involved in fire. The tanker had come to rest under a steel bridge, still under construction, spanning the Expressway, and fire was impinging on it.

There was a hazardous cargo placard on the truck's front bumper that read *1203*. Recognizing that *1203* was the Hazard Identification System (HIS) number for gasoline, Chief Kleehaas transmitted the 10-86 signal at 1206 hours, to bring a large-scale fluoroprotein foam response to the scene. (See box on page 9.)

Chief Strong, responding to the second alarm, ran through a mental check list of some of the issues to address on his arrival--water supply, foam operations, protection of exposures, burning hazardous cargo and mitigation. He had gleaned some information from the radio transmissions among the dispatcher, Battalion 46 and other responding units, which assisted in his size-up.

Obtaining as much information as possible while responding better prepared him to deal with a multitude of issues on his arrival.

En route

The location of the fire was a major concern from the outset. Passing through this major highway reconstruction project frequently on his way to and from work, Chief Strong knew that site access and water supply would be logistical challenges. There are no hydrants on the BQE in this area and there was a distinct possibility that water would have to be relayed a considerable distance. Lengthy water relays are labor-intensive and severely tax engine companies responding on the initial alarm. To develop the large-caliber hose-lines and foam lines needed to cool the tanker and extinguish the fire, an adequate, reliable and continuous water supply would be essential. To address this concern, an additional Satellite unit was special-called above the second alarm and 10-86 signals to increase available foam and water supply capabilities.

On-scene 10-84

Roosevelt Avenue is a narrow, two-lane commercial street with curbside parking, bus traffic and the elevated subway line running above it. This area is also extremely congested with both vehicular and pedestrian traffic. Incidents on or in the vicinity of Roosevelt Avenue, under the best conditions, result in severe traffic problems. The addition of a major construction project with the removal of several overpasses in the area made apparatus movement and placement a difficult task. Units were forced to take alternate and sometimes roundabout response routes to arrive at their assigned locations. The traffic conditions were so severe that Chief Strong had to exit the Division car and walk about a block to reach the scene of the fire.

Chief Kleehaas was on the Expressway below Roosevelt Avenue, which spans the roadway, when Chief Strong arrived. Via handie-talkie, Chief Kleehaas briefed him on actions taken, status of the fire, primary searches and the numerous exposure issues to be addressed, which included the following:

- Vehicles were trapped on the eastbound Expressway behind the burning tanker as the roadway became impassable due to the accident.
- A steel bridge, under construction, above the burning tanker was seriously threatened due to the intense heat and flame impingement against the unprotected steel beams.
- Roosevelt Avenue spanning the Expressway and the elevated IRT 7 line supported above it were threatened as several el ties and the catwalk were smoldering from the effects of radiant heat.
- A one-story taxpayer perched above the roadway downwind of the incident had to be examined because reports were received of possible fire extension to this structure.
- Gasoline was burning in the storm drains, as well as the wooden foundation forms erected to support the steel bridge under construction.
- Oxygen and acetylene torch equipment used by the construction crew was perilously close to the burning tanker. The relief valves on three of the acetylene cylinders operated and flame under pressure was evident at the valves.

The large column of smoke Chief Strong observed from the office window a short time earlier was even more impressive as he stood at the guardrail over the depressed Expressway. A huge fireball, approximately 50 feet in the air, enveloped the eastbound BQE and heavy smoke obscured the area east of the Expressway. The tanker had overturned on its right side and come to rest with the rear half of the tanker under the steel bridge. Steel I-beams erected over the Expressway as part of the unfinished bridge collapsed onto the tanker moments after Division 14 arrival. Heavy timbers and concrete Jersey barriers positioned on top of this bridge hung precariously over the Expressway.

Initial operations

Engine 307 responded westbound on the BQE and positioned the apparatus north of the steel bridge. From this position, Captain Lipari ordered a foam hand-line stretch and attempted to secure a hydrant from the adjacent service road. Ladder 154, responding with Engine 307, was able to locate the driver of the truck, who removed himself from the vehicle prior to their arrival. While shaken, the driver was suffering no serious injuries and was able to supply Ladder 154 with vital information concerning the accident and the tanker. The driver stated he had lost control of the truck while trying to maneuver through roadway construction and that he was the only occupant of the vehicle. He also said he believed there were no other vehicles involved in the accident. Additionally, he informed Ladder 154 that he had just filled up the tanker at a terminal in Brooklyn and it was fully loaded with 8000 gallons of gasoline. The driver was treated for minor injuries at the scene by EMS personnel and released to Fire Marshals for further questioning.

