# FY27 NSRP SPC Panel Project Solicitation Pitch Meeting

July 29, 2026

# Agenda

| Title | Speaker |
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| Nano Armor Tech Suite (NATS) of Corrosion Control Products | Steve Kelley, ECI Defense Group |
| Spray Painting Drone for Hull Painting | Bob Dahlstrom, Apellix |
| Evaluation of Plasma For Surface Preparation and Adhesion Applications | Michael Kibler, Elzly Technology |
| Alternative Solutions for Wire Spray Coatings | Eric Shoyer, Elzly Technology |
| Spray Application of Thermal Insulative Coatings (TIC) | Eric Shoyer, Elzly Technology |
| Mitigate Vessel Sweat Impact | Kevin Irving, Int'l Zinc Association |
| Augmented Reality (AR) Assisted Corrosion Inspection | Gautam Upadhya, AURA Technologies |
| Performance Evaluation of Novel A/F Coating System | Brenda Little, Royal Coatings |
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# Nano Armor Tech Suite (NATS) of Corrosion Control Products

**Project Lead Organization: ECI Defense Group**
**Project Team Members:**

## Concept/Idea

**Issue**: Corrosion from coating failures in a chloride-rich environment degrades critical maritime systems, driving costly shipyard coating rework, unplanned vessel downtime, and reduced fleet readiness.
**Proposed Solution(s)**: Implement a multi-step chemical surface preparation regimen. Salt-Be-Gone removes 98.87% of surface chlorides within a 5-minute application window, preparing the coated surface for NATS CPCs to be applied over topcoats (with and without lubrication) to areas where traditional paint systems fail. Additionally, OxyShield AC chemically converts red rust into black magnetite while adding a durable integrated primer —collectively stopping sub-surface corrosion from continued rusting.

## Benefits/Justification

**Benefits of the Project**: This R&D project provides direct and rapid intervention for coating system degradation and failure. It extends structural and component asset life for shipboard and shipyard equipment/systems. It dramatically reduces life-cycle maintenance hours and shipboard and yard downtime without the disruption of heavy blasting/recoating.

## Project Approach

**High Level Statement of Work**:
Deploy a proactive, non-flammable corrosion control process specification. The project approach will systematically validate chemical chloride removal, molecular-level surface passivation (available with targeted component lubrication), and durable active barrier coatings across critical pilot systems.

**Metric(s) of Success**:

- Achieve verified 98.87% surface chloride removal within 5 minutes of initial fluid exposure.
- Document a measurable reduction in localized corrosion-related maintenance events.
- Demonstrate extended service life of key shipboard and shipyard components exposed to harsh marine environments.

## Cost/Images/Relevant Information

**Funding Request**: $125k **| Project Duration**: 12 months
**Operational Efficiency**: High-yield product application coverage drives scalable corrosion control with significant reductions in direct labor hours, material waste volume, and drydock downtime.
**Scalability**: Low-cost, easily scalable integration designed to deploy immediately using existing shipyard washdown units, hand sprayers, and standard deckplate coating equipment without new infrastructure costs.

# Spray Painting Drone for Hull Painting

**Project Lead Organization: Apellix**
**Project Team Members:**

## Concept/Idea

**Issue:** Skilled painters are increasingly difficult to attract and retain. Hull painting is time-consuming, dangerous and expensive in terms of labor and equipment.

**Proposed Solution(s):** A semi-autonomous spray-painting drone for targeted hull coating applications, while equipping the workforce with more productive tools that make the painter trade a safer, more attractive career path for the next generation of shipbuilders while leveraging the expertise of current shipyard coatings personnel.

## Benefits/Justification

**Benefits of the Project:** UAVs to coat ships decrease scheduling time, increase productivity, decrease risk to workers and decrease dedicated labor required for painting. A dedicated pilot program, starting with the initial stripe coating of weld seams, will allow Apellix engineers to work closely with shipyard staff to ensure all aspects of regulation are met, and to design a process that best provides the shipyard with immediate benefits while fully vetting the technology for coating tasks.

