FDNY Neutralizes Brooklyn Pollution Control Plant Fire

by Deputy Assistant Chief Edward S. Kilduff,
Brooklyn Deputy Borough Commander

The Coney Island Water Pollution Control Plant is an eight-square-block complex located on Knapp Street in Sheepshead Bay. It serves a dozen Brooklyn communities from Red Hook to Starrett City. The plant is a network of 17 buildings that can process up to 220 million gallons of water each day. It is one of the largest facilities in the Department of Environmental Protection (DEP's) system of 14 water treatment plants.

The actual water treatment process consists of pumping raw sewage through a system of three closed tanks. The first step removes large objects; the second degreases the water; and the third removes heavy bottom sediment into a final holding tank, where the sediment is manufactured into fertilizer. After this process, the water is sent to open tanks, where it is aerated and chlorinated before release to the open waterways.

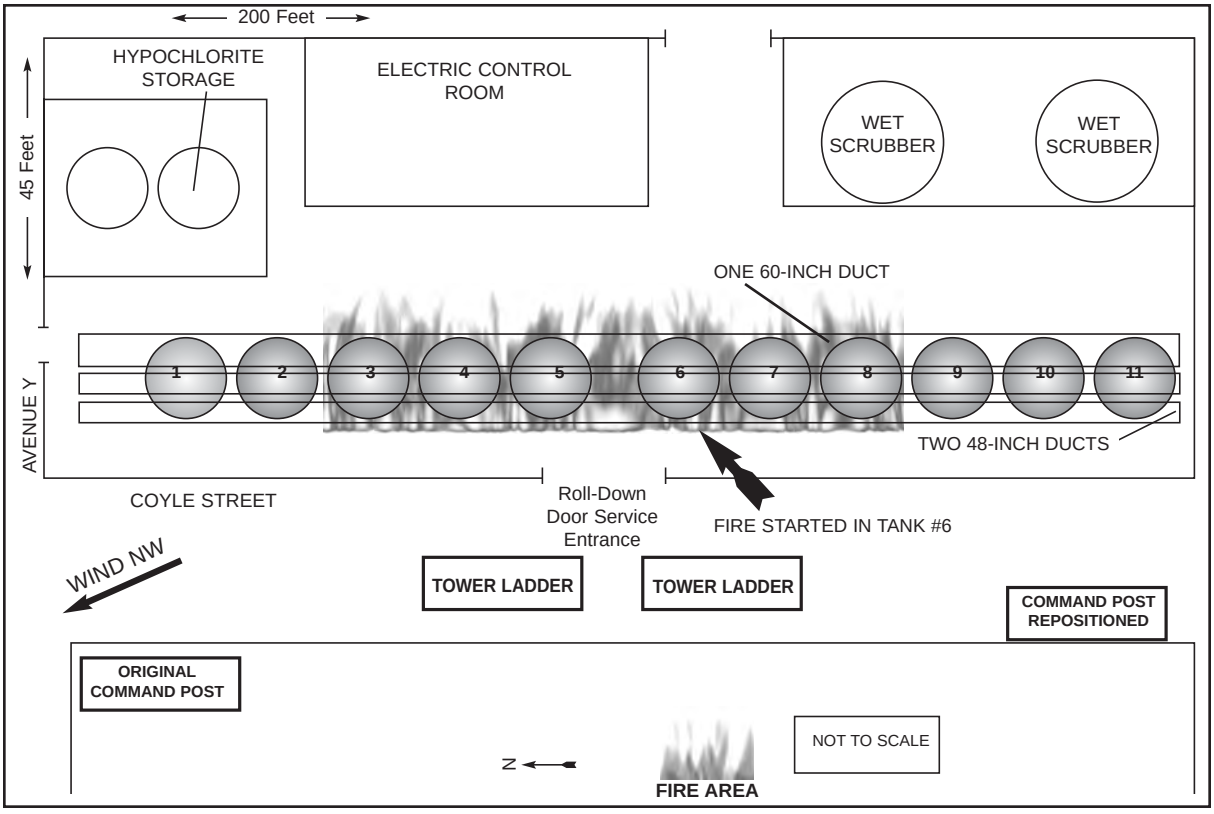
In the early '90s, the Coney Island plant underwent a billion dollar upgrade. Five years ago, an "odor-control building" was added to the complex. The purpose of this building is to collect foul air from the sealed holding tanks, "scrub" the air and release the purified air to the outside.