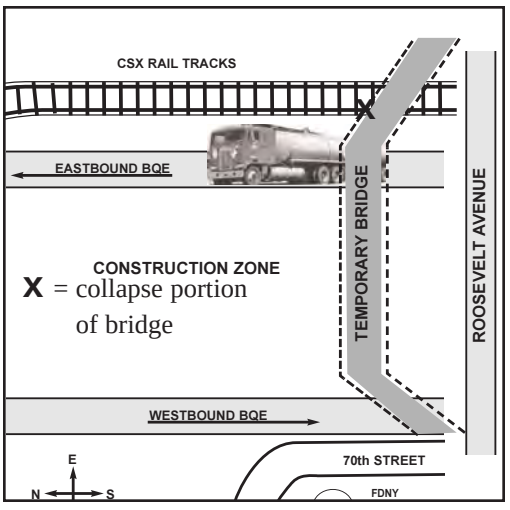
Squad Company 288, under the command of Lieutenant William Reddan, responding eastbound on the BQE, was stuck in traffic with Battalion 46. The burning tanker made the roadway impassable and panicked motorists began exiting their vehicles. A series of explosions--believed to be the truck tires--made the situation worse. With the need to reach the scene becoming increasingly urgent and traffic at a standstill, Lieutenant Reddan and the Squad 288 members decided to proceed toward the tanker on foot.

As they approached the scene, Squad 288 came upon two privately owned tow trucks. Lieutenant Reddan directed the tow truck drivers to move Jersey barriers, which were lining the construction zone. This provided an avenue of escape for the stopped motorists. The blocked vehicles now were able to exit the roadway, back the way they came, using the westbound lanes. Moving the barriers also enabled responding units to cross over the Expressway into the westbound lanes and reach the fire. With the need for water still critical, Chief Kleehaas directed Squad 288 to locate a water source.

Engine 292, under the command of Lieutenant William Horan, responded via Roosevelt Avenue and was situated on this roadway above the burning tanker. Lieutenant Horan informed Chief Kleehaas that from his position, he could operate the apparatus-mounted multiversal onto the tanker. Chief Kleehaas ordered use of the large-caliber stream and Engine 292 attempted to cool the steel components of the bridge, as well as apply water to the shell of the burning tanker. Unfortunately, the water application came too late to prevent the collapse of the steel bridge. It did, however, have a positive effect on the burning tanker. Water was cooling the tanker shell, slowing down the burn rate and reducing the effects of the radiant heat.

Command Chief response

Command Chief Ronald Spadafora was responding to the incident on receipt of the second alarm. While en route, he was notified by then-Chief of Operations Salvatore Cassano, monitoring operations at the Fire Department Operations



artwork by Thomas Ittycheria

Tower ladder and hand-lines apply foam to the tanker truck fire.

Center (FDOC), that Battalion Chief Richard Alles, Battalion 58 (Air Reconnaissance), had been notified to respond via the Queens Borough Dispatcher's Office. Chief Cassano also instructed Chief Spadafora to ensure that the tower ladders responding into the Box were positioned advantageously and supplied with foam for possible utilization involving extinguishment and exposure protection.

The location of the Command Post (70th Street and Roosevelt Avenue) was announced over the Department radio at 1223 hours by Division 14, which proved very useful at this large-area incident. This location was upwind, uphill, across from the incident and provided an excellent view of Expressway operations.

At 1227 hours, Chief Spadafora arrived at the Command Post and assumed the role of Incident Commander. Simultaneously, Chief Alles announced his arrival overhead, via the Police Department Aviation Unit. Chief Alles was able to provide valuable air reconnaissance regarding surrounding properties and the magnitude of traffic congestion along the Expressway in both directions. Communications with the NYPD was enhanced by using Vertex VX-800 Interoperable hand-held radios at the Command Post.