## Project Approach

**High Level Statement of Work:** Demonstrate and validate semi-autonomous spray-painting drones alongside existing painter skill sets, delivering a performance report and workforce integration plan to guide scaled adoption across shipyard coating operations.

**Metric(s) of Success:** Achieve 10,000 lineal feet of stripe coating in less than 4 hours using a crew of 3 shipyard painters (one operating the UAV, one observer and one pump tender). The primer will be tested using a PA-2 type DFT measuremtn in compliance with any contractual requirements or guidance.

## Cost/Images/Relevant Information

**Project Estimated Cost:** We project a total budget of $200,000 to cover the direct and indirect cost of Apellix for engineering and testing the Apellix UAV, specific to the hull weld seam stripe coating task, in full compliance with all regulations and contractual requirements, and for training existing shipyard painters to operate the system and complete a trial of 10,000 lineal feet of stripe coating.

Upon completion of the trial, Apellix will work with the shipyard to create a robust implementation plan.

# *Evaluation of Plasma For Surface Preparation and Adhesion Applications*

**Project Lead Organization: Elzly Technology**
**Project Team Members: HII-NNS**

## Concept/Idea

**Issue:** Scuff sanding for overcoating work is a slow process that can result in poor adhesion of new coating. Poor adhesion can also occur when overcoating or adhesively bonding to some coatings (e.g., some polysiloxane products). Plasma treatments are used in for promoting adhesion in other industries, but not shipbuilding or ship repair.

**Proposed Solution(s):**

Evaluate the viability of plasmas for shipyard use by comparing them to SSPC-SP 2 and 3 procedures. Test the production rate and effectiveness of commercially available plasma equipment to determine their ability to prepare a surface for coating and adhesive material application.

## Benefits/Justification

**Benefits of the Project:**

- Generation of shipyard focused data and guidance for plasma surface treatment use.
- Identification of beneficial plasma blast applications.
- Potential for improved adhesion of overcoating and adhesive bonding.
- Potential reduction of waste streams (used abrasive material).

## Project Approach

**High Level Statement of Work:**

- Evaluate the effectiveness and production rate of plasma treatments and evaluate best use cases.

**Metric(s) of Success:**

- Generation of data and guidance for the level of cleanliness expected to be achievable by plasma blasting (production rate, overcoat adhesion, and coating performance).
- Comparisons of plasma treatments to hand tool and power tool surface preparation.

## Cost/Images/Relevant Information

**Project Estimated Cost:**

**Duration: 12 Months**

**Program Funds: $200,000**

# Alternative Solutions for Wire Spray Coatings

**Project Lead Organization: Elzly Technology**
**Project Team Members: HII-NNS**

## Concept/Idea

**Issue:** Wire spray provides effective corrosion protection for specific service environments, but the use cases are dwindling to the point where it has become difficult to maintain qualified personnel. At this point, the AMPP QP-6 Contractor Certification is only held by 13 companies in the CONUS, all located east of the Mississippi, limiting applicator availability.

**Proposed Solution(s):**

Generate a database to better understand the areas in which wire spray is required within shipbuilding and determine the viability of replacing some wire spray requirements with liquid applied coatings.

## Benefits/Justification

**Benefits of the Project:**

- Identification of Navy-approved alternative systems.
- Reduced costs and turn-around time by using well exercised liquid coatings skills and processes.
- Generation of shipyard focused data and guidance for wire spray areas.
- Potential safety and environmental benefits.

## Project Approach

**High Level Statement of Work:**

- Evaluate the designated wire spray areas in shipbuilding for performance and production compared to viable Navy-proposed alternatives.

**Metric(s) of Success:**

- Data and guidance of wire spray applications.
- Cost savings on switching to alternative systems.

