

Software Tool for Welding Procedures Implemented at Two Shipyards

Status: Implemented

PROBLEM / OBJECTIVE

Improving the critical activities associated with the development and review of vendors' welding procedures offers a significant opportunity to improve shipbuilding affordability. Vendors that have limited experience with NAVSEA and American Bureau of Shipping welding qualification requirements can find them confusing. This is evidenced by the estimated first-time rejection rate of welding procedures submitted by vendors exceeding 90%. The objective of this Navy Metalworking Center (NMC) project was to continue the development of a web-based software system developed by WeldQC that could significantly reduce the costs associated with the development of approved welding procedures. This project was supported by the Future Aircraft Carrier Program Office (PMS 378).

ACCOMPLISHMENTS / PAYOFF

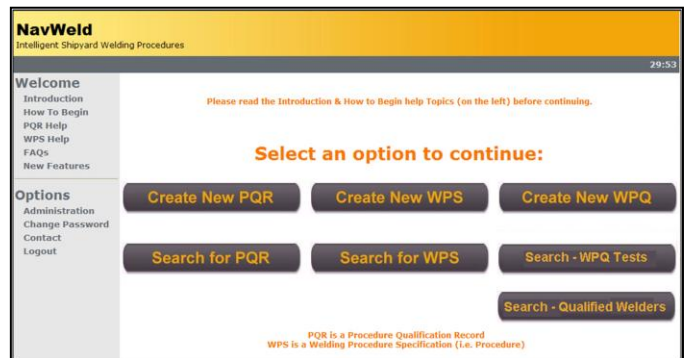
Process Improvement:

Newport News Shipbuilding (NNS), General Dynamics Electric Boat (EB), Naval Surface Warfare Center Carderock Division (NSWCCD) and vendors assisted in the interpretation of qualification and fabrication documents as well as the incorporation of this information into a software package named NavWeld. The software modules were developed, reviewed, and tested in an integral manner. This involvement and methodology has led to successful development of a useful software tool.

Implementation and Technology Transfer:

NNS implemented the software tool in December 2010 for CVN 78. EB implemented the software tool in March 2010 for VCS. The software is also applicable to other ship platforms such as DDG 1000, Littoral Combat Ship (LCS), Amphibious Transport Dock (LPD), Auxiliary Dry Cargo Carrier (T-AKE) and others. The software was initiated under Phase I & II Small Business Innovative Research projects sponsored by the Office of Naval Research.

This article was prepared by the Navy Metalworking Center, operated by Concurrent Technologies Corporation, under Contract No. N00014-10-D-0062 to the Office of Naval Research as part of the Navy ManTech Program. Approved for public release; distribution is unlimited.



NavWeld software is expected to reduce the rejection rate of vendors' submitted procedures, along with the resulting additional costs.

Expected Benefits:

- Reduce the rejection rate of vendors' procedures from 90% to 20%.
- Estimated \$2.58M savings if implemented at six major shipyards. Savings include only shipyard and vendor labor. At current implementation, estimated annual savings are \$1.65M.
- Other tangible benefits include:
 - Reduced production delays
 - Simplified processes entice new vendors and help retain existing vendors
 - Consistent process and forms for shipyards and vendors
 - Allows engineers to focus on other process improvement activities.

TIME LINE / MILESTONE

Start Date: December 2007
End Date: May 2009

FUNDING

- Total Navy ManTech Investment: \$827K
- Cost Share: SBIR Phases I/II \$599K
WeldQC \$100K

PARTICIPANTS

PMS 378
EB
NAVSEA
NSWCCD
NMC
NNS
WeldQC