

# Operation Deep Freeze: M.E.B.A. Goes to the End of the Earth

Typically, M.E.B.A. mariners are world travelers, but only a select few get the opportunity to complete the seven continent checklist. The lack of vessel traffic and commercial trade with the world's fifth largest continent is no surprise. Boasting no towns, cities or *permanent* residents, Antarctica's human occupants number just over 4,000 during the summer months - essentially October to April - and dwindle closer to a thousand during the winter. Most of them are scientists huddled at permanent research stations across the weather-beaten polar desert.

It is a joyous day for researchers at McMurdo Station, the Antarctic's largest base, when a semblance of outside civilization permeates their splendid isolation - and better yet - bearing "gifts." So it was, when the Waterman Steamship-managed heavy lift vessel OCEAN GIANT sailed into McMurdo Sound in early February and pulled up at the ice pier. Cheering scientists welcomed the vessel's delivery of nearly 500 containers which set them up with dry and frozen food stores, building materials, vehicles, electronic equipment and parts, among other items representing 80% of needed supplies for the year. The Military Sealift Command regularly contracts the ice-strengthened ship for its resupply mission to McMurdo as part of Operation Deep Freeze. MSC has supported the annual mission since the Station was established in 1955, providing supplies and fuel to scientists.

M.E.B.A. officers making the South Pole journey aboard the OCEAN GIANT included Chief Engineer Dave Morris who is a Calhoun M.E.B.A. Engineering School graduate, 1st A/E John Keohane and 2nd A/E Nick Berner. M.E.B.A. retiree Dave Seltzer served as the vessel's Crane Technician.

Captain Tim Arey and Chief Mate George Leonov headed up the complement of MM&P deck officers joined by the SIU unlicensed crew. Captain Arey is a polar veteran having commanded the OCEAN GIANT on previous missions to each Pole - North and South. The ship loaded up in Port Hueneme, CA then made a stop in Christchurch, New Zealand to take on additional cargo before heading to the bottom of the world.

But they didn't do it alone. Though listed as a Polar Class vessel, the OCEAN GIANT relied on the Coast Guard's heavy icebreaker POLAR STAR to lead the way and cut through the pack ice to McMurdo Sound. The 43-year old icebreaker



*An Antarctic resident unfazed by the sudden "population explosion" at the Pole. OCEAN GIANT Chief Mate George Leonov got this great shot.*



*The M.E.B.A. crew dealt with the unusual Antarctic conditions professionally and efficiently and enjoyed the ride. Left to right are 1<sup>st</sup> A/E John Keohane, 2<sup>nd</sup> A/E Nick Berner, C/E Dave Morris and Crane Technician Dave Seltzer.*

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performed yeoman's work by breaking through 16.5 nautical miles of ice, six to ten feet thick. But their mission was not without travails.

On its southerly journey, an overheating issue caused wiring damage to the aging icebreaker's electrical switchboard and one of the evaporators to make drinkable water failed. Soon after those challenges were addressed, ice operations ruptured the vessel's centerline shaft seal, and water flooded into the ship. Divers underneath the ship and engineers down below effected miraculous repairs in freezing water to get the 150-crew vessel moving again. Closer to McMurdo, the maintenance-intensive icebreaker suffered ship-wide power outages requiring the crew to re-energize the electrical system. The test of the Coast Guard crew's resolve and ship skills was rewarded when the icebreaker arrived at the Station at the southern end of Ross Island in late January greenlighting the subsequent arrival of the OCEAN GIANT days later.

Commissioned in 1976, the POLAR STAR is operating beyond its expected 30-year service life. Thankfully, long overdue plans to recapitalize the Coast Guard's overburdened fleet of icebreakers has finally gained traction and Congressionally-appropriated funds will enable the construction of up to three polar-class icebreakers over the next 8 years. POLAR STAR's long overdue replacement is set to "roll off the ways" at Pascagoula's VT Halter Marine by 2024.

Once the OCEAN GIANT was in place on the ice pier, cargo operations ramped up following a brief delay to wait out inclement weather. The crew was able to experience the Antarctic splendor during this rare opportunity and Chief Morris noted that they were permitted access to McMurdo Station. Shuttle buses connected them to the nearby "town" for McMurdo residents. "The South Pole is a fascinating place to see and experience," Chief Morris noted. "There are hiking trails available for the "locals" stationed at McMurdo and at Scott Base (New Zealand Military Base about two miles from McMurdo) as well as the vessel crew. Several of our crewmembers were able to hike on some of the trails while we were docked." Mt. Erebus, an active volcano, and Mt. Terror dominate the McMurdo landscape.

