

Naval Audit Service



Audit Report



Implementation of Earned Value Management for the Future Aircraft Carrier Program

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N2012-0011
22 December 2011

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Key to Acronyms

ASN (RD&A)	Assistant Secretary of the Navy (Research, Development and Acquisition)
CEVM	Center for Earned Value Management
DoD	Department of Defense
DON	Department of the Navy
EVM	Earned Value Management
EVMS	Earned Value Management System
FOIA	Freedom of Information Act
NAVSEA	Naval Sea Systems Command
SUPSHIP	Supervisor of Shipbuilding, Conversion, and Repair



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**MEMORANDUM FOR COMMANDER, NAVAL SEA SYSTEMS COMMAND
PROGRAM EXECUTIVE OFFICER AIRCRAFT CARRIERS**

**Subj: IMPLEMENTATION OF EARNED VALUE MANAGEMENT FOR THE
FUTURE AIRCRAFT CARRIER PROGRAM (AUDIT REPORT
N2012-0011)**

Ref: (a) Naval Audit Service memo N2009-NAA000-0076, dated 29 Sep 09
(b) Secretary of the Navy Instruction 7510.7F, "Department of the Navy Internal Audit"

1. The report provides results of the subject audit announced in reference (a). Section A of this report provides our finding and recommendations, summarized management responses, and our comments on the responses. Section B provides the status of the recommendations. The full text of management responses is included in the Appendix.

2. Actions planned by Naval Sea Systems Command meet the intent of Recommendations 1-3. Actions planned by Program Executive Officer Aircraft Carriers meet the intent of Recommendation 4. The recommendations are considered open pending completion of the planned corrective actions, and are subject to monitoring in accordance with reference (b). Management should provide a written status report on the recommendations within 30 days after target completion dates. Please provide all correspondence to the Assistant Auditor General for Research, Development, and Acquisition Audits, XXXXXXXXXXXX, by e-mail at XXXXXXXXXXXXXXXX, with a copy to the Director, Policy and Oversight, XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX. Please submit correspondence in electronic format (Microsoft Word or Adobe Acrobat file), and ensure that it is on letterhead and includes a scanned signature.

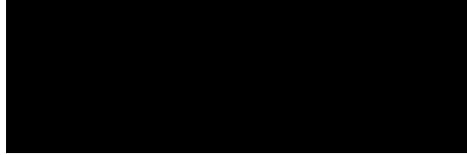
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3. Any requests for this report under the Freedom of Information Act must be approved by the Auditor General of the Navy as required by reference (b). This audit report is also subject to followup in accordance with reference (b).

Subj: **IMPLEMENTATION OF EARNED VALUE MANAGEMENT FOR THE
FUTURE AIRCRAFT CARRIER PROGRAM (AUDIT REPORT
N2012-0011)**

4. We appreciate the cooperation and courtesies extended to our auditors.



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Assistant Auditor General
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Executive Summary

Overview

Earned Value Management (EVM) is one of the primary methods contractors and Government Program Managers use to measure a contractor's cost, schedule, and technical progress on contracts for significant acquisition programs. Contractors managing such programs for the Department of Defense (DoD) are required to use an integrated Earned Value Management System (EVMS) that meets best business practices, and the 32 EVMS guidelines contained in American National Standards Institute/Electronic Industries Alliance Standard 748. The guidelines provide contractors with the framework to develop and implement effective management control systems tailored to meet their respective needs, while still ensuring fundamental EVMS concepts are applied.

In 2002, Naval Audit Service began a series of EVM audits initially at the request of the Deputy Assistant Secretary of the Navy (Research, Development and Acquisition) for Management and Budget (formerly Planning, Programming, and Resources) because there were concerns about Government program managers implementing/using EVM to manage their programs. Throughout the EVM audit series, we have evaluated the key players and their roles within the EVM process: the Government Program Managers' use of EVM to manage and make decisions on their programs; the contractors' application of EVM on the Defense program and the compliance of the contractors' EVMS with the EVMS guidelines; and the oversight and surveillance provided by the contract management offices and the contract auditors. As a result of our EVM audit series, we found that EVM, a primary DoD internal management control process for managing cost, schedule, and performance of acquisition programs, had not functioned as intended.

Since the first report was published in 2003, we have identified systemic weaknesses associated with the implementation and oversight of EVM within the Department of the Navy (DON). In response to the systemic weaknesses within EVM implementation and as a result of our audits, both DoD and DON have made some noteworthy accomplishments through the: (1) issuance of policy memorandums indicating their commitment to embrace EVM as the best tool available to the program management community and senior leaders for effectively managing large, complex acquisitions; and (2) establishment of EVM Centers of Excellence for each Military Department at the Senior Acquisition Executive level to ensure proper execution of its EVM operational responsibilities. However, despite these noteworthy accomplishments, the implementation and use of EVM to manage Navy acquisition programs continues to be

an internal control weakness within DON, particularly within shipbuilding programs. This is evidenced by the two programs reviewed for this EVM audit: the Future Aircraft Carrier and the Virginia Class Submarine programs. Also, DoD and DON recognize that there is still a need to improve its EVM implementation, oversight, and governance to ensure consistency throughout the Department.

Reason for Audit

The audit objective was to verify that EVM was implemented in accordance with DoD requirements and used to monitor acquisition program cost, schedule, and performance for the Future Aircraft Carrier and Virginia Class Submarine programs.

This audit report addresses the implementation and use of EVM for the Future Aircraft Carrier (CVN 78) at Northrop Grumman Shipbuilding-Newport News, VA.¹ The CVN 78 program is a DON Acquisition Category ID program.² The CVN 78 program is managed by the CVN 78 Program Office (PMS-378), and reports to the Program Executive Officer Aircraft Carriers. The second audit report will be focused on the implementation and use of EVM for the Virginia Class Submarine program at Huntington Ingalls Industries-Newport News, VA, and General Dynamics Electric Boat, Groton, CT.

As noted above, the Naval Audit Service initially undertook EVM audits at the request of the Deputy Assistant Secretary of the Navy (Research, Development and Acquisition) for Management and Budget (formerly Planning, Programming, and Resources). EVM has been an area of concern for senior DON management due to the inconsistent and ineffective implementation on major DON acquisition programs impacting DON's ability to perform its mission.

Noteworthy Accomplishments

The CVN 78 Program Office has taken steps to improve the EVM process within the CVN 78 program. In 2004, prior to the Detailed Design and Construction contract being awarded in September 2008, the CVN 78 Program Office was under a cost-plus contract for Advanced Procurement/Construction Preparation. This contract was a level of effort contract wherein the entire scope of work to be completed was driven by the issuance of

¹ On 30 March 2011 Northrop Grumman Corporation completed its spin-off of its shipbuilding business to its shareholders. The separation of the division—to be known as Huntington Ingalls Industries Inc.—is intended to provide a more focused effort for shipbuilding, as well as Northrop's other business units. As such, Northrop Grumman Shipbuilding will be called Huntington Ingalls Industries throughout this report.

² Acquisition Category I programs are Major Defense Acquisition Programs. A Major Defense Acquisition Program is a program estimated by the Under Secretary of Defense (Acquisition, Technology and Logistics) to require eventual expenditure for Research, Development, Test and Evaluation of more than \$365 million (Fiscal Year 2000 constant dollars) or procurement of more than \$2.19 billion (Fiscal Year 2000 constant dollars), or those designated by the Under Secretary of Defense (Acquisition, Technology and Logistics) to be Major Defense Acquisition Programs. Acquisition Category I programs may also be those designated by the Under Secretary of Defense (Acquisition, Technology and Logistics) as special interest programs. For Acquisition Category ID programs, the Defense Acquisition Board advises the Under Secretary of Defense (Acquisition, Technology and Logistics) at major decision points.

Technical Instructions, which meant that EVM was not a contract requirement. However, the Program Office judged that there would be value in having some EVM performance measures, and therefore implemented cost reporting via Contract Performance Report formats 1 and 5,³ which were delivered on a quarterly basis. Subsequently, when the Detailed Design and Construction contract was signed in September 2008, full use of EVM was required.

The CVN 78 Program Office recognized that the CVN 78 program had a variety of issues related to using EVM as a program management tool, especially since there was not an established process for using EVM within the program. Additionally, the shipbuilder's reporting documents were vague and error prone. This caused confusion when attempts were made to incorporate reported results into program metrics, and the Program Office did not have confidence in reported cost, schedule, and financial data. Also, the lack of a formal EVM process for the CVN 78 program prevented early detection of trends and issues during the program management process. The CVN 78 Program Office realized that using EVM as a program management tool would add value to managing the CVN 78 program.

As such, according to the PMS 378 officials, in 2007 the Program Executive Officer Aircraft Carriers and PMS 378 program officials chartered an EVM Lean Project to develop an EVM process that will: (1) provide process continuity among stakeholders; (2) increase the Program Office's ability to assess emerging issues with regard to cost, schedule, and performance in a more timely manner; and (3) improve management of high-risk contracts. As a result of the EVM Lean Project, the CVN 78 Program Office developed an EVM plan to increase transparency of the financial data from the shipbuilder, reduce validation time, and remove duplicative efforts. This EVM plan explains the steps taken each month upon receipt of the Contract Performance Report from the contractor and how the Program Office plans to use the EVM information to manage the CVN 78 program.

