ONE TEAM, NSWC PCD brings flexibility to the future of diving

Release from Naval surface Warfare Center Panama City Division

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By Jeremy Roman, NSWC PCD Public Affairs

PANAMA CITY, Fla. –

After months of planning, the mission to rapidly deliver solutions to ensure warfighting dominance moved one step closer during the Deep Sea Expeditionary with No Decompression (DSEND) Suit In-Water Concept Demonstration held at the U.S. Navy Experimental Diving Unit (NEDU), Feb. 7 – 8.

The DSEND demo tested the capabilities of a new concept suit aimed to help divers navigate their environment more efficiently. Allie Williams, Naval Surface Warfare Center Panama City Division (NSW PCD) Fleet Diving In-Service Engineering Agent, explained some of the highlights from this successful demonstration.

“This test was conducted as a proof of concept demonstrating the DSEND suit’s flexibility and maneuverability under the diver’s own power,” said Williams. “The operator was [also] wearing a Divers Augmented Vision Display (DAVD) system inside the suit to demonstrate the future permanent integration of DAVD, as well.”

While performance-capable, the current Atmospheric Diving Suit

(ADS) is also heavy, lacks maneuverability and requires relatively large sea craft for deployment. This project aims to innovate the previous ADS on several fronts including improvements to its current rotary joint design. For example, the current ADS does not allow movement in the same direction as natural human joints, which can contribute to diver fatigue. This new suit concept would enhance a diver's range of motion, without considerable strain or force, while providing the added benefit of allowing the user to swim independent of propulsion systems.

An additional program objective is to develop a swimmable dive suit that maintains atmospheric pressure internal to the suit and can withstand pressures up to 300 feet of seawater (fsw). Further development could enable it to greater depths.

"The demo went well and served as a good proof of concept for the project. We received good feedback and it was valuable to have the chance for follow-on testing," said Williams. "This program will provide new capabilities to the warfighter by creating a more flexible and lightweight ADS, compared to the previous more costly and burdensome capabilities."

Not only does this demonstration move the project closer to interoperability capability, it also strengthens partnerships through the organizational collaboration of Naval Sea Systems Command 00C3, Office of Naval Research 342, NSWC PCD, Naval Undersea Warfare Center Keyport, Nuytco Research, Mide Technology, Coda Octopus and NEDU. They will continue their respective work to complete their primary objective, which is to develop a suit that will replace the 300 fsw Mixed Gas Diving Systems and eventually go to greater depths.