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Inspection of Painted Pipe Welds - National Shipbuilding Research Program

Rich Green
Government Programs Office

614.688.5126
rgreen@ewi.org

Inspection of Painted Pipe Welds

Project Objective

- Reduce ship construction costs and shorten build schedules by identifying methods and procedures that permit welded pipe systems to be completely painted at the same time as the surrounding area.

Inspection of Painted Pipe Welds

- Current platform program offices require hydrostatic testing of pipe welds prior to priming or painting. DD(X), CVN21, LPD17
- Other program offices allow for hydrostatic testing of pipe welds after priming. DDG51, CVN76

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- DD(X), CVN21, LPD17 requirements for hydrostatic testing of uncoated pipe welds results in a significant increase in platform build costs.
 - Removal of paint and primer after on board installation, prior to testing.
 - Reprime, repaint after testing.

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- Engineering Assessment
 - Specifications
 - Mil Std. 278 (NAVSEA Technical Publication S9074-AR-GIB-010/278)
 - ABS standards – Publication 2, Part 4, Chapter 6, Section 2, Rule 7.3
 - Coast Guard Standards – Navy Spec, ABS, and/or NSTM
 - NSTM – Chapter 505, Piping Systems
 - ASTM

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- Engineering Assessment
 - Data
 - Leaks detected in coated and uncoated systems (during build cycle)
 - Shipyards
 - Program Offices
 - OARS Database – leaks detected and repaired after delivery (in-service).
 - NAVSEA

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- Task 1 - Review history, collect data
- Task 2 – Investigate rationale behind different requirements for different ships
- Task 3 – First order Cost Impact Assessment

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- Task 4 – Hydro requirements from other specs, ABS, ASME, Foreign Navies
- Task 5 – Investigate SOA leak detection, Identify alternatives for painted joints
- Task 6 – Review results with NAVSEA

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- Task 7 (Option) – Limited Feasibility Trials
- Task 8 (Option) – Develop, test and validate alternative methods.

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- Program Start Date 8/10/06
- Status Report 9/29/06
- Program End Date 12/31/06

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- Partners – Points of Contact (POC)
 - EWI
 - Kevin Clear, PI
 - Rich Green, PM
 - NAVSEA – Gene Mitchell
 - NGSS, Ingalls – Lee Kvidahl
 - NGNN, Newport News – Paul Hebert
 - NGSS, Avondale
 - GD, Bath Iron Works

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Questions

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