West Virginia Tunnel Drill Prepares FDNY's Responders

by Battalion Chief Joseph R. Downey

On June 20, 2005, New York City's Urban Search and Rescue Task Force (NY-TF1) traveled to the Center for National Response (CNR) in Charleston, West Virginia, to conduct a mobilization exercise. The CNR is a multi-purpose exercise facility designed to meet a wide range of Weapons of Mass Destruction (WMD) consequence management and counter-terrorism requirements for the Department of Defense, Federal, State and Local organizations. The CNR prepares both military and civilian response teams to face future threats and challenges.

The CNR uses a tunnel that provides realistic environments where responders can practice their techniques in technical rescue and collapse operations and mitigate the effects of a WMD incident. There are seven operational scenarios to choose from when training at the CNR. These training venues can be used individually or combined to create a complex event. The venues include a post-rubble area with hazards and vehicles; a subway train station with mezzanine platform; chemical, biological and drug laboratories at different sophistication levels; a highway WMD hazardous materials incident that could be configured with a wide variety of chemical, biological and radiological sources with numerous vehicles; and a cave and bunker complex.

Additionally, the CNR has more than 10,000 acres of semi-wilderness area surrounding the tunnel that can be used for training purposes. It is a one-of-a-kind training facility that can incorporate many tasks encountered at a catastrophic event.

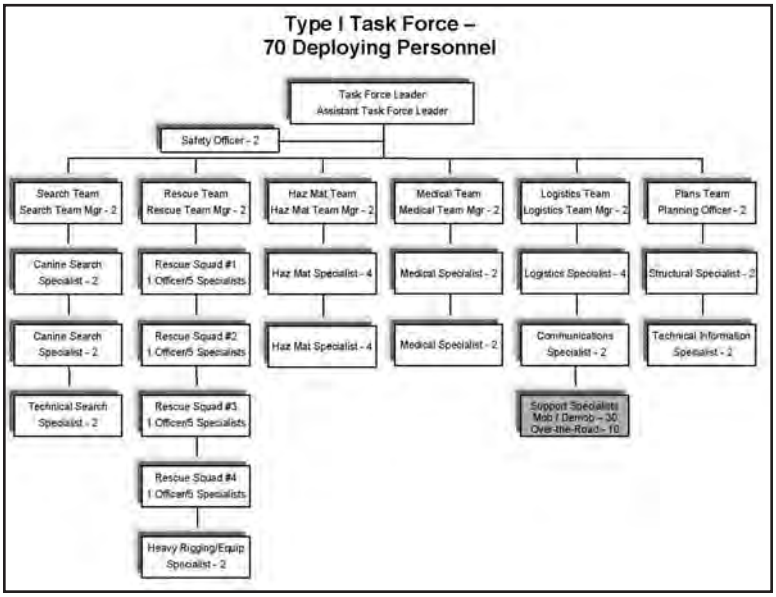
The tunnel is 2800 feet long with more than 79,000 square feet of training space. It was constructed in 1953 and was an active part of the West Virginia Turnpike until 1987. The tunnel was bypassed by Interstate 64/77 in 1987. The U.S. Congress required the Department of Defense to establish a cost-effective consequence management and counter-terrorism facility for military first responders and testing of response apparatus and equipment at the Memorial Tunnel. The CNR is federally funded and operated by The Titan Corporation. There are no user fees associated with this facility.

Once an organization decides to utilize the CNR, a series of planning conferences are scheduled to determine requirements and exercise objectives. The CNR staff will develop, coordinate and facilitate a unique exercise for the team or department. Rescue Operations Battalion Chief and Task Force Leader Fred LaFemina and Rescue 3 FF and Task Force Communication Specialist Bob Athanas, along with members of the Task Force from NYPD and the Office of Emergency Management (OEM), traveled to West Virginia to plan a scenario for NY-TF1's mobilization exercise.

They met with the CNR staff and toured the tunnel. The Task Force representatives decided to use a combination of venues offered at the CNR to test the capabilities of NY-TF1. With the help of the CNR staff, a challenging and difficult exercise was planned to test the many disciplines that make up an urban search and rescue Task Force.

OEM, NY-TF1's sponsoring agency, sent a call out on June 19, 2005, to 70 members of NY-TF1 that they had been activated for a simulated explosion in the South Boston Portal of the eastbound Ted Williams Tunnel. Task Force members reported to the point of departure at 0300 hours to receive their equipment and mission. At the assembly area, members received a medical exam, which is standard procedure. They were told they would be traveling to the Center for National Response and operating at a simulated explosion that has caused severe structural collapse. Multiple injuries within the tunnel system should be expected.

