

NOT FOR PUBLICATION UNTIL RELEASED BY
THE HOUSE ARMED SERVICE COMMITTEE
SUBCOMMITTEE ON SEAPOWER AND EXPEDITIONARY FORCES

STATEMENT OF

THE HONORABLE DR. DELORES M. ETTER
ASSISTANT SECRETARY OF THE NAVY
(RESEARCH, DEVELOPMENT AND ACQUISITION)

AND

VADM PAUL E. SULLIVAN, U.S. NAVY
COMMANDER, NAVAL SEA SYSTEMS COMMAND

AND

RADM CHARLES S. HAMILTON, II, U.S. NAVY
PROGRAM EXECUTIVE OFFICER, SHIPS

AND

RADM BARRY J. McCULLOUGH, U.S. NAVY
DIRECTOR OF SURFACE WARFARE

BEFORE THE

SUBCOMMITTEE ON SEAPOWER AND EXPEDITIONARY FORCES

OF THE

HOUSE ARMED SERVICES COMMITTEE

ON

ACQUISITION OVERSIGHT OF THE U.S. NAVY'S LITTORAL COMBAT SHIP PROGRAM

FEBRUARY 8, 2007

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Mr. Chairman, distinguished members of the Subcommittee, thank you for the opportunity to appear before you and discuss the current status of the Littoral Combat Ship (LCS) program, specifically to discuss the acquisition and construction of the first four ships of this important class.

First, the Navy would like to thank the Subcommittee for its continued interest in naval shipbuilding and the LCS program. In particular, the Navy appreciates your personal attention to issues affecting the industrial base, including onsite visits by members of your Subcommittee to shipbuilding sites over the past year.

Introduction

As you know, the LCS program is of critical importance to our Navy. With its great speed and interchangeable modules, the ship will provide unprecedented warfighting flexibility. LCS is the cornerstone of the future Navy, and provides critical capability to the fleet. Its fast, agile, focused-mission platform is designed for operation in near-shore environments yet is capable of open-ocean operation. It is designed to defeat asymmetric “anti-access” threats such as mines, quiet diesel submarines and fast surface craft. The modular design integrated into a completely functional weapon system promises to deliver a warship class that will be highly effective, and allows LCS to be tailored specifically for the mission at hand -- flexible solutions to deliver needed capabilities to evolving threats.

In order to deliver this needed capability to the Fleet as quickly as possible, the LCS acquisition strategy has employed several innovative features that provide both opportunities and challenges. The LCS acquisition strategy calls for a rapid 24-month build cycle for each seaframe, as opposed to the five or more years that have become the norm in naval shipbuilding. In addition to speeding the delivery of operational capability to the Fleet, the accelerated build timeline is designed to create cost benefits by encouraging reductions in the use of risky and time consuming technology development, by reducing the risk of technology obsolescence that can occur between final design and procurement and construction, and by lowering program overhead costs.

This shortened cycle, however, presents challenges and can exacerbate performance issues. Unexpected vendor issues or design changes are more difficult to accommodate. Schedule and cost pressures also stem from the unique conditions and events that occur in and around an acquisition program, such as concurrent design and production, start-up construction experience with a first time design, and the impact of unforeseeable external events.

The LCS program philosophy has been to counter these cost pressures with a cost-as-an-independent-variable (CAIV) strategy that entails setting realistic cost thresholds when defining operational requirements and managing aggressively to achieve those thresholds. Requirements discipline is also essential so industry has a stable baseline to build. Contractor design and sub-system procurement decisions remain within industry tradespace as they optimize their Seaframes to meet the system level requirements – this tradespace is required to make CAIV work.

Despite employment of CAIV and requirements discipline, the Navy has found significant cost increases with LCS 1, the lead Lockheed Martin (LM) hull, and decided it was prudent to stop work on LCS 3 while conducting a thorough review of the program. Work continues on LCS 1 (LM) and the two ships under contract with General Dynamics (GD), LCS 2 and LCS 4. The Assistant Secretary of the Navy for Research, Development, and Acquisition (ASN(RDA)) has tasked an independent team of acquisition specialists to review all facets of the program to date. Their findings will better position the Navy to determine the most effective and efficient course of action to ensure the most cost-effective and timely delivery of this critical capability. The Navy is reviewing all of its options and will decide the course of action that is in the best interests of the Navy for the program. The Program Executive Office, Ships (PEO Ships) has also initiated a separate review to determine the root causes for the cost overrun so that changes can be made as we move forward with this program.

As requested by this Subcommittee, the Navy is providing testimony regarding the history of the LCS program, the execution of the program to date, and the current cost situation and planned Navy way ahead. This information will begin with a discussion of the critical requirement for LCS and the capability the ships will bring to the Fleet. This section will include, at your request, a history of the Navy requirements for LCS. The next section will discuss the history of the LCS acquisition including an acquisition timeline, and a preliminary discussion of issues leading to the current situation. Also at your request, this section will address contract and program oversight, including discussions of the relationships between the ASN(RDA), the Naval Sea Systems Command (NAVSEA), and PEO Ships. The final section will discuss the way ahead.

LCS Capability and Importance to the Navy

CAPABILITY GAPS

LCS and its associated Mission Packages are designed to fill capability gaps that have been identified in the Anti-Mine, Anti-Surface and Anti-Submarine warfare areas, particularly in the littoral, or the shallow water close to shore, environment. At the inception of the LCS program in 2003, Functional Area, Needs, and Solutions Analyses were conducted that identified these capability gaps and evaluated alternatives to solve them. Alternatives evaluated ranged from changes in Doctrine and Policy to filling the gaps with existing platforms (including modification to those platforms) to construction of a new class of ships. The results of the analyses demonstrated that relatively small, fast ships, capable of operating in shallow water, and tailored to missions in the warfare areas of Anti-Mine, Anti-Surface, and Anti-Submarine were the best way to fill the capability gaps. The analysis also showed that the ship needed to be reconfigurable and adaptive to meet dynamic mission challenges of Mine Warfare, Anti-Submarine Warfare, and Anti-Surface Warfare.

Based on all the analyses an Initial Capabilities Document (ICD) was created that defined the need and capability gaps and provided a recommended solution. The ICD was approved by the Joint Requirements Oversight Council (JROC) in January 2004. The ICD identified the capability gaps for assured maritime access in the littorals. An Analysis of Multiple Concepts (AMC) was done concurrently with the ICD analysis to address the capability gap. The AMC

and other supporting analyses were approved by the Office of the Secretary of the Defense (OSD) as the Analysis of Alternatives (AOA) for the LCS program in January 2004. From the AMC, a Capabilities Development Document (CDD) was drafted to designate Key Performance Parameters (KPPs) with threshold and objective levels defined. Details on various KPPs are provided in the sections below describing the Seaframe and Mission Package requirements. The CDD for LCS was approved by the JROC on May 25, 2004. No changes to the CDD have been approved by the JROC since May 2004.