Also, in 2010, the DON Center for Earned Value Management (CEVM), Naval Sea Systems Command Cost Engineering and Industrial Analysis Division (NAVSEA 05C), and Supervisor of Shipbuilding Headquarters (NAVSEA 04Z) began working together to address the EVM material weaknesses within shipbuilding programs. Initially, the group met to discuss the common EVM implementation issues identified as a result of numerous Naval Audit Service audits, and Defense Contract Management Agency and DON CEVM reviews. Based on previous reviews and audits conducted, the group concluded that DON does not have sufficient oversight and consistent application of EVM across its shipbuilding programs. This has affected DoD and DON organizations and acquisition programs. They documented the common EVM weaknesses within

³ The Contract Performance Report consists of five formats containing data for measuring contractors' cost and schedule performance. Format 1 provides data to measure cost and schedule performance, by Work Breakdown Structure elements, for the hardware, software, and services the Government is buying. Format 5 is a narrative report used to explain significant cost and schedule variances and other identified contract problems and topics.

shipbuilding programs in the form of major milestone tasks and presented the milestone tasks to the Naval Sea Systems Command Program Executive Officers. Some of the milestone tasks included assessing:

- Training and EVM support in place on shipbuilding programs;
- Policies to support standardizing EVM data and processes established across Naval Sea Systems Command;
- Structure and staffing in place for centralized EVM process ownership and consistent EVM support for Naval Sea Systems Command shipbuilding programs;
- Supervisor of Shipbuilding EVM staffing levels and EVM oversight processes to ensure adequate support for Naval Sea Systems Command programs; and
- Shipbuilding program offices for EVM capability and processes for decision support.

During 2011, the group plans to assess Naval Sea Systems Command's current status and develop recommendations based on the gaps identified within the Command and the shipbuilding programs. In Fiscal Year 2012, the group plans to implement the recommendations made from the Fiscal Year 2011 assessments. Also, since the initial kick-off meeting with the Naval Sea Systems Command Program Executive Offices, the group has been conducting quarterly meetings with those Offices to obtain input and to keep them involved in this process to improve the use of EVM within Naval Sea Systems Command.

We did not verify the above information through our audit. However, these positive actions should improve the implementation and oversight of EVM within shipbuilding programs.

Conclusions

We found that EVM was not implemented and used to monitor acquisition program cost, schedule, and performance for the CVN 78 detailed design and construction contract at Huntington Ingalls Industries-Newport News in accordance with DoD requirements. Our audit of transactions occurring between November 2008 and May 2010 identified the following risks associated with the implementation and use of EVM on the CVN 78 program:

- Huntington Ingalls Industries-Newport News's EVMS did not comply with 16 of the 32 DoD established EVMS guidelines; and

- Supervisor of Shipbuilding, Conversion and Repair-Newport News did not provide formal surveillance over Huntington Ingalls Industries-Newport News's EVM implementation.

These conditions occurred because:

- Huntington Ingalls Industries-Newport News did not place sufficient emphasis on implementation of EVM for the CVN 78 program in accordance with DoD requirements;
- Supervisor of Shipbuilding, Conversion, and Repair-Newport News did not implement a surveillance program;
- Supervisor of Shipbuilding, Conversion, and Repair-Newport News did not have sufficient personnel with adequate EVMS surveillance training and experience to monitor the contractor's EVMS compliance with DoD policy; and
- The Center for Earned Value Management for DON and Naval Sea Systems Command did not provide sufficient EVM support to ensure EVM was properly implemented for Navy shipbuilding contracts.

As a result, the Navy did not have earned value data on which it could fully rely to manage and make informed decisions about the contractor's cost, schedule, and technical performance.

Communication with Management

The Office of the Secretary of Defense, Performance Assessment and Root Cause Analysis Group requested Naval Audit Service to brief them on 11 August 2010 on our preliminary results of our review of the Huntington Ingalls Industries-Newport News EVMS conducted in June 2010. As a result of this briefing, the preliminary conclusions were shared with the Performance Assessment and Root Cause Analysis Group assessment team during the CVN 78 Defense Acquisition Executive Summary assessment process. Because of the significance of the preliminary conclusions, a representative from the Office of the Secretary of Defense directed the Defense Contract Management Agency EVM Center to conduct a complete compliance review of Huntington Ingalls Industries-Newport News's EVMS. Therefore, we did not make a recommendation that the Defense Contract Management Agency conduct a complete compliance review.

Additionally, we briefed both the military and civilian Principal Deputies to the Assistant Secretary of the Navy (Research, Development and Acquisition) (ASN (RD&A)) to inform them of the EVM audit history and the current EVM audit program selection. Also, we discussed our preliminary conclusions with the Under Secretary of the Navy

(16 March 2010), ASN (RD&A) (24 April 2010), the CVN 78 Program Office (8 October 2010), Virginia Class Submarine Program Office (28 October 2010), and the Deputy ASN (RD&A) for Management and Budget (21 April 2011), to keep them informed of our audit progress, facilitate discussion, and foster prompt corrective actions where appropriate.

Federal Managers' Financial Integrity Act

The Federal Managers' Financial Integrity Act of 1982, as codified in Title 31, United States Code, requires each Federal agency head to annually certify the effectiveness of the agency's internal and accounting system controls. Recommendations 1-4 address internal control weaknesses related to the implementation of EVM. In our opinion, the weaknesses noted in this report may warrant reporting in the Auditor General's annual Federal Managers' Financial Integrity Act memorandum identifying management control weaknesses to the Secretary of the Navy.

Corrective Actions

We made recommendations to Naval Sea Systems Command and the Program Executive Officer Aircraft Carriers that should, in the aggregate, result in: the CVN 78 contractor's EVMS fully complying with the 32 EVMS guidelines; and Supervisor of Shipbuilding, Conversion, and Repair-Newport News improving EVM support to the CVN 78 Program Office for program and system surveillance.

Management concurred with and plans appropriate corrective actions on all of the recommendations.

Section A:

Findings, Recommendations, and Corrective Actions

Finding: Implementation and Oversight of Earned Value Management at Huntington Ingalls Industries-Newport News

Synopsis

The contractor (Huntington Ingalls Industries-Newport News) and Supervisor of Shipbuilding, Conversion, and Repair (SUPSHIP)-Newport News did not implement Earned Value Management (EVM) on the Future Aircraft Carrier (CVN 78) Acquisition Category ID programs in accordance with Department of Defense (DoD) requirements. Specifically:

- Huntington Ingalls Industries-Newport News's Earned Value Management System (EVMS) did not demonstrate compliance with 16 of the 32 EVMS guidelines established in DoD acquisition policy (see Exhibit D for details); and
- SUPSHIP-Newport News's system surveillance activities did not ensure continuous compliance with the 32 EVMS guidelines for the CVN 78 program.

These conditions occurred because: the contractor did not place sufficient emphasis on the implementation of EVM in accordance with DoD requirements for the CVN 78 program; SUPSHIP-Newport News did not implement a surveillance program; the SUPSHIP-Newport News personnel monitoring contractor's EVMS compliance activities did not have the EVM training and experience necessary to conduct EVMS surveillance activities; and the Naval Sea Systems Command (NAVSEA) and the Department of the Navy (DON) Center for Earned Value Management (CEVM) did not provide sufficient EVM support for the CVN 78 program. As a result, the CVN 78 Program Office could not fully rely on earned value data to manage and make informed decisions about the contractor's cost, schedule, and technical performance.

Discussion of Details

Background

The Future Aircraft Carrier (Gerald R. Ford (CVN 78) Class) is the successor to the Nimitz Class Carrier and is an Acquisition Category ID program that completed

Milestone B (approval of entry into the Engineering and Manufacturing Development phase) in April 2004. The Gerald R. Ford (CVN 78) Class will combine selected technologies previously envisioned for both CVNX 1 and CVNX 2. The CVN 78 Class will retain the baseline Nimitz Class hull form and will include the new propulsion/electric plant, the Electromagnetic Aircraft Launch System, new Warfare Systems components, structural improvements with weight reducing measures, and all-electric vice steam auxiliary equipment developed for the CVNX 1. Further, the CVN 78 Class design improvements include survivability enhancements, flight deck improvements, weapons handling and aircraft servicing improvements, and other features to improve aircraft sortie generation rate. Additional emphasis has been placed on design improvements that reduce crew workload and manpower requirements. The CVN 78 is an Acquisition Category ID program with projected total acquisition costs totaling approximately \$36 billion (\$4.43 billion for development and \$31.58 billion for procurement), or an average of about \$12 billion per ship. The CVN 78 is managed by the CVN 78 Program Office (PMS 378), and reports to the Program Executive Office Aircraft Carriers. On 10 September 2008, NAVSEA awarded the Detail Design and Construction contract of \$5.114 billion to Northrop Grumman Shipbuilding of Newport News, VA (now Huntington Ingalls Industries Inc-Newport News Shipbuilding.) for the first three ships of the CVN 78 Class.

Newport News Shipbuilding, a division of Huntington Ingalls Industries, is the nation's sole designer, builder, and refueler of nuclear-powered aircraft carriers and one of only two companies capable of designing and building nuclear-powered submarines. At the Huntington Ingalls Industries-Newport News Shipbuilding facility, Huntington Ingalls Industries is building both aircraft carriers and submarines. Their current carrier work includes: new construction, aircraft carrier refueling and complex overhaul, aircraft carrier fleet services, and nuclear-powered aircraft carrier inactivation. Huntington Ingalls Industries-Newport News Shipbuilding submarine work includes: new construction, design and engineering, and submarine fleet services.

