NSRP | National Shipbuilding Research Program

2019 Funded Projects Kick-Off
Surface Preparation & Coatings (SP&C) Panel
Mega Rust 2019

May 14, 2019

Portsmouth, VA

Survey of Surface Preparation and Coatings Automation

Surface Preparation & Coatings

PROJECT INFORMATION	OBJECTIVE
Prime/Lead: Elzly Technology Corporation Team Members: BAE Systems JSR, Blakey Group, Ingalls Shipbuilding Duration: 12 Months	The objective of this project is to develop a path forward for NSRP Shipyards to improve automation of Surface Preparation and Coatings Processes.
DELIVERABLES/BENEFITS/ROI	**FINANCIAL**
• Gap analysis will be performed based on the information collected • Path forward will be developed for SP&C automation improvements • Final report detailing current state of automation in shipbuilding and other industries	Program Funds: $150K Cost Share:　　$　0K

Survey of Surface Preparation and Coatings Automation

Surface Preparation & Coatings

- Robotics and automation technologies offer shipyards an opportunity to reduce the overall cost of surface preparation and coating application both in terms of direct cost and risk reduction.

- Detailed report with the current state of surface preparation and coatings automation in shipyards and in other industries.

- Provide a path forward for automating these activities in shipbuilding.

Robotically abrasive blasting a beam: Elzly photo

Standardization and Digitization of Visual Inspection for Shipbuilding and Repair

Surface Preparation & Coatings

PROJECT INFORMATION	OBJECTIVE
Prime/Lead: BAE Systems JSR Team Members: Newport News Shipbuilding, TruQC Duration: 12 Months	The objectives are to work with the TruQC software program, which can be evaluated and tested to these requirements, and fulfill the paperless visual inspection reporting requirements of NAVSEA contractors and inspectors. The intent of this project is to prove system functionality and repeat tremendous savings and data availability seen by commercial clients over a two year period globally.
DELIVERABLES/BENEFITS/ROI	FINANCIAL
• Significant time and cost savings • Seen 33% reduction in overall time to prepare, execute, created required reports and review • Resulted in savings between $21M - $32M annually after payback	Program Funds: $148K Cost Share: $ 0K

- Primary deliverable is objective, standardized, paperless and digital defect identification and resolution system that can be used for internal process improvement.

- Useable data consistent across class, contractor and work processes.

- Immediate access to consistent, objective, and clean data that can be easily imported into any Business Intelligence (BI) tool or data lake.

Test and Evaluation of Primers with Extended AF Overcoat Window
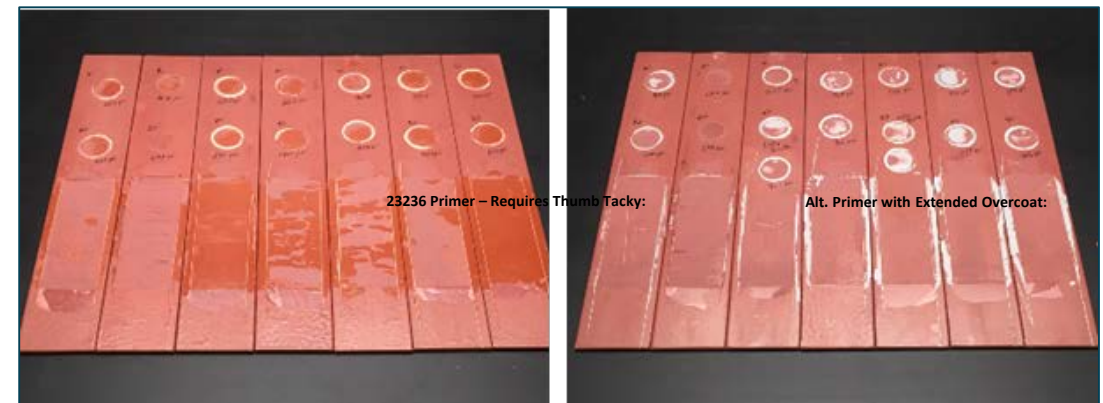
Surface Preparation & Coatings   30/100