From the vantage point of the Command Post (west of both the tanker truck and westbound lanes of the BQE), engine companies situated to the north on the eastbound lanes of the BQE could be seen using hand-lines, while inducting fluoropolydol foam from five-gallon portable containers. These hand-lines were being used both to cool the tanker's fuel compartments, as well as lay a foam blanket over the spilled fuel.

At the Command Post, Chief Strong provided Chief Spadafora with a complete overview of strategy and tactics being implemented. Chief Strong later was directed to go down to the scene of the accident site to further evaluate FDNY operations directly. From the Command Post, Chief Spadafora began concentrating on ensuring that all train traffic on both the IRT and CSX lines was stopped, protecting exposures, enhancing foam capabilities and consolidating information gathered by FDNY specialized units.

As with most of FDNY's large-scale operations, specialized units were performing numerous tasks simultaneously, working in concert with first- and second-alarm companies to bring the incident to a successful and safe conclusion. With the tanker involved in fire, burning product in the storm drains and burning relief valves on the acetylene cylinders, Battalion Chief Robert Strakosch, the Haz-Mat Battalion, Haz-Mat 1, under the command of Captain Nicholas Corrado (now Battalion Chief), and the Safety Battalion played a critical role at this incident. Haz-Mat 1 was located at the tanker, evaluating and verifying the identity of the product inside the compartments and formulating a plan to possibly stop the leak. Haz-Mat 1 also was taking gasoline vapor meter readings to assess potential hazards to nearby structures, storm drains, the environment and operating units.

Battalion Chief Michael Borst, Safety Battalion, used this information to calculate a safe distance to be maintained by operating units conducting both primary and secondary search operations (which proved negative) and the positioning of the FAST unit (Ladder 116) and EMS personnel.

Battalion Chief Donald Hayde, the Rescue Battalion, Rescue 4, Squad 288 and members from the Tactical Support Unit (TSU) were also at the scene, conferring with haz-mat personnel. Rescue and Squad Firefighters were used to evaluate the structural stability of the compromised steel bridge construction. As an additional precaution, the adjoining Roosevelt Avenue roadway was examined for damage. Satellite and Foam Units also were working quickly to establish additional sources of water supply and foam application.

Enhanced foam operations

Battalion Chief Michael Gallagher, Battalion 6, was the first Foam Coordinator to arrive and was directed to establish a second large-caliber foam stream east on Roosevelt Avenue with Ladder 117 and Foam 294. Units were able to accomplish their assignment, but maneuverability problems and height restrictions imposed by the elevated subway line limited their effectiveness. The resulting positioning problems caused the foam nozzle to be too close to the burning tanker. When foam was started, the velocity of the stream caused gasoline to splash out of the tanker, disrupting the existing foam blanket. Since the previously established foam lines were keeping the fire in check, this line was shut down, assuming a standby position, until the fire was brought under control.

Battalion Chief Robert Boyce, Battalion 54, the second Foam Coordinator, was assigned supervision of the foam operations on the Expressway. Initially, foam lines established on the roadway were being supplied by five-gallon cans of foam concentrate carried by responding units. To augment this supply, Foam 260 was positioned on the Expressway in proximity to Engine 287. From this vantage point, Foam 260 could supply 1000 gallons of fluoroprotein foam concentrate, as well as deploy a variety of foam lines, ranging from a 100-gpm hand-line to the apparatus-mounted foam cannon capable of delivering 310 gpm of foam solution.

Engines 312 and 262, responding on the second alarm, reached the scene using the westbound roadway of the BQE and took positions behind Engine 307. Engine 287, also responding on the second alarm, reached the scene using the eastbound roadway against the normal flow of traffic. This positioned Engine 287 uphill, north of the incident. With Engine 287 now in position, Engines 312 and 262 could relay water across the construction area to Engine 287. Thus, additional foam hand-lines could be operated.

Tower Ladder 163 responded to the scene via Roosevelt Avenue. Their apparatus was ordered to be positioned on the service road at the corner of 70th Street and Roosevelt Avenue. This set up Ladder 163 west of the incident, above the depressed Expressway and provided a sound position to attack the fire.