The air filtration process circulates air through 11 tanks that are 12 feet wide and 22 feet high and contain a grid system of carbon (charcoal) filters. A hypochlorite solution is injected into each tank to complete the purification process before the air is ducted through the roof by separate vents over each tank. (Hypochlorite is a toxic/corrosive substance that may cause severe injury or death if inhaled or ingested or contact is made with the skin. If exposed to fire, it may produce irritating, corrosive and toxic gases.) The tanks are constructed of fiber glass and interconnected by two 48-inch ducts and one 60-inch duct that run across the top of all 11 tanks.

On the evening of August 5, 2003, a fire started in unconditioned charcoal in tank #6 in the odor-control building and was reported to the Brooklyn Communications Office as Brooklyn Box 3240 at 1911 hours. Assigned units--Engines 321 and 246 and Ladders 169 and 153--arrived at 1916 hours at the corner of Avenue Y and Coyle Street to find smoke pushing from the vents on the roof of a 200- x 60-foot building located within the Coney Island Waste Treatment Plant. The fire building was located three blocks from the Knapp Street entrance to the plant, so units forced entry into the building's service doors on Coyle Street. Once inside, FDNY members found dense, black smoke with no visibility and a medium heat condition.

A 2 1/2-inch hand-line was stretched by Engine 321 members and operated for a brief time, but first-due units had difficulty determining the exact location of the fire and the material that was burning. They sensed the layout of the building was unusual and they also became aware that unknown hazardous materials might be contained inside. Consequently, Battalion Chief Louis Bynum, Battalion 33, backed the units out to the doorway until a clearer picture could be obtained. While more specific information was being sought, Chief Bynum transmitted a second alarm at 1926 hours for additional resources and began preparations for a large-caliber stream attack.

When Rescue 2 arrived, Captain Philip Ruvolo was instructed by Chief Bynum to determine the extent of the fire area and recommend the best approach of attack. Using the thermal imaging camera, Rescue 2 members found that the fire was burning in the upper half of the 35-foot-high building and it was spreading from sev-



artwork by Thomas Ittycheria

eral locations at the ceiling level toward each end. Later, it was discovered that one tank initially was burning, with fire spreading rapidly along the interconnected duct system and dropping into two additional tanks.

By this time, a cloud of black, acrid smoke had enveloped the entire residential neighborhood to the north of the plant. A civilian evacuation was becoming a real possibility because of the unknown products of combustion pouring from the building. Deputy Chief Richard Howe, Division 8, arrived and ordered units to reposition out of the smoke area. He moved the Command Post to a cleaner, upwind area. (See diagram on facing page.)

Initial information from plant personnel placed the hypochlorite storage at the north end of the building in two 200-gallon tanks. This was verified by SOC units who found the tanks in a protected area, isolated from the main fire area. To obtain additional information, Chief Howe made a request for the plant engineer to respond and asked plant personnel for MSDS sheets on all chemicals in the building.

Members were removed from the building and Chief Howe ordered Tower Ladders 153 and 159 to operate streams at roof level in an attempt to confine the fire. The tower ladders directed water through roof vents, but their effectiveness was negated because of limited penetration. Chief Howe transmitted a third alarm at 1943 hours to provide resources for a full outside operation and address a potential civilian evacuation.

Deputy Assistant Chief Edward S. Kilduff, Brooklyn Deputy Borough Commander, arrived at 1955 hours and was updated by Chief Howe on conditions. The tower ladders were keeping the fire in check, but it was apparent that the outside streams were not reducing the amount of fire.