PROJECT INFORMATION	OBJECTIVE
Prime/Lead: Excet, Inc. Team Members: NRL, BAE Systems JSR, Bath Iron Works, Ingalls Shipbuilding, Sherwin Williams, International, and PPG Duration: 12 Months	Perform large scale applications of commercially available epoxy "tie coats" that would be installed as part of a MIL-PRF-24647 qualified underwater hull paint system. The large scale applications would be proposed for active US Navy ships, or other shipyard assets that require a MIL-PRF-24647 paint system. The demonstration would be used to validate laboratory testing that has already been completed under a previous NAVSEA program.
DELIVERABLES/BENEFITS/ROI	**FINANCIAL**
• ASTM F718 application data sheets for each tie coat • Final Report • 3:1 based on cost avoidance associated with rework for 1 underwater hull coating	Program Funds: $150K Cost Share: $ 0K

Test and Evaluation of Primers with Extended AF Overcoat Window

Surface Preparation & Coatings

- Will eliminate subjective assessment of thumb tacky, improved QA for second coat of primer (e.g. DFT, etc.) , and dry dock flexibility.

- Extending the overcoat window, even if for only a couple days, will provide dry dock managers greater schedule flexibility and reduce costly rework.

- After application, the asset would be returned to service for 6-12 months for immersion testing.

23236 Primer – Requires Thumb Tacky: Alt. Primer with Extended Overcoat:

Virtual Spray Paint Training System

Workforce Development and **Surface Preparation & Coatings**

PROJECT INFORMATION	OBJECTIVE
Prime/Lead: NASSCO Team Members: Virtual Paint Products, LLC Duration: 12 Months	Project goals will include evaluating Virtual Reality Technology such as VPSTS to shipbuilding industry standards (009-32/NSTM-631/NSTM-634 and SSPC as it relates to spray painting operations), and collecting user feedback on the experience.
DELIVERABLES/BENEFITS/ROI	**FINANCIAL**
• Reduces rework and makes paint application more accurate • Generates no waste or hazardous environment • Final report and presentation will be distributed • Final Hands-on workshop demonstrating the training	Program Funds: $147K Cost Share: $ 0K

Virtual Spray Paint Training System

Workforce Development and **Surface Preparation & Coatings**

- Virtual reality training system designed to realistically simulate the application of sprayable coatings.

- Allows instructors to easily demonstrate proper spray gun setup and assist in improving spray painting techniques.

- Performed without generating any waste or subjecting the painter to a hazardous environment.

- Improve the equipment setup and painting technique of novices resulting in more accurate paint application and reduced rework.

Certificate Program: Shipyard Industry SP&C Training

Workforce Development, **Surface Preparation & Coatings**, and Environmental

PROJECT INFORMATION	OBJECTIVE
Prime/Lead: Bath Iron Works Team Members: BAE Systems JSR, Southern Maine Community College, Society of Protective Coatings (SSPC) Duration: 12 Months	Design a one-year Certificate Program to train entry level shipyard painters. Increase skill level of applicant pools, new hires and experience workforce.

DELIVERABLES/BENEFITS/ROI	FINANCIAL
• Improve the number of qualified applicants for skilled craftsman positions • Provide an opportunity for new hires to improve their knowledge and skills	Program Funds: $150K Cost Share: $ 0K

Certificate Program: Shipyard Industry SP&C Training

Workforce Development, **Surface Preparation & Coatings**, and Environmental

- The certificate program will include classroom lecture, hands-on learning, demonstrations, as well as testing for knowledge and competency.

- The course will provide basic fundamental training needed to qualify for shipyard industry surface preparation and coating application certifications.

- A roadmap for development of Shipyard Industry Surface Prep and Coating curriculum which may be tailored to individual shipyards will be provided.