

Operation Deep Freeze 2012

For the first time, the Army and its only modular causeway system company provided logistics-over-the-shore support to resupply research stations in Antarctica.

By Captain Christina C. Shelton and Second Lieutenant Bill Battles

The mission of the 331st Transportation Company, 11th Transportation Battalion, 7th Sustainment Brigade, located at Fort Eustis, Virginia, is to provide a mobile pier powered by small Army vessels for the discharge of cargo and equipment from watercraft to an unimproved shoreline or degraded fixed-port facility. It also provides floating facilities for the rapid discharge of rolling stock from roll-on-roll-off cargo ships and other vessels.

The 331st Transportation Company has a long history in the Transportation Corps and a very unique place in the Department of Defense (DOD) inventory. It carries the DOD's only modular causeway system

(MCS). Its Soldiers train year round for worldwide deployment in support of wartime and humanitarian aid missions.

Operation Deep Freeze

In 2012, the 331st Transportation Company displayed its capabilities during Operation Deep Freeze 2012 in Antarctica. Operation Deep Freeze is the annual resupply mission to research stations on the continent of Antarctica, including McMurdo Station, Palmer Station, and Amundsen-Scott South Pole Station.

The Army had not participated in Operation Deep Freeze in nearly 20 years, and this was the first time

Warping tugs and crews wait below for causeway pieces to be lowered into the water, where they will then zip pieces together with locking pins during Operation Deep Freeze 2012 in Antarctica. (Photos by CPT Christina Shelton)



Army watercraft were used for the mission. Regular participants in this mission are the National Science Foundation (NSF), the parent organization of the U.S. Antarctic Program; the U.S. Air Force; the U.S. Navy; the Military Sealift Command (MSC); the New Zealand Defense Forces; and Raytheon Polar Services, a civilian agency contracted by the NSF.

Army Watercraft Support

In the past, a large man-made ice pier was used to discharge the resupply vessel, but an unusually warm winter prevented the pier from reaching the structural integrity required for the operation. A suitable alternative was needed. The NSF discovered the capabilities of the MCS, requested MCS support, and entered into discussion with



the Army to determine its feasibility.

Since the 331st Transportation Company trains for logistics-over-the-shore missions year round and employs its mobile piers in various environments, Operation Deep Freeze was exactly the type of real-world mission for which the MCS was designed.

Operation Deep Freeze required a pier able to sustain



Cargo operations are conducted on the MV Green Wave causeway during Operation Deep Freeze 2012.

24-hour crane and truck operations and a crew to build and maintain the pier. After a thorough analysis of the problem set, a T-shaped pier measuring 160 feet long (from ship to shore) and 144 feet wide was designed and a crew of 41 Soldiers was designated to build and maintain the pier.

Getting to Antarctica

Fifty-three trucks transported the cargo, which included two modular warping tugs and auxiliary gear, to Port Hueneme, California. [A modular warping tug is a section of causeway powered by two diesel motors and manned by a five-person crew.] In California, the cargo was loaded onto the Merchant Vessel (MV) *Green Wave*, which MSC contracted to deliver both the causeway and the supplies for McMurdo Station. A crew of eight Soldiers flew out to California to assist in the upload of equipment onto MV *Green Wave*.

In early February, 331st Transportation Company Soldiers flew to Christchurch, New Zealand (a U.S. Antarctic Program launch point for Antarctic missions). There the crew received specialized cold-weather gear designed for manual labor during the ship offload in Antarctica. Once outfitted, the Soldiers boarded a Boeing 757 operated by the Royal New Zealand Air Force and flew to McMurdo Station, landing on the Ross Ice Shelf runway atop 1,000 feet of solid ice.

The first few days in Antarctica were consumed by in-processing, site surveys, moving into dormitories, and getting familiar with the area.

Winter Quarters Bay, where the operation was going to take place, is the site where the first Antarctic expeditions to the South Pole began more than 100 years ago. MSC contracted a Russian ice-breaker vessel, the *Vladimir Ignatuk*, to break up ice within the channel so that MV *Green Wave* could gain access to the bay. The old, unstable ice pier was disconnected, with the help of a few hundred pounds of dynamite, and moved to a temporary location south of the offload site.

The Mission Begins

The mission began in earnest on 14 February, when MV *Green Wave* arrived and was moored to the old ice pier. With MV *Green Wave* in position, the first step was to offload the two warping tugs. Once the tugs were in the water and fully operational, Navy Cargo Handling Battalion 1 (NCHB-1) and the pier crew from the 331st Transportation Company began assembling causeway sections off the side of MV *Green Wave*.

Within 72 hours, the pier was fully assembled and secured to the ice wharf, where two bulldozers held it in place with steel cables and winches. In addition, several lines were tied to bollards (strong posts on the wharf), and the tugs were positioned on either side to provide support.

Logistics Over the Shore Operations

Once the pier was in place, the offload began. Over the next 8 days, NCHB-1, Raytheon Polar Services, and drivers from the New Zealand Defense Force unloaded across the causeway more than 8 million pounds of cargo to be used by research stations and field camps across the continent.

Drivers returned to the ship with 7 million pounds of ice, rock, trash, recycling, and unneeded equipment that was then back-loaded onto the vessel. This effort involved every major organization at McMurdo Station, including the fire marshal, the maintenance facility, ground operations, port operations, and supply operations. It was truly a joint and multinational effort.

The Return Mission

Breaking down the causeway took only 36 hours. As soon as the last warping tug was loaded onto MV *Green Wave*, the ship departed for California. The Operation Deep Freeze crew out-processed McMurdo Station and boarded a U.S. Air Force C-17 for New Zealand a day later.

By 5 March, all personnel were back at Fort Eustis. A crew was sent to California to meet MV *Green Wave* and facilitate the return of equipment to Virginia by rail using

22 DOD-owned railcars. The cargo was delivered on 25 April.

Soldiers from the causeway crew were recognized on 10 April by U.S. Air Force General William Fraser, the Transportation Command commanding general, who visited Fort Eustis and presented crewmembers with Joint Service Achievement Medals for their historic efforts.

Captain Christina C. Shelton is the commander of the 331st Transportation Company, 11th Transportation Battalion, 7th Sustainment Brigade. She holds a bachelor's degree in political science from California State University, Northridge. And she is a graduate of the Transportation Basic Officer Leader Course and the Unit Movement and Deployment Planning Course.

Second Lieutenant Bill Battles is the executive officer of the 331st Transportation Company. He holds a bachelor's degree in finance and accounting from Oklahoma State University and is a graduate of the Transportation Basic Officer Leader Course.

Second Lieutenant Bill Battles administers the oath of enlistment to Staff Sergeant Joe Burke and Sergeant Brandi Manuel at the Ceremonial South Pole.