SOC Chief Jack Spillane, Safety Chief Phillip Gaetani and Haz-Mat Chief Nicholas Delre were asked to evaluate an alternate approach to the fire. After a complete assessment, they recommended that an interior attack now could be attempted safely, using a limited number of members. Simultaneously, an exchange of information between the Incident Commander and qualified plant personnel resulted in the building's hazards and layout becoming better defined. A decision was made to shut down the tower ladders and attempt an interior attack.

Under the direction of Chief Spillane, members from Haz-Mat 1, Rescue 2 and Squad 1 entered the building with chemical detection meters, thermal imaging cameras, search ropes and a hand-line. A back-up hand-line and a dedicated FAST unit were positioned to protect the SOC members. It took some time, but they were successful in knocking down the remaining body of fire and determining the extent of the damaged area.

They found that three tanks had burnt down to the eight-foot level and 100 feet of ductwork had been destroyed and fallen to the ground. The reason for the dense, acrid smoke now was obvious. Everything that was burning consisted of heavily wrapped, one-inch-thick fiber glass.

To protect the members who had entered the building earlier and the members who were currently operating, Ladder 15 members set up the decontamination trailer for a possible decon operation. Additionally, members used a decon hand-line, stationed outside the building, to wash the black soot from their gear and skin surfaces. Haz-Mat 1 and the Department of Health constantly monitored the smoke, but at no time was any toxic hazard found in the smoke.

Tower ladders operated at roof level to confine the fire. They kept the blaze in check, but could not reduce the amount of fire.

photo by Richard Cohen

A fourth alarm was transmitted at 2115 hours because of the extensive overhauling necessary on the tanks and duct system. Units from the staging area were rotated until the fire was declared under control, three and a half hours later at 2244 hours. This operation relied heavily on feedback from the various Sector Chiefs and information provided by reliable plant personnel. Because of conflicting information about building layout and chemical storage, several adjustments were required during the operation. Our members demonstrated great resourcefulness and determination in bringing this complex incident to a safe conclusion.

There were four major problems that made this incident unique when compared with FDNY's normal structural fire operations:

1. ***Building/CIDS Information.*** CIDS information for the plant was listed under the address of the main building, located on Knapp Street. The odor-control building was three blocks away and not included in the CIDS information. The building had no identification or address available to relay to the dispatcher, who made repeated attempts to ascertain CIDS information. Based on the nature of the calls received by the dispatchers at

the Brooklyn Communications Office, they initiated the response of Haz-Mat 1 and Squad 1. Arriving quickly on the scene, Haz-Mat 1 provided a reliable assessment of the air quality in the area, which allowed the fire operation to continue in a pro-active manner. Currently, the CIDS desk is exploring ways to include multiple buildings/occupancies under one address in the system. In a facility with several multi-use buildings, each building should be on a separate CIDS card and listed by building title or function in a drop-down menu for that address. For example, 2591 Knapp Street; Coney Island Water Treatment Plant; Building "R"; Odor-Control Building (plus CIDS information). (See "Rear Tenement Fire Revisited," by Deputy Chief Richard E. Fuerch, in the 3rd/2003 issue of *WNYF* for another way to list multiple buildings in CIDS.)

