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READINESS AND SUSTAINMENT OF THE NAVY'S SURFACE FLEET

HEARING

BEFORE THE

READINESS SUBCOMMITTEE

OF THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

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CONTENTS

CHRONOLOGICAL LIST OF HEARINGS

2009

Page

HEARING:

Wednesday, March 25, 2009, Readiness and Sustainment of the Navy's Surface Fleet 1

APPENDIX:

Wednesday, March 25, 2009 19

WEDNESDAY, MARCH 25, 2009

READINESS AND SUSTAINMENT OF THE NAVY'S SURFACE FLEET

STATEMENTS PRESENTED BY MEMBERS OF CONGRESS

Forbes, Hon. J. Randy, a Representative from Virginia, Ranking Member, Readiness Subcommittee 2

Ortiz, Hon. Solomon P., a Representative from Texas, Chairman, Readiness Subcommittee 1

WITNESSES

Campbell, Rear Adm. (Upper Half) (Select) Joseph F., USN, Director of Staff, Fleet Maintenance Office (USFF N43) 6

Cullom, Rear Adm. (Upper Half) (Select) Philip H., USN, Director, Fleet Readiness Division (OPNAV N43) 4

Eccles, Rear Adm. (Lower Half) Thomas J., USN, Deputy Commander Naval Systems Engineering, Naval Sea Systems Command (SEA 05) 10

McManamon, Rear Adm. (Lower Half) James P., USN, Deputy Commander for Surface Warfare, Naval Sea Systems Command (SEA 21) 8

APPENDIX

PREPARED STATEMENTS:

Cullom, Rear Adm. Philip H., joint with Rear Adm. Joseph F. Campbell, Rear Adm. James P. McManamon and Rear Adm. Thomas J. Eccles 26

Forbes, Hon. J. Randy 25

Ortiz, Hon. Solomon P. 23

DOCUMENTS SUBMITTED FOR THE RECORD:

Report to Congress, Ship Maintenance and Material Conditions 49

WITNESS RESPONSES TO QUESTIONS ASKED DURING THE HEARING:

Mr. Nye 69

Ms. Shea-Porter 69

Mr. Taylor 69

QUESTIONS SUBMITTED BY MEMBERS POST HEARING:

Mr. Forbes 84

Mr. Nye 86

Mr. Ortiz 73

Mr. Wittman 89

READINESS AND SUSTAINMENT OF THE NAVY'S SURFACE FLEET

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
READINESS SUBCOMMITTEE,
Washington, DC, Wednesday, March 25, 2009.

The subcommittee met, pursuant to call, at 2:17 p.m., in room 2118, Rayburn House Office Building, Hon. Solomon P. Ortiz (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. SOLOMON P. ORTIZ, A REPRESENTATIVE FROM TEXAS, CHAIRMAN, READINESS SUBCOMMITTEE

Mr. ORTIZ. The subcommittee will come to order.

Today, the Readiness Subcommittee meets to hear testimony on the readiness of the ships comprising the Navy's surface fleet and the Navy's plan to sustain those ships to achieve and expand their anticipated service life. The hearing is intended to inform Readiness Subcommittee members on Navy operations and maintenance issues prior to release of the fiscal year 2010 budget submission.

I thank our distinguished Navy witnesses for appearing before this subcommittee today to discuss ship readiness and sustainment. Our witnesses represent the Office of the Chief of Naval Operations, U.S. Fleet Forces Command, and Naval Sea Systems Command.

The Navy intends to extend the operational life of its ships 5 years or more beyond the designated lifespan in order to achieve a 313-ship fleet. However, the Navy is presently experiencing a series of incidents that raise concerns regarding possible systemic problems with the Navy's manning, training, and maintenance.

In addition to recent collisions, groundings, and even a fatal accident, in the past 3 years 10 ship commanders have been relieved of duty for failure to maintain training or materiel readiness standards. These concerns bring into question the Navy's ability to achieve even the expected service life of its fleet and sustained fleet readiness, let alone extend the service life of entire ship classes.

These incidents follow changes in the way the Navy conducts maintenance, changes in manpower and crew size, and changes in how the Navy trains its maintenance personnel. In view of these changes, the Readiness Subcommittee on March 16 asked the Government Accountability Office (GAO) to review the training, size, composition, and capabilities of Navy ship crews.

Specifically, we requested the GAO to: evaluate current requirements, authorization, and on-hand personnel levels for selected ship types compared to historical data for the same or similar ship

types, including underlying reasons for any differences; compare shipboard rank and rate distributions over time and analyze underlying reasons for any changes and their impact on ship capabilities; evaluate qualification training for personnel in selected shipboard designators and ratings to determine any changes to formal off-ship training programs, including whether such changes have affected personnel availability and the amounts and types of on-the-job training for personnel to achieve required qualifications; and, also, evaluate to what extent requirements to provide personnel for Individual Augmentee and "In Lieu Of" positions in support of ongoing operations are impacting the levels or composition of shipboard manning.

Our witnesses today are four distinguished Naval officers: Rear Admiral Philip Cullom, Director of Fleet Readiness Division, Deputy Chief of Navy Operations for Fleet Readiness Logistics; Rear Admiral Joseph Campbell, Director of Staff, Fleet Maintenance Officer, U.S. Fleet Forces Command; Rear Admiral James McManamon, Deputy Commander for Surface Warfare, Naval Sea Systems Command; and Rear Admiral Thomas Eccles, Deputy Commander, Naval Systems Engineering, Naval Sea Systems Command.

Now I would like to yield to my good friend, the Ranking Member of the committee, Mr. Forbes.

[The prepared statement of Mr. Ortiz can be found in the Appendix on page 23.]

STATEMENT OF HON. J. RANDY FORBES, A REPRESENTATIVE FROM VIRGINIA, RANKING MEMBER, READINESS SUBCOMMITTEE

Mr. FORBES. Thank you, Mr. Chairman. And I want to first begin by thanking you for holding this hearing and for the hearings that you hold consistently, getting the kind of information we need to do our oversight; and also Mr. Taylor, who, while not chairing this committee, does such a good job on the Seapower Subcommittee.

And I thank all of you for taking the time to be with us today. And we understand you have a lot on your plate, and we just appreciate your insight with us.

As the committee is well aware, the Navy has been operating at extremely high operation tempos for several years. And during this period, not only have they worked to improve operational availability by implementing the Fleet Response Plan, but they have also made many changes in their training programs and are restructuring their approach to surface fleet maintenance and sustainment.

I am very concerned that the confluence of all these changes in a relatively short time period have placed stressors on the fleet that have a degenerating effect on readiness, potentially jeopardizing safety and driving up long-term sustainment costs.

This committee has been briefed on the numerous accidents, incidents, and unfit or seriously degraded inspection assessments that have plagued the Navy recently, and I think we must be careful not to view these events in isolation. While they may appear to be unrelated at first glance, I am concerned that they may be indicators of a broader set of problems. From unfit Board of Inspection

and Survey (INSURV) inspections to the recent collision of the USS Hartford and the USS New Orleans, we must work to understand if these events are simply the cost of doing business in these challenging times or if they are indicators that the Navy needs to make course corrections.

Mr. Chairman, this is a very important hearing, and I want to thank you again for holding it. And I also understand that the witnesses we have with us today are here to discuss the condition of the surface fleet and the Navy's sustainment challenges. I would like to welcome all of them.