In 2007 the Navy still has capability gaps in the littoral Anti-Mine, Surface and Submarine areas, and the LCS and its Mission Packages are still the best way to fill those gaps. There is nothing that has happened since 2003 that has decreased the need for LCS. On the contrary, since 2003 there are other areas that LCS has been identified as a force multiplier such as maritime interdiction operations and special operations support as part of the ongoing Global War on Terror. LCS may also play a role in Humanitarian Assistance and Disaster Relief as well as security assistance operations with our allies. The capability gaps that existed in 2003 remain today and the requirements to meet these gaps have not changed.

SEAFRAME REQUIREMENTS

KPPs and Additional Attributes (AAs) that were defined in the CDD were passed to the acquisition community. These requirements were vetted and approved by both the Navy and the Joint Staff via the Joint Requirements Oversight Council (JROC). The requirements have not changed.

The KPPs for the Seaframe are Sprint Speed, Endurance Range, Mission Package Payload, Draft, Core Ship Crew Size, Interoperability Compliance, and Focused Mission Execution.

Sprint Speed: Analysis shows that there is a marked decrease in the capability of LCS to protect a high value unit against a small boat raid if the LCS sprint speed falls below 40 knots. The threshold value for this KPP is 40 knots and the objective is 50 knots. High sprint speed is less important in the anti-mine or anti-submarine areas.

Endurance Range: LCS is required to self-deploy or deploy with Strike Groups. Analysis of most often used deployment routes from the likely LCS homeports to areas of interest shows that the longest legs in the transit that would allow pulling into port for refueling is just under 3400 nautical miles (nm). The threshold for this KPP is 3500 nm and the objective is 4300 nm.

Mission Package Payload: Speed, range and payload are all interrelated – increases in payload decrease speed and range for a given ship. Trade-off analysis using likely systems that would make up the mission packages showed that 180 metric tons was the proper threshold and 210 metric tons the objective.

Draft: Review of the geographical areas where LCS may operate, such as the Persian Gulf and the Korean Peninsula, show that LCS with a draft of 20 feet has a significantly greater area to operate in than any other surface combatant. The threshold requirement is 20 feet, the objective is 10 feet.

Core Ship Crew Size (Manning): Analysis of the workload for sailors on the ship, including watchstanding, maintenance and other required tasks using systems optimized for a reduced crew size, shows that with only moderate risk a crew size of 50 personnel can perform all required tasks. Compare this to the crew size of a Perry-class frigate of approximately 215, an Arleigh Burke-class destroyer at 300 and a Ticonderoga-class cruiser at 340. Manning is the largest cost in the lifecycle of our current ships. The manning KPP is set at a threshold of 50 personnel and an objective of 15 personnel.

Interoperability Compliance: The focused missions of LCS are conducted primarily by off-board manned and unmanned vehicles that operate away from the ship. Communications with these vehicles is vital to completion of the missions. LCS needs to communicate with other ships and theater assets to operate seamlessly in any area of responsibility. The Interoperability KPP defines communications and information exchange requirements for LCS.

Focused Mission Execution: The original analysis for LCS indicated that a system is needed that is reconfigurable and adaptive to meet a capability gap. In order to be both reconfigurable and adaptive, various mission packages were chosen as the best method to address the capability gaps. A KPP was written to ensure that LCS had specific support for the differing packages. This support occurs in handling all the external communications, provide handling and launching systems for the off-board water vehicles and a flight deck and aviation support for helicopters and unmanned aerial vehicles. The ship, when integrated with the mission packages, must be able to execute the focused missions and demonstrate the warfighting capability of each mission package through a detect-to-engage sequence.

Self Defense: Though not a KPP, the ship is required to protect itself from Anti-Ship Cruise Missiles and low numbers of Small Boat Raids regardless of the mission package installed.

Other Seaframe Requirements: There are other seaframe requirements such as Range, Hull Service Life, Provisioning Endurance, Replenishment, Operational Availability, Aircraft Capabilities, Watercraft Launch and Recovery Capabilities and Time for Mission Package change-out. The details of these requirements are not discussed because these are not Key Performance Parameters. The CDD also includes an acquisition cost objective and threshold which is discussed in more detail later.

MISSION PACKAGE REQUIREMENTS

The mission packages are being developed independently from the seaframe, though the interface between the two is well defined in the Interface Control Document. There are three separate mission packages being developed to fill the three capability gaps identified earlier: Anti-Mine, Anti-Surface and Anti-Submarine Mission Packages. Each of the packages is required to meet specified weight and manning requirements: the weight requirement is to be 180 metric tons or less including aviation fuel, and the mission package manning requirement is not to exceed 35, including the aviation detachment.

Anti-Mine Requirements: The Anti-Mine Mission Package is to hunt, identify, localize and neutralize mines within a given area within a certain amount of time, or to neutralize mines through influence sweeping at a specified rate. The mine types for these requirements include bottom mines, moored mines, and floating mines. Using these MIW mission systems, the ship is to be able to clear an area or a route through a mined area for other ships to transit.

Anti-Surface Requirements: Operations close to shore make the raid of small boats in large numbers a formidable threat to Strike Group operations. Requirements for this mission package are to detect, track and engage large numbers of small boats.

Anti-Submarine Requirements: This package is to search, detect, localize and neutralize quiet diesel-electric submarines that are operating in the shallow water environment to prevent these threats from interfering with Strike Group operations nearby.

FORCE STRUCTURE

Force structure requirements were developed and validated through detailed joint campaign and mission level analysis, optimized through innovative sourcing initiatives (Fleet Response Plan (FRP), Sea Swap, forward posturing) that increase platform operational availability, and balanced with shipbuilding industrial base requirements. This force structure was developed using a capabilities-based approach measured against the anticipated threats for the Fiscal Year 2020 timeframe. The force structure accounts for both the forces needed for the Navy to fight and win in any Major Combat Operation (MCO) as well as to fight the GWOT and execute Maritime Security Operations. The resulting distributed and netted force, working in conjunction with our joint and maritime partners, will provide both actionable intelligence through persistent, Maritime Domain Awareness, and the ability to take action where and when a threat is identified. The same force can be rapidly aggregated to provide the strength needed to defeat any potential adversary in an MCO. The warships represented by this shipbuilding plan will sustain operations in forward areas longer, be able to respond more quickly to emerging contingencies, and generate more sorties and simultaneous attacks against greater numbers of multiple targets and with greater effect than our current fleet.

The analysis concluded that a Fleet of about 313 naval vessels is the minimum force necessary to meet all the demands, and to pace the most advanced technological challengers in the 2020 timeframe, with an acceptable level of risk. The Navy continues to analyze operational requirements, ship designs and cost, acquisition plans and tools and industrial base capacity to further improve its shipbuilding plan.

