

# Airbus in the Hudson Results in a Happy Ending

by Deputy Chief James D. Daly, Jr., and Battalion Chief Michael Buckheit

The Firefighters and Officers in Manhattan's Divisions 1 and 3 started out January 15, 2009, with a stubborn, two-alarm cellar fire in a commercial structure on West 29th Street at 1034 hours. Units were having extreme difficulty in advancing toward the seat of the fire due to the tremendous volume of stock from floor to ceiling. A breach from the adjoining cellar was necessary to access and extinguish this fire. Little did these members know that this incident would seem routine compared to what faced them approximately five hours later.

At 1531 hours, the Bronx Communications Office (CO) began fielding multiple calls for a plane with an engine fire over that borough. Shortly thereafter, the Manhattan CO was receiving multiple calls for a plane in the Hudson River. Manhattan Box 868 was transmitted at 1532 hours, sending Engines 40 and 26, Ladders 4 and 21, Rescue 1, Marine 1 and Battalion 9 to 12th Avenue and West 50th Street. At 1537 hours, Battalion Chief John Joyce, Battalion 9, transmitted a 10-60 (major emergency response) second alarm for a commercial airliner in the river with numerous people on the wings of the aircraft.

The corrected location was given as West 43rd Street and the Hudson River. Chief Joyce assumed the role of Incident Commander (IC) and sized up the situation. He encountered a U.S. Airways Airbus A320 floating in the frigid river, approximately 1000 yards offshore, with 155 passengers and crew members stranded on the wings of the aircraft. Weather conditions were severe; air temperature was 22 degrees Fahrenheit; wind was blowing northeasterly at 10-15 mph, producing a wind chill of five degrees Fahrenheit; river current was ebbing at two knots; and the water temperature was 40 degrees Fahrenheit. Hypothermia could be fatal within minutes if the victims were exposed to the frigid waters. FDNY units had to act swiftly to save lives.

Chief Joyce had limited options to get units out to the scene of the crash landing. He ordered units to commandeer the Circle Line ferry that was docked at 43rd Street. The first-alarm units were able to board the ferry, with Ladder 21 members, under the command of Captain Paul Lawlor, donning their cold water rescue immersion suits and the engine companies readying their inflatable hose equipment.

Simultaneously, units from FDNY's Marine Operations were notified. As Captain Richard Johnson and the members of Marine 1 prepared to respond, numerous calls were coming in over VHF Marine Band Channels 13 and 16, Police Special Operations Division (SOD) and the Manhattan borough frequency, reporting an aircraft crash landing in the Hudson River. These numerous reports indicated a high probability that the original dispatch information was accurate.

Captain Johnson realized the urgency and potential for mass casualties and quickly conferred with Lieutenant Thomas Piambino, who had reported early for duty for the 6x9 tour. The Officers agreed that both of them should respond to the incident, which would enable them to immediately deploy both vessels of Marine 1. Lieutenant Piambino responded on the fireboat *McKean* with a crew including Pilot Robert Spadaro, Marine Engineer Lenny Burmester, Marine Engineer Patrick Astegher and Marine Wiper John Steinhart. Captain Johnson responded with Marine 1 Alpha, manned by Helmsman FF John Rizzo and rescue swimmer FF Thomas Sullivan. Marine 1 (the *McKean*) is a 129-foot vessel that

cruises at 14 mph. Marine 1 Alpha is a 27-foot, fast-response rescue boat with limited firefighting capabilities. It cruises at 40+ mph.

Marine 1 Alpha departed its berth with the *McKean* right behind. While responding, both vessels continued to receive radio transmissions from VHF, Police SOD and Manhattan borough frequency, confirming a plane crash in the Hudson River. FF Sullivan quickly donned The Mustang cold water rescue suit and gathered the necessary tether line, anticipating entering the water. Just prior to Marine 1 Alpha's 10-84 signal, Chief Joyce transmitted a 10-60 for an aircraft crash landed at a revised location of West 43rd Street and the Hudson River.

Simultaneously, from the Marine Operations Brooklyn Navy Yard location, both Marine 6--the 52-foot fireboat, *Kane*--and Battalion Chief Michael Buckheit, Marine Battalion, and Battalion Aides, FFs David Hulse and Brian McCarrick, aboard a 27-foot Boston Whaler, were responding. They played a primary role in what long has been recognized as one of the premier challenges facing Port Partners--a large-scale, surface water rescue.