## Cost/Images/Relevant Information

**Project Estimated Cost:**

**Duration: 12 Months**

**Program Funds: $200,000.00**

# Spray Application of Thermal Insulative Coatings (TIC)

**Project Lead Organization: Elzly Technology**
**Project Team Members: Sherwin Williams, HII-NNS, Electric Boat, Righter Group, NanoTech**

## Concept/Idea

**Issue:** Insulation installation comprises between 5 and 9% of the cost of building a naval ship. TICs are approved for use as ANTI-SWEAT COATINGS, per 009-32 and TT-C-492, and have promoted installation cost savings however, insulation manuals don't include the these new materials in their repertoire.

**Proposed Solution(s):** Evaluate TICs ability to save cost & schedule during construction/maintenance by investigating the benefits of spray/trowel application of TICs. Use results to ignite demand for a viable, spray applied, insulation replacement, and, update insulation manuals to use TICs vice insulation in low volume/low risk applications for cost and schedule improvements.

## Benefits/Justification

**Benefits of the Project:**

- Understanding of the application, cure, and set up requirements for TIC material installation
- Broaden the extent of approved applications for TICs to solve condensation issues on-board
- Appreciate the Aesthetics of this new class of product

**Justification**

- TICs are approved for use as ANTI-SWEAT coatings per 009-32 and/or qualification to TT-C-492D, however, navy insulation specifications do not address or invoke the use of these advanced materials.

## Project Approach

**High Level Statement of Work:**

Perform a shipboard trial to compare spray/trowel-applied TICs to traditional insulation on hard-to-insulate components such as sweating bulkheads, chill-water valve operators, and other equipment, using the approved ANTI-SWEAT coatings (009-32 Table 5, line 4A or TT-C-492D). Installation efficiency, including time, labor, and material usage, will be measured, and additional low-risk, traditionally insulated or uninsulated areas should also be evaluated for anti-sweat or safe touch applications.

**Metric(s) of Success:**

- Coating Performance
- Labor and material cost comparison
- Health/safety benefits: application and in-service

## Cost/Images/Relevant Information

**Project Estimated Cost:**

**Duration: 12 Months**

**Program Funds: $200,000**

# Mitigate Vessel Sweat Impact

**Project Lead Organization: International Zinc Association**
**Project Team Members: SCOZ Manufacturer**

## Concept/Idea

**Issue: 'Vessel sweat'** - sailing from warm to cold waters (and vice versa) exposes a vessel's inner hull to extreme thermal shifts forming heavy condensation on the inner hull and overhead deckheads. This results in mildew, foul odors, and accelerated corrosion when using traditional protection methods (e.g. multi-coat systems, sacrificial anodes).

**Solution: Single Coat Organic Zinc** (SCOZ) solutions on which the condensation 'rolls-off' patination prohibiting/limiting moisture formation on the zinc film, while providing true galvanic protection.

## Benefits/Justification

**Benefits of the Project:**

- Surface preparation
  - Traditional, hence once applied life-cycle reload without abrasive blast (just power wash => very low environmental footprint)
- Application
  - Fast application and dry time (< 1 hr)
  - Reload eternally (reversable coating!)
- Very low TOC
- Used by various Navy's (e.g. UK, Austrailia)
  - UK War Catalog
- Some SCOZ have a higher electrical potential and throw than HDG, TSZ, …

## Project Approach

**High Level Statement of Work:**

- On selected inner hull section (TBD):
  - Surface Preparation SA 2.5 – Roughness 2-3 mils
  - SCOZ airless application – 4-5 mils

**Metric(s) of Success:**

- Stronger cathodic protection than anodes with no mounting issues
- Patination protects the zinc as a barrier = slower depletion rates
- Thermal expansion in hot countries/waters will never lead to shearing or cracking of the coating, as it can expand 17%

## Cost/Images/Relevant Information

**Project Estimated Cost: $75,000.00**

**SCOZ Manufacturer: provide SCOZ**

**Testing of this OZ in a similar environment that the Navy ships see. We could also have conditions that the water tanks see inside and out seeing this coating is NSF certified. We could also test this SCOZ on the ships ballast tanks as well.**

# Augmented Reality (AR) Assisted Corrosion Inspection

**Project Lead Organization: AURA Technologies**
**Project Team Members:**

## Concept/Idea

**Issue:** Inspections for safety / corrosion often requires a highly skilled workforce who may be in short supply. Corroded regions under paint or other finishes may exhibit subtle visual cues that are difficult for humans to identify.