The Navy's ship force requirement of 313 naval vessels as reflected in Table 1 represents a target level of capability and capacity necessary to meet the projected warfighting requirements for the FY 2020 time period and is compliant with the *QDR 06* and *Strategic Planning Guidance*.

Table 1. Future Naval Force Structure

Type/Class	Required
Aircraft Carriers	11
Surface Combatants	88
Littoral Combat Ships	55
Attack Submarines	48
Cruise Missile Submarines	4
Ballistic Missile Submarines	14
Expeditionary Warfare Ships	31
Combat Logistics Force	30
Maritime Prepositioning Force (Future)	12
Support Vessels	20
Total Naval Force	313

The most recent Annual Long-Range Plan for Construction of Naval Vessels for FY 2008, delivered to Congress with the 2008 President’s Budget, outlines a build plan for 32 LCS in the Future Years Defense Plan (FYDP) (FY2008-FY2013) and achieving full LCS objective of 55 in FY2018.

In the 2008 President’s Budget, there are 33 Mission Packages programmed to be delivered in the FYDP: 11 MIW, 6 ASW and 16 SUW packages. The combination of the 55 LCS seaframes and 64 mission packages across the program of record combine to provide the necessary warfighting capability to pace the 2020 threat.

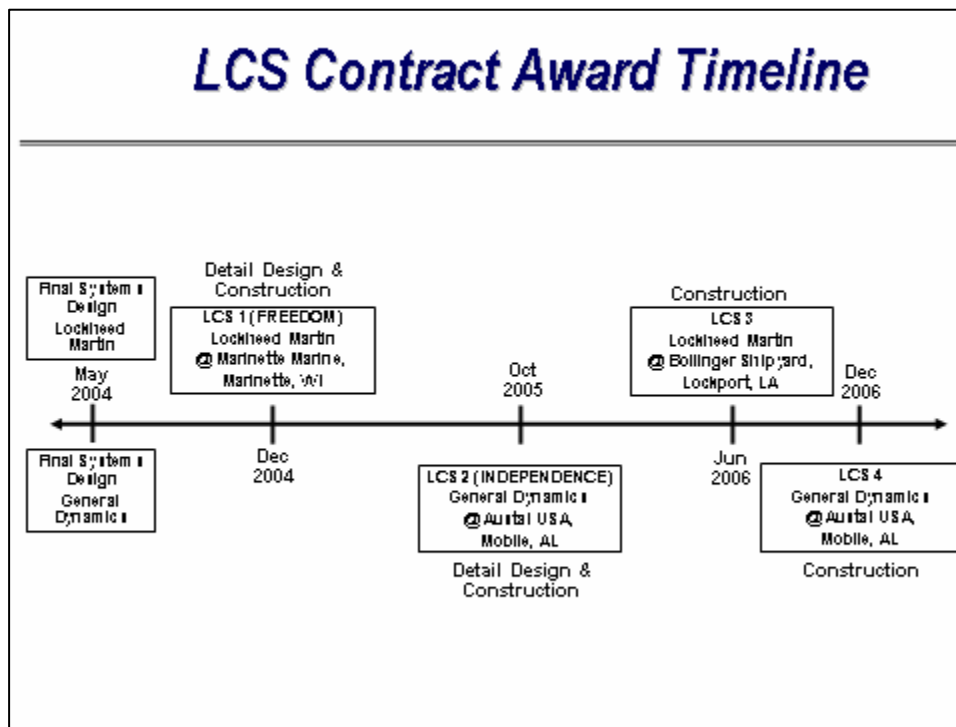
LCS Acquisition – Detail Design and Construction Contracts, Issues to Date, and Oversight

ACQUISITION STRATEGY OVERVIEW

The LCS acquisition strategy is focused on cost as an independent variable (CAIV) execution, rapid fielding of capability to address critical Fleet operational gaps, and an open competition business model at all levels as a means of cost control.

Following previous phases of LCS acquisition including preliminary design, in May 2004 the Department of Defense awarded both LM and GD separate contract options for final systems design with options for detail design and construction of up to two LCS ships. First of class construction options were awarded to a LM-led team in December 2004, and a GD-led team in October 2005. Both designs are under construction. The program was subsequently accelerated by the appropriation of two additional ships in FY2006, one of which was awarded to the LM led team in June of 2006 and one to the GD-led team in December of 2006. The program’s planned Milestone B acquisition decision has been delayed in order to evaluate the findings of the current program review.

A timeline outlining the award of ships 1-4 is presented below:



DETAIL DESIGN AND CONSTRUCTION CONTRACTS

The LCS Flight 0 contracts for Final System Design and Detail Design and Construction were awarded on a Cost Plus Incentive Fee/Award Fee basis. This Subcommittee requested a specific discussion on the use of a cost-type contract for LCS. Use of a cost-type contract for detail design and construction of the LCS ships was consistent with the requirements of DoD FAR Supplement (DFARS) 235.006, in effect in 2004 when the contracts were awarded, which provided:

- “(b)(i) Do not award a fixed-price type contract for a development program effort unless—
- (A) The level of program risk permits realistic pricing;
 - (B) The use of a fixed-price type contract permits an equitable and sensible allocation of program risk between the Government and the contractor; and
 - (C) A written determination that the criteria of paragraphs (b)(i)(A) and (B) of this section have been met is executed—
- (1) By the Under Secretary of Defense (Acquisition, Technology, and Logistics) (USD (AT&L)) for—
- (i) Research and development for non-major systems, if the contract is over \$25 million;
 - (ii) The lead ship of a class; or
 - (iii) The development of a major system (as defined in FAR 2.101) or subsystem thereof, if the contract is over \$25 million;”

These regulatory requirements, which implemented Section 807 of the National Defense Authorization Act of 1989 (Public Law 100-456), were recently repealed in the National Defense Authorization Act for Fiscal Year 2007. However, in developing the Acquisition Strategy for the LCS Flight 0 contracts and based on the regulatory guidance then in effect, the Navy assessed that the program risks were such that use of a fixed price type contract would not permit an equitable and sensible allocation of program risk between the Government and the contractor for Detail Design and Construction of the LCS lead ships.

TENETS OF LCS ACQUISITION STRATEGY

There are several specific tenets of the LCS program that affect first-of-class construction. The competitive strategy used for the LCS program is the construction of LCS Seaframes in mid-tier shipyards. These shipyards perform predominately commercial work, maintaining business processes and overhead structures that keep them competitive in the world market. By taking advantage of these resources in regions across the country, the Navy gains the benefit of their commercial efficiency, reduces exposure to regional market and environmental risks, and has the potential to shift construction yards as required to maintain cost and performance thresholds. In order to continue to capture these benefits, the LCS program has moderated traditional Navy requirements where possible to allow commercial processes to remain intact, maintaining the health of the mid-tier shipyards, reducing costs of the program, and maximizing the competitive industrial base for full-rate LCS procurement.