While navigating around the lower tip of Manhattan, both Chief Buckheit and Battalion Chief James Dalton, Chief of Marine Operations, were attempting via radio and phone to request a heavy lift crane because their immediate concerns focused on stability of the aircraft and the timeline until it submerged. Deputy Assistant Chief William Seelig, Chief of Special Operations Command, contacted Chief Buckheit via cell phone to relay information from then-Chief of Department Salvatore J. Cassano. Chief Cassano wanted small boats dispatched forthwith. Additionally, he reported from the Fire Department Operations Center (FDOC) that at this time, *no other significant events* were reported, thus helping to rule out that this incident had been part of any terrorist activity.

Since Marine Operations operates three small vessels (Marine 3, 4 and 8) only during the summer months, the only in-service available small boat was Marine 1 Alpha. To meet the challenges posed by this event required some flexibility to get additional units on-scene. Lieutenant Brian Coughlin, Executive Officer of Marine Operations, recruited FFs Robert Alexander and Michael Klimchak, who were working on refurbishing the fireboat, *Smith*, and placed one of the 27-foot Boston Whalers in service to respond and assist with operations.

Deputy Chief James Daly, Division 1 Commander, was taking up from an *All-Hands* fire on West 22nd Street and 10th Avenue when he heard the Manhattan CO relay to Chief Joyce that they were receiving multiple calls for a plane in the river. The 10-60 was transmitted shortly thereafter, assigning both Divisions 1 and 3 to the incident. Chief Daly went 10-84 at 1540 hours and assumed the role of IC from Chief Joyce. He then notified Manhattan CO that the FDNY Command Post was being established on Pier 81 (World Yacht), located at West 41st Street and 12th Avenue. This was given over the Department radio for two reasons--to alert all other responding FDNY units, as well as allow the Manhattan CO to notify any other responding agencies of the need to send a representative to this Unified Command Post.

The location of the command board at the tip of the pier gave an unobstructed view of the plane, which was rapidly floating south in the strong current. When Chief Daly arrived at the tip of

the pier and recognized the gravity of the situation, he immediately ordered all Marine units (Marines 1, 6 and 9) to respond. By this time, the plane was opposite Pier 76 at 36th Street. Chief Daly requested Deputy Chief Anthony DeVita, Division 3, to report to Pier 76, along with the second-alarm assignment from the 10-60.

Then-Assistant Chief of Operations Robert F. Sweeney responded from Headquarters on the transmission of the 10-60 signal. En route, he maintained constant communication with Chief Cassano, who coordinated the FDNY response from the FDOC.

Members of Marine 1 Alpha now were able to see a large commercial jet aircraft that had crashed into the river, its passengers crowded on the left wing of the aircraft and many more grouped on the aircraft's emergency exit inflatable slides (which acted as life rafts) alongside the plane. Captain Johnson immediately transmitted to the dispatcher: *Marine 1 Alpha to Manhattan, this is confirmed, we have a commercial jet airliner in the water, two ferries alongside. Marine 1 Alpha is pulling up alongside to effect rescue. Marine 1 is responding as well.* Captain Johnson also radioed to Lieutenant Piambino via handie-talkie informing him of his visual of the scene.

Seeing large amounts of debris in the water, Captain Johnson ordered Helmsman FF Rizzo to approach the plane slowly. He feared that victims might be in the debris. In a precarious position, the victims were struggling to keep from slipping off the wings, battling wind and current, standing in knee-deep water and shivering from the low air and water temperatures. While approaching, FF Sullivan tossed PFDs (personal flotation devices) to many passengers on the wings who were not equipped with one, while Captain Johnson instructed passengers to remain calm and that they would carefully be boarded onto the bow of his vessel. Marine 1 Alpha came as close to the wing as they could, nosing in their starboard bow between the wing and fuselage of the plane.

One by one, the victims had to make a short jump to the boat, many landing with their chest on the top rail of the vessel and pulled up the rest of the way by Captain Johnson and FF Sullivan. After boarding numerous victims, some of the victims at the far end of the wing became somewhat panicked, fearing they would not be picked up and proceeded to jump off the wing, swimming toward Marine 1 Alpha's stern. Observing this, Helmsman FF Rizzo realized the immediate danger of them approaching the boat toward the engines with the props turning and he was forced to bring the engines into neutral. FF Rizzo then left the helm to assist these victims onto the rear of Marine 1 Alpha.