And, gentlemen, thank you for taking time to talk with us, as we mentioned earlier.

But I hope that our discussion today will help us understand the challenges the surface fleet is facing and provide us some context on which to gauge the events I mentioned earlier. I am also interested to hear about the steps the Navy is taking to correct these deficiencies and to implement a sustainment strategy necessary to obtain the required service life out of our fleet.

There is no doubt we are facing a tremendous challenge, and I don't believe we are going to find a silver-bullet solution. I believe everything must be on the table for consideration, from manpower and resourcing to training to leadership. And we need to take time to evaluate our risk assessments and make sure we are comfortable with the risk levels.

I think we must also look at the increased reliance on contractors to provide maintenance that was traditionally performed by our sailors. While this approach to sustainment may initially provide a cost benefit, there is a downside in that our young sailors aren't required to perform many of the standard repair activities that hone their skills and sharpen their ability to assess the ship's condition. This could have a long-term impact on the skill and ability of our sailors, and it is one specific area we must examine.

And then just two other points. I recognize that everybody in here has good intentions in where we are going, but earlier today, in the Judiciary Committee, we passed out a bill, which was the Free Flow of Information Act, because we realized how important it was to get facts and concepts and ideas out as soon as possible to discuss them.

I have to tell you that I am extremely bothered by the nondisclosure agreement that I know several members of our military were forced to sign. And this administration apparently has allowed that to take place, because, if you look at this form—and I know that none of you four had to sign that—but if you look at this, there is a huge question as to whether or not anybody involved in that budgetary process can ever disclose this information or talk about it. And I think that gives us grave concern when we are talking about maintenance of ships, when we are talking about weapons systems, whatever we are. And I hope at some point in time this committee will look at that.

And the final thing I want to address is something that, while all of us sitting here talk about the maintenance dollars that we are going to need and what we are going to need to have a strong and viable Navy, with the bailouts that we have had and the stimulus packages that we have had—and I have raised this before—

but the reality is the interest alone on those bailouts and stimulus packages would fund the entire budget for all of National Aeronautics and Space Administration (NASA), all of the National Science Foundation, all of the Department of Transportation, all of Homeland Security, all of the Federal Bureau of Investigation (FBI), all of the Department of Justice, every operation of the White House, every operation of Congress, and every Army Corps of Engineers project in the country.

And, at some point in time, I worry, Mr. Chairman, that we are going to come back here saying we need dollars, and we are going to have to struggle to see where we are going to get those dollars and how we are going to get them. And I think that is going to be a huge challenge.

So, with that, Mr. Chairman, I yield back and look forward to our witnesses and their testimony today.

[The prepared statement of Mr. Forbes can be found in the Appendix on page 25.]

Mr. ORTIZ. Thank you. The gentleman has brought up some very good points.

And now, at this point, I would like Admiral Cullom to please proceed with your testimony, followed by Admirals Campbell, McManamon, and Eccles.

Thank you. You may proceed, sir.

STATEMENT OF REAR ADM. (UPPER HALF) (SELECT) PHILIP H. CULLOM, USN, DIRECTOR, FLEET READINESS DIVISION (OPNAV N43)

Admiral CULLOM. Thank you, sir.

Chairman Ortiz, Congressman Forbes, and distinguished members of the Readiness Subcommittee, thank you for the opportunity to appear before you today to testify on surface ship readiness and sustainment.

My name is Rear Admiral Phil Cullom, and I am the director of fleet readiness on the Office of the Chief of Naval Operations (OPNAV) staff. The Navy appreciates your support for the readiness of the surface fleet and the critical part materiel readiness and sustainment play in reaching expected service life. We have assembled witnesses from the OPNAV staff, Fleet Forces Command maintenance staff, and Naval Sea Systems Command to testify on these topics today.

I am responsible to the chief of naval operations for validating the fleet-generated maintenance and operational requirements and then programming the resources necessary to operate and sustain our ships. I am here today to provide you with the OPNAV assessment of surface ship readiness and provide an overview of the major actions we are taking to better define surface ship maintenance requirements, properly resource that requirement, and then attain full service life for our ships.

The Navy requires a minimum fleet of 313 ships by 2020; 215 of those 313 ships are already in service today. A key underpinning of the Navy's 30-year shipbuilding planned and sustainment of a forward-deployed, surge-ready Naval force is our ability to reach the expected service life for each of our ship classes. Reaching expected service life demands an integrated engineering approach to

ensure the right maintenance is planned and executed over a ship's lifetime, as well as the resources necessary to execute those plans.

A well-established process exists to identify and program the resources required for ship maintenance. A cornerstone of this process is the Navy's ship maintenance model, which receives a formal and independent validation by the Johns Hopkins Applied Physics Labs.

The initial input to the model are class-specific, notional man-days that are validated by the fleet. The ship maintenance model uses these inputs to price the actual cost of that maintenance. Since the maintenance generation process begins almost two years prior to the actual budget year and whole unique maintenance developments routinely occur in the year prior to execution when most of the ships are deployed, execution-year realities have put pressure on the need for significant supplemental funding, work deferral, or occasionally even cancellation of availabilities.

In order to increase the fidelity of the maintenance budget and reduce the churn associated with work deferral or availability cancellation, in August of 2007 the Navy instituted a process improvement to provide better visibility to hull-specific maintenance requirements. This Flag-level process, known as the "nine-step process," conducts a hull-by-hull review of individual ship maintenance requirements that refines notional ship maintenance requirements and then tailors them to the physical condition of a specific ship as it gets closer to its scheduled availability period.

This produces a more refined fleet maintenance requirement that updates our input into our ship maintenance model for pricing purposes. Beginning in 2011, we will use these adjustments to update our notional requirements, strengthening our ability to forecast future-year maintenance requirements and reducing our dependence on supplemental funding.

The Navy has three distinct classes of ships: surface ships, submarines, and aircraft carriers. Simply put, submarines and aircraft carriers have very robust and technically validated class maintenance plans that precisely define the 100 percent maintenance requirement that is needed to reach expected service life.

In conjunction with the class maintenance plan, submarines and aircraft carriers also have dedicated lifecycle organizations whose sole functions are to maintain and continuously update class maintenance plans and build availability work packages that ensure we execute the 100 percent maintenance requirement. This process has a proven track record of ensuring submarines and aircraft carriers reach that expected service life.

Surface ships have not been maintained with the same rigor or discipline. To provide a highly surge-capable and present surface force, current maintenance plans limit the time ships spend in depot availability periods and instead spread maintenance into several pier-side continuous maintenance availabilities each year.

This focus on short-term, get-the-ship-underway type of work, instead of the lifecycle-focused work associated with tanks, structures, and distributed systems executed on submarines and aircraft carriers, is adding risk to our ability to reach expected service life for our surface ships.

Additionally, surface ship class maintenance plans have not been as detailed or maintained with the same technical rigor as those for aircraft carriers and submarines. This has been one of the greatest obstacles to the surface fleet's ability to articulate that 100 percent maintenance requirement necessary to reach their expected service life.

Fleet priorities, the unambiguous maintenance requirements of aircraft carriers and submarines, and the lack of an updated technically validated surface ship class maintenance plan has resulted in surface ship maintenance being the area where we have historically taken funding risk in a resource-constrained environment.