This is the first of two reports addressing the implementation and use of EVM for two major acquisition programs. The second report will be focused on the implementation and use of EVM for the Virginia Class Submarine program at Huntington Ingalls Industries-Newport News and General Dynamics Electric Boat in Groton, CT.

Pertinent Guidance

Office of Management and Budget Circular A-11, Part 7, Section 300, "Planning, Budgeting, Acquisition, and Management of Capital Assets," June 2008,⁴ establishes policy for planning, budgeting, acquisition, and management of Federal capital assets, and provides instructions on budget justification and reporting requirements for major

⁴ Office of Management and Budget Circular A-11, Part 7, Section 300 was updated during our audit in July 2010. Circular A-11 still mandates using earned value techniques to measure performance during the execution of a program with Federal capital investments.

information technology investments. Office of Management and Budget Circular A-11 mandates using earned value techniques to measure performance during the execution of a program with Federal capital investments.

DoD Instruction 5000.2, “Operation of the Defense Acquisition System,” December 2008, identifies EVMS implementation as a regulatory requirement for Major Defense Acquisition Programs and Major Automated Information System programs. The Instruction requires that contracts that meet certain thresholds use an EVMS that complies with the American National Standards Institute/Electronic Industries Alliance Standard 748 standards.

Defense Contract Management Agency’s “Earned Value Management Implementation Guide,” October 2006, was developed to serve as the central EVMS guidance document for DoD personnel. The EVM Implementation Guide provides guidance to be used during the implementation and surveillance of EVMS established in compliance with DoD guidelines. According to this guidance, there are 32 mandatory guidelines formally adopted by DoD and published as American National Standards Institute/Electronic Industries Alliance Standard 748, “Earned Value Management Systems.” The EVMS guidelines describe the desired outcomes of integrated performance management across five broad categories of activity. These five categories are: organization; planning, scheduling, and budgeting; accounting; analysis and management reports; and revisions and data maintenance. Complying with the 32 EVMS guidelines ensures contractors use an effective management control system and procedures that identify work planned, completed, and in-progress; and related cost, schedule, and technical performance.

The Government Accountability Office’s “Standards for Internal Controls in the Federal Government,” November 1999, provides that internal control is a major part of managing an organization. It serves as the first line of defense in safeguarding assets, and preventing and detecting errors and fraud. One standard of internal controls is monitoring, which should assess the quality of performance over time, and ensure the findings of audits and other reviews are promptly resolved. Ideally, monitoring should be ongoing and done in the course of normal operations.

Audit Results

EVM was not implemented and overseen on the CVN 78 program at Huntington Ingalls Industries-Newport News in accordance with DoD requirements. The audit disclosed opportunities for improvement in the following areas:

- Compliance with DoD EVMS policy by the contractor;
- Surveillance efforts of SUPSHIP over the contractor’s EVM implementation; and

- EVM support provided to SUPSHIP by NAVSEA and the DON CEVM.

As a result, the Navy could not rely on the quality and reporting of EVM information by the contractor for cost, schedule, and technical performance.

EVMS Compliance with DoD Policy

We found Huntington Ingalls Industries-Newport News's EVMS implementation for the CVN 78 contract was not compliant with 16 of the 32 EVMS guidelines (see Exhibit D). The contract requires the contractor to maintain and use a validated EVMS, meeting the 32 EVMS guidelines in DoD acquisition policy. According to DoD policy, complying with the 32 EVMS guidelines ensures that contractors use an effective management control system and procedures; work is planned, completed, and in-progress; and there is properly related cost, schedule, and technical performance. Also, compliance with the guidelines ensures that DoD managers receive valid, timely, and auditable contract performance information on which to base prudent management decisions.

At our request, the Defense Contract Management Agency Earned Value Management Center (the DoD Executive Agent for EVM), assessed Huntington Ingalls Industries-Newport News's EVMS implementation on the both CVN 78 and the Virginia Class Submarine acquisition programs.⁵ Defense Contract Management Agency's assessment concluded that the contractor's application was not fully compliant with the 32 EVMS guidelines. The assessment disclosed major operational deficiencies in several areas of the contractor's EVMS, including baseline maintenance, change control, development of estimates-at-completion, contracting cost reporting, and scheduling. Some examples of problems found at Huntington Ingalls Industries-Newport News were:

- Huntington Ingalls Industries-Newport News did not establish budgets for some authorized work. According to the EVMS guidelines, a key attribute of an earned value management system is that a budget is provided for specific work scope and is only allocated for authorized efforts. However, we found that the contractor routinely authorized work without a budget. For example, approximately 10 percent of the 6,994 control accounts for the CVN 78 program have no budget; however, actual costs are still being collected. During discussions with Huntington Ingalls Industries-Newport News personnel, it was explained that work is routinely authorized without budget to allow critical work to begin immediately. In such cases, the expected lag in budget would be several reporting periods; however, further research revealed that budgets can lag several years. Adherence to the work authorization policies and procedures is necessary to ensure scope, schedule and budget alignment, and traceability. Lack of adherence to this process can adversely impact the integrity of the EVM data and its usefulness as a program management tool.

⁵ This report will only report on Huntington Ingalls Industries-Newport News's EVMS application for the CVN 78 program.

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- Huntington Ingalls Industries-Newport News did not incorporate risk, inputs from the Control Account Managers, or available performance information when developing its estimate at completion for the CVN 78 program. According to EVMS guidelines, estimates of cost at completion should be based on performance to date, commitment values for material, and estimates of future conditions. A properly established and maintained estimate at completion will ensure continuing visibility into resource needs (people, funding, etc.) and lead to project success for both the customer and the contractor. However, we found that Huntington Ingalls Industries-Newport News did not incorporate the risk for material escalation, input from the managers responsible for managing that area, and available performance information, which limited the Program Office's visibility into the program's performance. For example, in the May 2010 Contract Performance Report, the program level estimate at completion in Format 1 did not incorporate the risk for material escalation, nor input from the Control Account Managers or available performance information, even though the latest estimate for material from Huntington Ingalls Industries-Newport News's feeder system was indicating a variance at completion of over \$400 million. Reporting and managing to the different data can hinder management's visibility and impacts the customer's ability to make timely and appropriate programmatic decisions.
- Huntington Ingalls Industries-Newport News's Integrated Master Schedule could not be used as a viable program management tool in providing current status or forecasting capabilities for use in management decisions for the CVN 78 program. Further, Huntington Ingalls Industries-Newport News could not demonstrate a logic-driven program critical path. The scheduling software did not provide horizontal and vertical integration for all levels of the schedule. Vertical and horizontal integration gives management the ability to predict future performance, and to model and track the impact of changes to scheduled events as well as the critical path. The lack of a fully networked schedule hinders the program offices'

ability to predict future performance, or reflect impact of changes to program milestones and the program critical path.

Further, prior to our audit, there were concerns about the compliance of Navy contractors with the EVMS guidelines. In February 2008, the Office of the Secretary of the Navy (SECNAV) directed the DON CEVM to conduct EVMS reviews of Acquisition Category I programs. The CEVM was directed to coordinate with Defense Contract Management Agency and SUPSHIP to conduct the EVMS reviews and to work with the local Contract Management Office and Program Office to resolve any identified issues. These reviews were requested because previous Naval Audit Service audits and reviews done by Defense Contract Management Agency had indicated that numerous Navy contractors were not compliant with the EVMS guidelines. Also, SECNAV wanted to ensure that Program Managers were receiving reliable EVM performance information on their contracts. These previous audits and reviews identified weaknesses, including:

[REDACTED]

FOIA (b)(4)

In May 2008, Huntington Ingalls Industries-Newport News's EVMS was selected to be reviewed by the CEVM review team. As a result of this review, [REDACTED] level II Corrective Action Requests were issued identifying weaknesses [REDACTED]

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[REDACTED] A level II Corrective Action Request indicates noncompliance with an EVMS guideline and that the weakness identified is significant enough to materially affect program performance measurement. These Corrective Action Requests were directed to Huntington Ingalls Industries-Newport News management for corrective action. Consequently, several Corrective Action Plans were developed by Huntington Ingalls Industries-Newport News to address the weaknesses identified during the review. In October 2008, these Corrective Action Requests were closed by SUPSHIP-Newport News, the contract management office, without supporting documentation demonstrating Huntington Ingalls Industries-Newport News had completed all of the actions to address the weaknesses identified during the review. According to SUPSHIP-Newport News, the Corrective Action Requests were closed based on the contractor's intended actions for incorporating improvements over the coming months as new contracts were awarded. We have concerns about SUPSHIP-Newport News closing the Corrective Action Requests without verifying that the intended corrective actions were complete.⁶ This action has allowed Huntington Ingalls Industries-Newport News to continue to operate with these identified weaknesses. Due to the significance of the weaknesses we identified, there was limited assurance that the EVM performance data was accurate or reliable to be used by Navy managers for

⁶ The working group with SUPSHIP, NAVSEA, and the CEVM is supposed to address this issue with their efforts to standardize the EVM process within the shipbuilding programs. Therefore, we are not making a recommendation regarding this in our report.

decisionmaking. Also, our audit identified that several of these issues still exist with Huntington Ingalls Industries-Newport News's EVMS 2 years later.