Engine 238, Foam Tender 238, Engine 324 and Satellite Unit 4 reported into the Command Post and were directed to establish a large-caliber foam stream using Ladder 163. Units were able to accomplish this evolution quickly and efficiently, delivering 500 gpm of fluoroprotein foam solution on the burning tanker within minutes. The combination of the foam hand-lines and Ladder 163 large-caliber foam stream effectively reduced the intensity of the blaze.

The positive effect of FDNY's foam operation at this incident was not limited to the burning tanker and acetylene cylinders. Residual foam was entering the sewer system, extinguishing fire and suppressing the gasoline vapors. While the preferred method of operation is to dike the storm drains and prevent product from entering, this was not an option. The tanker had overturned uphill, only a few yards from the storm drain. The intensity of the fire, coupled with the

Signal 10-86 (Communication Manual)-- Fluoroprotein Foam Operations

Transmitted for fire or emergency requiring fluoroprotein foam concentrate in addition to that carried by units on the scene. The following units are to respond:

- 2 Foam Carriers and associated engine companies
- 2 Foam Coordinators (Battalion Chiefs)
- 1 Satellite Unit and associated engine company
- 1 Foam Tender and associated engine company
- 1 Purple K unit and associated engine company

If alcohol foam is required, the IC must specify this when transmitting the 10-86 signal.

Firefighters apply foam using hand-lines. They cooled the tanker's fuel compartments and provided a foam blanket over the spilled fuel.

prospect of members operating in the foam blanket, would delay any dike operation.

Additional safety concerns

Besides the work being performed at the location of the accident by the Safety Battalion, the Safety Coordinator, Battalion Chief William Conway, Battalion 28, also had numerous safety considerations to address. Chief Conway was ordered to take a position on the east side of the fire, above the Expressway and adjacent to the collapsed bridge.

At this location, there is a CSX freight line running parallel to the Expressway. It is not electrified, but is used by diesel-powered trains. Cyclone fencing mounted on top of Jersey barriers separates the Expressway from these tracks. Chief Conway was ordered to ensure that all FDNY members stay clear of this area until the Command Post received confirmation from the Queens Borough dispatcher that CSX had been notified and instructed to stop all trains using these tracks. Once confirmation was received, ladder companies were ordered to cut the fencing to provide access for Purple K Unit members, who stretched a Purple K-filled hose-line down the tracks and used it opposite the tanker.

From his position, Chief Conway evaluated the danger of radiated heat on neighboring buildings, observed the foam blanket for continuity, monitored the stability of the remaining section of the collapsed bridge, assessed the need (el ties/catwalk fires, sparks, vibration, noise) for stopping train traffic on the elevated IRT 7 line above Roosevelt Avenue and calculated the fluid level in the overturned tanker with the aid of Rescue 4's and Squad 288's thermal imaging cameras. Ladder 136 and Engine 263 were directed to operate under the supervision of Chief Conway to examine structures in the eastern exposure and extinguish el tie and catwalk fires. Subsequently, it was determined there were no other structural exposure problems. With the burning el ties and catwalk of the elevated IRT line extinguished, IRT trains once again were allowed to pass through the elevated station at a reduced speed (10 mph). The incident was designated *Probably Will Hold* at 1304 hours.

News media and inter-agency coordination

Under the coordination of the Office of Emergency Management (OEM), an initial press conference was conducted adjacent to the Command Post, involving the FDNY Incident Commander and other agencies with a direct interest in the incident. This provided the news media with up-to-date information. Operational updates were given to the on-scene media via the FDNY Public Information Officer (PIO).

OEM also established regular, three-hour interval meetings, beginning subsequent to the initial press conference to coordinate ongoing efforts estimated to last throughout the day and well into the night. The New York Police Department (NYPD), Department of Environmental Protection (DEP), Department of Environmental Conservation (DEC), NYSDOT, Keyspan Gas, Prini Construction Company (roadway contractor), Exxon-Mobil Oil Corporation (tanker owner) and the New York City Transit Authority (NYCTA) were some of the agencies attending these meetings, leading to a coordinated mitigation and fuel-recovery effort.