Interestingly, while much of America was gripped in the "Polar Vortex" which brought along sub-zero temps in certain areas, the OCEAN GIANT crew was enjoying balmy 30 degree weather at the Pole.

The M.E.B.A. Chief Engineer pointed out that, "some of our crewmembers were able to watch the Super Bowl live at McMurdo Station, but for us, instead of Super Bowl Sunday, it was Super Bowl Monday because McMurdo is 18 hours ahead of the US East Coast."



*A Ford F-350 modified for the terrain at McMurdo.*



*The OCEAN GIANT at McMurdo's ice pier.*



*The OCEAN GIANT Engine Department for Operation Deep Freeze. The four from bottom left up are QMED Samuel Tayki, C/E Dave Morris, Reefer Tech Steve Mikel, and 1<sup>st</sup> A/E John Keohane. From bottom right up are Electrician Vladimir Loutaev, 2<sup>nd</sup> A/E Nick Berner, QMED Bobby Conner, QMED James Pascocello, and Crane Tech Dave Seltzer.*

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“Another adjustment for the crew is the 24 hours of daylight,” he said. “The sun never sets in the Antarctic summer. Some of our crewmembers had a difficult time adjusting their sleep hours due to the extended daylight.”

After the successful offload, the GIANT was stacked up with 450 containers of retrograde from the base, including used equipment, trash and recyclables. In addition, ice-core samples for scientific study were loaded onto the ship in sub-zero freezer containers bound for Port Hueneme, CA. Before they left, the crew of 20 civilian mariners were awarded the prestigious Antarctica Service Medal for their efforts. Their journey home was devoid of the continued drama experienced on the Coast Guard icebreaker.

On its way home on February 10, the crew of the POLAR STAR spent nearly two hours extinguishing a fire in the ship’s incinerator room 650-nautical-miles north of McMurdo Sound. The fire damaged the incinerator, and the water used to fight the fire took a toll on some of the electrical wiring. Fortunately there were no injuries. Incinerator repairs were added to the checklist for the POLAR STAR’s already-scheduled in-port maintenance period which could last awhile.



**The Coast Guard’s heavy icebreaker POLAR STAR broke up solid ice on the way to McMurdo Sound. The ship’s crew overcame numerous challenges posed by the 43-year old vessel.**

***Thanks to Chief Engineer Dave Morris who informed the Marine Officer about the peculiarities of vessel operations at the end of the earth:***

*Docking the vessel is more difficult than a normal tie-up due to the ice in the water between the vessel and Ice Pier (a solid block of ice about 5 meters thick, where the cargo is unloaded/loaded), along with the distances the mooring lines have to reach to secure the vessel at the pier. The Ice Pier is shown in the photographs as a large brown area next to the vessel - that’s because it has several inches of dirt on top of the ice to provide traction for the vehicles and the personnel working on the surface. Since the pier is made of ice and there are floating sections of ice around the hull, the vessel has an internal LT Cooling System in which a designated ballast tank’s water is circulated through the engine room’s Sea Water Cooling System. This prevents pumping extremely cold water into the cooling water system, eliminating any chance of ice formations blocking the sea water intakes and no warmer water ever discharges from the vessel flowing into and possibly melting the ice pier.*

*When the vessel is alongside the pier, the lower temperatures cause Cold Soaking which eventually draws the heat from the vessel. This cold weather requires preparation, prevention, and developing routines to operate our equipment more frequently to prevent any type of detrimental effects from the cold conditions. This includes routines such as cycling idle systems daily to keep them warm, starting/idling the Main Engine when the temperatures begin to decrease, opening escape hatches to make certain they don’t freeze in the closed position, operating Electric Space Heaters in various equipment compartments including the Engine Room, distributing salt on the decks outside the house to prevent ice formation, and basic situational awareness.*

*The Deck Department as well as our Engine Department have routines to manage all the operation and warming up of the various equipment. The cargo is unloaded with the vessel’s cargo cranes by the Navy Cargo Handling and Port Group (NAVCHAPGRU) or “NAVCHAPS”. They work two shifts of 12 hours so cargo operations can continue 24/7.*

*...All crewmembers have access to extreme cold weather gear to safely and properly function in the cold conditions. In all, we had an excellent crew for the voyage – and that’s critical for continuity and safe operation of the vessel.*