During a real activation, members would travel with the cache (equipment and tools). At this exercise, it was more economical to have the logistics specialists and support team drive the cache down to West Virginia and have the rest of the team fly down. The equipment cache weighs more than 100,000 lbs. and requires three tractor-trailers to transport it. The search and rescue equipment contained within the cache consists of fiber-optic cameras, seismic listening devices, concrete-cutting chain saws, heavy lifting capabilities, complete communications system, complete WMD protection unit, structural engineering unit and a complete emergency medical unit. Along with the technical search and rescue equipment in the cache are tents, sleeping bags, food (meals ready to eat--MREs), water, toilet facilities, medicine and all other support supplies and equipment necessary to function in a disaster envi-



all photos by Battalion Chief Joseph R. Downey

Members of NY-TF1 cautiously enter the tunnel to begin their assessment. This reconnaissance team adhered to FDNY operational procedures by assuming that every explosion could be a dirty bomb until proved otherwise.

The re-con team members take readings, metering for hazards as they advanced into the tunnel.

ronment for the first 72 hours.

OEM Commissioner Joseph Bruno flew down with the team and observed the first day of operations. On arrival at the CNR, team members were briefed by the CNR staff. Urban search and rescue Task Forces operate under the authority having jurisdiction for all deployments. The CNR staff assumed the role of the first responder and provided NY-TF1 with little information.

The first responders did say there was an explosion and injured civilians were seen in the tunnel on closed-circuit TV. The Task Force was split into two teams to provide around-the-clock operations. A Type-I Task Force has two members in each position, which enables them to operate continuously. (See chart on page 44.) One team rested while the other team started to unpack the three tractor-trailers and set up a base of operations. Operations in the tunnel did not begin until most of the pallets of equipment and tools were unloaded. This task took substantial time and required assistance from all team members.

A reconnaissance team was assembled to evaluate the tunnel and set up an operational plan. This team uses tools that are found in a "go-pallet," which features a limited number of specific tools needed for members to gather information at an incident. This go-pallet is unloaded first and made available to the reconnaissance team on arrival at any incident.

The re-con team located the tunnel entrance and began their assessment of the area. NY-TF1 followed standard FDNY operational procedures and assumed every explosion could be a dirty bomb until proved differently with meters. A precautionary decontamination area was set up and manned by the Task Force hazardous material specialists. Communications specialists set up a communications plan with designated channels.

The re-con team proceeded into the tunnel, slowly metering for hazards as they advanced. Some of their concerns as they worked their way into the tunnel included:

- Is this a CBRN (chemical, biological, radiological, nuclear) incident?
- Will we have a secondary device?
- Is the tunnel structurally safe?
- If there is a fire, do we have a water source?
- Do we have access to the utilities?
- What kind of vehicles use the tunnel?
- Can we communicate within the tunnel?
- Are there enough resources?
- And, most importantly, how many victims are there?

Once the metering proved negative and the area was deemed safe, rescue and search team specialists entered the tunnel to begin the task of locating the victims. From this point on, members were challenged by the many tasks encountered. A subway train was their first obstacle. People in need of medical attention were found on the train. Other victims were trapped by the subway car and had to be extricated.

Medical specialists triaged each victim located and provided transportation out of the tunnel. Almost immediately, the medical unit--two Paramedics and one doctor--became overwhelmed. Difficulties were encountered removing victims to the mouth of the tunnel, which was 2000 feet away from where the units were operating. Rescuers realized there would also be a delay in obtaining the equipment required from the base of operations.

The base of operations was located one-quarter mile from the entrance of the tunnel. Logisticians used *gators* (golf carts) to transport tools for the rescue and search team specialists. As the operation progressed, this team anticipated what tools they would use and requested these tools in advance to avoid delays. Communications specialists set up a repeater to improve communications as the team advanced into the tunnel.

When subway operations were completed, Task Force members moved on to a confined space scenario. Members could hear victims yelling for help, but needed to lower a rescuer through a vertical maze of tubes. A complex lowering operation terminated in an area littered with numerous cars and trucks in various positions. Victims had to be extricated from vehicles while other vehicles were stabilized. Some of the victims were wearing impalement vests that had to be carefully cut away. Medical specialists were required to triage the victims and treat the ones who had a chance to survive.

As the victims were being removed, hazardous material specialists frisked them to check for contaminants. A radiological exposure was picked up on one of the victims being transported out of the tunnel. Hazardous material specialists provided continuous monitoring of the environment and requested fans due to the production of carbon monoxide. The gas-powered tools were constantly shut down because of the carbon monoxide build-up. Fourteen victims were removed during this operational period and

Victims--some of whom were wearing impalement vests--were carefully cut away and extricated from the vehicles.

Team members had to cut through six inches of concrete. Here, they cut through an inch of steel in a large sewer pipe. It was a difficult operation because of the limited tools and equipment available to the members.