Decisions

The stabilization and control of a gasoline tanker truck incident is a complex operation. Once control of the situation has been attained, a decision must be made regarding whether to extinguish the fire or let it burn. A burning tanker lying on its side will produce a three-dimensional fire as burning product spills from the tanker. Conventional foam line application will not completely extinguish the flowing fire.

The dilemma involved at a large-scale incident is this: if the fire is extinguished, what happens to the remaining unburned fuel spilling from the tanker? If it flows into storm drains and/or sewer systems, have we solved one problem by extinguishing the fire, only to create an explosive situation in the sewer lines? There are no simple answers to these questions. The IC will have to confer with Chief Officers on the scene and technical resource personnel to make an informed decision. At this particular incident, the decision was made to extinguish the fire.

Units had been operating for more than an hour, replenishing the foam blanket and maintaining a controlled burn. The foam lines--while containing the fire--however, were causing product to spill over the side as portions of the tanker had burned away, exposing the product-filled compartments. No reports of gasoline odors or vapors were reported in surrounding properties. The technical representative from Exxon-Mobil at the scene made an assessment of the tanker and advised that it had the potential to burn for several hours.

With this information, Chief Spadafora decided to shut down foam lines and extinguish the fire, employing Engine 229 and the Purple K Unit, under the command of Lieutenant John Evangelista. The Purple K apparatus was positioned on the eastbound roadway. Engine 229 Firefighters stretched a Purple K hose-line down the CSX tracks adjacent to the tanker and used the Jersey barriers as a heat shield. One long blast of the Purple K stream was all that was needed to extinguish all active flaming in and around the tanker.

With the fire extinguished, the situation stabilized and all searches for victims negative, the incident was placed *Under Control* at 1430 hours. The next phase of the operation began following the *Under Control* determination. Haz-Mat 1 handled the removal of approximately 3500 gallons of gasoline from the damaged tanker. The residual product that collected in the storm drains and depressed areas of the roadway also was pumped out and collected for removal.

The structural integrity of the remaining portion of the steel bridge was further evaluated. The tanker had to be uprighted and removed and the steel bridge disassembled. These issues and others took hours to complete, with the final goal to eliminate all dangerous conditions and re-open the Expressway. At 1930 hours, Deputy Chief Steven Kubler, Division 14, assumed command of operations after being briefed by Chiefs Spadafora and Strong.

Transfer of command

Chief Kubler had numerous issues that remained to be addressed. The tanker was in the final stages of being off-loaded and the collapsed steel beams had to be lifted from the truck in order for it to be removed from the roadway. Debris in the form of heavy wooden timbers, concrete Jersey barriers and residual fuel that had spilled from the tanker also had to be removed quickly, yet safely, to meet the goal of having the Expressway fully operational by morning. Unburned fuel had collected in the catch basins and foundation forms of the steel bridge and complete removal of

The Command Post was set up in an ideal location--it was upwind, uphill, across from the incident and provided an excellent view of the Expressway operations.

the fuel would be a major problem.

The steel beams atop the tanker were a tangled mess. To complicate matters, Prini Construction representatives stated at the inter-agency meeting held at 2000 hours that one of the steel beams would have to be cut before it could be removed due to the twisting stress that was placed on it when it fell. If the beam was to be unbolted without prior cutting, it could have a loaded spring effect, resulting in unpredictable movement of the beam. This would create an unacceptable safety risk to all FDNY members and all workers involved in the mitigation and restoration of the site. Chief Kubler decided to allow the steel-cutting operation to take place.

Steel-cutting operations commenced following the inter-agency meeting. Even though all fuel had been removed from the tanker and combustible gasoline vapor readings were negligible, Chief Kubler wisely re-established protection hand-lines to guard against possible re-ignition of residual product. A Purple K and two foam hose-lines were positioned on the roadway adjacent to the cutting operation. Additionally, another foam hand-line was placed on Roosevelt Avenue above the cutting operation. At approximately 2200 hours, during steel-cutting operations, re-ignition of fuel vapors did, in fact, occur, but the flames were quickly and safely extinguished using the precautionary hand-lines.

