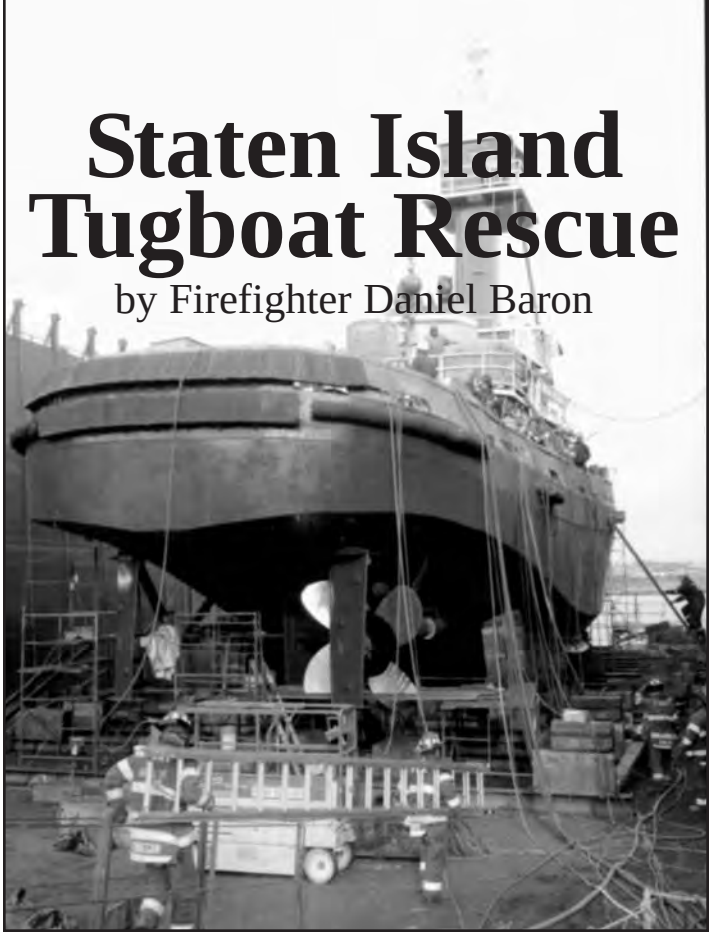
Staten Island Tugboat Rescue

by Firefighter Daniel Baron



photos this page by Staten Island Dispatcher Steven White (retired)

Tugboat *Morton S. Bouchard* in dry dock, where the December 5, 2007, rescue took place.

Richmond Terrace runs along the North Shore of Staten Island and is the address of many commercial and industrial facilities and warehouses. Much of this industry revolves around the marine and shipping trades. Work performed in this area is done with heavy tools and frequently takes place around slip or trip hazards. Thus, Staten Island units respond to emergencies and injuries throughout these facilities on a fairly regular basis. In fact, Rescue 5 members conducted a lowering operation of a patient in cardiac arrest fewer than 70 days prior to the incident that is the focus of this article. Also, area units performed a confined space removal from a barge's hold earlier in the spring of 2007.

Caddell Dry Dock and Ship Repair occupies a prominent area of the North Shore, at the base of Broadway. Caddell's has been in business since 1903 and in its current location since 1925. They operate six full-time dry docks with 170 employees. They service 300 vessels annually, including many tugs and the Staten Island Ferries. Caddell's dry docks can accommodate ships as large as 6500 tons displacement. While in dry dock, ships' decks are accessed by gangway or straight ladder, depending on their size.

Response

On Wednesday, December 5, 2007, FDNY units responded to Staten Island Box 0399 for a reported explosion at 0837 hours. The incident occurred at 1560 Richmond Terrace--Caddell Dry Dock and Ship Repair--and brought the response of Engines 156, 157 and 163, Tower Ladder 79, Ladder 80 and Tower Ladder 77 as SOC Support, Rescue 5, Squad 1, Tactical Support Unit 2, Haz-Mat 1, Marine 6 and 9, Rescue Battalion, Haz-Mat Battalion, Marine Battalion, Safety Battalion and Battalions 21 and 22. Battalion Chief Anthony Orlandi, Battalion 22, was the Incident Commander. On transmission of the all-hands, Deputy Chief James Leonard, Division 8 Commander, responded and assumed Incident Command. Ladder 78 responded as the FAST unit and RAC 5 responded, but both were cancelled en route.