Captain Johnson then made contact with Chief Daly at Command to ascertain the location of the nearest shoreline medical facility capable of providing adequate care for approximately 20 victims. Marine 1 Alpha was directed to bring them in to the 43rd Street Circle Line work barge pier to turn them over to EMS. Marine 1 Alpha arrived at the Circle Line pier and safely off-loaded all 20 victims. Marine 1 Alpha then was boarded by Rescue 4 divers, Battalion Chief James Harten, Rescue Battalion, and Chief Joyce and returned to the plane for possible dive operations.

While this was happening, the first land units arrived at the plane via the Circle Line Ferry. Captain Lawlor, Ladder 21, surveyed the scene. There were only about 10 to 15 people remaining on the wings of the aircraft. Most had been removed by the commercial ferries, water taxis and 20 people by Marine 1 Alpha. Handie-talkie transmissions had numerous people still unaccounted for and confirming the actual number of victims was difficult at best. If any passengers remained in the plane, they were in grave danger. Captain Lawlor ordered FFs Brian McLaughlin and Michael Povolny, Ladder 21, to enter the water and search the fuselage of the aircraft. In their cold water immersion suits, they entered the plane at the cockpit hatch and searched toward the

rear, until they were up to their necks in freezing water. Thankfully, the search proved negative and they were able to retrace their steps and safely exit the plane.

Anticipating that the aircraft would sink at any moment--possibly with injured people inside--Lieutenant Piambino onboard Marine 1 instructed Marine Pilot Spadaro to come alongside the aircraft with the intention of securing it to the fireboat. Marine 1 Alpha returned to the scene and conducted a primary search of the crash site area with negative results.

By the time he arrived at the Command Post, Chief Sweeney knew how many passengers were on-board and that the landing in the Hudson most likely was due to birds striking the aircraft engines, thereby eliminating the concern that this might be a terrorist attack. Once on-site, Chief Sweeney assumed command of the incident and designated Chief Daly as the Operations Section Chief. Their main task was ensuring that all passengers were safely out of the plane and accounted for.

Reports were being verified that, in fact, all passengers and crew of the plane miraculously had been safely removed and accounted for. Chief Harten determined that dive operations were not required and, along with Chief Joyce, boarded the *McKean*.

Accounting for the passengers was made more complex because they were being removed to both the New York and New Jersey sides of the river. This task finally was achieved through patient counts by FDNY's Medical Branch, OEM, Deputy Assistant Chief John Sudnik (the City-wide Command Chief), who had responded to a more southern pier, and Chief Cassano, who had established contact with New Jersey OEM early on in the operation. Once FDNY had assured that all patients were accounted for and safe, objectives focused on securing the plane to prevent it from breaking up and allowing an investigation to take place.

Lieutenant Piambino ordered two teams to be formed, which included Lieutenant Piambino and Wiper Steinhardt on one and Marine Engineers Astegher and Burmester on the other, to deploy mooring lines around the aircraft. Marine 1 enlisted the aid of Marine 6 and the Marine Battalion vessel to accomplish this task. The members were successful in placing lines around the tail section and through the front cockpit doors. This action was not without risk. A 60,000-lb. aircraft tied to the fireboat presented the possibility of rolling the *McKean* over if the aircraft should suddenly sink, so provisions were made on deck to break away quickly if it became necessary. This information was relayed to Chief Daly at the Incident Command Post (ICP) by the United States Coast Guard representative. Commercial tugboats were on-scene and initial thoughts were to transfer the aircraft over to them because these vessels were better suited to this task. However, following several attempts and with the plane moving in a southern direction with the ebb tide, the timeline to accomplish this ruled out its success.

After securing the aircraft, Marine



Ladder 21 Firefighters enter fuselage in cold water suits to search for any possible victims.

photos courtesy of Captain Paul Lawlor; Ladder 21, unless otherwise indicated



Victims await rescue on escape chute while ferry moves in.

I was asked by Command if the *McKean* could keep the aircraft from drifting any further south in the current. The reply was *yes*. This proved to be one of the biggest obstacles at this incident; trying to keep up with a rapidly moving crash site. Chief Buckheit boarded *Marine 1* and worked alongside FDNY's land-based Battalion Chiefs on the main deck. Concerns not only encompassed the plane's stability, but also the fact that should the wing of the plane go under the *McKean* and cause damage to the rudder or propellers, steering and/or vessel stability could be compromised.