Despite these challenges, current ship readiness for the Navy's surface force remains strong, and the committee can be assured that we do not have a hollow force. We are meeting all our commitments around the globe today. If allowed to persist, however, these materiel discrepancies will ultimately impact our future readiness and shorten the service life of our surface ships.

The good news is that the Navy and Surface Warfare Enterprise have taken specific steps to address these issues. Partners from the Navy's technical community and fleet maintenance community are with me here today to provide the committee with a more detailed account of the actions they are taking in their respective areas of responsibility to ensure we continue to maintain and sustain our Naval forces.

We appreciate your ongoing support and this opportunity to testify before the committee. Thank you.

[The joint prepared statement of Admiral Cullom, Admiral Campbell, Admiral McManamon, and Admiral Eccles, can be found in the Appendix on page 26.]

Mr. ORTIZ. Thank you.

Admiral Campbell.

STATEMENT OF REAR ADM. (UPPER HALF) (SELECT) JOSEPH F. CAMPBELL, USN, DIRECTOR OF STAFF, FLEET MAINTENANCE OFFICE (USFF N43)

Admiral CAMPBELL. Yes, sir. Chairman Ortiz, Congressman Forbes, distinguished members of the subcommittee, thank you for the opportunity to appear before you today and address strategies for readiness and sustainment of the Navy's fleet.

My name is Rear Admiral Joseph Campbell, and I am the fleet maintenance officer for U.S. Fleet Forces Command. I am here to provide you with a fleet assessment of the Navy's most recent ship maintenance findings and recommendations for corrective actions. Additionally, I will address the fiscal year 2009 ship maintenance budget.

The Navy's Board of Inspection and Survey, referred to as INSURV, conducts material inspections on U.S. Navy ships every five years. The five primary areas that comprise material inspections include: deck; propulsion; combat systems; command, control, communications, and computers, known as C4I; and supply.

Upon completion of INSURV's inspections, the results are submitted to the chief of naval operations. In addition to individual ship reports, the chief of naval operations and fleet commanders receive an annual report summarizing fleet trends and the overall

health of the force. Currently, overall trends are positive, though some specific functional areas require further attention.

I would now like to address in some detail recent INSURV results between the years 2003 and 2008. The surface naval force executed 191 material inspections with a pass rate of over 91 percent. Some high-visibility failures in 2008 led the Commander, Naval Surface Force to execute a range of assessments, reviews, and corrective actions to ensure that any degrading trend in material condition of ships was quickly identified and immediate corrective actions were devised and successfully implemented.

The ships with these degraded results are indicative of the ship's leadership team not following procedures and policies and not practicing the basics of equipment maintenance and operation. Commander, Naval Surface Force is correcting these trends via improvement in deck-plate knowledge of sailors and the Preventative Maintenance System accomplishment rates, development of applicable training courses and schools, improved troubleshooting procedures and techniques, and focused shipboard assessment teams for these deficient areas.

Conversely, the positive trends on other ships are the result of increased training, assessments, and the directed actions by the Commander Naval Surface Forces, by Commander Naval Sea Systems Command, and Fleet Maintenance and Training resource providers.

After the findings of the 2008 material inspections were released for the *USS CHOSIN* and the *USS STOUT*, Commander Naval Surface Forces embarked on a back-to-basics focus for ships. Shipboard leadership reemphasized preventative maintenance system program execution, zone inspection techniques, material condition documentation, and maintenance of high operation standards. Class squadrons, referred to as CLASSRONs, were also directed to apply focus to Inspection & Survey (INSURV) preparation and execution practices and to assist ships with the same.

To determine if systemic support problems existed, Commander Naval Surface Forces conducted a comprehensive review of overall readiness of surface ships. This was known as the "take a fix" round of readiness briefs, where Commander Naval Surface Forces assessed and reported on all readiness factors, those being maintenance, supply, training, and personnel across the force. The review concluded that stressors were present in all readiness factors and course corrections were needed.

From those efforts, the Navy's Surface Ship Maintenance Strategic Offsite convened to identify gaps in the surface ship maintenance program and to clarify roles and responsibilities for Navy organizations in the maintenance program. The overarching focus of this offsite group was the commitment to charter, resource, activate, and support the surface ship lifecycle management activity, whose sole focus will be to establish rigorous engineered lifecycle maintenance plans and requirements for all surface ships.

I will now briefly discuss the status of the fiscal year 2009 ship maintenance budget. Ship maintenance began fiscal year 2009 with a shortfall of $417 million. Of the $417 million shortfall, $186 million is with U.S. Fleet Forces Command and $231 million is at U.S. Pacific Fleet.

Since 2003, we have relied on supplemental appropriations to fund additional ship maintenance that has arisen from higher wartime operation tempos. There has been strong congressional support over the last seven years that has enabled us to plan and execute our ship maintenance workload.

In fiscal year 2009, due to the uncertainty of answers to two questions—one, will we receive additional funds in fiscal year 2009; and, two, if we receive additional funds what will be the amount—the fleet is taking a measured approach and prudent steps to determine mitigations that will be required if no additional fiscal year 2009 funding is received.

In light of current fiscal realities, we are reviewing financial expenditures to ensure we are able to meet requirements for the remainder of the year. While challenging, it is necessary for us to execute these actions at this point in the year in order to remain within fiscal controls. We will continue to monitor our execution through the fiscal year and relax these measures if funding becomes available.

It is important to consider that we are now just halfway through the fiscal year and are currently performing our mid-year review. Due to the often emergent nature of repairs to ships, there is always a possibility that additional maintenance will need to be accomplished later in the year.

In summary, the Navy is committed to continually improving ships' maintenance and lifecycle protocol and best practices. The Navy continues to address deficiencies and issues identified during INSURV inspections. We appreciate your ongoing support and the opportunity to testify before the committee today.

Thank you, sir.

[The joint prepared statement of Admiral Campbell, Admiral Cullom, Admiral McManamon, and Admiral Eccles, can be found in the Appendix on page 26.]

Mr. ORTIZ. Go ahead, sir.

STATEMENT OF REAR ADM. (LOWER HALF) JAMES P. MCMANAMON, USN, DEPUTY COMMANDER FOR SURFACE WARFARE, NAVAL SEA SYSTEMS COMMAND (SEA 21)

Admiral MCMANAMON. Mr. Chairman, Congressman Forbes, distinguished members of the subcommittee, thank you very much for this opportunity to testify on surface ship material readiness, particularly as it pertains to sustainment of surface ships, the lifecycle management of surface ships, and the Navy's use of the multi-ship, multi-option—MSMO—acquisition strategy to execute both the fleet response plan and the material readiness of our ships.

My name is Rear Admiral Jim McManamon, and I am here as the deputy commander, Naval Sea Systems Command, Surface Warfare, SEA 21. I am responsible for the maintenance and modernization of nonnuclear surface ships currently operating in the fleet. I am also the Surface Warfare Enterprise's designated focal point into the Naval Sea Systems Command and acquisition community, synchronizing lifetime support efforts for all in-service and decommissioned surface combatants, nonnuclear aircraft carriers, amphibious warships, Command Mine Warfare and special mission craft. SEA 21 is the strategic bridge to the fleet that connects Navy

headquarters, NAVSEA, and program executive officers to the waterfront and operating forces.