Members are urged to review the following *WNYF* articles:
- FDNY High-Angle Operations: An Overview--Parts I and II, by Lieutenant Thomas Donnelly in the 3rd/ and 4th/2007 issues.
- The High-Angle Line-Transfer Evolution, by Lieutenant Peter C. Martin, in the 1st/99 issue.
- Rescue with Webbing, by Lieutenant Christopher Flatley, in the 4th/2007 issue.

Investigation

The location of the explosion was aboard the tugboat *Morton S. Bouchard*. It was berthed in dry dock #8 for repairs. Ladder 79 members--Lieutenant John Eccleston and FFs Jay Dawson, Anthony Reina, Jordan Hasner, John Ruane and Joseph Guarneri --ascended a starboard (right side of a ship, looking from the pilot's perspective) access ladder, along with Captain Thomas Henri of Engine 156. They found an injured worker in the lower level of the pilot house.

Other workers explained that a pipe pressurized by compressed air had ruptured and a piece of that pipe struck the injured man and knocked him to the ground. Captain Henri descended below deck and confirmed that the pipe was bled off and there was no further danger.

The members of Ladder 79 began examining the patient, while Engine 156 members climbed up to the area with their CFR-D equipment. They determined that the patient's injuries were not life-threatening.

Operation

Rescue 5 arrived when the *All Hands* was transmitted and the incident was downgraded, with all additional units and Chiefs returned. Chief Orlandi determined that Rescue 5 and Ladder 79 would package and remove the patient, with SSL 77 and TSU 2 standing by to assist. Although the patient's injuries were non-life-threatening, he was not ambulatory and his injury required that he be immobilized.

Ladder 79 FFs Dawson and Reina immobilized the patient to a long board and then placed him in a steel high-angle stokes basket. They secured the patient in the stokes by diamond-lashing him with one-inch tubular webbing. (See Photo #1.)

A patient-lowering operation uses several lines or ropes. The mainline holds the load; in this case, a patient in a stokes basket. This line is controlled through a lowering device that is attached to a substantial object. The safety line is a back-up for

The injured worker is lowered from the tugboat by FDNY units.

Photo #1--This patient is diamond-lashed in a steel stokes. The rope wrapped around the rail of the stokes is a pre-rigged bridle for lifting vertically from the head end.

Photo #2--A tandem prusik safety (belay) in the locked position, holding a load. The pulley minds the prusiks as the rope is taken up in a raising operation.

any situation that arises with the mainline or its hardware or anchoring. The safety is manned by maintaining the system in an open position. If the safety Firefighter drops the system or tension suddenly is applied to it, it locks up and halts the descent. Tag-lines are attached to the stokes basket to help guide it around obstacles or stabilize it from spinning or being wind-blown.

Rescue 5 members set up a lowering and safety (belay) system. Because of the nature of a tugboat's work, the vessel provides many substantial objects to use as anchors for a rope system. The main lowering line was anchored to a mid-ship capstan (a cylindrical mechanical winch). The belay system was placed in-line with the mainline, but used a scupper (an outlet at the base of a wall to allow water to run off) in the port (left side of a ship, looking from the pilot's perspective) gunwales (or upper railing) to anchor.

Once the patient was secured in the stokes, a four-point bridle (a system that connects multiple points or lines to one central control or attachment point) was connected to the stokes, mainline rope and safety rope. Tag-lines were applied at the head and foot of the stokes. After a final safety check of all connections and with the mainline and safety locked off, the stokes was lifted to the top of the starboard gunwales under the direction of Rescue 5 Lieutenant Thomas Clair. The tag-lines were operated above the stokes from the deck of the *Bouchard* by Rescue 5 FF Robert Brunone and FF Ruane.

