

SUPSALV Develops Prototype Underwater Welding Capability

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WASHINGTON - The Naval Sea System Command's Office of the Director of Ocean Engineering Supervisor of Salvage and Diving (SUPSALV) recently began developing a prototype hyperbaric aluminum welding capability that will permit underwater welds to the U.S. Navy's aluminum-hulled ships. The hyperbaric aluminum welding capability is being developed to support anticipated repair tasks in the Independence variant Littoral Combat Ship and the Joint High Speed Vessel as these ships are built with aluminum hulls.

"Once this new capability is fully developed and implemented it will provide Fleet maintenance activities with an in-water repair option to costly dry-docking for repairs," said SUPSALV Deputy Director Michael Dean. "Academic and industrial process research has confirmed that hyperbaric aluminum welding has never been accomplished, so we're still working to overcome some hurdles before we can qualify a NAVSEA and ABS [American Bureau of Shipping] hyperbaric welding procedure."

Once the new welding capability is complete and qualified for use, it will save significant time and money over current dry docking requirements when aluminum hull work is necessary.

"Divers can install a dry habitat under the ship and work pier side while the ship's crew goes about their normal routine," said Dean. "The dry habitat installation, which is simply a large box structure open on the top and bottom, provides the diver welder with a dry environment to work."

The prototype underwater aluminum equipment has been tested in a water tank at depths of at least 14 feet, comparable to the deepest drafts for LCS 2 variant hulls. These test-welds successfully passed initial inspection and break tests. The next validation phase will address repeatability and numerous variables found in real world ship repair environments.

"SUPSALV has been pressing the hyperbaric aluminum technology alone for several years now on a very modest budget," said Dean. "The latest feasibility results are beginning to show real promise for successfully completing a NAVSEA-approved procedure."

The Office of the Director of Ocean Engineering, Supervisor of Salvage, directs development and maintenance of the Navy's salvage, underwater ship husbandry, diving and certification program for the U.S. Navy.