The LCS acquisition strategy includes continued procurement of two distinct Seaframe designs. This decision is based primarily on the cost control benefits derived from maintaining a competitive environment within the program. By forcing the two industry teams to compete, they are incentivized to continue the aggressive CAIV design/construction management, open business model, and cost focus. Maintaining two independent industry teams also provides the benefit of mitigating risks specific to either team and providing flexibility to the government to make operational or cost performance decisions in the future without undue disruption to Navy force structure plans.

Within each of the Seaframe industry teams, the application of an open business model pushes the benefits of competition down to the system and subsystem levels. The government has defined an industry tradespace that gives the teams the ability to recompute system selections and services within the performance based program requirements. The result is a continuous focus on cost and performance, with active bidding by competitors trying to dislodge incumbents from the design, and maintenance of a broad vendor base throughout the program life.

Finally, a similar open business model is applied to the spiral design efforts associated with the LCS modular mission packages. Under the direction of the Navy and an industry mission package integrator, new mission module systems are evaluated for cost and performance improvements over baseline systems. The modular open system architecture and defined seaframe/mission package interface specification of the program enables the Navy to capture these mission module opportunities for improvement with minimal integration cost and risk. This translates into continuous competition across a wide sector of industries associated with

mission module systems, resulting in best cost and performance value with each Mission Package procurement.

The LCS program differs from traditional ship construction programs in some fundamental ways that provide both opportunities and challenges.

The LCS acquisition strategy calls for a rapid 24-month build cycle for each seaframe, as opposed to the five or more years that have become the norm in naval shipbuilding. In addition to speeding the delivery of operational capability to the Fleet, the accelerated build timeline is designed to create cost benefits. By defining the build cycle constraint as a foundation of the program, this informed industry design and system selections to reduce risky and time consuming technology development. Only developmental systems that were absolutely required to meet performance requirements have been included in the LCS designs. Beyond system selections, the two-year build cycle also increases technology stability, reducing the risk of technology obsolescence that can occur between final design and procurement and construction. Finally, this shorter construction window should result in a direct reduction in program overhead costs. A certain portion of fixed overhead costs from lower tier vendors up through the industry and government program offices are minimized by simply shortening the construction period.

This shortened cycle, however, presents challenges and can exacerbate performance issues. Unexpected vendor issues or design changes are more difficult to accommodate. The most unpredictable, but often the most significant, source of schedule and cost pressure stems from the unique conditions and events that occur in and around an acquisition program, such as concurrent design and production, start-up construction experience with a first time design, and the impact of unforeseeable external events.

In addition to the aggressive 24-month build cycle, the LM lead ship detail design and construction effort was initiated simultaneously and the lead ship commenced construction only seven months after the start of final design.

The LCS program's use of a cost-as-an-independent-variable strategy entails setting realistic cost thresholds when defining operational requirements and managing aggressively to achieve those thresholds. Cost thresholds must balance mission needs with projected out-year resources, taking into account existing technology, maturation of new technologies, and anticipated process improvements in both DoD and industry

Requirements discipline is essential so industry has a stable baseline to build. The original LCS CDD specified seven KPPs and sixteen AAs that define desired LCS performance. Each parameter includes a threshold level that must be achieved and an objective level that is a "stretch goal." No specific equipment requirements are identified and capability in excess of that required by the CDD is not allowed. Contractor design and sub-system procurement decisions remain within industry tradespace as they optimize their Seaframes to meet the system level requirements – this tradespace is required to make CAIV work.

One of the LCS AAs is a cost per ship threshold of \$220M (in Fiscal Year 2005 dollars) with an objective of \$150M¹. This cost target is explicitly included in a document normally devoted to operational requirements definition, and is thus flowed down as a requirement from the CDD through the shipbuilding contracts to the industry teams. Because the vision for LCS includes a relatively large number of ships (55 in accordance with the 30-Year Shipbuilding Plan), Navy leadership decided to focus principally on recurring ship cost and the absolute need to control growth so that the entire class could be procured within a constrained shipbuilding budget. The cost range selected was based on informed judgment of Navy leadership given the set of desired capabilities and the understanding that setting a very aggressive target was an absolutely essential part of any acquisition strategy to keep cost under control. The program was launched with aggressive cost and schedule goals, and an understanding that to get there the Navy had to be willing to trade capability if necessary.

Two of the most frequent reasons cited for acquisition cost growth are changing program requirements and government-directed design changes. The LCS program has proactively addressed each of these to prevent potential cost growth and maintain the CAIV threshold through continuous efforts to sensitize program stakeholders to the costs of requirements changes. The LCS program has implemented a disciplined change control process intended to eliminate non-essential design perturbations and allow only those change proposals that are critical to the success of the program. The LCS Configuration Control process manages, controls, and documents changes in the configuration of the Seaframe. Only those changes meeting the following criteria are approved:

- Fact of Life (change driven externally where no choice exists -i.e. equipment can no longer be procured)
- Safety (personnel or equipment)
- System Won't Work (government responsible change necessary to achieve required performance)
- Affordability (reduced cost or no cost changes)

The cost threshold, and all of the proactive cost management approaches dedicated to achieving it, do not eliminate continued uncertainties in future ship pricing and corresponding risk of cost growth. For this reason, the program's budget was updated to reflect the Navy's independent estimate conducted in March 2005, which includes risks associated with key shipbuilding cost factors. This risk-sensitive approach to budgeting, and the inclusion of normal execution costs for a Navy shipbuilding program, yields programmed unit procurement costs in the out-years greater than the \$220M (FY05) CAIV threshold provided to industry. This is a reasonable and prudent budget practice that does not in any way signal a change in the Navy's commitment to the aggressive regimen of cost controls and the \$220M (FY05) ship construction cost threshold.

DETAIL DESIGN AND CONSTRUCTION CONTRACTS EXECUTION ISSUES

The Navy has found significant cost increases with LCS 1, the lead LM hull, and on January 12, 2007, decided it was prudent to stop work on LCS 3, the second LM ship, while conducting a

¹ Capability Development Document for Littoral Combat Ship, April 2004, paragraph 6.2.8

thorough review of the program. Work is continuing on LCS 1 (LM), LCS 2 (GD), and LCS 4 (GD).

ASN(RDA) directed the LCS Program Office to conduct a thorough review of the program. ASN(RDA) has also tasked an independent team of acquisition specialists to review all facets of the program to date. Their findings will better position the Navy to determine the most effective and efficient course of action to ensure the most cost-effective and timely delivery of this critical capability. The Navy is reviewing all of its options and will decide in the coming weeks the course of action that is in the best interests of the Navy for the program.

However, based on execution history and early reviews, several major contributing factors to the cost growth are evident. The Navy wishes to stress that these are preliminary findings only. The path ahead for root cause analysis and resulting courses of actions is discussed later.

