Alternative Adhesive Selected to Reduce the Installation Cost of VCS Damping

Status: Pending Implementation

PROBLEM / OBJECTIVE

A significant amount of damping tile is installed on each Virginia Class Submarine (VCS). Alternate materials and/or installation methods could reduce the cost of installed damping. This Navy Metalworking Center (NMC) project investigated and evaluated various solutions to ensure that functional performance and durability requirements are satisfied and cost-reduction goals are met.

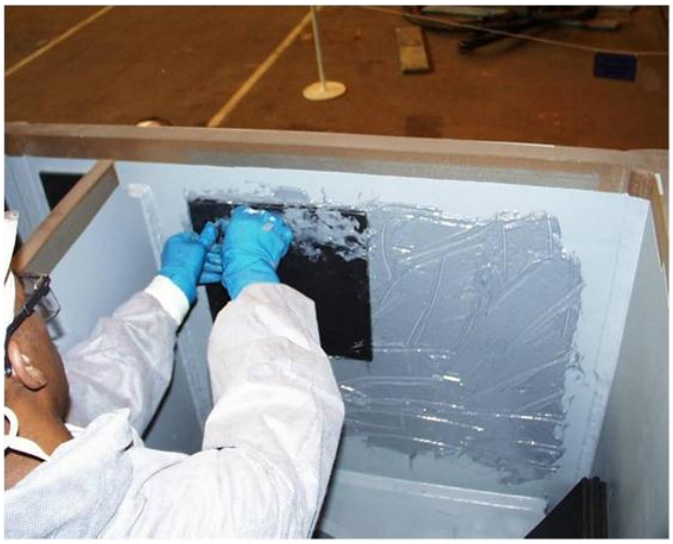
ACCOMPLISHMENTS / PAYOFF

Process Improvement:

NMC conducted an industry search of alternate damping systems, including those using peel-and-stick adhesives and spray-on materials. The search resulted in the identification of alternative adhesives for use with the current tile as well as innovative damping materials. After preliminary testing, pressure sensitive adhesives (PSA) were selected as the candidates with the lowest technical risk and highest cost-reduction opportunity. Additional testing resulted in a single recommended PSA, which had been subject to previous testing as part of select MIL-PRF-23653D damping systems. Therefore, the focus of this project was to modify the PSA to make it acceptable for additional MIL-PRF-23653D damping systems. Efforts to modify the PSA technology were only partially successful, as the limits of the technology were reached. The current version of the PSA was evaluated for partial implementation, which led to the recommendation to continue evaluating the PSA on larger scale structures followed by full-scale analysis. Follow-on phases will be funded outside of the ManTech Program.

Implementation and Technology Transfer:

NMC recommended that PMS 450 continue with the evaluation of the PSA technology to permit implementation on VCS. The timeframe for PMS 450's funding of the remaining tasking will determine on which hull the PSA will be implemented.



PMS 450 will validate alternate cost-saving damping adhesive that was identified in this NMC project. NNS photo

Expected Benefits:

- Reduce cost of select damping systems by approximately $715K / hull

TIME LINE / MILESTONE

Start Date:	May 2007
End Date:	August 2012

FUNDING

Total ManTech Investment: $2.98M

PARTICIPANTS

PMS 450
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Navy Metalworking Center
General Dynamics Electric Boat
Newport News Shipbuilding

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