**Proposed Solution(s):** An AR-assisted technician can efficiently perform these tasks with less training when assisted by AURA's AR-solution. The AR headset will help to automatically detect evidence of corrosion using computer vision (CV) and visually identify problem areas using AR

## Benefits/Justification

**Benefits of the Project:**

- Provides advanced AI image analysis capabilities in austere naval environments
- Extensible to other skilled tasks beyond corrosion detection: safety inspections, Mx, predictive health monitoring, etc.
- Technicians can perform inspections while accessing relevant visual reference material hands-free (even accessing remote SME expertise via video recording/transmission)
- Overall increase in workforce capability with minimal additional resources

## Project Approach

**High Level Statement of Work:**

Develop an AR solution for corrosion detection, that allows technicians to efficiently identify corrosion with a hands-free solution in hard-to-access areas.

Phase 1 would include solution architecture, including a feasibility study of the CV models for visual corrosion detection, and an outline of the AR-assistant software to be developed. Phase 2 would include development of a full prototype.

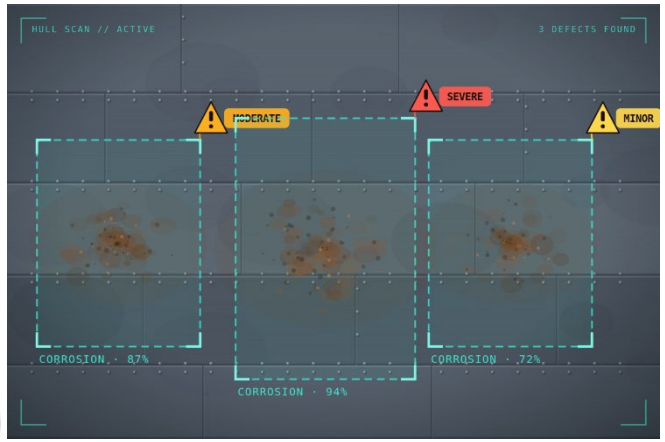
**Metric(s) of Success:**

A minimally trained technician should be able to accurately and efficiently identify regions displaying visual corrosion.

## Cost/Images/Relevant Information

**Project Estimated Cost:**

- **$200K** for initial feasibility analysis solution architecture.
- **$1M** for prototype development, including CV models and AR interface.



# Performance Evaluation of Novel A/F Coating System

**Project Lead Organization: Royal Coatings**
**Project Team Members: HII-NNS**

## Concept/Idea

**Issue:** Microbially Influence Corrosion (MIC) establishes a beachhead for larger fouling organisms to attach. Traditional anti-fouling coatings leach an excessive amount of toxins into the environment.

**Proposed Solution(s):** Apply a copper containing anti-fouling coating with a copper leaching rate below the EPA limit to mitigate the MIC organisms.

## Benefits/Justification

**Benefits of the Project:**

- Demonstrate the effectiveness of the coating system in the environment
- 30% reduction in:
  - Mechanical Cleaning
  - Asset Corrosion Rates
  - Asset Downtime & Dry-Docking Costs

## Project Approach

**High Level Statement of Work:**

- Expose coupons in Marine and Industrial water environments for a 12 month cycle.
- Evaluate the antimicrobial efficacy of the system

**Metric(s) of Success:**

- Complete Target Bacteria Inactivation
- Biofilm Progression Prevention

## Cost/Images/Relevant Information

**Project Estimated Cost:** We project a total budget of $200,000 to cover the direct and indirect costs of surface prep & coating application to create the coupons; deploying the coupons at various locations along the shoreline of the James River inside Newport News Shipbuilding; site visits to periodically collect data and perform the analysis including laboratory testing.

# Next Steps

- Panel Project solicitation requires a whitepaper proposal submitted by August 26
- Make sure you have attached support emails from Shipyard Delegates
- Follow all requirements in the NSRP.org solicitation guidelines to ensure your proposal is accepted