The Navy identified cost drivers for LCS 1 as concurrent design-and-build while incorporating Naval Vessel Rules (NVR), reduction gear delays created by a manufacturing error, and, insufficient program oversight. More recent drivers identified by LM include design volatility/concurrency; design complexity; shipyard productivity and process cost. These recent drivers will be more fully assessed by the ongoing program review.

Early in the contract execution period for LCS-1 (January – October 2005), declining cost performance was noted which was primarily attributed to the incorporation of the NVR and the reduction gear delays previously mentioned. These issues will now be discussed. Finally, oversight of the contracts will also be discussed.

NAVAL VESSEL RULES – HISTORY AND INCORPORATION IN THE LCS PROGRAM

An understanding of technical authority and NVR is necessary before discussing their specific impact on LCS.

NAVSEA is responsible, under Title X, as Technical Authority for Navy ships. In its technical authority role, NAVSEA is responsible for safety and performance of ships. Therefore, NAVSEA reviews and approves ship specifications and major ship design drawings and products. Since 1991, staffing has been reduced by 48% at NAVSEA headquarters from 4871 to 2331 personnel. As a result, NAVSEA needed to find innovative ways to fulfill its technical authority responsibilities. Particularly problematic has been maintaining the currency of Navy shipbuilding specifications and standards.

In order to address the challenges of technical authority under this environment, in February 2003, NAVSEA and PEO Ships made two joint decisions. The first was to work with the American Bureau of Shipping (ABS) to develop a set of standards that could be applied to non-nuclear naval combatant ships. The second was to utilize ABS to class both LCS and DDG 1000 using the new rules. Classification is a means to certify adherence to the rules through design approval and construction surveillance. Those decisions rested on the rationale that the Navy would benefit by extending our already extensive relationship with ABS built over the

course of many USNS (“T-Ship”) programs. Fifty-five T-Ships have been successfully delivered using this model over the period 1990 to present. The key difference is that ABS would be Classing DDG 1000 and LCS using the new military design rules jointly developed with NAVSEA.

The NVR are intended to be tailored for a specific application by the Shipbuilder or their Design Agent during the design phase of a program, and then those tailored requirements are made contractual via direct citation in the Shipbuilding Specification. They address many key aspects of the design such as safety, stability, structural integrity, propulsion and electric plant design, ship wide network connectivity, and equipment electromagnetic compatibility. Shipbuilders and other members of Industry participate along with the Navy in the ABS Naval Technical Committee, which is the collaborative body charged with regulating this issuance of the NVR. That body has been focusing on the cost of technical requirements with the objective of making them truly the minimum acceptable standard that will provide the needed level of combatant performance.

The Navy maintains the lead in the early stages of competitive design programs like LCS (i.e., prior to Detail Design Phase). This involves the NAVSEA community to conduct evaluations of the technical feasibility of ship concept proposed in order to develop a full understanding of the inherent risks and to provide as clear an understanding of costs (both non-recurring and recurring) as can be supported by the level of detail provided. The Navy maintained the lead for evaluation and approval of the ship design through the LCS Final System Design phase (formerly known as the Contract Design Phase). Following the conduct of the Final Critical Design Review for each ship at the end of Final System Design, the Naval Technical Authorities issued a Design Approval decision that focused on the content of the Industry prepared Build Specifications and supporting design documentation, including drawings, reports and calculations. The Navy design approval was conditional in nature, and the documentation noted deficiencies and provisional aspects that needed to be contractually carried forward into the next phase for resolution by the Industry Teams.

Following the ship construction award, the lead for design approval of those aspects of the ships addressed in the NVR was shifted from the Navy to ABS. In that context, ABS is acting in their conventional role of an independent third party certification agent, and also as the designated agent of NAVSEA. The ABS involvement in the Detail Design and Construction phase is intended to confirm satisfactory compliance with the applicable design rules through three key activities: 1) Review and approval of engineering products (e.g., drawings and analyses), 2) Source inspection (in the vendor’s plant) of major components (e.g., engines), and 3) Survey of the ship under construction.

The ABS and the Shipbuilder establish a contractual relationship to coordinate the flow of detail design products through the approval process. Because the ABS reviews the large number of construction drawings used in the Shipyard, drawing reviews can become the pacing aspect of scheduling early in any construction program. If design products are provided out of sequence to the ABS, or products do not comply with the invoked rules, the agreed upon timeframes are in jeopardy. When those circumstances are present Shipbuilder/Design Agent generated delays are

likely to occur, as is the case on the LCS program. In such cases, engineering rework results, and iterative re-submittals of product to the ABS become necessary.

Throughout the ABS review process NAVSEA retains ultimate accountability and full technical authority, as required under their Title X responsibilities. That means they are consulted by either the Design Agent or ABS to adjudicate any proposed exceptions to the invoked rules, and during construction, they evaluate the acceptability of non-compliant material conditions.

Another dimension of Naval Technical Authority involvement in the LCS Detail Design and Construction phase is the constant interactions surrounding CAIV cost trades recommended by the Industry Teams and technical adjudication of formal Requests for Deviations under the shipbuilding contract. NAVSEA reviews such requests, and evaluates each one on its individual merits before recommending a risk-based decision to the Program Office. Due to safety and service reliability considerations, many of these deliberations became difficult decisions to determine what ultimately could be accepted under the contract. As a result, the NAVSEA Chief Engineer has for months conducted bi-weekly meetings with the PEO Ships staff to give these issues in-depth consideration and quickly arrive at a conclusive decision or course of action. These activities have been focused on accommodating the Shipbuilders' needs in a timely manner and holding the line on costs, while maintaining safety and fitness for military, worldwide service.

To smooth the execution of these activities, intensive efforts were applied to establish Coordination Plans between the ABS, the SUPSHIP and each Shipbuilder early in the Detail Design and Construction phase. However, a number of execution difficulties have arisen (e.g., coordination of waterfront ship surveys and tests), and corrective measures on individual issues are being aggressively managed between the ABS, the Shipbuilders/Design Agents and the Naval Technical Authorities. To regulate this process more finely, NAVSEA has established a structured set of Business Rules that are being reevaluated on a regular basis.

Both teams have expressed difficulty in incorporating NVR, and LM and Marinette Marine have identified it as a major root cause of the cost overruns. The NVR was first published after Final System Design (FSD) proposals were submitted to the Navy, but both LCS teams were aware of the NVR development process, interacted with ABS to ensure insight into interim criteria, and had that information to influence and cost their respective design proposals to meet the RFP requirements. The Request for Proposal clearly stated that LCS should be designed and built in accordance with ABS Guide for Building and Classing Naval Vessels. It was so important enough to the government, that "Ability to Produce a Classed/Certificable Design" was one of four Technical Evaluation factors for the Final System Design/Detail Design and Construction competition. The NVR guide was published one week prior to FSD contract award to each team. LM had approximately 9 months to incorporate NVR into its FSD before fabrication began in February 2005. GD had approximately 18 months to incorporate NVR before fabrication started.

