

# More Efficient Surface Preparation Methods Developed for CVN 79 Tanks and Voids

**Status:** Technical Success

## PROBLEM / OBJECTIVE

During construction of Navy vessels, specifications require that critical steel surfaces be blasted to near-white conditions and be relatively free of contaminants, including electrically conductive contaminants. Specifications also require a relative humidity (RH) of 50% or less during blasting and coating operations. If the surface conditions and humidity are not met, the service life of the paint system may be significantly reduced. The objective of this Navy Metalworking Center (NMC) project was to reduce cost and schedule risk associated with surface preparation of tanks and voids by mitigating surface contamination and more efficiently controlling the environment for blasting and painting operations.

## ACCOMPLISHMENTS / PAYOFF

### **Process Improvement:**

In order to mitigate conductive contaminants in the construction process, members of the Integrated Project Team (IPT) conducted a study to determine the sources of the contaminants. Then they evaluated, down-selected and validated mitigation methods at Newport News Shipbuilding (NNS) and reviewed the construction process to determine the optimal point at which the technology should be implemented.

To control the environment of tanks, the IPT investigated the current processes for new construction and overhaul of aircraft carriers, and analyzed various alternatives to control relative humidity in a large number of tanks and voids simultaneously in the most energy efficient manner possible.

Recommendations for both the environmental control of tanks and the mitigation of conductive contaminants on production units were provided to PMS 378 and NNS.

### **Implementation and Technology Transfer:**

While this project was technically successful, NNS does not intend to implement the project results at this time.



*Mitigating surface contamination and efficiently controlling the environment to blast and paint CVN 79 tanks and voids could save cost and schedule risk.*

### **Expected Benefits:**

- Reduced cost and schedule risk to mitigate surface contamination on CVN 79
- More efficient blasting and painting operations by controlling the environment of a larger number of CVN 79 tanks simultaneously

## TIME LINE / MILESTONE

Start Date: February 2007

## FUNDING

End Date: August 2008  
Total ManTech Investment: \$970K

## PARTICIPANTS

PMS 378  
NAVSEA 05D  
NNS  
NMC

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.