*Marine 1* also was asked if members could bring the aircraft into shallow water on the Manhattan side of the river. Lieutenant Piambino instructed *Marine Pilot Spadaro* to attempt this. *Marine 1* slowly moved the aircraft by using the southerly flowing current.

While awaiting the arrival of any additional victims on Pier 76, Chief DeVita recommended activation of a Command channel for all Chief Officers. It was implemented shortly thereafter. This helped reduce the span of control for the IC by sectoring off the incident.

The Air Recon Chief was ordered to circle downstream of the incident to ensure no individual victims had floated away, unnoticed and possibly having succumbed to hypothermia.

As the plane floated south, Command was losing handie-talkie contact with the operating units. It was decided to relocate the ICP, first to the Chelsea Piers at West 23rd Street and finally to Battery Park City, where *Marine 1* was able to coax the plane into shore. This was more than four miles from the initial crash site.

Battery Park City features an esplanade (public walk, pathway) that was built on concrete pilings spaced approximately 15 feet apart. The esplanade extended out over water approximately 70 feet. Collapse concerns were in play as the wing of the plane on the shoreward side was submerged and positioned between two rows of concrete pilings holding up the esplanade. Inevitably, this wing shifted as the ebb and flow of the current changed, thus applying a shear force to the pilings that are designed for compressive forces.

Additionally, securing the plane to any part of the esplanade was ruled out, because this, too, could produce a lateral force on the walkway, thereby collapsing it. The plane was secured to two large trees in Battery Park by the members of *Rescue 1*, who used their grip hoists (a large, cable-pulling device rated at 8000 lbs.). This alleviated any lateral force being applied to the esplanade.

The next concern was the aviation fuel, which was leaking from the aircraft, evident from the heavy odor permeating the area. The commercial airliner had taken off with approximately 22,000 pounds of fuel aboard; this aircraft had three fuel tanks, one in each wing and one in the belly, all of which are interconnected.



photo courtesy of FF Tom Sullivan, *Marine 1*

*Marine 1* FF Tom Sullivan was among the first responders removing passengers from the U.S. Airbus that landed in the Hudson River on January 15, 2008.

At 1716 hours, a 10-86 (fluoroprotein foam operation) was transmitted for Manhattan Box 113 at West and Murray Streets. The following units responded: Engine 5/Foam Carrier 5, Engine 95/Foam Carrier 95, Battalions 2 and 31 as Foam Coordinators, Engine 9/Satellite 1 and Engine 238/Foam Tender 1. Battalion Chief Steve San Filippo, the FDNY's Foam Manager, also responded and was placed in charge of the foam operations. When he arrived, Chief San Filippo was apprised of the situation by Chief Daly. Chief San Filippo then conferred with the Chiefs from Battalions 2 and 31 to determine the strategy to be pursued.

Using the units on the 10-86, they began setting up two foam lines. One line was stationary, employing the ground-based foam cannon that can supply finished foam at 1000 gpm and the other a ground-based Akron New Yorker with a 500-gpm foam nozzle. This ground-based unit could be changed to a more mobile hand-line that can provide 240 gpm of finished foam if necessary. These resources remained at the scene for the duration of the incident and provided protection to FDNY's operating units and the civilian recovery team. Additionally, when the plane was removed from the water and later placed on a barge, another hand-line was added from *Marine 9 (Fire Fighter)* and a Purple K line from Engine 228 was held on standby as fuel was being recovered.

Once ignition hazards were alleviated, challenges quickly turned toward the recovery operation. **Haz-Mat played a role in determining the volatility of the fuel, booming considerations and capturing leakage from the plane once removed from the water and transfer of the remaining fuel aboard. Inter-agency operations obviously played a key role in a safe and efficient recovery operation.**



Engine company members ready inflated hose for water rescue of victims.

The United States Coast Guard Captain of the Port (COTP) has overall Command of water-based operations. However, the National Transportation Safety Board (NTSB) has responsibility for aircraft accidents and incidents even when said aircraft is in the water. The Army Corp of Engineers had a heavy lift vessel on-scene. However, due to the estimated lift of between 65 and 77 tons, a commercial marine salvage company brought in a large spud barge with a heavy lift crane aboard. (A spud barge is a barge with steel pilings in all corners that can be driven into the seafloor to hold the barge *on station* for operations.) This was brought in to first stabilize the plane and then attempt a lift.

The Office of Emergency Management (OEM) played a key role in bringing Federal, State and local stakeholders together at numerous inter-agency meetings to discuss the next operational period, establish communications and assist with public relations concerns.