The Navy does not deny that NVR has been a contributor to cost. The impact of NVR was first considered early in 2005. The Navy worked with the LM team to identify those impacts and negotiate adjustments to the LCS 1 contract, which has provisions for the incorporation and classing of LCS to NVR. In order to accommodate these impacts, the program completed an

over-target baseline in October 2005 and increased the budget for LCS 1 in the President's FY 2007 Budget in February 2006.

REDUCTION GEAR MANUFACTURING ERRORS

The LCS first-of-class ships have also experienced some delays in delivery of critical components. The most significant of these resulted from a series of errors and failures in the manufacturing of a main reduction gear that delayed its delivery by eighteen weeks and created a total impact of twenty-seven weeks. The total delay of the manufacturing errors was not immediately recognized, with notifications of additional delays occurring over several months. Due to its size and location in the ship, typical build sequences place the reduction gears into the ship early and the remainder of the ship is built around it. As a result of this error, construction was resequenced multiple times in attempts to mitigate schedule impact but the net result was significant to both schedule and cost performance on the contract.

Another contributing factor has been the unprecedented spike in basic prices of critical shipbuilding commodities. For example, over the past three years steel prices have increased in excess of 125%, and copper has increased by more than 300%². These dramatic increases have direct and significant impacts on LCS seaframe end costs. The primary mitigation method within program control is to maximize the stability of the acquisition such that the industry teams can enter long-term agreements with suppliers and minimize variability in their material costs.

ACTIONS RESULTING FROM EARLY COST GROWTH

As a result of the early cost growth due primarily to the incorporation of NVR and the reduction gear manufacturing error, the Navy and LM conducted a joint assessment of schedule impact and re-plan options, including an assessment of the Estimate-at-Completion (EAC) costs. Schedule was also assessed. In October 2005, the Navy approved what is termed an "over-target baseline" essentially resetting the baseline against which cost and schedule performance is measured. Delivery of LCS-1 was also shifted from December 2006 to June 2007. Subsequently the Navy prepared a budget issue and increased the LCS-1 budget in Fiscal Year 2007 based on the revised over-target baseline.

Cost growth has continued on the LCS-1 contract since this over-target baseline. LM has identified to the Navy that these cost increases include the impact of design volatility/concurrency; design complexity; shipyard productivity and process cost. These recent drivers will be more fully assessed by the ongoing program review.

OVERSIGHT OF THE LCS PROGRAM

The LCS program is held to the same oversight and reporting standards of any major Department of Defense acquisition program. For example, monthly cost performance reports are submitted by contractors. However, a period of up to six or seven weeks of latency exists. With LCS program's compressed construction schedule, this lag time creates management challenges. Further complicating the utility of these periodic performance metrics is the need to evaluate

² Bureau of Labor and Statistics, Producer Price Index Commodity Data, www.bls.gov

trends over time in order to gauge overall performance and the effectiveness of corrective actions taken to improve it. Compared with the more lengthy production cycle of a traditional combatant, the LCS program's schedule constrains opportunity to effectively evaluate and direct optimal corrective action that thoroughly considers both schedule and cost mitigators.

Oversight of the program involves PEO SHIPS, NAVSEA, and ASN(RDA). The roles of each of these organizations will be discussed including current shortfalls. The ongoing review will determine whether or not these shortfalls are significant contributing factors to the cost overruns, and what corrective actions the Navy will take.

PEO SHIPS and LCS Program Office Oversight of the LCS Contracts

PEO Ships is directly accountable to the Service Acquisition Executive (ASN(RDA)) for all acquisition matters regarding non-nuclear ships. Under Title X, PEO's are directly accountable for cost, schedule, and delivery of their ships and are vested with the funds and resources to carry out their assigned programs. NAVSEA reports to ASN(RDA) for acquisition matters, including support functions to the PEOs, but NAVSEA also reports to the Chief of Naval Operations for in-service ship maintenance, overhaul, logistic support, and modernization. In practice, there is shared tasking and numerous "supporting" and "supported" roles between NAVSEA and the PEOs.

The LCS program office (PMS-501) exercises technical and programmatic oversight of the LM industry teams via a comprehensive team representing all systems engineering disciplines.

Prior to option exercise for detailed design and construction, the program office conducted multiple, detailed reviews of industry design development progress to insure compliance with requirements and support for production.

After detailed design and construction option award, the program office conducted multiple reviews of shipbuilding progress, focusing on design support for production, manning levels, material procurement and facility readiness. These reviews culminated in a Production Readiness Review (PRR) to insure the contractor's readiness to start fabrication. The agenda for a PRR included:

- Detailed Design Status
- Shipyard Staffing Plan
- Material Procurement Status
- Integrated Master Schedule Development
- Production and Quality Assurance Organization and Plan
- Earned Value Management System.

The program office held quarterly Ship Production Progress Conferences (SPPCs) with the contractor to review all aspects of ship design, construction and support. The agendas for an SPPC included:

- Design/Technical Issues
- Logistics Readiness Review
- Test and Trials Planning/Status

- Program Cost
- Contract Status
- Post Delivery Planning

The program office also held Integrated Baseline Reviews (IBRs) of the contractor's earned value management system to enable accurate and timely submission of monthly Cost Performance Reports (CPRs).

Throughout the design and build phases of the effort, the program office also maintained regular review of contract deliverables and cost status and held biweekly Program Manager to Program Manager meetings to discuss progress and resolve specific issues.

Program Office department leads (technical/test, financial, production, logistics) operate independently between formal reviews, interacting with Industry Team counterparts, on-site SUPSHIP, field activity and NAVSEA headquarters personnel to manage ongoing issue resolution, program performance and action item closure.

The program office submits a Defense Acquisition Executive Summary (DAES) report to the ASN (RDA) and OSD on a quarterly basis. The DAES provides a periodic update on program test and evaluation, logistics requirements, cost, schedule, funding, and contract performance.

The PEO is also closely involved with the Program Office in management of the program. The PEO has near daily interactions with each of his programs including weekly program status, monthly metrics, and quarterly program performance reviews. The PEO serves as Fee Determining Official for multiple award fee contracts, approves Acquisition Plans, and reviews source selections prior to Contract Awards. The PEO provides guidance and strategy for annual financial reviews including POM/budget submissions, the SCN Execution Review and the O&M,N review. He ensures that the inputs from the PMs are integrated and prioritized prior to submission. The PEO reviews and attends Congressional and OSD/OMB Program Reviews once again ensuring that an integrated position is presented. For significant events, e.g. Hurricane Katrina recovery efforts or preparations for a DAB for an ACAT 1 program, the PEO will interact with the PM on a daily basis shaping strategy and providing a coherent picture to Navy leadership. The PEO periodically visits construction sites at BIW, NGSS Pascagoula, NGSS Avondale, Austal, Marinette Marine, NASSCO to conduct program reviews in yard.