In addition, since 2007, the Defense Contract Audit Agency has reported recurring concerns about Huntington Ingalls Industries-Newport News's financial management systems, specifically, the overall accounting system and material management and accounting systems. Both of these systems feed financial and accounting data into the EVMS.

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Our audit findings, as well as the CEVM and Defense Contract Audit Agency findings, indicate that Huntington Ingalls Industries-Newport News did not implement and use EVM to manage program cost, schedule, and technical risks in accordance with DoD requirements. Consequently, Huntington Ingalls Industries-Newport News did not have, and ultimately the CVN 78 Program Office was not provided, valid and reliable cost, schedule, and technical performance information for decisionmaking purposes. These issues raise concerns regarding Huntington Ingalls Industries-Newport News's management processes impacting the timeliness, accuracy, reliability, and validity of performance measurement data that NAVSEA and other Navy leadership rely on to manage the contracts and make decisions.

Furthermore, we agree with the Office of the Secretary of Defense direction, given in late 2010, for Defense Contract Management Agency to conduct a complete compliance review of the Huntington Ingalls Industries-Newport News EVMS.⁷ In our judgment, the

⁷ See the "Communication with Management" section in the Executive Summary.

results of such a review should be reported to the Assistant Secretary of the Navy (Research, Development and Acquisition), considering:

1. The identification of major EVM application problems on the CVN 78 contract at the Huntington Ingalls Industries-Newport News facility; and
2. The lack of surveillance of Huntington Ingalls Industries-Newport News's EVMS to ensure continuous compliance.

Without a thorough compliance review by Defense Contract Management Agency, DON decisionmakers will not know the full extent or impact of the Huntington Ingalls Industries-Newport News's EVMS deficiencies on both programs. The Defense Contract Management Agency EVM Implementation Guide states that after initial acceptance of a contractor's EVMS, no other review will be conducted unless there is a serious need determined by the Government. In our opinion, the results from our audit as well as previous audits and reviews demonstrate a complete compliance review is warranted to assess the overall reliability of the Huntington Ingalls Industries-Newport News EVMS.

EVMS Surveillance

SUPSHIP-Newport News did not perform sufficient surveillance to ensure that Huntington Ingalls Industries-Newport News's EVMS complied with the 32 EVMS guidelines. Defense Contract Management Agency's assessment of the Huntington Ingalls Industries-Newport News EVMS identified that the contractor's EVMS was noncompliant with 16 of the 32 EVMS guidelines. The assessment identified deficiencies in the areas of baseline maintenance, change control, development of estimates-at-completion, contracting cost reporting, and scheduling. However, SUPSHIP-Newport News had not performed active and ongoing surveillance, and therefore did not identify these deficiencies. This occurred, in part, because neither the DON CEVM nor NAVSEA Headquarters provided sufficient guidance, oversight, and EVM support of the EVMS surveillance programs to the SUPSHIP-Newport News field office to ensure EVM implementation was in accordance with DoD requirements. Consequently, EVMS surveillance practices were left to the individual field offices with little or no assurance the necessary oversight activities had taken place over the contractor's EVMS implementation. Without the field offices monitoring the contractor's EVMS implementation, there is limited assurance the data generated from the contractor's EVMS is accurate or reliable and can be used to make managerial decisions related to cost, schedule, and technical performance of the CVN 78 program.

According to the Defense Contract Management Agency Earned Value Management Implementation Guide, surveillance is required for all contract efforts that require EVM compliance with the American National Standards Institute/Electronic Industries Alliance Standard 748. Active surveillance should commence upon contract award and shall be ongoing during negotiations with the Program Manager regarding Memorandum of

Agreement development and/or update. The contract management office, which is SUPSHIP-Newport News, has the primary responsibility for surveillance of the prime contractor. To execute surveillance, the contract management office assigns EVMS specialists to develop and implement an EVMS surveillance plan for the contractors' EVMS. The EVMS specialist is also responsible for tailoring the level and degree of surveillance to the risks associated with the contractors' practices. Further, the EVMS specialists report EVMS surveillance results to program managers in periodic program assessments or as required in the Memorandum of Agreement between the contract management office and the Program Office.

Surveillance includes: (1) conducting a risk assessment of the contractor's EVMS to determine the level of surveillance activity; (2) developing and implementing a joint surveillance plan; (3) conducting risk monitoring of the key EVMS process areas resulting from the risk assessment; (4) documenting system surveillance results in surveillance reports addressing the health and continued compliance of the contractor's EVMS with the 32 EVMS guidelines; and (5) issuing formal reports of EVMS deficiencies to respective customers. Surveillance ensures the contractor's EVMS:

- Provides timely and reliable cost, schedule, and technical performance measurement information, summarized directly from the contractor's internal management system;
- Complies with the 32 EVMS guidelines;
- Provides timely indications of actual or potential problems;
- Maintains baseline integrity;
- Provides information depicting actual conditions and trends; and
- Provides comprehensive variance analysis at the appropriate levels, including proposed actions regarding cost, schedule, technical, and other problem areas.

However, the CEVM and NAVSEA Headquarters did not ensure these EVMS surveillance responsibilities were properly executed or that the personnel responsible for performing surveillance had the necessary training to perform these surveillance activities for the Huntington Ingalls Industries-Newport News shipbuilding location. This occurred because neither CEVM nor NAVSEA Headquarters provided sufficient guidance or oversight to the SUPSHIP-Newport News field office. According to the NAVSEA policy, SUPSHIP Headquarters (NAVSEA 04Z) should provide policy, guidance, and resourcing to SUPSHIP field offices. However, during discussions with a representative from NAVSEA 04Z, we were informed that at that time there was no policy, guidance, or oversight from NAVSEA 04Z to the SUPSHIP field offices in regard to EVMS surveillance. The NAVSEA 04Z representative stated a draft EVMS surveillance plan has been developed to standardize the EVMS surveillance process among the SUPSHIP

field offices. The representative further stated that the NAVSEA EVM Group (NAVSEA 05C) was working to establish a methodology for performing oversight.

After the completion of our audit fieldwork, NAVSEA 05C provided us with the draft NAVSEA Performance and Compliance Inspection compliance review for EVMS surveillance as well as EVMS surveillance summaries for three SUPSHIP field locations. The objective of the NAVSEA Performance and Compliance Inspection compliance reviews is to ensure that individual SUPSHIPS's EVMS surveillance activities for shipbuilding contractors are being conducted in accordance with applicable EVM guidance, and are meeting the objectives of EVMS surveillance. According to a NAVSEA 05C representative, these EVMS surveillance compliance reviews began in 2007 and were to take place every 3 years. Further, these surveillance compliance reviews were put on hold as the DON CEVM, NAVSEA 04Z, and NAVSEA 05C group assess the current state of shipbuilding programs under the material weakness. The NAVSEA 05C representative expects that there will be revisions to the checklist as a result of the assessment of the current state of the shipbuilding programs. We did not verify the additional information mentioned above through our audit. However, these actions should improve the guidance and oversight provided to the SUPSHIP field locations.

Also, NAVSEA 05C and SUPSHIP-Newport News provided us with the final NAVSEA SUPSHIP EVMS Standard Surveillance Operating Procedure, which was published in October 2010. This Standard Surveillance Operating Procedure outlines the requirements and process, including required reporting for accomplishment of required system surveillance. The procedure provides guidance on the development and use of surveillance plans. It is based on Defense Contract Management Agency standard processes and has been tailored to reflect NAVSEA organizational requirements. It outlines the surveillance process and provides detailed descriptions of the process steps to be used in developing a surveillance plan. According to SUPSHIP-Newport News, they are in the process of implementing the surveillance program in accordance with the NAVSEA Standard Surveillance Operating Procedure. However, we did not validate SUPSHIP-Newport News's implementation of the procedure during our audit. Further, CEVM did not provide SUPSHIP-Newport News with EVMS support to ensure that Huntington Ingalls Industries-Newport News's EVMS was compliant with the EVMS guidelines. In 2007, the CEVM was established to address the DON's need for clear EVM policy guidance and consistent policy enforcement, adequate oversight, a support structure for program offices, and increased education and training opportunities for those individuals with EVM responsibilities. The overall goal for creating the CEVM was to implement EVM more effectively and more consistently across Navy acquisition programs. The CEVM charter states that the intent of the CEVM is to function as the central point of contact and authority for all matters concerning implementation of EVM on Navy acquisition programs. Specifically, the CEVM's functions and responsibilities are to include acquisition planning, program support, oversight, and training. However,

as of the time of our audit, the CEVM had not executed their charter and had not provided support to SUPSHIP-Newport News. This was primarily due to the inability to sufficiently staff the CEVM. The initial composition of the CEVM was to be a small core group consisting of five fulltime positions: a director and four division heads. The core group would then be responsible for locating and hiring technically competent individuals as necessary. During our audit, the CEVM staff consisted only of the director and two division heads. However, one division head was retiring within a few months and the other division head was detailed to assist in a program assessment. As such, CEVM did not possess the capability to provide EVM support to ensure that surveillance responsibilities were properly performed. The working group formed in 2010 by CEVM, NAVSEA, and SUPSHIP Headquarters (see “Noteworthy Accomplishments”) should address this issue; therefore, we are not making a recommendation regarding this.