The FDNY established an on-site Mobile Command Center directly adjacent to the incident. FDNY's support services to NTSB involved land-based fire protection, foam cannons and hand-lines established by Chief San Filippo. Additionally, Marine Operations, Marine 9 and Marine 1 rotated non-stop, on-scene foam capabilities to protect the scene and operation forces. Rescue Operations, under the command of Battalion Chief Fred LaFemina, supplied special tools and equipment, as requested by NTSB. Battalion Chief Edward Bergamini, Haz-Mat Operations, assessed the condition of the aircraft and coordinated the drilling of the low side wing to establish a removal port for the transfer and off-loading of fuel from the aircraft.

FDNY operations concluded on January 18, 2009, at 22:13:33. The total incident duration was 76 hours, 57 minutes and 49 seconds.

### Lessons learned

- The ICP should be land-based, established by the first Battalion Chief and kept at one location.
- The IC should assign a water-based Operations section Chief to operate from onboard one of the larger vessels.
- The IC should consider establishing and staffing multiple staging areas for a moving incident.
- To maintain communications, alternate options--such as portable 800MHz radios--should be employed.
- Careful size-up should include data-based estimates of movement, based on wind speed, currents, grade, momentum and power for incidents that may be expected to move (vapor clouds, water-based incidents, spills, transportation incidents).
- No one type vessel can meet all the needs of a large-scale surface water response. While large vessels offer a platform for numerous people, the issue of getting victims aboard and mobility limit the effectiveness. Smaller, more mobile, vessels with shallow draft capabilities add a key component to Marine Operations' overall capabilities.
- Communications challenges exist, both land-based and in the maritime setting. Early establishment of a Command Post and immediate notification to the USCG can assist in establishing a vital link with land and maritime assets.
- Assets within New York and New Jersey are robust *on blackout*. However, off-road--such as park land, beaches and on the water--the effectiveness is reduced dramatically. Marine Operations currently is undergoing a rebuilding process to address several of the challenges mentioned throughout this article. The arrival of the new 140 vessels, a 64-foot Safeboat and a fleet of smaller, more robust, vessels will allow FDNY to meet more of the needs of several kinds of operations, ranging from small-scale, person in the water to larger, manmade or natural disasters.
- Commercial ferries have and continue to play a key role in effective



photo by Battalion Chief Steven San Filippo

Private contractor (right) hired by U.S. Airways off-loads jet fuel from a wing of the downed Airbus under the watchful eye of a Haz-Mat 1 Firefighter.

evacuation. Following this incident, a critique also revealed that as the Medical Branch, FDNY is responsible for patient accountability. Using ferry berthing facilities as pick-up and drop-off points, by sheer design, allows a controlled embarkation and disembarkation. Law enforcement similarly might gain from this use as the incident could have been malicious and the offender very well could be among those being dropped off for medical evaluation and accountability.

- Marine Operations maintained a continuous presence at the FDNY Mobile Command Post for the four days of operations. The FDNY Incident Management Teams could have assisted in the planning and logistics components and are recommended for similar extended operational periods such as this event.
- FDOC and Marine Operations soon will be able to access the Vessel Traffic System (VTS) USCG cameras. These cameras are located in strategic places around the harbor and can provide real-time video feeds to the IC. The USCG can be contacted to reposition the camera to pinpoint an area on request. FDNY Marine Operations also will be bolstering their security systems to include cameras located at FDNY Marine facilities. The final phase of this installation is projected to allow live feeds to primary monitoring locations and will offer some additional views of harbor locations with cameras capable of pan, tilt and zoom functions.



### About the Authors...

**Deputy Chief James D. Daly, Jr.**, (top) is a 24-year veteran of the FDNY. He is the acting Division 1 Commander. Prior assignments include Chief of Rescue Operations and Division 3 Deputy Chief and Battalion Chief in the Rescue Battalion and Battalion 44. He is a frequent contributor to WNYF. **Battalion Chief Michael Buckheit** (bottom) is a 21-year veteran of the FDNY. He is assigned to the Marine Battalion. Prior assignments include Engine 72 and Ladder 19 as a Firefighter; Engine 37 as a Lieutenant and Engine 63 as a Captain. He attended the initial West Point Counterterrorism collaborative effort with Harbor Security as the focus group's project. He is a Level 2 Fire Instructor and had been an Instructor with the Fire Academy's Annual Education Day Program and a PADI SCUBA Instructor. This is his first article for WNYF.