NAVSEA Relationship with PEO Ships in LCS Acquisition

The Naval Sea Systems Command (NAVSEA) has supported the PEO Ships and the LCS Acquisition Program in three principal functional areas: (1) contracts, (2) ship detail design approval, and (3) oversight by the Supervisors of Shipbuilding, Conversion and Repair (SUPSHIP) Gulf Coast and Bath, Maine.

With respect to acquisition, NAVSEA's Title X responsibility spans a wide range of activities critical to program success, including:

- Head of Contracting Agency
- Budget Submitting Office and fiduciary administrator

- Legal Counsel
- Logistics Policy
- Technical Authority and oversight including design review and approval of major design products technology development and de-risking at the Warfare Centers
- On-site day-to-day contract administration and oversight at contractors' plants

Two significant developments have challenged the NAVSEA/PEO Ships team over the past 15 years. These developments are:

- Staffing reductions of 51 percent in Headquarters (NAVSEA and PEO's) and 50 percent in the SUPSHIP offices that execute shipbuilding contracts.
- Significant workload increase, characterized by growth in Acquisition Category I programs from 17 to 22, increase in major ship designs from 15 to 21, increase in ships under construction from 20 to 44, including 5 lead ships, and major increase in complexity in software systems with growth to 16 surface ship combat systems baselines.

LCS Contract Support

NAVSEA Contracts provides all Procurement Contracting Officer services to the PEO/Program Manager team. These services include contract strategy, structure, writing, negotiations, contacts with the shipbuilder, and major contract change execution.

The LCS program has been supported in the NAVSEA Contracts Directorate by a program-dedicated, senior Contracting Officer with supporting contract specialists and interns. Since the program's inception in 2002, the NAVSEA Contracting Officer has been responsible for awarding contracts for each phase of the LCS program.

The LM contract is administered by Defense Contract Management Agency (DCMA), with a supplemental delegation to SUPSHIP Gulf Coast for administration of the ship construction subcontracts with Marinette Marine (LCS 1) and Bollinger (LCS 3). The GD contract is administered by SUPSHIP Bath.

Ship Detail Design Approval

As stated in the discussion on NVR, NAVSEA is responsible, under Title X, as Technical Authority for Navy ships. In its technical authority role, NAVSEA is responsible for safety and performance of ships. Therefore, NAVSEA reviews and approves ship specifications and major ship design drawings and products. More details on NAVSEA's role in approval of the LCS Detail Design were discussed thoroughly previously.

Oversight by Supervisor of Shipbuilding, Conversion and Repair (SUPSHIP)

For Navy shipbuilding contracts, the SUPSHIP Contract Administration Office provides the contract administrative services that are directed by the Federal Acquisition Regulation (FAR). These services include contract administration, engineering surveillance, quality assurance, logistics, and financial administration of the assigned contracts.

SUPSHIP Gulf Coast and SUPSHIP Bath, Maine are accountable to the Commander, NAVSEA for field execution of contractual and technical responsibility for the Navy's LCS shipbuilding effort under the overall contracts. SUPSHIP provides engineering, technical and other services beyond the traditional FAR contract administrative services functions, most of which are unique to the shipbuilding industry such as crew support, ship/combat systems testing oversight, sea trial support and coordination, and outfitting material management. The SUPSHIP Commanding Officers have dual reporting responsibilities to NAVSEA and PEO Ships, and the SUPSHIP Program Manager's Representatives have dual reporting responsibilities to the SUPSHIP Commanding Officers and the LCS Program Manager.

The LCS contract with LM is unique in that the prime contractor is not a shipbuilding company. Consequently, the designated Administrative Contracting Officer for the overall LCS contract is DCMA vice the SUPSHIP. SUPSHIP Gulf Coast was delegated the contract administration responsibility by the Procurement Contracting Officer for the shipbuilding effort being accomplished at Marinette Marine Corp. in Wisconsin for the LCS-1 and Bollinger Shipyard in Louisiana for the LCS-3. SUPSHIP Gulf Coast's responsibility covered ship construction and test only. For the GD contract for LCS-2 and LCS-4 being constructed at Austal in Mobile, Alabama, SUPSHIP Bath was delegated the contract administration responsibility by the PCO.

An on-site SUPSHIP Gulf Coast Project office manages the contractual, business, and technical requirements unique to the shipbuilding environment. The on-site SUPSHIP Gulf Coast LCS project team at Marinette Marine Corp. is currently staffed by eleven personnel. SUPSHIP Bath has a similar arrangement at Austal and is currently staffed at eight personnel. SUPSHIP Gulf Coast provides oversight of the LCS program at Marinette Marine Corp. in the following areas:

- **Technical**

- Design review. SUPSHIP Gulf Coast reviewed LCS drawings in conjunction with the ABS for compliance with NVR, and other specifications and contract requirements. SUPSHIP Gulf Coast has reviewed 602 drawings resulting in 123 Quality Deficiency Reviews. SUPSHIP Gulf Coast engineering works in collaboration with the NAVSEA Engineering Directorate Ship Design Manager and the PEO Ships LCS Program Manager (LCS Program Manager) to resolve outstanding Quality Deficiency Reviews.
- Deviations and waivers. SUPSHIP Gulf Coast Waterfront engineer has performed on-site interface with Marinette Marine Corp. and shipchecks of technical issues. Examples of SUPSHIP Gulf Coast interface are independent review of Marinette Marine Corp. launch calculations and preparations; and coordinating resolution of the Request For Deviation to load fuel for Generator light off.

- **Quality Assurance**

Waterfront oversight of contractor production efforts. In conjunction with the ABS, SUPSHIP Gulf Coast witnesses critical tests and processes and issues Quality Deficiency Reviews where the contractor fails to meet specification and NVR requirements.

- **Contract administration and Earned Value**

As discussed, Procurement Contracting Officer functions for LCS are performed by the NAVSEA Contracts Directorate. Administrative Contracting Officer functions for LM's LCS contract are performed by DCMA. SUPSHIP Gulf Coast performs Contract Administration Office functions for Marinette Marine Corp. on the shipbuilding effort. SUPSHIP Gulf Coast performed initial review of Marinette Marine Corporation's Earned Value Management System and provided recommendations to the Administrative Contracting Officer at DCMA concerning conditional approval status. SUPSHIP Gulf Coast also performed review and analysis of contractor-submitted Earned Value Management System data and submitted its analysis to DCMA for roll up and submission to the LCS Program Manager in a monthly report.