According to SUPSHIP-Newport News representatives, they were performing informal surveillance of the contractor’s EVMS to include data validity checks ensuring appropriate calculations and totals during review of EVMS contract deliverables; reconciliation between Contract Performance Report and Contract Funds Status Report documents; and interviewing/questioning the contractor when data anomalies were discovered. However, their informal surveillance activities did not ensure Huntington Ingalls Industries-Newport News’s EVMS complied with the 32 EVMS guidelines. Specifically, SUPSHIP-Newport News surveillance activities did not include in-depth program analysis, such as conducting risk assessment, conducting transaction testing, assessing earned value methods, and performing critical path analysis. As a result, the current EVMS surveillance activities provided no assurance Huntington Ingalls Industries-Newport News’s application of EVM on the CVN 78 program complied with the 32 EVMS guidelines.

Additionally, SUPSHIP-Newport News did not execute a joint surveillance plan with the contractor, which should provide the details for accomplishing system surveillance. While SUPSHIP-Newport News did provide us with a draft joint surveillance plan, this plan was never executed and they did not have a tentative date as to when EVMS surveillance would begin. This plan should have included the identification of key process areas; approaches for selecting Work Breakdown Structure elements; risk-planning activities; and frequency, intensity, and schedule of surveillance activities to verify Huntington Ingalls Industries-Newport News’s compliance with the 32 EVMS guidelines. We also noted that SUPSHIP-Newport News did not conduct a risk assessment. As part of developing a surveillance plan, risk assessments should be conducted to determine the level and degree of surveillance activity required.

In our judgment, the EVMS noncompliance issues discussed earlier in this report could have been readily identified by performing ongoing surveillance activities outlined in a Memorandum of Agreement and a formal surveillance program. However, PMS 378 (the CVN 78 Program Office) did not establish a Memorandum of Agreement with the

contract management office (SUPSHIP-Newport News) to identify the key individuals, specific responsibilities, priorities, reporting requirements, and working relationships needed to conduct surveillance at Huntington Ingalls Industries-Newport News. As such, the Program Office's expectations of SUPSHIP-Newport News were not clearly defined, and surveillance of the contractor's EVMS was not conducted for the multi-billion dollar CVN 78 Program. Even if a Memorandum of Agreement was established, Defense Contract Management Agency's assessment of Huntington Ingalls Industries-Newport News's EVMS performed during this audit found that the EVM data generated from the EVMS was questionable and unreliable to make timely and effective decisions. However, PMS 378 should develop a Memorandum of Agreement with the contract management office to ensure that roles and responsibilities are clear and surveillance of the contractor's EVMS is being conducted.

Moreover, not all of the SUPSHIP-Newport News personnel monitoring Huntington Ingalls Industries-Newport News's EVMS compliance activities had received EVMS surveillance training. This limited the analysts' ability to perform analysis and surveillance in accordance with DoD requirements. In order to properly monitor and review the contractor's EVMS, the SUPSHIP personnel should receive training in EVMS surveillance. Although additional training does not necessarily eliminate contractor EVMS problems, it can provide SUPSHIP personnel with the requisite surveillance knowledge to better identify these problems.

Although performing a risk assessment and strengthening surveillance would not necessarily eliminate contractor EVMS problems, it could help SUPSHIP-Newport News to better identify contractor EVMS problems and utilize the information generated by the contractor's EVMS and reported in external reports as a means to perform formal surveillance.

We considered the lack of SUPSHIP surveillance and ongoing monitoring of Huntington Ingalls Industries-Newport News's EVMS a significant breakdown in internal controls. According to the Standards for Internal Controls in the Federal Government, internal control is a major part of managing an organization. It serves as the first line of defense in safeguarding assets and preventing and detecting errors and fraud. One standard of internal controls is monitoring, which should assess the quality of performance over time and ensure the findings of audits and other reviews are promptly resolved. Ideally, monitoring should be ongoing and done in the course of normal operations. However, for the CVN 78 acquisition program, SUPSHIP-Newport News's informal monitoring activities of the contractor's EVMS were not sufficient to ensure Huntington Ingalls Industries-Newport News continued compliance with the DoD EVMS guidelines.

Subsequently, during 2010, as mentioned in the Noteworthy Accomplishments section, the CEVM, NAVSEA, and SUPSHIP Headquarters have started to address some of the EVM weaknesses identified in this and prior Naval Audit Service EVM reports. They developed major milestone tasks comprised of the common EVM weaknesses identified

within NAVSEA and shipbuilding programs. Some of the milestone tasks include assessing:

- Training and EVM support in place on shipbuilding programs;
- Policies to support standardizing EVM data and processes established across NAVSEA;
- Structure and staffing in place for centralized EVM process ownership and consistent EVM support for NAVSEA shipbuilding programs;
- SUPSHIP EVM staffing levels and EVM oversight processes to ensure adequate support for NAVSEA programs; and
- Shipbuilding program offices for EVM capability and processes for decision support.

We did not verify the above information through our audit. However, these positive actions should improve the implementation and oversight of EVM within shipbuilding programs.

Reporting and Use of Earned Value Data

The CVN 78 Program Office did not have complete and accurate information required to exercise informed decisionmaking and oversight over the CVN 78 contractor's cost, schedule, and technical performance. A primary objective of EVM is to serve as a program management tool providing the Government and the contractor's program manager visibility into cost, schedule, and technical performance on their contracts. However, the operational deficiencies identified in the EVMS compliance section and the lack of surveillance by SUPSHIP-Newport News prevented the Program Office from being able to fully rely on EVM data generated from the contractor's EVMS as a program management tool.

Further, the monthly Contract Performance Reports submitted to the Program Office by the contractor did not always provide complete insight into technical, cost, and schedule progress. According to DoD guidance, the Contract Performance Report is a management report that should provide timely, reliable summary-level data with which to assess current and projected contract performance. The Contract Performance Report's primary value to the CVN 78 Program Office is its ability to reflect current contract status and reasonably project future program performance. It is important that the Contract Performance Report be as accurate as possible so it may be used for its intended purpose, which is to facilitate informed, timely decisions. However, we found that the Contract Performance Reports reported to the CVN 78 Program Office were based on the contract budget-at-completion information while the contractor was managing to an internal target baseline. For example, for at least 10 months from the beginning of the Detailed Design and Construction contract, which is a 7-year contract, the estimate-at-

completion was set equal to the budget at completion as actual costs were still increasing. As such, the data for internal management use did not match the data reported to the customer. Internal performance measurement was based on the supplier's target at completion. Reporting and managing to the different data can hinder management's visibility into actual costs and program status and jeopardizes the reliability of program estimates by limiting the CVN 78 Program Office's ability to identify accurate funding requirements and provide proper management control in accordance with DoD requirements.

Despite the concerns mentioned above, the CVN 78 Program Office stated they receive and analyze Contract Performance Reports from the contractor every month. They stated that EVM is a key program management tool that aides the Program Manager in identifying significant drivers on cost and schedule performance, forecasting future cost and schedule performance, and constructing corrective action plans. Further, they stated that the Program Manager holds a dedicated monthly meeting to review earned value data from the Contract Performance Report and evaluate the effects of significant drivers on the cost estimate at completion. The EVM data is analyzed and incorporated into the Keys to Execution Briefings which are used to manage the CVN 78 Program by assisting in the forecast of future performance and resource requirements. Also, any issues or anomalies identified as a result of analyzing the Contract Performance Reports are documented in a concerns log. The concerns log is a spreadsheet which lists the cost, schedule, and technical performance concerns. Both the Keys to Execution briefings and the concerns log are used to facilitate discussion with the contractor regarding cost, schedule, and technical performance.

After completion of our audit fieldwork, the CVN 78 Program Office provided an example of how they use EVM data to make decisions for the CVN 78 program. The CVN 78 Program Office provided information that indicates that the contractor's incentive fee was reduced based on Quarterly Progress Reviews, Program Team briefings and discussions, briefs provided by the contractor, observations of construction progress during site visits, and Contract Performance Report trends. CVN 78 Program Office provided the letters from the Program Manager to the Administrative Contracting Officer, SUPSHIP-Newport News requesting a reduction in the incentive fee. They also provided letters from the Administrative Contracting Officer, SUPSHIP-Newport News to the contractor reducing the incentive fee. According to CVN 78 Program Office, as a result of the documents and meetings mentioned above, they determined that the contractor's performance degraded and the incentive fee should be reduced. Although additional information we received from the CVN 78 Program Office indicates that EVM data and analysis was being used to make programmatic decisions, we did not validate the additional information mentioned above through our audit fieldwork.

Summary

EVM was not implemented on the CVN 78 Program, an Acquisition Category ID Program, in accordance with DoD requirements. The Program contractor's EVM application did not demonstrate full compliance with the 32 EVMS guidelines. The CVN 78 contract requires the contractor to use EVM to manage the contract. Even though EVM is not separately priced, the cost of implementing EVM is included in the price of the contracts. As such, DON is not receiving full value for program management services and information paid for under these contracts. Moreover, the CVN 78 Program Office did not have complete and accurate EVMS information to use as a program management tool to make informed decisions over contractor's cost, schedule, and technical performance. As a result, DON decisionmakers had no assurance that reported earned value data was accurate, reliable, or complete and projected estimates-at-completion were reasonable for the CVN 78 program.

