Project Name: ICEX 1979

Organizations/People Involved:

UCT Two: LCDR Peter Marshall, CPOIC – CEC Dave Handley, POIC – SW1 Rick Pummell

USS Archerfish

NUSC, New London

NAVSEA

Canadian Helicopter support

University of Washington

Polar Research Laboratory

Date: Planning 1978, Field efforts April, 1979

Project Summary:

Arctic ICEX 1979

ICEX 1979 As Recalled by Rear Admiral P.W. Marshall

In late 1978, a request came into UCT Two to participate on ICE Exercise 1979 to be held approximately two hundred miles north of Thule, Greenland in the Kane Basin. While there were many experiments and tests that would be conducted throughout the exercise, the request for UCT Two was focused on their arctic diving capability to be used for the recovery of torpedoes to be assessed for under-ice operational capabilities. The tests were conducted to validate overall capabilities of the torpedoes to operate under an ice ceiling.

Test scenario

The general testing scenario involved a test shot of the torpedo into a test range established through the ice by engineers from NAVSEA and the Naval Undersea Systems Center. The test torpedo, at the conclusion of the target run was left in a buoyant condition floating under the 10’ ice cap with a sonar pinger indicating its location. Contractors at the ice camp would then melt two 3’ diameter holes near the torpedo location; one for diver entry, the other for torpedo recovery. Divers would go through the entry hole, locate the torpedo, add appropriate weight to adjust for buoyancy then maneuver the torpedo into the extraction hole. A sling was lowered by topside personnel, attached by the divers to the torpedo and the divers would recover back to the surface.

Two Canadian helicopter squadrons had missions essential in this effort. One squadron provided CH146 Griffons used to hook up to the torpedo sling (previously attached by the divers) and then lift the torpedo out of the ice hole and lay it on the surface ice for engineer analysis, maintenance and preparation for return to the United States. A second helicopter squadron provided Chinook transport support. That support involved the transport of divers from Thule to the Ice Camp and back, provisions of supplies and test equipment to the Camp and transport of the tested torpedoes back to Thule for eventual transfer back to the United States labs.

Logistics

UCT Two deployed from Port Hueneme, with personnel, equipment and its recompression chamber (two 20' Milvans) to Thule, Greenland on a C-141 dedicated by NAVSEA to this exercise. Thule was the base camp for the dive teams, general engineer support and bed-down for all aerial support. In the case of the divers, the recompression chamber was too large to take to the Ice Camp. And for the balance of the personnel, remaining at Thule reduced the loading on the small Ice Camp. Two barracks were provided by the Base for the collected detachments.

As test shots were arranged, the dive team with appropriate helicopter support would fly from Thule to the Ice Camp. Test shots were scheduled subject to availability of the test torpedoes, launching submarine, weather and equipment availability at the Ice Camp. Normal flow and scheduling required a full day of effort for each test with surface weather having the greatest impact to the overall schedule. The OIC required that divers be returned to the Thule at the conclusion of daily operations to ensure their proximity to the recompression chamber if needed.

Dive Support

All dives were conducted with SCUBA equipment and the divers outfitted with dry suits. Poseidon regulators were used with an insulation cap attached to the first stage to reduce the probability of free-flow from freezing. As stated earlier, the divers entered through 10' of ice with total dive depth of approximately 30' to the tail of the torpedo. Both divers had tethered lines going back to a surface support tender. The lines provided safety insurance in the event of any difficulty and a communication method for requesting weights to adjust torpedo buoyancy. After submerging through the ice, the divers would locate the torpedo and attach a tag line to its tail. Then through a series of line signals, weights would be slid down the tag line to adjust the torpedo toward neutral buoyancy. With such adjustment the divers were then able to swim the torpedo to the extraction hole. Once the torpedo was in the hole, the tag line was released, the lifting slings were attached, and divers recovered. On average, total dive time for each recovery operation was 20 minutes.

Planning

In consideration of the dive site and overall arctic conditions, it was desirable to minimize dive time in the water while expediting the quickest and easiest recovery of the torpedo. While in a homeport status at Port Hueneme, UCT Two obtained an inert test torpedo from NUSC to evaluate plans and procedures to use on the ice. Equipment and procedures were tested to ensure that the operations under the ice could be accomplished in a safe and efficient manner. These efforts resulted in slight changes in sling mechanisms to facilitate sling attachment using the heavy dry suit mittens.

These homeport exercises simply reinforced a long-standing lesson learned that early involvement of the construction teams in the project planning paid dividends in the latter field execution.

Adaptability

Regardless of the depth of planning, there will always be a need for exercise adaptability to meet unpredicted challenges. In the case of this ICEX it turned out to be the transfer of the test torpedoes from the Ice Camp back to Thule AB.

The plans called for each torpedo to be slung under the Chinook helicopter and flown back to Thule. That was the best transport scenario, both for ease of hook-up and to maintain the torpedo in the open air to avoid any personnel exposure to possible toxic material/fumes from the torpedo. Unfortunately, with the first attempt to fly a torpedo in the associated slings, it twisted, swayed, yawed and continued in an uncontrolled manner under the Chinook. A 200-mile flight under those conditions was deemed unsafe.

A variety of alternatives were tried, but no safe and reliable solution could be found. The Chinook commander than inquired if the Seabees could build a bulkhead, athwartship, in the chinook. That would divide the bay of the chinook into two compartments. Personnel including the flight crew would fly in the forward compartment, while the torpedo would be flown inside within the aft compartment. A Seabee response from BU1 John Bond's was "You want me to build a wall inside your helicopter?" followed by him doing exactly that. He succeeded in building a wooden bulkhead (with window) that was then "sealed" with foam around all openings, providing a tight wall between the two compartments. As an added safety precaution, as each torpedo made the trip back to Thule, the chinook was flown with the tailgate open, creating a negative pressure on that side of the bulkhead. All torpedoes were then transported back to Thule with no further difficulties.

The picture above shows two divers about to enter the dive ice hole with two tenders. Initial plans had arranged for a hut to be erected over the dive site. But it was determined that the hut would be better utilized for the divers to change into and out of dive equipment, with the actual dive site simply having plywood around the hole, for traction and tender safety. Good weather and short dives validated the decisions.

Results

Over a three-week period nine torpedoes were tested and all nine were successfully recovered. There were no dive equipment problems or malfunctions. There were no dive injuries or accidents.

Project Report Link: None