

VCS Material Flow Processes and Technology

Status: Technical Success

PROBLEM / OBJECTIVE

Process Engineers at General Dynamics Electric Boat (GDEB) are currently executing an effort to drive down the costs associated with material flow within the VIRGINIA Class Submarine (VCS) construction facilities at its Groton and Quonset Point shipyards. The advent of Lean Six Sigma and other process improvement methodologies is evidence that companies are constantly striving to streamline processes, cutting out activities that add minimal value and reducing overall labor and material “waste.” Once implemented, this project could save the Navy as much as \$2.7M per VCS hull.

This project is being executed in two phases. It will use Lean techniques to establish Current State Maps for processes already in place, and Future State Value Stream Maps will be developed to identify areas where performance can be significantly improved. In addition, the project team will visit companies outside of the shipbuilding industry to learn and observe their processes.

ACCOMPLISHMENTS / PAYOFF

Process Improvement:

Phase I of this project completed in January 2011 and Phase II activities began in February 2011.

The Phase I activities delivered an Improvement Action Plan that included a vetted list of promising technologies, processes and techniques that have a high probability of success once implemented in the shipyards. During Phase II, candidate technologies are being demonstrated in the shipyard environment. The five main technology areas being evaluated are: Wireless tracking (RFID) of material in shops, outfitting, final assembly and test; Wireless picking to reduce material touches and expedite material issue; Point-of-Use technologies that can issue material at the worksite; Innovative Material Delivery including “milk run” distribution; and Outfitting Material and Staging.

Implementation and Technology Transfer:

Of the 65 Improvement Action Items identified during Phase I, EB has implemented 27 of these and is evaluating the benefits. Procurement of the pilot technologies began in June 2011; with demonstrations and evaluations to follow. Once these technology pilots have been tested and evaluated, GDEB will develop the metric improvement and savings summary that will document both the expected and realized savings from each of the various technology applications. The savings summary will provide the



critical information that will be used when determining the plan for implementation in the Groton and Quonset Point VCS construction facilities.

This project’s highly successful predecessor, the VCS Material Management project, is currently saving the Navy over \$5M per VIRGINIA-Class new construction submarine by focusing on other material flow cost drivers like procurement, scheduling and storage. EB’s project team is confident that this project will also yield tangible savings for the navy.

Expected Benefits and Warfighter Impact:

- Identify desired material flow scenario that will lead to improved performance given existing factors of capital equipment and space
- Streamline processes
- Improve flow of material through the shipyard
- Reduce cost, cycle & wait time and transaction errors
- Estimated cost savings per hull: \$2.7M

TIME LINE / MILESTONES

Start Date: July 2010
End Date: April 2012

FUNDING

Navy ManTech Investment: \$1.9M
Cost Share: \$0K

PARTICIPANTS

PEO Submarines
General Dynamics Electric Boat
Center for Naval Shipbuilding Technology