Additionally, SUPSHIP-Newport News surveillance activities did not ensure continuous compliance with the 32 EVMS guidelines for the CVN 78 program at Huntington Ingalls Industries-Newport News.

These conditions occurred because: the contractor did not place sufficient emphasis on the implementation of EVM in accordance with DoD requirements for the CVN 78 program; SUPSHIP-Newport News did not implement a surveillance program; the SUPSHIP-Newport News personnel monitoring contractor's EVMS compliance activities did not have the EVM training and experience necessary to conduct EVMS surveillance activities; and NAVSEA and DON CEVM did not provide sufficient EVM support for the CVN 78 program. As a result, the CVN 78 Program Office could not fully rely on earned value data to manage and make informed decisions about the contractor's cost, schedule, and technical performance.

Overall, we consider the conditions in this report a significant breakdown in internal controls. Internal controls are an integral component of an organization's management that provides reasonable assurance that the following objectives are being achieved:

- Effectiveness and efficiency of operation, including the use of the entity's resources;
- Reliability of financial reporting, including reports on budget execution, financial statements, and other reports for internal and external use; and
- Compliance with applicable laws and regulations.

Our audit showed these objectives were not met for the management of the CVN 78 program.

Actions Taken by Management

Since completion of our audit fieldwork at Huntington Ingalls Industries-Newport News, SUPSHIP-Newport News provided a timeline of the events that have occurred:

- 15 October 2010 -- Defense Contract Management Agency issued a corrective action request with 20 discrepancy reports through SUPSHIP-Newport News requesting a corrective action plan from Huntington Ingalls Industries-Newport News.
- 1 November 2010 -- SUPSHIP-Newport News forwarded the corrective action plan to Huntington Ingalls Industries-Newport News.
- 1 December 2010 -- Huntington Ingalls Industries-Newport News submitted their corrective action plan in response to the Defense Contract Management Agency corrective action request. Of the 20 discrepancy reports identified, Huntington Ingalls Industries-Newport News indicated 8 that required corrective action. For the 12 others, they responded with additional information to explain their position but did not intend to take corrective action.
- 3 February 2011 -- SUPSHIP-Newport News submitted a letter to Defense Contract Management Agency forwarding the Huntington Ingalls Industries-Newport News corrective action plan and including the results of the SUPSHIP-Newport News assessment. This assessment agreed with the Huntington Ingalls Industries-Newport News assertion that no action was required for 8 of the 12 discrepancy reports on which Huntington Ingalls Industries-Newport News intended no action. There was also a comment from SUPSHIP-Newport News on additional information/action required for some of the other 12 discrepancy reports.
- 8 April 2011 -- Defense Contract Management Agency replied to the SUPSHIP-Newport News letter and Huntington Ingalls Industries-Newport News corrective action plan, via e-mail, by cancelling one of the original 20 discrepancy reports (#52) and adding another discrepancy report (#61) in its place. Defense Contract Management Agency also included comments indicating that the Huntington Ingalls Industries-Newport News corrective action plan was incomplete in identifying root cause, measurable steps for corrective actions, and verification criteria for corrective action closure.
- 5 May 2011 -- SUPSHIP-Newport News forwarded the Defense Contract Management Agency response to Huntington Ingalls Industries-Newport News with a request to resubmit their corrective action plan to include additional information.

- 16 June 2011 -- Huntington Ingalls Industries-Newport News provided their revised corrective action plan to SUPSHIP- Newport News.
- 11 July 2011 -- SUPSHIP-Newport News forwarded the revised corrective action plan to Defense Contract Management Agency for review while concurrently conducting an in-house review.
- 14 July 2011 – Defense Contract Management Agency responded to SUPSHIP-Newport News that the Defense Contract Management Agency EVM Center would not review the corrective action plan until it has been approved by SUPSHIP-Newport News. The in-house review was completed in September 2011.

Recommendations and Corrective Actions

Our recommendations, summarized management responses, and our comments on the responses follow. The response from Program Executive Officer Aircraft Carriers was submitted via Naval Sea Systems Command. The complete text of the management responses is in the Appendix.

We recommend that Naval Sea Systems Command:

Recommendation 1. Require Supervisor of Shipbuilding-Newport News to review, approve, and monitor the contractor’s Corrective Action Plan to ensure compliance of corrective actions with Department of Defense requirements.

Management response to Recommendation 1. Concur with recommendation. Supervisor of Shipbuilding-Newport News has reviewed the Huntington Ingalls Industries-Newport News corrective action plan and forwarded it with comments and recommendations to Defense Contract Management Agency. Of the 20 Discrepancy Reports addressed in the Corrective Action Plan, 7 include explanations and supporting rationale for no further action and a recommendation for closure. Two of the Discrepancy Reports include a corrective action plan for which all intended actions are completed. These are also recommended for closure. Ten of the Discrepancy Reports have corrective action plans that are still in progress but include objective criteria for closure. The corrective action plan for the final Discrepancy Report requires additional development by Huntington Ingalls Industries-Newport News. This action is in progress. Followup for the remaining open corrective actions will be incorporated into the Supervisor of Shipbuilding-Newport News Earned Value Management System Surveillance Plan. The final corrective actions are scheduled for 30 July 2012. Assuming all contractor actions are completed satisfactorily by that date, and allowing for

adequate verification followup by Supervisor of Shipbuilding-Newport News, all actions should be completed within 60 days after the final Huntington Ingalls Industries-Newport News corrective actions are complete. Estimated target completion date is 30 September 2012.

Naval Audit Service comment on response to Recommendation 1.

Management addressed the issue raised in the audit results and the action planned meets the intent of the recommendation. The recommendation is considered open until action is completed by 30 September 2012.

Recommendation 2. Require Supervisor of Shipbuilding-Newport News to develop and implement a joint surveillance program to ensure continuous compliance with the 32 Earned Value Management System guidelines prescribed by Department of Defense policy.

Management response to Recommendation 2. Concur with recommendation. Supervisor of Shipbuilding-Newport News drafted an Earned Value Management System Surveillance Plan that conforms to the Naval Sea Systems Command/Supervisor of Shipbuilding Earned Value Management System Standard Surveillance Operation Procedure dated October 2010. It is intended to be implemented as a joint surveillance plan with Huntington Ingalls Industries-Newport News participating in the surveillance process. Specific agreement by Huntington Ingalls Industries-Newport News has not yet been obtained. Without Huntington Ingalls Industries-Newport News participation on the surveillance team, Supervisor of Shipbuilding-Newport News will implement the surveillance plan as a Government-only process with Huntington Ingalls Industries-Newport News acting only as the subject of the surveillance events. Following internal review and approval of the surveillance plan, Supervisor of Shipbuilding-Newport News expects to issue the plan document not later than 30 November 2011.⁸ Specific surveillance events are scheduled to occur monthly in accordance with the plan, commencing in December 2011. The EVMS surveillance process will then continue using a risk assessment and outstanding discrepancy items as the basis for future events. Estimated target completion date is 23 December 2011.

Naval Audit Service comment on response Recommendation 2.

Management addressed the issue raised in the audit results and the action planned meets the intent of the recommendation. The recommendation is considered open until action is completed by 23 December 2011.

⁸ Note: The report was issued on 13 December 2011.

Recommendation 3. Require Supervisor of Shipbuilding-Newport News to provide personnel with additional Earned Value Management System training to improve their support of the CVN 78 Program Office.

Management response to Recommendation 3. Concur with recommendation. Since the initial visit by the Naval Audit Service to Supervisor of Shipbuilding-Newport News, the training level of the Earned Value Management Staff has improved. Of the seven members of the Earned Value Management System staff, two are certified at Level III in the Defense Acquisition Workforce Improvement Act Business – Financial Management career field. Two are certified at Level II, and the remaining three are at Level I. Level II is the target level for most of the Earned Value Management System staff. Two of the remaining staff members are expected to be complete with their required training by October 2012, with the final staff member completing in 2013 pending availability of required class seats. Additionally, three members of the staff have completed the Defense Acquisition University course on Earned Value Management System Validation and Surveillance. This formal training establishes the foundation for more comprehensive support of Earned Value Management System analysis and surveillance. On-the-job training and practical application of this knowledge in the surveillance program will further improve the capability of the staff members. Additionally, Supervisor of Shipbuilding-specific training in system surveillance being developed by the Navy Center for Earned Value Management and Naval Sea Systems Command as a milestone task of the Earned Value Management in Shipbuilding material weakness corrective actions is expected to be available in first quarter Calendar Year 2012, and will be incorporated into staff training. If additional staff members are acquired, their process to certification will be 2 to 4 years from the time of their hire, depending on past experience. Estimated target completion date is 30 October 2012.

Naval Audit Service comment on response to Recommendation 3.

Management addressed the issue raised in the audit results and the action planned meets the intent of the recommendation. The recommendation is considered open until action is completed by 30 October 2012.

We recommend that Program Executive Officer Aircraft Carriers:

Recommendation 4. Require the CVN 78 Program Office to develop and implement a memorandum of agreement with Supervisor of Shipbuilding-Newport News detailing the roles, responsibilities, and expectations for surveillance of the contractor's Earned Value Management System.

Management response to Recommendation 4. Concur with recommendation. CVN 21 Future Aircraft Carrier Program and Supervisor of Shipbuilding-Newport

News are in the process of developing a memorandum of agreement that will define the roles, responsibilities, and expectations for surveillance of the contractor's Earned Value Management System. Estimated target completion date is 30 December 2011.