The debris pile, which ran from tunnel wall to tunnel wall, featured numerous scattered vehicles, including a leaking tanker-truck.

four DOAs were identified.

The subsequent operational periods required team members to cut through six inches of hardened concrete and one inch of heavy steel. This caused members difficulty due to the limited tools and equipment available.

The *Stanley* hydraulic chain saw was the tool of choice for cutting the concrete. The *Stanley* system is carried in the cache. Due to the lack of available water--which would be needed to operate the hydraulic chain saw--members had to improvise. Water bladders carried in the cache for showering were used to supply the necessary water so the chain saw could cut effectively and wouldn't burn out.

Some of the heavy steel was located within a large sewer pipe and required members to cut with the petrogen torch and Partner saw. A petrogen torch mixes oxygen with gasoline to produce a more efficient cutting operation. Operating in the confined space caused additional concerns, especially when using the torch. They had to monitor the CO_2 build-up and rotate team members frequently. After navigating through an array of concrete and steel placed strategically in the tunnel, team members were faced with a pancake collapse.

The structural engineer evaluated what appeared to be a three-story, poured-concrete floor collapse. As with any shoring operation, members had to stabilize each section before moving past that area. Victims who needed to be extricated were located throughout the collapsed floors. Once again, the Paramedics were used to perform triage as each victim was removed. These victims had to be checked for crushing injuries. Members progressed carefully through this extremely dangerous scenario, delayering and shoring the site.

Once the collapse area was deemed safe, the team exited the pile and faced yet another challenge. More vehicles were scattered with heavy debris from tunnel wall to tunnel wall. Numerous live victims could be heard crying out for help.

Hazardous material specialists identified a tanker-truck leaking an unknown substance. Before the members could continue extrication and removal of the injured, mitigation had to be addressed. Hazardous material specialists identified and mitigated a radiological material. Search and rescue resumed with victims extricated from under the tanker, cars and concrete. Victims were treated, packaged and removed to a safe location within the tunnel, awaiting transport.

At this point, all team members were heavily involved in working on removing 12 viable victims and seven DOAs. This rigorous exercise ended 32 hours later with a *mayday* given for an unconscious Task Force member who required medical attention. Members being held as a FAST team were used to assist and remove the injured Task Force member.

This exercise was a tremendous learning experience for all members participating. For most, it was the first time they deployed with the Task Force. The CNR staff provided an operational agenda that was extremely realistic. Operations tasked the many disciplines found on an Urban Search and Rescue Team. Members were assigned specific positions that differ from what they are familiar with when operating in New York City. All members performed professionally in their new assignments and met every challenge.

Training requirements for Task Forces were enforced and followed throughout the event. Members quickly understood the logistical obstacles that were encountered during each activation. There was a limited amount of tools, equipment and manpower available and each had to be used effectively. These items cannot be replaced during the event.

Safety Officers did a superb job and members experienced only two minor injuries. More importantly, everyone realized this exercise could play out in New York City as the real thing. NY-TF1 and its members are better prepared to operate at a possible attack in New York City's under-river tunnels, thanks to this training experience at the Center for National Response.

History of the US&R Response System

The National Urban Search and Rescue (US&R) Response System is managed by FEMA within the Department of Homeland Security. There are 28 Urban Search and Rescue Task Forces located throughout the United States. The original intent of these teams was to respond to catastrophic events involving the collapse of heavy steel- and concrete-constructed buildings. The emphasis behind the development of the system was to have teams ready to respond to natural disasters, such as earthquakes and hurricanes.

After the Oklahoma City bombing, the Urban Search and Rescue System became the federal government's response to terrorism incidents. Urban Search and Rescue Task Forces also have been pre-staged for the Olympics, Presidential Inaugurals and the Republican and Democratic National Conventions.

NY-TF1 is comprised of members from the FDNY Special Operations Command, the FDNY Emergency Medical Command's physicians and Paramedics and NYPD Emergency Services Unit. An Urban Search and Rescue Task Force deploys 70 highly trained personnel and four canines when activated for a Type I response.

The 70 team members are rescue, logistics and communications specialists, emergency physicians, structural engineers, hazardous materials technicians, safety personnel, heavy equipment operators, technical information specialist and planning specialists. Members must be trained and have experience in their particular discipline. Each Task Force must be staffed three deep in each of the 70 positions to ensure around-the-clock availability for all positions if activated for a response.

About the Author...

Battalion Chief Joseph R. Downey is a 21-year veteran of the FDNY. He is assigned to the Rescue Operations Battalion of the Special Operations Command. He served as a Lieutenant in Rescue 2 and was Captain of Squad 18. He is one of the Task Force leaders for NY-TF1. He holds a BBA degree in Business/Computers from Hofstra University. This is his second article for WNYF.