A key component of ship readiness is a robust and proficiently executed process for ship maintenance and sustainment. Ship maintenance is more than the conduct of industrial efforts at a shipyard or another repair activity. All ship maintenance requires a solid foundation of engineering and analytics such that the right maintenance actions occur at the right time and for the right reasons.

In spring of 2008, in response to a growing concern that material condition of surface ships would not provide sufficient margins to ensure each ship would meet its designated service life, Commander, Naval Sea Systems Command recommended establishment of a dedicated activity to provide centralized lifecycle management and support for U.S. Navy surface ships. The Surface Warfare Enterprise approved that recommendation, and the Navy will formally stand up the Surface Ship Lifecycle Management Activity in May 2009. Partnering with fleet forces, this activity will assess and manage the maintenance requirements through the lifecycle of ships in the surface fleet in order to better plan and budget for long-term maintenance needs.

The Lifecycle Management Activity is modeled after and would function very similarly to the Submarine Maintenance, Engineering, Planning and Procurement Activity, SUBMEPP; and the Carrier Planning Activity, CPA. This activity will maintain, monitor, and refine class maintenance plans for all surface ships to maintain material readiness for the projected service life, develop lifecycle strategies to address system upgrades, and fully integrate the integrated class maintenance plan into each surface ship's maintenance schedule and availability planning process.

While improving maintenance planning on existing platforms, the Navy is also challenged with fleet introduction of new platforms. The Littoral Combatant Ship (LCS) is a class of ship that does not conform to the legacy process used on earlier-generation ships since the manning is reduced and coupled at the high level of automation, with much of that support, including maintenance functions, pushed ashore.

An interim support period, ISP, has been contracted for a trial period of three years during which the government will conduct a business case analysis in order to determine an optimal long-term sustainment approach. The three-year period will give the Navy adequate time to evaluate contractor performance, responsiveness, and appropriate use and repair data in order to determine the optimal balance of ship's force, contractor, and organic Navy workforce needed to support LCS for the long term.

In a deliberate view to the future, ship life assessment pilots will be conducted to determine the ability of a ship to meet its expected service life. The surface ship life assessment pilots are particularly important as they will provide a solid analytical basis for making critical repair decisions in selected areas and provide the potential to build confidence that our surface ships can fulfill force level requirements well into the future by assuring they will remain effective warships for the full duration of their expected service life.

This effort takes a best practice from industry and utilizes advanced finite element modeling techniques to provide a fully engineered view of the criticality of needed maintenance actions.

With your assistance, we will continue to provide maximum material readiness for our surface ships and improve our ability to ensure they reach their expected service life.

Thank you again for letting me testify today. I look forward to your questions.

[The joint prepared statement of Admiral McManamon, Admiral Cullom, Admiral Campbell, and Admiral Eccles, can be found in the Appendix on page 26.]

Mr. ORTIZ. Admiral Eccles, go ahead, sir.

STATEMENT OF REAR ADM. (LOWER HALF) THOMAS J. ECCLES, USN, DEPUTY COMMANDER NAVAL SYSTEMS ENGINEERING, NAVAL SEA SYSTEMS COMMAND (SEA 05)

Admiral ECCLES. Mr. Chairman, distinguished members of the subcommittee, thank you very much for this opportunity to testify on surface ship material readiness.

My name is Rear Admiral Tom Eccles. I am here as the deputy commander for naval systems engineering, Naval Sea Systems Command. I am responsible for cradle-to-grave engineering support for naval ships and shipboard weapons systems. This includes research and development, establishment of design standards for new-construction ships, certification of new ships and ship systems, and lifecycle engineering for ships in service in the fleet.

As Naval Sea Systems Command chief engineer, I am also the technical warranting authority responsible for applying statutory authorities delegated from the Secretary of the Navy to ensure the safe and effective operation of ships and ship systems. In that regard, I am responsible for the engineering aspects associated with the development of ship maintenance requirements. As chief technical authority, my staff monitors the effectiveness of ship maintenance processes and adjudicates critical variances and standards compliance issues.

As naval technical authority, my organization is deeply dedicated to the success of the Surface Ship Lifecycle Management Activity mentioned by several of the other panelists. Other organizations also have roles in ship maintenance, including the regional maintenance centers, in-service engineering agents, and planning yards. My staff has the necessary visibility and influence to ensure the proper exercise of technical authority within those organizations. We are keenly focused on outcomes that will ensure our current fleet ships will meet their expected service lives.

We have teamed with the fleet to execute ship life assessment pilots that have the potential to give us an accurate picture of the health of each ship in the fleet. Those pilot programs will survey representative combatant surface ships of four types and develop pictures of the structural and distributed electrical and fluid systems conditions compared with our expectations for ships that will meet their intended service lives.

We will assess the utility of this method for possible future application on all surface ships. The result I am looking for is an affordable and objective assessment tool that may be useful in providing

the analytical basis for required maintenance investment to achieve expected service life. We believe that solid engineering and objective measurement are key elements of the plan to resolve our current challenges.

Thank you, and we all look forward to your questions.

[The joint statement of Admiral Eccles, Admiral Cullom, Admiral Campbell, and Admiral McManamon can be found in the Appendix on page 26.]

Mr. ORTIZ. Thank you so much for your testimony. And I know the committee has several questions for you.

You know, for all the changes in maintenance and manning and training over the past decade or more, it may appear to some to be a series of discrete actions detached from recent incidents. To the Readiness Subcommittee, to our committee, the cumulative impact that they have had on ship material readiness appears anything but discrete.

My question is, what impact has the reduction on intermediate maintenance shore infrastructure and the consolidation of technical competitiveness on the regional maintenance centers had on lifecycle sustainment of the surface fleet? And what impact has the reduction in ships' crew, including the removal of active-duty military from intermediate maintenance shore billets, had on ship sustainment in conjunction with reduction in shore infrastructure?

And, to us, this is very, very important. And I know that we want to sing from the same page and we want to be of help to you. And, hopefully, maybe you can try to respond to at least those two questions that I have.

Anybody who would like to lead off?

Admiral CAMPBELL. Yes, sir, I will take that question.

In fact, the Navy has combined our intermediate maintenance activities into, as you mentioned, regional maintenance centers. Those regional maintenance centers are sized to accomplish the maintenance that we develop during our programming and budgeting process. And I believe that for the current amount of maintenance that exists in our class maintenance plans, those activities are adequately sized.

We have taken sailor billets out of the shore maintenance infrastructure to some extent, not entirely. But we have also taken some of those sailors and moved them over to be part of the naval shipyard team, where they get the benefit from working closely with civilian journeymen and still will have that opportunity to learn while they are on shore duty in maintenance billets.

Mr. ORTIZ. Anybody else who would like to add anything?

If not, I have another question. How does the Navy recover these lost assets, especially the wealth of experience gained by having sailors at the shore intermediate maintenance facilities who previously returned to their ships with the technical expertise they will share with junior sailors?

Admiral CAMPBELL. Well, again, I would say that, while not all sailors will have the opportunity to serve in an intermediate maintenance activity, a number still do.

And then there is also the training aspects that I am not really able to address in much detail. But we still are sending sailors to

ashore maintenance billets, where they have that opportunity to learn alongside the civilian journeymen.

Mr. ORTIZ. And I know, you know, at least those of us who have depots, maintenance depots, I would like to know about the impact of having some contractors do some of these jobs. Maybe you can elaborate a little bit on that. Is it working out?