The remainder of the restoration operation went as planned through the combined effort of all agencies represented at the scene. OEM held regular meetings to coordinate the various tasks performed both on- and off-site. The NYPD diverted traffic off the Expressway to secondary roadways. DEP and DEC monitored and contained product run-off. Prini Construction removed heat-damaged steel components and shored up weakened sections of the bridge. Exxon-Mobil contacted private contractors to upright the tanker and remove it from the roadway. NYCTA and CSX resumed full service on their respective track lines.

Lessons learned/reinforced

- Establish the Command Post early in the operation. Announce the location of the Command Post to the borough dispatcher, as well as units already on-scene.
- Initially, agency representatives will report into the Command Post, only to leave the area a short time later. Establishing a log with the name, agency and cell phone number of representatives will make it easier to contact them if the need arises.
- Signal 10-86 (foam operation) will bring 10 pieces of apparatus, as well as two Foam Coordinators. If possible, designate a suitable staging area for these units.
- Applying large-caliber streams to cool the tanker shell is a critical first step in controlling these incidents.
- While not prone to BLEVE, aluminum tank trucks can experience catastrophic tank failure. Maintain a safe distance.
- Operating units need to be aware of the location of storm drains and manholes in the vicinity of these incidents. Vapor buildup in the areas can ignite with explosive force, endangering members and apparatus.
- The Purple K unit has 100 feet of hose with a 30- to 40-foot discharge range and a one-minute operational time. These limitations must be considered when deploying this unit.
- The thermal imaging camera is a versatile tool. At this operation, it was used to monitor the fuel level inside the tanker. Explore additional uses during training.
- Never attempt to right an overturned tanker until the fuel has been off-loaded. Request an off-load tanker and tow truck of suitable size early in the operation to allow time for their arrival. This will provide for a seamless transition to the clean-up phase of the operation.
- Off-loading fuel from a damaged tanker is a serious task and proper safeguards must be followed to ensure the vehicles are properly bonded together and grounded.
- Field units carry fluoropolydol foam concentrate in five-gallon cans, while foam apparatus carry fluoroprotein foam concentrate. Different types of foam concentrate should not be mixed.
- The velocity of foam nozzles when positioned too close to product can cause splashing, resulting in disruption of foam blankets.
- When in doubt, act on the side of safety. Precautionary foam and Purple K hand-lines re-established after the fire was placed *Under Control* and throughout the restoration operation extinguished the residual fuel spill flare-up quickly and safely.

Conclusion

During an ongoing, large-scale operation, it is important to hold inter-agency meetings regularly. As the work progresses, priorities sometimes can shift and new concerns must be addressed. At this operation, all agencies communicated and worked well together. This cooperation made for a successful and serious injury-free operation, while placing a major thoroughfare back in service. When dealing with multiple agencies, as well as private companies, it is important for the IC to carefully evaluate input and information presented. Priorities of individual agencies/companies may not be the same as the FDNY. The Incident Commander must make decisions based on information/data and his/her authority, per New York City's CIMS protocol and FDNY's operational procedures.

About the Authors...

Deputy Assistant Chief Ronald R. Spadafora *(top) is a 28-year veteran of the FDNY. He is assigned to Operations as the Chief of Logistics. He holds a Masters degree in Criminal Justice from LIU-C.W. Post Center, a BS degree in Fire Science from CUNY-John Jay College and a BA degree in Health Education from CUNY-Queens College. He is an Editorial Advisor and frequent contributor to* WNYF. *He teaches Fire Science at John Jay College as an adjunct lecturer and is the senior lecturer for Fire Tech Promotions Inc.* ***Deputy Chief Steven Kubler*** *(middle) is a 27-year veteran of the FDNY. Currently, he is working in Division 14. As a Battalion Chief, he served with Battalion 4; as Captain, with Engine 259; as Lieutenant, with Engine 55; and as a Firefighter, with Engine 212 and Ladder 138. He is enrolled at Empire State University. This is his third article for* WNYF. ***Battalion Chief Robert J. Strong*** *(bottom) is a 27-year veteran of the FDNY. Currently, he is assigned to Battalion 45. He holds a BA degree in Communications and Political Science from Queens College. He recently participated in the West Point Counter-Terrorism Leadership Program. This is his third article for* WNYF.