

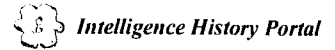
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(U) An Underwater Ice Station Zebra: Recovering a Secret Spy Satellite Capsule from 16,400 Feet Below the Pacific Ocean

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(U) The Historical Collections Division (HCD) of CIO/IMS, in partnership with the CIA History Staff, the Naval Undersea Museum [redacted] and the scholarly journal *Quest: The History of Spacemight* [redacted] held a presentation on the 1971-72 secret operation undertaken by the Central Intelligence Agency (CIA), National Reconnaissance Office (NRO), the United States Department of Defense (DoD), and private industry to retrieve a capsule from an American spy satellite that had crashed into the Pacific Ocean. The event, which took place on 3 November 2012 at the Naval Undersea Museum in Keyport, Washington, featured academics, historians, and several former naval officers who were personally involved in the 1971-72 operation.



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(U) As part of this event, HCD compiled a collection of declassified documents on the operation, highlighting interagency cooperation within the Intelligence Community (IC) and the lessons learned from this particular undertaking.



Film recovered from HEXAGON mission.

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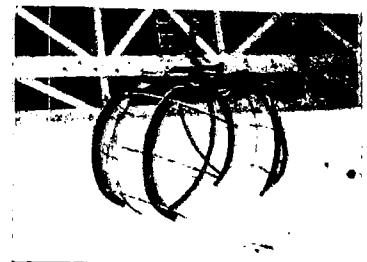
(U) The Operation

(U) On 15 June 1971, the first mission of the HEXAGON satellite program was launched. The satellite was designed to photograph denied areas and return the film to Earth in recovery vehicles, or "buckets," which were to be slowed by parachutes and retrieved by Air Force aircraft. When the satellite jettisoned its third bucket, the bucket crashed into the Pacific Ocean and immediately sank to a depth of 16,400 feet. As the bucket contained film with valuable images of Soviet missile sites, CIA partnered with the Navy to recover the bucket.

(U) Over a period of eight months, deep submergence Navy vessel *Trieste II* (DSV-1) searched for the missing capsule with assistance from its support ship *USS White Sands* (ARD-20) and support ship tug *USS Apache* (ATF-67). After several setbacks, including failure of equipment and inclement weather, *Trieste II* successfully recovered the capsule on 26 April 1972, earning a Meritorious Unit Citation for performing the deepest ocean recovery ever then attempted. While the film was unfortunately unable to be salvaged, the operation was a paradigm of cooperation among the CIA, NRO, and DoD and now serves as an early example of interagency collaboration.

(U) Planning the Operation

(U) After the crash of the HEXAGON bucket, it was determined that the film was worth salvaging due to the possibility that it contained valuable imagery of Soviet missile sites. Shortly thereafter, Dr. Robert Naka, Deputy Director of the NRO, and Carl Duckett, CIA Deputy Director for Science and Technology [redacted] authorized the CIA Office of Special Projects to inquire with the Navy about recovering the bucket from the ocean floor. On 27 July 1971, the operation was formalized in a meeting with Navy, Air Force, CIA, NRO, and industry representatives, and official planning began.



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The final design of the 'hay hook' used to recover the capsule from the ocean floor.

(U) Initial issues identified were determining the bucket's location on the ocean floor and designing apparatuses that could recover the bucket without damaging the film, which was presumed to have water damage and would therefore be more prone to breakage than usual. A team led by Dr. Fred Spiess, Director of the Marine Physical Laboratory at the Scripps Institution of Oceanography [redacted] was assembled to find the bucket and place Deep Ocean Transponders (DOTs) on the ocean floor that would later direct the *Trieste II* to its target. Dr. Spiess' connection also solved the issue of cover -- if uncleared public or crew asked, the recovered item was an instrument from the Marine Physical Laboratory.

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(U) After several attempts to design and construct an apparatus suitable for raising the film from the ocean floor, the decision was made to create a "hay

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hook" design, which would descend over, and close around, the bucket before bringing it to the surface, much like a hay hook in a barn or a claw in a crane game. Additionally, a shipping container was created that could hold the film, the hay hook, and enough seawater to keep the film submerged while in transit to Eastman Kodak laboratories in Rochester, New York. Testing began on the hay hook in late September 1971, and test dives began on 29 September 1971.

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(U) Locating and Recovering the Bucket

(U) On 20 October 1971, the bucket was believed to be located on the ocean floor; subsequently, the shipping container was prepared for launch on 2 November 1971. The first recovery dive was carried out on 4 November 1971, but the divers were unable to locate the bucket. This led to the unfortunate determination that the "discovery" of the bucket on 20 October was erroneous. On 30 November 1971, the second dive to locate the bucket was carried out; the bucket was in fact found, but the divers were unable to place a DOT due to low battery in the submersible.

(U) With winter coming, the weather worsened, and the idea was floated of abandoning the project. However, CIA and NRO worried that if the project were to be abandoned, the Soviets would move in on it. There were two options: 1) complete the project or 2) conduct operations to make the Soviets think we had completed the project. Option #1 was chosen, and the project was put on hold until more amenable weather arrived, anticipated in the spring of 1972.

(U) The third and final dive was initiated on 25 April 1972. The bucket was located, the hook was positioned to retrieve the film, and the operation commenced. The film began to disintegrate, however, as soon as it was moved -- divers rushed to the scene but no usable film could be salvaged. Of considerable benefit to the United States, however, nothing remained to indicate to others that there had once been a satellite capsule at this location.

(U) Lessons Learned

(U) The second HEXAGON mission was launched on 20 January 1972, with the design flaws that led to the crash of the third bucket corrected. From the initial problems with the third bucket, we were able to identify the failure that led the parachute to malfunction, and to correct that in future missions. This operation was also the predecessor of the *Glomar Explorer* project, an operation undertaken in the 1970s to retrieve a Soviet submarine from where it had sunk to the floor of the Pacific Ocean.

(U) The operation to retrieve the bucket of film from the HEXAGON mission was the first time that an object of this small size had been located on the ocean floor, and the first time any object had been recovered from this depth. Demonstrating these capabilities was important for operations to follow, and the interagency cooperation shown during this project came to be a model for the Intelligence Community as it strove to collaborate more efficiently on various operations.

(U) HCD Presentation

(U) The CIA, in conjunction with the Naval Undersea Museum and *Quest: The History of Spaceflight* held a presentation during which declassified documents regarding the operation were displayed. The event took place on 3 November 2012 at the Naval Undersea Museum in Keyport, Washington and featured CIA historian David Waltrop, CDR Richard Taylor, USN (ret.), LCDR Beauford Myers, USN (ret.), and former naval intelligence officer Lee Mathers. Booklets on the event were distributed and a reception was held after the presentation.

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(U) Useful Links and Sources

- CIA Historical Collections Division
- CIA Historical Collections Division, *An Underwater Ice Station Zebra: Recovering a Secret Spy Satellite Capsule from 16,400 Feet Below the Pacific Ocean*, Central Intelligence Agency, 2012.

Retrieved from

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