Naval Audit Service comment on response to Recommendation 4.

Management addressed the issue raised in the audit results and the action planned meets the intent of the recommendation. The recommendation is considered open until action is completed by 30 December 2011.

Section B:

Status of Recommendations

Recommendations							
Finding ⁹	Rec. No.	Page No.	Subject	Status ¹⁰	Action Command	Target or Actual Completion Date	Interim Target Completion Date ¹¹
1	1	23	Require Supervisor of Shipbuilding-Newport News to review, approve, and monitor the contractor's Corrective Action Plan to ensure compliance of corrective actions with Department of Defense requirements.	O	Naval Sea Systems Command (NAVSEA)	9/30/12	
1	2	24	Require Supervisor of Shipbuilding-Newport News to develop and implement a joint surveillance program to ensure continuous compliance with the 32 Earned Value Management System guidelines prescribed by Department of Defense policy.	O	NAVSEA	12/23/11	
1	3	25	Require Supervisor of Shipbuilding-Newport News to provide personnel with additional Earned Value Management System training to improve their support of the CVN 78 Program Office.	O	NAVSEA	10/30/12	
1	4	25	Require the CVN 78 Program Office to develop and implement a memorandum of agreement with Supervisor of Shipbuilding-Newport News detailing the roles, responsibilities, and expectations for surveillance of the contractor's Earned Value Management System.	O	Program Executive Officer Aircraft Carriers	12/30/11	

⁹ / + = Indicates repeat finding.

¹⁰ / O = Recommendation is open with agreed-to corrective actions; C = Recommendation is closed with all action completed; U = Recommendation is undecided with resolution efforts in progress.

¹¹ If applicable.

Exhibit A:

Background

Department of Defense (DoD) acquisition policy states that Earned Value Management (EVM) is a key integrating process in the management and oversight of acquisition programs. It is a management approach that has evolved from combining both Government management requirements and industry best practices to ensure the total integration of cost, schedule, and work scope aspects of acquisition program contracts. As required by DoD Instruction 5000.02, cost or incentive contracts, subcontracts, intra-Government work agreements, and other agreements valued at or greater than \$20 million in then-year dollars shall implement American National Standards Institute/Electronic Industries Alliance Standard 748, EVM System (EVMS). The DoD Instruction also requires contractors with cost or incentive contracts, subcontracts, and other agreements valued at or greater than \$50 million in then-year dollars to use an EVMS that complies with the 32 EVMS guidelines and has been formally validated and accepted by the cognizant contracting officer.

According to DoD policy, EVM is a tool that allows both Government and contractor Program Managers to have visibility into technical, cost, and schedule planning, performance, and progress on their contracts. This visibility not only provides insight into contract performance, but also provides Government Program Managers and contractors with reliable data from which to make responsible management decisions. EVM reduces risk by effectively integrating the investment scope of work with cost, schedule, and performance elements for optimum project planning and control. EVM provides a quantitative measure of project management progress as measured against a performance baseline established from a project's work breakdown structure and project plan. EVM is a methodology that integrates a program's work scope, schedule, and resources to enable Government and contractor management to objectively track program progress throughout the project's life cycle.

In Fiscal Year 2002, the Deputy Assistant Secretary of the Navy (Research, Development and Acquisition) for Management and Budget (formerly Planning, Programming, and Resources) requested that the Naval Audit Service conduct a series of EVM audits on selected Acquisition Category I and II programs: "Earned Value Management at Program Executive Office for Anti-Submarine Warfare Assault and Special Missions Programs" (N2003-0045); "Earned Value Management for the Extended Range Guided Munition Program" (N2004-0057); "Earned Value Management for the DDG 51 Arleigh Burke Class Destroyer Program" (N2005-0056); "Oversight of Earned Value Management for Naval Acquisition Programs" (N2007-0002); "Earned Value Management for the Littoral Combat Ship "Freedom" Contract N00024-03-C-2311" (N2008-0015); and Earned Value

Management for the Littoral Combat Ship “Independence” Contract N00024-03-C-2310” (N2008-0038).

These audits were intended to determine whether Program Managers and acquisition program contractors were effectively implementing and using EVM to manage their programs. Throughout the series of EVM audits, we engaged technical EVM experts from the Naval Air Systems Command’s EVM Division (NAVAIR 4.2) to obtain technical assessments of contractors’ EVMS application. As a result, we found that EVM, a primary DoD internal management control process for managing cost, schedule, and performance of acquisition programs, has not functioned as intended. Our EVM audits prior to the Future Aircraft Carrier had identified the following systemic EVM weaknesses:

- Contractors’ EVMSs were mostly noncompliant with the 32 mandatory DoD EVM system guidelines;
- Program offices did not consider EVM data when making critical acquisition decisions about their acquisition programs, and did not ensure contractors provided the level of EVM data called for in accordance with the terms of contracts;
- Program offices did not perform complete and formal Integrated Baseline Reviews as required by DoD acquisition policy;
- Naval Sea Systems Command, Space and Naval Warfare Systems Command, Marine Corps, and the Assistant Secretary of the Navy (Research, Development, and Acquisition) provided limited or no EVM oversight and support to naval acquisition program offices;
- Defense Contract Management Agency and Supervisor of Shipbuilding Contract Management Offices did not provide sufficient program and system surveillance activities to ensure contractors’ EVMSs continued to comply with the 32 EVMS guidelines after initial certification. In its advisory role, the Defense Contract Audit Agency did not sufficiently support the Contract Management Offices’ surveillance program; and
- Defense Contract Management Agency and Supervisor of Shipbuilding personnel monitoring contractors’ EVMS compliance activities did not receive EVMS surveillance training.

Exhibit B:

Scope and Methodology

We contacted the commands and activities in preparation of this audit report listed in Exhibit C. Our work was conducted from 29 September 2009 to 17 October 2011. Due to delays in visiting the contractor's facility as well as schedule conflicts when coordinating site visits, the cycle time to complete this audit was significantly impacted. We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

We reviewed management controls relating to Department of Defense and Department of the Navy policies and procedures applicable to Earned Value Management (EVM). We reviewed transactions from November 2008 through May 2010. We examined program documentation, including monthly Contract Performance Reports, contractor system description, contract correspondence and documentation, and acquisition program documentation (including the acquisition strategy report, acquisition plan, and other documentation). During our visits to the contractor's facility, we held discussions with the on-site Supervisor of Shipbuilding (SUPSHIP) Newport News, VA; Defense Contract Audit Agency; and contractor personnel. We reviewed documentation to evaluate the EVM processes. We also evaluated SUPSHIP Newport News' involvement in monitoring the contractor's EVM process. In addition, we discussed issues with the Under Secretary of the Navy, Assistant Secretary of the Navy (Research, Development and Acquisition) (ASN (RD&A)), the Deputy Assistant Secretary of the Navy for Management and Budget (DASN M&B), the Future Aircraft Carrier (CVN 78) and the Virginia Class Submarine program offices.

We did not use data mining in conducting this audit. Instead, we engaged EVM subject matter experts from the Naval Air Systems Command's EVM Division (NAVAIR 4.2), as well as EVM subject matter experts from the Defense Contract Management Agency to obtain technical assessments of the contractor's EVM System (EVMS) application on the CVN 78 acquisition program, and exercised due professional care in overseeing their work. The technical assessment included verifying: (1) the contractor's processes, procedures, and methods are compliant with the EVMS Guidelines; (2) the descriptive documents containing the contractor's policies and procedures are being used in actual operation; and (3) the EVMS data is used in the management of the programs.

Our due professional care included:

- Discussing our expectations and desired results from the assessment with the subject matter experts;
- Evaluating the reasonableness of the experts' plans and methodology;
- Observing and participating in meetings between the experts and contractor representatives during the assessment; and
- Reviewing and discussing the results, and draft and final reports.

Also, as part of their technical assessment of the contractor's EVMS, the subject matter experts ran a standard set of cost, schedule, and integration metrics to test the accuracy and completeness of the data generated out of the EVMS. Specifically, some of the metrics included comparing the total number of records provided to company's totals; reviewing related documentation; using different EVM formulas to test relationships between data elements; tracing a sample of data records to source documents; tracing source documents to the data; and conducting interviews with control account managers responsible for the area being evaluated. In our judgment, the accuracy of the EVM data is questionable based on what we evaluated during the EVMS review (see the Finding).

We did not identify any Naval Audit Service, Department of Defense Inspector General, or Government Accountability Office reports issued within 5 years that addressed the same or similar issues related to the acquisition program reviewed. Therefore, follow up on a previous report was not required. However, we did review EVM review reports from the Department of the Navy Center for EVM and audit reports from Defense Contract Audit Agency.