2. ***Size-Up.*** Size-up was difficult because there were no markings outside indicating the use of the building. Information on the layout came slowly and was not always accurate. For example, originally it was thought the roof and tops of the tanks were open. Units were trying to lob water into the tanks until it was determined that they were sealed and covered by ductwork. This caused a delay in operations and a waste of manpower. As the incident progressed, plant personnel provided more specific information that allowed Chief Officers to make more efficient decisions.
3. ***Smoke Management.*** This was a serious problem because of the unknown by-products that might be contaminating a large residential area. It was expected that civilians would begin to complain of respiratory distress, so Chief Kilduff and EMS Deputy Chief Robert Hannafey started planning for a collection and triage area for civilians. Because of exposure to the smoke, NYPD members or EMS personnel could not be committed to search and evacuate the affected area. Battalion 44 and Engine 310 were directed to patrol the residential area immediately north of the plant, where assistance was rendered to several civilians experiencing distress. Public service announcements were arranged through the FDNY Public Information Office and the Office of Emergency Management (OEM) via the radio news media, advising civilians to keep their windows and doors shut. Remarkably, there were few civilian complaints during the incident, but if the smoke had been toxic, there would have been hundreds of victims to aid.
4. ***Haz-Mat/Chemical Identification.*** As with many haz-mat situations, initial operations must be conducted in a cautious manner until the product(s) is/are identified and a plan of action determined. At this fire, initial units were told that there was hypochlorite stored in holding tanks at the Avenue Y end of the building. Although the tanks were somewhat removed from the fire area, this could not be verified immediately and there was concern about the reliability of the information. There are several other areas in the plant where hypochlorite is stored in 100- to 500-gallon containers. Responding members must know the location of these chemicals before committing to an incident, through CIDS information, plant personnel or familiarization drills held at the location of unusual occupancies in their response district.

Lessons learned/reinforced

- Use building personnel and technical specialists to their full potential. Ask questions and verify information. As part of the FDNY Incident Command System, a Chief or Company Officer should be dedicated as a formal liaison between the Incident Commander and building representatives if information is critical to the operation. This also applies to outside agencies. Representatives from the NYPD, DEP, New York City Board of Health, Con Ed, Keyspan and OEM all assisted at this operation.
- If it appears that the incident may involve a chemical or toxic release, anticipate a large-scale medical event. For multiple casualties, special-call additional units and supervision to assist victims and EMS. Designate evacuation areas and casualty collection points. Keep EMS updated on operations and communicate concerns to the EMS Chief on the scene.
- Anticipate the possibility of decontamination. Special-call appropriate units and supervision to establish a decon operation. Designate a decon area and develop a line of communication with your EMS counterpart to ensure that decontaminated victims are handled properly.
- At any commercial building incident, anticipate the possibility of hazardous materials. Special-call the proper resources and supervision early for a safer and more efficient operation. Remember, plant personnel tend to play down the seriousness of chemical storage and its use.
- Employ the expertise of the Special Operations Command at an unusual incident. At this operation, Haz-Mat 1, Rescue 2 and Squads 1 and 252 formed a SOC "task force." When they entered the building to complete extinguishment, each unit performed a different function to accomplish a common goal. The SOC units complemented the efforts of the line units and played a major role in the final resolution of this incident.
- Delegating supervision and narrowing the span of control are vital when operating in a dangerous environment with unknown hazards. At this fire, Chief Spillane had direct control over his units, while Chief Gaetani monitored mask discipline and the number of units committed to the interior. Sectors were established and a Chief Officer was assigned to supervise each of the following: staging, medical triage, smoke reconnaissance and liaison with plant personnel. Each of these Chiefs became a manager of his sector and was delegated the authority to supervise tasks in his sector. When issues arose that affected an individual sector, the Chief communicated with the Incident Commander for information, resources, etc.
- Remember to rotate personnel and call for sufficient resources when a prolonged operation is evident. Many members went through two mask cylinders and were encapsulated for a long period of time during the operation. EMS established a triage area with their Mobile Emergency Response Vehicle (MERV) Unit and treated several dozen members for minor injuries. The services of the RAC Unit and the Red Cross also were essential in helping our members recuperate and return to duty.

Recently, DEP placed several of the less damaged tanks back in service, so the odor-control building is operating at 40 to 50 percent capacity. It will take two years and $7 million to restore the facility to full capacity.

About the Author...

Deputy Assistant Chief Edward S. Kilduff is a 26-year veteran of the FDNY. He is the Brooklyn Deputy Borough Commander. He holds a BA degree in Political Science from Marist College.