

Towed Array Cut-Resistant Vibration Isolation Module (VIM) Hose

SBIR N181-034, Phase II Contract No. N68335-19-C-0504

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Objective: METSS leveraged cut-resistance additives and innovative testing protocols to achieve USN objectives.

Description of Effort: METSS developed surface modified additives to toughen the VIM's outer covers against exterior physical damage (e.g., derelict longline fishing tackle). After the closure of the original manufacturer of VIM hoses, METSS relocated assets and reestablished towed body (TB) production of hoses associated with the TB-37A, TB-34A, TB-29C, and the twin line Next Generation Array System. Work included documenting procedures, identifying outdated tolerances, and reducing human factors of handcrafted VIM hoses.

Benefits of Proposed Technology: Towed arrays are mission critical detection systems that utilize VIMs to obtain vital signal intelligence for enhanced operational profiles. Cut-resistant VIM hoses are needed to increase the availability of existing towed array systems for USN surface combatants and submarines and reduce lifecycle costs. The transition POR is the TB-37A system but has expanded to PORs related to the TB-34A and TB-29C towed array systems.

Challenges:

- Sole-source manufacturer closed operation in April 2020.
- Improve resistance to cut and wear by more than 100%.
- Reduce human factors and innovate production practices.

Maturity:

- Starting TRL: 2-3
- TRL at project end: 7-8



104-ft Autoclave Relocation



NAVSEA Onsite Visit – November 2022

Period of Performance: 17 May 2018 to 10 August 2023

Major Milestones:

- More than 60 prototype VIMs were submitted to NATSC for inspection and first article testing
- Selected VIMs evaluated at Lake Pend Oreille (LPO) and at-sea
- Streamlined VIM production has been on-going.

Estimated Costs (ROM): \$3.5M

Participants: METSS Corp., HBD/Thermoid, Naval Array Technical Support Center (NATSC), Naval Undersea Warfare Center (NUWC Division Newport), Program Executive Office (PEO) Integrated Warfare Systems (IWS) 5A & 5B, Submarine Acoustic Systems Program Office (PMS 401), and Johns Hopkins University Applied Physics Laboratory