

**Pollution Prevention  
Descaling Subcommittee  
Project Description Sheet  
3 May 2001**

**Problem Statement:**

The previously authorized chemical cleaning agent for descaling heat exchangers, hot (150°F) sulfamic acid solution, has reportedly been ineffective in cleaning the moderate to heavy scaling that is normally encountered in this equipment. Additionally, the mechanical cleaning and mandatory removal of heat exchangers from the ship required additional time, manpower, resources, and expenses.

**Project Definition:**

Advocate the implementation of RYDLYME and SAFE-D-SCALE (commercially available) heat exchanger descaling technology by coordinating all efforts pertaining to heat exchanger descaling including tracking and reporting of research and development projects, data collection and reporting of ongoing heat exchanger cleanings, analysis of associated cost savings, drafting and approval of the SUPSHIP Standard Work Template (SWT) and Uniform Industrial Process Instruction (UIPI), review and approval of the heat exchanger cleaning procedures and revisions, review of the NNSY developed training package, the development and approval of descaling chemical performance specification, and drafting and approval of CHT chemical cleaning procedures and UIPI.

**Thrust Areas:**

External Coordination of R&D, Ship Issues, RDT&E, HAZMAT

**Potential Products:**

Products include a baseline assessment (approval status matrix), publicizing the use of RYDLYME and SAFE-D-SCALE through the NAVSEA 00T and SEIC Webpages, NAVSSES related messages, SUPSHIP Standard Work Template, ROI / Payback / workload analysis, Performance Specification for qualifying alternative descaling products, revised NAVSSES SIMA Procedures, technical manual revisions, NRL/PSNS/NAVSSES R & D project reports, training package, CHT acid cleaning procedure and UIPI, completion report, and applicable conferences.

**Project Analysis:**

People

- Navy shipyards
- Commercial shipyards
- Program offices
- SIMAs
- SUPSHIPS
- NAVSSES – ISEA
- Cumbersome Work Practices (CWP)
- Engineering for Reduced Maintenance (ERM) Working Group

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- PEOs (TSC, EXW, Carriers, Submarines)
- NAVSEA Technical Codes
- Vendors
- Fleet (TYCOM)
- Navy FASTT Team

Processes (Methods):

- NSTM
- PMS MRCs
- UIPI (Uniform Industrial Process Instruction) / IPI
- SUPSHIP Standard Work Template
- Workload analysis / assessment
- ROI / payback
- Sampling / testing the waste
- Treatment and handling

Material:

- Existing (sulfamic or dilute hydrochloric acid, neutralizer, wastes)
- Proposed (RYDLYME and SAFE-D-SCALE hydrochloric acid mixtures, neutralizer, wastes)

Equipment:

- Heat exchanger, coolers, distillers
- Existing descaling equipment
- COTS descaling equipment
- PPE
- Waste collection and disposal
- Testing, treatment and handling equipment

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