Admiral CAMPBELL. Yes, sir, I would like to elaborate on that.

I think the Navy takes fundamentally a three-level approach to maintenance. It is either a depot level, an intermediate level, or an organizational level; organizational level being the maintenance that is performed by the sailors on board the ships. Intermediate, as you have already mentioned in your earlier question, is done at the regional maintenance centers. And then depot, of course, is done, as you know, in the shipyards and other depots.

The Navy has been combining intermediate- and depot-level maintenance. And that goes back to my earlier comment that that combination has brought sailors who used to be in the shore intermediate maintenance activities or on board tenders, many of those sailors now are at the depots, where they are working with those experienced civilian journeymen.

Mr. ORTIZ. I want to allow as many members to ask questions because we are going to be having a vote pretty soon.

Randy.

Mr. FORBES. Thank you, Mr. Chairman.

And, again, thank you for what you are doing. You know, one of the great things about this committee is it is probably one of the most bipartisan committees in Congress, and I trust every individual sitting in here to ask the same kinds of questions and do what we need to do for the national defense of this country.

It is so important that we get answers to the questions that we need so we can move together as a team. While we are sitting here right now, North Korea is loading a rocket on its launch pad that many of us think could perhaps hit Alaska if they actually go through with that launch.

I am concerned because, again, as I mentioned earlier, I see so many of the discussions from the people who have the information that we need to have to do the kind of oversight that we need to do who are being barred from even talking to us, as I read this nondisclosure agreement. And it says "predecision or otherwise." But when we talk about the state of our surface fleet, it is my understanding the Navy is now moving to a position where all the INSURV assessments are going to be classified. And if that is the case, I worry about how we are going to get the information that we need just to make sure we are making intelligent decisions to help you.

And I am not asking you guys to address that, but I am just saying that is a concern that most of us have, if you will take that back.

This committee, everybody that you see up here that was here during the last year, supported adding $120 million. The chairman got that into his mark for depot maintenance, and we lost that in the Senate and in conference, as you know.

But as I understand, what we are talking about today—and if I am asking the question unfairly or I am not phrasing it the right

way, correct me, because there is no intent to catch anybody here. I just want to get the information.

As I understand it to get to the 313-ship Navy that many of us think is a floor—it is not the ceiling of where we want to go—we are dependent upon getting an extra five years out of the lifecycle of most of our platforms. At least that is the basis, I think, that we are working on.

Is that a fair assessment, or am I wrong on that? Maybe I misunderstood the testimony.

Admiral MCMANAMON. Sir, I think in our most recent report to Congress OPNAV has asked the engineering community to look at the extension of up to five years on expected service life for a variety of the ship classes. So we are looking at that.

Mr. FORBES. But don't we need to get five years? I mean, somebody had testimony that we are trying to get an extra five years out of the lifecycle of those platforms.

Admiral MCMANAMON. Yes, sir. Yes, sir.

Mr. FORBES. And right now we are only at about 23 or 24 years on most of our vessels. Is that a fair statement?

Admiral MCMANAMON. I think that is a fair statement. Obviously, each ship class has different maturity levels. And, obviously, the numbers of ships are——

Mr. FORBES. And one of the things that of course concerns us—and I think we addressed it—is whether or not we even have an assessment that gives us a lifecycle assessment as to what we need for maintenance to get there. And I know we are doing some prototypes to hopefully get there, but we don't have that in play right now for the whole fleet, do we?

Admiral ECCLES. No, sir, we do not have that in play yet for the entire fleet. But we are moving out, and, in fact, today in the Cruiser Mobile Bay, there is a survey team of a number of surveyors who are under way with the ship. The CLASSRON and the commanding officer of the ship felt it was important that those surveyors in this pilot program have an opportunity to not only measure the ship and have the kind of full disclosure into structures and so forth that they are looking for, but to see the ship in action under way. So they have been doing that this week.

Mr. FORBES. And one of the things that I understand, a lot of times before we actually do the INSURV, because we know when the INSURV is going to take place, we actually spend quite a sizable sum on that vessel before the INSURV takes place sometimes, to get it up to go through the inspection. Is that a fair statement?

Admiral CAMPBELL. Yes, sir. We recognized after *STOUT* and *CHOSIN* last year, with the results of those INSURVs, that the ships had not done adequate preparation for the in-depth inspection that the INSURV board performs. And so we did recognize the need to consider when the INSURV is actually scheduled in the ship's cycle and ensuring that the ship is ready for such a detailed inspection.

The INSURV inspection occurs only every five years on these ships, and so not all ships' force sailors have had the opportunity on their current ship to have gone through an INSURV. And, therefore, it is necessary for them to do that kind of preparation before the board arrives.

Mr. FORBES. I am going to wrap up my question so we can get to some other people before we go vote. But I am going to submit some written questions to you, and let me just tell you the scope of those.

I don't even know—one, we may not get the INSURVs because they may be classified now. Second, if we get them, sometimes they are a little bit deceptive because we had spent a lot of money before the INSURV actually took place, you know, to get a full picture. But, as I understand it, we have a $417 million shortfall right now in our maintenance needs.

And some of the questions I am just going to submit to you is, how much funding has the Navy requested in the 2009 supplemental request to meet the year-end shortfalls and ship depot maintenance funding levels and whether or not that requirement will be funded, the total fiscal year 2009 requirements for ship depot maintenance will be funded if Congress fully funds those amounts.

But I have a series of other questions that I am going to just submit to you, if you don't mind responding to them, just so we can get a handle on how much money we actually need so that perhaps we can get these budgets where we want them to be to get the maintenance up to where we think it needs to be.

Mr. Chairman, I will yield back my time now.

Mr. ORTIZ. Thank you.

Now for questions I yield to my good friend from Mississippi, the chairman of the Seapower Subcommittee, Mr. Taylor.

Mr. TAYLOR. Thank you, Mr. Chairman.

Gentlemen, with what I guess is going to be a shift in the Navy to building more 51s and fewer 1,000s, what plans, if any, have you taken so that the first couple blocks of 51s—what are you going to do to modify them to keep them in the fleet as long as possible?

The second thing is, given the delays in the LCS program, I spend too much time shaking my head at the early retirement of the Coastal Mine Hunters. I am told that the primary reason that you can retire in this fiberglass hull with less than 18 years on them is because of the engine. I mean, why isn't someone just looking at putting a different engine in them and keeping them around at least until we have sufficient LCSs with their packages?

And the third question would be, I noticed the—what was your budget for fuel in 2008? And what did you actually spend for fuel in 2008 on these surface combatants?

Admiral MCMANAMON. Yes, sir, I can easily talk a little bit about our DDG modernization program, which is under PMS–400 and surface combatants.

And we have been working for approximately four years to plan the modernization plan for DDGs. And, in fact, we will be looking to start our first hull and mechanical engineering modernization for DDGs in 2010 and our combat systems in 2012. So Admiral Clark, before he left, actually started us to look down that. And, in fact, that was one of our big driving forces, knowing how long that ship class is going to be around for, to actually start looking now, right now today, at a modernization program for those DDGs.