- **On-site project office and Program Manager's Representative**

- At construction contract award (May 2004), the SUPSHIP Gulf Coast program management representative (Navy Commander Engineering Duty Officer) assigned to SUPSHIP Gulf Coast Pascagoula traveled to Marinette on a weekly basis. Since August of 2006, a Navy Commander Engineering Duty Officer has been assigned full time as SUPSHIP Gulf Coast project officer on-site to coordinate SUPSHIP Gulf Coast Contract Administration Office duties and support to the LCS Program Manager.
- On-site SUPSHIP Gulf Coast Project Team at Marinette Marine Corp. increased from initial two personnel in February 2005 (start of construction) to the current level of 11.
- The SUPSHIP Gulf Coast Project Team on-site manages all Contract Administration Office functions and reports on weekly basis both to the LCS Program Manager and SUPSHIP Gulf Coast. In addition the SUPSHIP Gulf Coast project team provides daily status reports via email (to SUPSHIP Gulf Coast and LCS Program Manager) concurrent with major milestones readiness (e.g., launch, Generator light off).
- Quarterly LCS program reviews (government and industry) were conducted beginning in April 2005 with contractor presentations. Dates of quarterly reviews were: April 2005, June 2005, August 2005, October 2005, February 2006, May 2006, October 2006 (production and technical issues only).

- **Production Status Reporting**

SUPSHIP Gulf Coast Project Team personnel on-site perform an independent analysis of contractor physical progress on a weekly basis that is reported to the LCS Program Manager and SUPSHIP Gulf Coast.

- **Test Status Reporting**

Test status is observed by the on-site team. Status is reported to the LCS Program Manager and SUPSHIP Gulf Coast on a bi-weekly basis. Test holdups that are caused by Government furnished material or information are reviewed by the on-site team.

Overall, SUPSHIP Gulf Coast on-site personnel provide the LCS Program Manager and SUPSHIP Gulf Coast an independent assessment of physical progress, design compliance, and quality assurance. A beneficial element from this independent assessment is the constructive

feedback to the shipbuilder for potential improvements to processes. Additionally, SUPSHIP Gulf Coast on-site personnel regularly conduct independent in-process inspection and test witnessing to validate the process and product. This includes significant efforts related to coatings, welds, tanks, piping, machinery installation, and monitoring of the shipbuilder's corrective action programs. Further, SUPSHIP Gulf Coast subject matter experts have traveled to Marinette Marine Corp. from Louisiana and Mississippi to train Marinette Marine Corp. personnel on specific procedures and requirements for cableways.

ASN(RDA) Oversight of the LCS Program

The Assistant Secretary of the Navy for Research, Development and Acquisition (ASN(RDA)) serves as the Navy Acquisition Executive. The Assistant Secretary has authority, responsibility and accountability for all acquisition functions and programs, and for enforcement of Under Secretary of Defense for Acquisition, Technology and Logistics procedures.

In addition to the oversight functions of PEO Ships, the LCS Program Office (PMS 501), and NAVSEA for LCS acquisition, ASN(RDA) has also remained closely involved with LCS. ASN Staff closely review the quarterly Defense Acquisition Executive Summary (DAES) reports provided by each major defense acquisition program, including LCS. The DAES reports include key metrics tracking program performance, schedule, and cost against the approved Acquisition Program Baselines (APB's). In addition, the DAES reports include an assessment of cost and schedule performance for major contracts.

In addition to the routine DAES reports, ASN(RDA) has also required key programs, including LCS, to submit monthly volatility metrics in the areas of program complexity, requirements fluctuation, budget instability, schedule instability, and program manager-contractor optimism. Volatility in any of these areas can increase cost and schedule pressures.

For LCS, ASN has also held biweekly meetings beginning in March 2006. The total LCS program involves several Program Executive Offices – Ships for the seaframe, Integrated Warfare Systems (IWS) for the seaframe combat system, Littoral and Mine Warfare (LMW) for the mission modules, Strike Weapons and Unmanned Aviation (W) for unmanned air vehicles in the mission packages, and Air Anti-Submarine Warfare, Assault, and Special Mission Programs (A) for manned aircraft in the mission packages. In addition to regular LCS program status updates, the biweekly meetings have focused attention on integration issues across the seaframe, combat system, and mission packages.

In addition, ASN(RDA) has held a series of meetings, beginning in June 2006, to focus on the future acquisition strategy for the LCS program. Options under consideration included continuing program of record, singling up on a seaframe, and going to a common combat system/weapons system hardware. These discussions will provide the framework for the future Milestone B discussions.

In addition to the regular ASN oversight of the program, members of the staffs of the Deputy Assistant Secretaries of Navy for Ship Programs (DASN SHIPS), for Integrated Warfare Systems (DASN IWS), for Management and Budget (DASN M&B), and for Acquisition Management (DASN AM) interact day-to-day with the PEO's and Program Offices for LCS.

These personnel are regularly apprised of program acquisition status and issues, and also interact with the staffs of the Chief of Naval Operations, other organizations within the Secretary of the Navy (particularly, ASN for Financial Management and Comptroller), and the Office of the Secretary of Defense regarding LCS issues.

LCS Program Way Ahead

During the 90-day stop work period, the Navy will complete an Industry / Government Root Cause analysis; evaluate contractual terms / conditions for proceeding forward on LCS 3; assess LM management team's ability to deliver LCS 1 and LCS 3; revalidate earned value management system at Marinette Marine, Gibbs & Cox, and LM; re-baseline cost and schedule; revalidate contract performance status, and cost control processes in place; conduct an independent Program Management Assist Group (PMAG) and take corrective actions. The Navy will then perform a similar assessment for LCS 2 and LCS 4. Based on the findings and recommendations the Navy will develop a proposed financing plan regarding the cost growth. The Navy expects these initial actions to be complete within the first 30-45 days following the LCS-3 stop work.

The Navy is also determining how much of the lead-ship cost increase will carry over to follow ships, assessing company actions to regain cost control, and evaluating changes to improve Navy program management and oversight. The Navy will also develop an acquisition strategy for LCS 5 and follow which factors in the results of the LCS assessments and chosen course of action. This acquisition strategy assessment is expected to be complete within 90 days.

Conclusion

As the Chief of Naval Operations, Admiral Mike Mullen, recently stated, "The LCS program remains of critical importance to our Navy. With its great speed and interchangeable war fighting modules, the ship will provide unprecedented flexibility." This program was designed from the outset to provide this critical capability to the Fleet as quickly as possible. The innovative acquisition features employed to do this carried risk as well as opportunity. CAIV was a key tool in the design of the LCS system.

Despite the cost growth on LCS-1, the Navy continues to remain committed to cost control. Cost overruns on Navy shipbuilding programs cannot be tolerated. The Navy will, along with industry, identify the root causes of the cost increases, and provide a solution. As determined necessary by the current program review, the Navy will take immediate action to maintain control of the program and enhance oversight to keep costs affordable.

In order to maintain the trust and confidence of the American public and Congress that the Navy is being good stewards of tax dollars, the Navy intends to remain transparent as decisions are implemented that affect the status of the LCS program.