Meanwhile, lower tag-lines were maintained from the floor of the dry dock by Rescue 5 FFs Thomas Ihnken and Peter Blaich. The belay system used tandem prusiks and was operated by Rescue 5 FF Dan Baron. (See Photo #2.) After he confirmed that all hands were ready to lower, Lieutenant Clair gave the order to lower away. Rescue 5 FF Jose Saenz operated the bar rack and lowered the patient via the mainline.

This crane was available at Staten Island Box 0399, but was not used.

The stokes traveled approximately 35 feet to the dry dock floor where it was disconnected from the ropes. The patient, suffering chest injuries, then was hand-carried in the stokes over numerous pipes and hoses to a safe location and turned over to EMS personnel for transport.

Although the patient was removed from danger, there were still more than 10 FDNY personnel aboard the tugboat. The rope systems were used to lower multiple SCBA, tools and high-angle rigging equipment. Then, the systems were methodically broken down and repacked. The Firefighters and Officers carefully descended the straight ladder and moved to the safety of the parking area to review and critique the incident. Duration of the incident was one hour and 14 minutes.

OSHA 1926.550

On-site cranes can be a useful resource at construction or industrial accidents. When a crane is used during an FDNY operation, it must be kept under close direction of FDNY personnel. A radio-equipped member should be positioned at the cab with the Operating Engineer. The member who will be directing the crane's movements must be clearly identified. All non-essential personnel must be cleared from the area.

Moving a patient using a crane should be done only under life or death circumstances. Even in day-to-day crane operations, live-loading of a crane's hook is tightly regulated. OSHA requires that workers ride only in specifically designed and rated baskets and that the work to be done cannot be performed by any other means. Additionally, the worker must be protected by a lanyard attached directly to the crane's ball or a substantial object within the basket. The basket that personnel ride in cannot be used for any load other than the workers and their tools.

Some high-angle operations make use of a crane ball and hook as a high-point change of direction. In this case, the crane is positioned for use and then shut down and guarded against movement. This operation resembles the use of a tower ladder bucket or aerial for the high point.

Some highlights of this OSHA Standard follow:

- 1926.550(g)(2)--General requirements. The use of a crane or derrick to hoist employees on a personnel platform is prohibited, except when the erection, use and dismantling of conventional means of reaching the work site, such as a personnel hoist, ladder, stairway, aerial lift, elevating work platform or scaffold, would be more hazardous or is not possible because of structural design or work site conditions.
- 1926.550(g)(4)(iii)(C)--Personnel platforms shall be used only for employees, their tools and the materials necessary to do their work and shall not be used to hoist only materials or tools when not hoisting personnel.
- 1926.550(g)(5)(i)--A trial lift with the unoccupied personnel platform loaded at least to the anticipated lift weight shall be made.

Lessons learned/reinforced

- SOC units and their neighboring SOC Support Ladders should drill together on a regular basis to ensure familiarization and efficiency at joint operations.
- SCBA should be worn at reports of explosion until the area is deemed non-hazardous. Explosive gas meters should be deployed during initial operations.
- Technical rescue operations can be enhanced by actively limiting access and the number of rescuers within proximity to rope systems. Applying a hot zone, warm zone system--as in haz-mat operations--can accomplish this goal.
- Preplanning and Building Inspection Safety Program (BISP) at facilities within the administrative district can provide opportunities to develop strategies for access and patient removals. Also, familiarity with mechanical and chemical hazards can be increased.
- Utilize on-site personnel when their expertise can enhance the operation.
- Crane baskets used for life are under strict OSHA regulation and should be used only in life or death circumstances and with careful consideration.

About the Author...

Firefighter Daniel Baron is an eight-year veteran of the FDNY. He is assigned to Rescue 5. This is his first article for WNYF.