Our first ones are scheduled. We listened very carefully to the Congress. Our oldest DDGs are going in first. The *Arleigh Burke*

and the *John Paul Jones* will be starting. And our entire plan there is to do Maritime Hull, Mechanical and Electrical (HM&E) and then combat system upgrades as we move forward, starting in 2010 and 2012.

In terms of the engines——

Mr. TAYLOR. If I may, those vessels were brought into the fleet in the late 1980's?

Admiral MCMANAMON. 1991 for *Arleigh Burke,* so she is——

Mr. TAYLOR. So what——

Admiral MCMANAMON [continuing]. Right about the 17-year mark.

When we looked at—*Arleigh Burke,* herself, will be right about 17, 18 as we move forward.

Mr. TAYLOR. So what is the anticipated service life of the 51?

Admiral MCMANAMON. Right now, the 51 was designed for a 35-year service life, and we were asked to look, could we extend that 5 years to 40. And there is no—as long as we do the right maintenance and we do the right modernization, there is no technical reason why we cannot make 40 years for that ship hull.

Mr. TAYLOR. Because, again, it really does gripe me that when the Block 1 cruisers were retired at less than 20 years, that was a terrible waste of the taxpayers' resource. And we just can't keep making those kinds of mistakes.

Admiral MCMANAMON. Yes, sir.

In terms of your question in regards to the Mine Hunters and the engines, we are, also under our upgrade program, looking to see how we can best support the MCMs. We do have a look at the engine, and that was one of the big engine issues on whether we were going to reengineer, were we going to try to do a planned improvement program to that. And I will take that for the record to give——

Mr. TAYLOR. Also, we have a hold on two MHEs that were going to be transferred.

Admiral MCMANAMON. Transferred, yes, sir.

Mr. TAYLOR. And, again, we are only given so much of the taxpayers' treasure to try to put together a fleet, and it just doesn't make sense to retire something at 18 years, particularly with the LCS being as late as it is, and not look at putting a better engine in instead. So I wish you would get back to us on that.

[The information referred to can be found in the Appendix on page 69.]

Mr. TAYLOR. And on the fuel because, again, as is absolutely no secret, I am hard over that the next generation of cruisers should be nuclear-powered for a lot of reasons. I am just curious how much of that $417 million shortfall that you spoke of is because of fuel prices.

Admiral CULLOM. Sir, I will take that one.

On the fuel prices, overall writ large for Navy, our fuel bill has varied between $1.7 billion, $1.8 billion up to $5 billion, depending on the price that we are paying for fuel.

For surface combatants exactly, I will go back and we will get you an exact figure for that and——

Mr. TAYLOR. All right.

Thank you, Mr. Chairman. I yield back my time.

[The information referred to can be found in the Appendix on page 69.]

Mr. ORTIZ. Ms. Shea-Porter.

Ms. SHEA-PORTER. Thank you very much, Mr. Chairman.

I had a question about some of the problems that you are seeing in training now. And it used to be that the training was one-on-one, and now you are using more of self-directed computer and also person. And they said that is more cost-effective but actually the result might not be as good.

So could you address that, please? Do you have some concerns about the way we are training people? Are we relying too much on the automated and self-directed computer training versus the traditional way of apprenticeship, working under somebody actually showing how to do things?

Admiral CULLOM. For the automated training, we are probably not the right grouping of folks to ask on that question. We can certainly get back to you with a better answer for you specifically on——

Ms. SHEA-PORTER. Okay, but you don't have a sense at all that this might be factoring in some of the problems that you are seeing, you know, some of the collisions that we have seen recently and——

Admiral CULLOM. I think Admiral McManamon might be able to answer——

Admiral MCMANAMON. Yes, ma'am. As part of—the Surface Warfare Enterprise also is very interested in that. And, in fact, at a couple of meetings over the last two years we actually set up one of our enterprise cross-functional teams to actually look very specifically at what was the impact of the computer-based training, because there was some deck-plate concern that perhaps we had moved too quickly in that.

We will get back to you for the record the results of that study, but there was acknowledgment by the ships. And I think what we generally found was that there are some years that are very well-suited for the computer-based training and other areas that perhaps we needed some more hands-on on some of our junior sailors. And so we did look very carefully at that and the Commander Navy Surface Forces, in his enterprise hat, has asked us to look at it more carefully.

But we will get back to you, ma'am, on the results and what we seem to be moving on there.

Ms. SHEA-PORTER. I would appreciate that.

Thank you, and I yield back.

[The information referred to can be found in the Appendix on page 69.]

Mr. ORTIZ. Mr. Nye.

Mr. NYE. Thank you, Mr. Chairman.

First of all, I would like to thank all of our members here for their service. And we are all working toward the same goal here, in keeping our Navy and our fleet as ready as possible and as effective as possible and doing the missions that our country requires overseas.

I am going to keep my questions short given the fact that we have a vote coming up, and I will submit additional questions in writing.

But, first, a question for Admiral Cullom. Thank you for being here today. I want to note that in January of this year, the Navy announced its intention to home-port a nuclear carrier in Mayport, Florida.

Given the fact that Mayport has, to date, never home ported a nuclear carrier, the fact that we have seen numbers, a $4.6 billion shortfall in 2009 budget priorities, including $417 million in ship maintenance and also $800 million in unfunded modernization and restoration for existing nuclear-capable shipyards, my question for you is: Is the infrastructure that would require what we estimate to be approaching a billion dollars of military construction (MILCON) investment at Mayport to put in place the same as that which is already available in Norfolk?

Admiral CULLOM. The Chief of Naval Operations and the Secretary of Defense have been talking about this issue, and it is under discussion and deliberation right now as to what is the best decision. And no decision has really been made at this point yet as to whether it should be done or not.

Mr. NYE. Okay. So if I understand your answer correctly, this issue is still under review and no final decision has been put forth?

Admiral CULLOM. Yes, sir, that is correct.

Mr. NYE. Okay. Well, let me just comment, it seems to me that if the facilities in Mayport would be equivalent to the ones in Norfolk, we are talking about some duplicative spending at a time when we are facing some serious budgetary shortfalls currently in terms of keeping our ships ready so they can do their missions overseas.

One other question, I just wanted to follow up on something that my colleague Mr. Forbes said, a question for Admiral Campbell. I would also be very interested in seeing the results of your mid-year review. And I know you have said today you are still in the process of doing that review, and so you don't have the numbers available today.

I would appreciate it, if it is possible, to follow up in writing to us and let us know what those numbers are if they are available. Also, how much you plan to request in terms of supplemental funding for the ship maintenance deficit.

To be quite frank with you, I, along with I know a number of my colleagues, would be very happy to see a specific plan on how we are going to get to meet that shortfall. And, again, recognizing you are still under review right now, I would appreciate it if you could give us as much, in a written response, in terms of details of meeting that plan for immediate shortfall as possible. I would appreciate that.

Thank you.

Admiral CAMPBELL. We will provide that to you, yes, sir.

Mr. NYE. Thank you.

[The information referred to can be found in the Appendix beginning on page 69.]

Mr. ORTIZ. Thank you so much.

There are members that have other commitments, other meetings, and we have about 3 minutes for the next vote. I know a lot of members would like to submit questions for the record, and they will submit them to you. We don't want to keep you here any longer because we have votes and I know you have other things to do. But thank you very much for your testimony.

And this hearing stands adjourned. Thank you.

[Whereupon, at 3:08 p.m., the subcommittee was adjourned.]