Exhibit C:

Activities Visited and/or Contacted

Office of the Secretary of Defense, Performance Assessment and Root Cause Analysis Group, Washington, DC

Office of the Under Secretary of the Navy, Washington, DC

Office of the Assistant Secretary of the Navy (Research, Development, and Acquisition), Washington, DC

- Assistant Secretary of the Navy (Research, Development and Acquisition)
- Deputy Assistant Secretary of the Navy (Management and Budget)

Office of the Commander, Naval Sea Systems Command, Washington, DC

- Cost Engineering and Industrial Analysis Division (SEA-05C)
- Future Aircraft Carrier Program Office (PMS 378)
- Virginia Class Submarine Program Office (PMS 450)
- Supervisor of Shipbuilding, Management Group (NAVSEA 04Z)*

Supervisor of Shipbuilding-Newport News, VA

Defense Contract Management Agency, Center for Earned Value Management, Alexandria, VA

Defense Contract Audit Agency, Newport News, VA

(*Activities contacted)

Exhibit D:

Earned Value Management System Compliance Matrix for Huntington Ingalls Inc. Newport News, VA

Earned Value Management System (EVMS) Compliance Matrix – Huntington Ingalls Inc.

Element	Guideline	Description	Compliant	Non-Compliant
Organization	1	Define authorized work		
	2	Identify Program Organization Structure		
	3	Company integration of EVMS subsystems with work breakdown structure and organization breakdown structure		
	4	Identify organization/function for overhead		
	5	Integrate work breakdown structure & organizational breakdown structure, create control accounts		
Planning, Scheduling and Budgeting	6	Sequential scheduling of work		
	7	Identify interim measurements of progress, i.e. milestones, products, etc.		
	8	Establish time-phased budget		
	9	Identify significant cost elements within authorized budgets		
	10	Identify discrete work packages		
	11	All work package budgets & planning packages sum to control accounts		
	12	Identify and control level of effort budgets		
	13	Establish overhead budgets by organization element		
	14	Identify management reserve and undistributed budget		
	15	Reconcile program target cost goal with sum of all internal budgets		
Accounting Considerations	16	Record direct costs from accounting system		
	17	Summarize direct costs into work breakdown structure without allocation		
	18	Summarize direct costs into organizational breakdown structure without allocation		
	19	Record indirect costs		
	20	Identify unit costs, equivalent units costs or lot costs		
	21	Accurate material cost accumulation by control accounts; EV measurement at right time; full accountability of material		
Analysis and Managerial Reports	22	Control account monthly summary, identification of cost variance and schedule variance		
	23	Explain significant variances		
	24	Identify and explain indirect cost variances		
	25	Summarize data elements and variances thru work breakdown structure/organization breakdown structure for mgmt		
	26	Implement management actions as a results of EVM analysis		
	27	Revised estimate at completion based on performance data; calculate variance at completion		
Revisions and Data Maintenance	28	Incorporate authorized changes in a timely manner		
	29	Reconcile budgets with prior budgets		
	30	Control retroactive changes		
	31	Prevent all but authorized budget changes		
	32	Document changes to performance measurement baseline		
		Totals		

FOIA (b)(4)

Appendix:

Management Response From Naval Sea Systems Command and Program Executive Officer Aircraft Carriers



DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND
1333 ISAAC HULL AVE SE
WASHINGTON NAVY YARD DG 20378-0001

IN REPLY TO
7500
Ser 00N4E/167
15 Nov 2011

From: Commander, Naval Sea Systems Command
To: Auditor General of the Navy (Attn: AUD-3)
Subj: DRAFT AUDIT REPORT ON THE IMPLEMENTATION OF EARNED VALUE MANAGEMENT FOR THE FUTURE AIRCRAFT CVN 78 AND THE VIRGINIA CLASS SUBMARINE (SSN 774) PROGRAMS
Ref: (a) NAS ltr, 7510 Ser N2009-NAA000-0076 of 17 Oct 11
Encl: (1) NAVSEA Response to the Subject Report

1. Enclosure (1) is the NAVSEA response to reference (a). Based on our review of the subject report, we concur with the report's recommendations 1-4.
2. Enclosure (1) and the report do not contain information that we consider to be exempt from release under FOIA.
3. NAVSEAINSGEN point of contact is [REDACTED] NAVSEA SEA 00N4E, who can be reached at [REDACTED] or by email at [REDACTED]

[REDACTED]
[REDACTED]
Deputy Inspector General

FOIA (b)(6)

FOIA (b)(6)

SUPSHIPNN Response to Naval Audit Service Draft Report on Implementation of Earned Value Management for the Future Aircraft Carrier Program. (N2009-NAA000-0076.000)

Overall Comments: The Supervisor of Shipbuilding, Newport News, VA has reviewed the subject draft audit report and concurs with the recommendations as set forth in the report. Actions are already in progress toward implementing these recommendations and we are committed to completing all actions as early as possible, but not later than the specific target completion dates identified in the following specific responses.

Recommendation # 1: Require Supervisor of Shipbuilding-Newport News to review, approve and monitor the contractor's Corrective Action Plan to ensure compliance of corrective actions with Department of Defense requirements.

Management Response: Concur with recommendation. SUPSHIPNN has reviewed the Huntington Ingalls Incorporated - Newport News (HII-NN) corrective action plan and forwarded it with comments and recommendations to DCMA. Of the 20 Discrepancy Reports (DRs) addressed in the CAP, seven include explanations and supporting rationale for no further action and a recommendation for closure. Two of the DRs include a corrective action plan for which all intended actions are completed. These are also recommended for closure. Ten of the DRs have corrective action plans that are still in progress but include objective criteria for closure. The corrective action plan for the final DR requires additional development by HII-NN. This action is in progress. Follow-up for the remaining open corrective actions will be incorporated into the SUPSHIPNN EVMS Surveillance Plan. SUPSHIPNN is working with DCMA for concurrence on the corrective action plans and will continue with these communications until the final corrective actions are completed. The final corrective actions are scheduled for 30 July 2012. Assuming all contractor actions are completed satisfactorily by that date, and allowing for adequate verification follow-up by SUPSHIPNN, all actions should be completed within 60 days after the final HII-NN corrective actions are complete.

Target Completion Date: 30 September 2012

Enclosure (1)

SUPSHIPNN Response to Naval Audit Service Draft Report on Implementation of Earned Value Management for the Future Aircraft Carrier Program. (N2009-NAA000-0076.000)

Recommendation # 2: Require Supervisor of Shipbuilding-Newport News develop and implement a joint surveillance program to ensure continuous compliance with the 32 Earned Value Management System guidelines prescribed by Department of Defense policy.

Management Response: Concur with recommendation. SUPSHIPNN has drafted an EVMS Surveillance Plan that conforms to the NAVSEA/SUPSHIP EVMS Standard Surveillance Operation Procedure dated October 2010. It is intended to be implemented as a joint surveillance plan with HII-NN participating in the surveillance process. Specific agreement by HII-NN has not yet been obtained. Without HII-NN participation on the surveillance team, SUPSHIPNN will implement the surveillance plan as a government only process with HII-NN acting only as the subject of the surveillance events. Following internal review and approval of the surveillance plan, SUPSHIPNN expects to issue the plan document not later than 30 November 2011. Specific surveillance events are scheduled to occur monthly in accordance with the plan commencing in December 2011. The EVMS surveillance process will then continue using a risk assessment and outstanding discrepancy items as the basis for future events.

Target Completion Date: 23 December 2011

Enclosure (1)

SUPSHIPNN Response to Naval Audit Service Draft Report on Implementation of Earned Value Management for the Future Aircraft Carrier Program. (N2009-NAA000-0076.000)

Recommendation # 3: Require Supervisor of Shipbuilding-Newport News to provide personnel with additional Earned Value Management System training to improve their support of the CVN 78 Program Management Office.

Management Response: Concur with recommendation. Since the initial visit by the Naval Audit Service to SUPSHIPNN, the training level of the EVMS staff has improved. Of the 7 members of the EVMS staff, two are certified at Level III in the DAWIA BUS-FM career field. Two are certified at Level II and the remaining three are at Level I. Level II is the target level for most of the EVMS staff. Two of the remaining staff members are expected to be complete with their required training by October 2012 with the final staff member completing in 2013 pending availability of required class seats. Additionally, three members of the staff have completed the DAU course on EVMS Validation and Surveillance (BCF 262). This formal training establishes the foundation for more comprehensive support of EVMS analysis and surveillance. On the job training and practical application of this knowledge in the surveillance program will further improve the capability of the staff members. Additionally, SUPSHIP specific training in system surveillance being developed by the Navy Center for EVM and NAVSEA as a milestone task of the EVM in Shipbuilding material weakness corrective actions is expected to be available in first quarter CY 2012 and will be incorporated into staff training. If additional staff members are acquired, their process to certification will be 2 to 4 years from the time of their hire, depending on past experience.

Target Completion Date: 30 October 2012 (Includes at least Level II certification for 6 of 7 staff members)

Enclosure (1)

PEO Carrier Response to Naval Audit Service Draft Report on Implementation of Earned Value Management for the Future Aircraft Carrier Program. (N2009-NAA000-0076.000)

Overall Comments: PMS 378 has reviewed the Naval Audit Service Draft Report on Implementation of Earned Value Management for the Future Aircraft Carrier Program and concurs with the recommendation.

Recommendation#4: Require the CVN 78 Program Management Office to develop and implement a memorandum of agreement with Supervisor of Shipbuilding-Newport News detailing the roles, responsibilities, and expectations for surveillance of the contractor's Earned Value Management System.

Management Response: Concur with recommendation. PMS 378 and SUPSHIPNN are in the process of developing a memorandum of agreement that will define the roles, responsibilities and expectations for surveillance of the contractor's Earned Value Management System (EVMS).

Target Completion Date: 30 December 2011

Enclosure (1)

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