A P P E N D I X

March 25, 2009

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

MARCH 25, 2009

Opening Statement by Chairman Solomon Ortiz
Readiness Subcommittee Hearing on
Readiness and Sustainment of the Navy's Surface Fleet
March 25, 2009

The subcommittee will come to order.

Today the Readiness Subcommittee meets to hear testimony on the readiness of the ships comprising the Navy's surface fleet and the Navy's plan to sustain those ships to achieve and extend their anticipated service life.

The hearing is intended to inform Readiness Subcommittee members on Navy operations and maintenance issues prior to release of the fiscal year 2010 budget submission.

I thank our distinguished Navy witnesses for appearing before this subcommittee today to discuss ship readiness and sustainment. Out witnesses represent the offices of the Chief of Naval Operations, U.S. Fleet Forces Command, and Naval Sea Systems Command.

The Navy intends to extend the operational life of its ships five years or more beyond their designed lifespan in order to achieve a 313-ship fleet. However, the Navy is presently experiencing a series of incidents that raise concerns regarding possible systemic problems with the Navy's manning, training, and maintenance.

In addition to recent collisions, groundings and even a fatal accident, in the past three years 10 ship commanders have been relieved of duty for failure to maintain training or material readiness standards.

These concerns bring into question the Navy's ability to achieve even the expected service life of its fleet and sustain fleet readiness, let alone extend the service life of entire ship classes.

These incidents follow changes in the way the Navy conducts maintenance, changes in manpower and crew size, and changes in how the Navy trains its maintenance personnel.

In view of these changes, the Readiness Subcommittee on March 16 asked the Government Accountability Office to review the training, size, composition, and capabilities of Navy ship crews.

Specifically, we requested that GAO:

- **Evaluate current requirement, authorization, and on-hand personnel levels for selected ship types compared to historical data for the same or similar ship types, including underlying reasons for any differences;**

- **Compare shipboard rank and rate distributions over time and analyze underlying reasons for any changes, and their impact on ship capabilities;**

- **Evaluate qualification training for personnel in selected shipboard designators and ratings to determine any changes to formal off-ship training programs, including whether such changes have affected personnel availability and the amounts and types of on-the-job training that is required for personnel to achieve required qualifications; and**

- **Evaluate to what extent requirements to provide personnel for Individual Augmentee and "In Lieu Of" positions in support of ongoing operations are impacting the levels or composition of shipboard manning.**

Our witnesses today are four distinguished Naval officers:
Rear Admiral Philip Cullom
Director, Fleet Readiness Division
Deputy Chief of Navy Operations for Fleet Readiness and Logistics

Rear Admiral Joseph Campbell
Director of Staff, Fleet Maintenance Officer
U.S. Fleet Forces Command

Rear Admiral James McManamon
Deputy Commander for Surface Warfare
Naval Sea Systems Command
and
Rear Admiral Thomas Eccles
Deputy Commander Naval Systems Engineering
Naval Sea Systems Command

The Chair recognizes the distinguished gentleman from Virginia, Mr. Forbes, for any remarks he would like to make.
(Mr. Forbes' remarks)

Admiral Cullom, please proceed with your testimony, followed by Admirals Campbell, McManamon and Eccles.

Forbes Opening Statement for Hearing on Readiness and Sustainment of the Navy's Surface Fleet

Washington D.C. – U.S. Congressman J. Randy Forbes (R-VA), Ranking Member of the Readiness Subcommittee, released the following prepared remarks for the subcommittee's hearing on readiness and sustainment of the U.S. Navy's surface fleet:

"As the committee is well aware, the Navy has been operating at an extremely high operations tempo for several years. During this period, not only have they worked to improve operational availability by implementing the Fleet Response Plan, but they have also made many changes in their training programs and are re-structuring their approach to surface fleet maintenance and sustainment. I'm very concerned that the confluence of all these changes in a relatively short time-period have placed stressors on the fleet that have a denigrating affect on readiness, potentially jeopardizing safety, and driving up long-term sustainment costs.

"This committee has been briefed on the numerous accidents, incidents and unfit or seriously degraded inspection assessments that have plagued the Navy recently. I think we must be careful not to view these events in isolation. While they may appear to be unrelated at first glance, I'm concerned that they may be indicators of broader problem. From unfit INSURV inspections to the recent collision of USS Hartford and USS New Orleans, we must work to understand if these events are simply the 'cost of doing business' in these challenging times or if they are indicators that the Navy needs to make course corrections.

"Mr Chairman, this is a very important hearing and I want to thank you holding it. I understand that the witnesses we have with us today are here to discuss the condition of the surface fleet and the Navy's sustainment challenges. I'd like to welcome all of them—gentlemen, thank you for taking the time to talk to us today and thank you for your service to our nation. I hope that our discussion today will help us understand the challenges the surface fleet is facing and provide us some context in which to gauge the events I mentioned early. I'm also interested to hear about the steps the Navy is taking to correct these deficiencies and to implement a sustainment strategy necessary to obtain the required service life out of our fleet.

"There is no doubt we are facing a tremendous challenge and I don't believe we are going to find a 'silver bullet' solution. I believe everything must be on the table for consideration—from manpower and resourcing, to training, to leadership. We need to take evaluate our risk assessments and make sure we are comfortable with the risk levels.

"I think we must also look at the increased reliance on contractors to provide maintenance that was traditionally performed by our sailors. While this approach to sustainment may initially provide a cost-benefit, there is a downside in that our young sailors aren't required to perform many of the standard repair activities that hone their skills and sharpen their ability to assess the ship's condition. This could have a long term impact on the skill and ability of our sailors and its one specific area we must examine."

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ARMED SERVICES COMMITTEE

STATEMENT OF

RDML PHILIP CULLOM
DIRECTOR, FLEET READINESS DIVISION
DEPUTY CHIEF OF NAVAL OPERATIONS
FOR FLEET READINESS AND LOGISTICS

RDML JOSEPH CAMPBELL
DIRECTOR OF STAFF, FLEET MAINTENANCE OFFICER
U.S. FLEET FORCES COMMAND

RDML JAMES MCMANAMON
DEPUTY COMMANDER FOR SURFACE WARFARE,
NAVAL SEA SYSTEMS COMMAND

RDML THOMAS ECCLES
DEPUTY COMMANDER NAVAL SYSTEMS ENGINEERING,
NAVAL SEA SYSTEMS COMMAND

BEFORE THE

SUBCOMMITTEE ON READINESS
OF THE
HOUSE ARMED SERVICES COMMITTEE

ON

READINESS AND SUSTAINMENT OF THE NAVY'S SURFACE FLEET

25 MARCH 2009

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE

INTRODUCTION

Chairman Ortiz, Congressman Forbes, and distinguished members of the Readiness Subcommittee … on behalf of the CNO, all of our Sailors, their families, and Navy Civilians, we extend our deepest appreciation and thank you for your enduring support and the opportunity to discuss Ship Readiness and Sustainment with you. On 10 September 2001, your Navy was in the undesirable position of having only two of 12 Carrier Battle Groups ready to deploy. That was unsatisfactory. Since then, with your strong support and the resources you have provided, we have transformed and fundamentally changed the processes by which we train, sustain, and prepare our forces to deploy. We have institutionalized this process as the Fleet Response Plan. With 11 carriers, this process, when fully funded, enables us to continuously deploy three Carrier Strike Groups to points around the globe, surge three more in 30 days, and deploy a 7th in 90 days. In addition to our Carrier Strike Groups, the Fleet Response Plan also enables Expeditionary Strike Groups, Surface Combatant Independent Deployers, Submarines and the Naval Expeditionary Combat Command to respond quickly, anywhere, anytime, 24/7 to a broad spectrum of threats. Around the globe, your Navy is positioned to provide immediate and decisive engagement whenever the President and/or Secretary of Defense require action. We have lessened the 'bathtub in readiness' that used to exist after a return from deployment and have fully leveraged the force through the peak of deployment and beyond. This permits your Navy to be where needed in this volatile world, offering assistance and relief when disasters strike, deterring those who would threaten us or our friends, and provide combat credible power where necessary and when it matters. A key tenet of our ability to maintain forward deployed and surge ready naval forces is the proper resourcing, planning and execution of maintenance needed to prepare and sustain our ships. The Chief of Naval Operations remains committed to the right level of maintenance to provide continued readiness of our naval forces and ensure all platforms reach their expected service life.

Fleet Readiness Planning and Programming

In order to meet current and future operational demands, including forward presence, contingency planning in support of Major Combat Operations, and the execution of the six core capabilities of the Maritime Strategy, the Navy's current assessment is that it will need a minimum fleet of 313 ships by 2020. 215 of those 313 ships are already in-service today. This includes cruisers, destroyers, amphibious ships and submarines with expected service lives of 33 to 40 years as well as aircraft carriers with expected service lives of 50 years. A key underpinning of the Navy's 30-year shipbuilding plan is our ability to reach the expected service life for each of our ship classes. Reaching expected service life demands an integrated engineering approach to ensure the right maintenance is planned and executed over a ship's lifetime as well as the resources necessary to execute those plans. Since 2002, baseline ship maintenance funding has averaged about $3.7B/year with about $500M of supplemental funding per year. This has funded on average 97 ship maintenance availabilities per year.

A well established process exists to identify and program the resources required for ship maintenance. This process begins almost two years prior to the actual budget year and involves detailed reviews with Fleet Stakeholders and the OPNAV staff culminating with the submission of the Navy's budget to OSD about one year prior to actual execution. The cornerstone of this process is the Navy's ship maintenance model. This budget quality model undergoes a rigorous review process including formal review and accreditation by the John's Hopkins Applied Physics Lab, before being approved for budget development. After formal validation, these models are reviewed annually using year-to-year execution results so that we may continuously improve our model and thereby best define our ship maintenance requirements.

The ship maintenance model is aligned with the Navy's Planning and Programming process and includes details on each ship (including homeport, class maintenance data, operational and maintenance schedules, labor and material costs, and planned maintenance tasks). The initial input to the model is the class specific notional man-days for each availability scheduled in a given year. The notional

man-days are the initial planning input used in developing maintenance requirements across the out years of the Future Years Defense Program (FYDP). However, notional man-days do not account for unique changes for a specific ship that may occur between the time the budget is submitted by the Navy and the actual maintenance execution. The majority of these changes are likely to occur in the year prior to execution when the ship is in its sustainment and deployment phase. As a result, dependence on notional man-days has in the past resulted in the need for significant supplemental funding, work deferral, or occasionally even cancellation of an availability. In order to increase the fidelity of the maintenance budget and reduce the churn associated with work deferral or availability cancellation, the Navy instituted a process improvement starting in August of 2007. This improved process, known as the '9-step process', provides a hull-by-hull review of individual ship maintenance requirements to better refine notional ship maintenance requirements and tailor them to the physical condition of individual platforms as they get closer to the point in time when they will be inducted into their scheduled availability period. The process also considers expected shipyard performance, conducts shipyard capacity analysis, and develops alternative courses of action for the completion of any work requirements that exceed the available capacity. The '9-step process' is led by the Flag-level Fleet Maintenance Board of Directors (FMBOD) that includes the USFF and PACFLT Maintenance Officers, the Commander, Regional Maintenance Centers, the NAVSEA Deputy Commander Logistics, Maintenance and Industrial Operations, and the Assistant Deputy Chief of Naval Operations for Readiness and Logistics (OPNAV N4B). The FMBOD provides ongoing maintenance requirement updates to OPNAV N4 throughout the budget submission process and tracks these through to maintenance execution. This '9-step process', in concert with our ship maintenance budget modeling, has strengthened our ability to forecast future year maintenance requirements and allows us to include the most refined funding requirements possible in our baseline budget submissions.

Class Maintenance Plans

The Navy has three distinct classes of ship - surface ships, submarines and aircraft carriers. Because of the issues surrounding nuclear maintenance, flight safety and sub-safe, submarines and aircraft carriers have developed

very robust and technically validated Integrated Class Maintenance Plans (ICMP) that precisely define the 100% maintenance requirement for these ship types. Both have a proven track record of ensuring these ships reach their expected service life. In conjunction with the ICMP, we have refined the way we budget, plan for, and execute the required maintenance on submarines and aircraft carriers. These refinements include the assignment of dedicated life cycle organizations whose sole function is to maintain and continuously update the ICMPs, build availability work packages and provide technical oversight/approval of any Fleet requested work deferrals. As a result, submarine and aircraft carrier life cycle organizations can quickly adapt class maintenance plans and availability work packages to changes in optempo to maintain the required material condition and ensure the ship stays on track to meet its expected service life

For the last 10 years, surface ships have been maintained under the Progressive Maintenance philosophy. Constrained in that it must support ships with reduced manning yet still meet the requirement to provide additional ship availability to Fleet Commanders, the plan limited the time ships spend in depot availability periods and instead spread out and substituted several pier-side continuous maintenance availabilities each year. This focus on short term, "get the ship underway" type of work, instead of life cycle focused work associated with tanks, structures and distributed systems seen on submarines and aircraft carriers, is adding risk to our ability to reach expected service life for our surface ships.

Additionally, surface ship class maintenance plans have not been as detailed, nor have they been maintained with the same technical rigor, as those for aircraft carriers and submarines. As a result, this weakness has become one of the greatest obstacles to the surface fleet's ability to articulate the 100% maintenance requirement necessary to reach expected service life for these platforms. It is also an impediment to our resource planning, given that this requirement serves as the entering argument to our maintenance costing model. Until recently, surface ships have also not had a dedicated life cycle organization responsible for maintaining the ICMPs, building availability work packages, or providing technical oversight/approval for Fleet work deferral requests. Together, lack of detailed class maintenance plans and a

dedicated life cycle organizations make surface ship material condition susceptible to changes in optempo which is why the Surface Warfare Enterprise is devoting significant effort to both of these areas.

Differences in maintenance philosophies between ships, submarines, and carriers have also had an impact upon the resources allocated to these platforms. Fleet priorities, the unambiguous maintenance requirements of aircraft carriers and submarines, and the lack of an updated/technically validated surface ship ICMP has historically resulted in surface ship maintenance being the are where we take funding risk in a resource constrained environment.

SUSTAINING COMBAT READINESS

The Navy's current ship readiness remains strong and the committee can be assured that we do not have a "hollow force." Life cycle maintenance, such as tank work and corrosion control has not yet kept us from deploying to meet our commitments around the globe. If allowed to persist; however, these material discrepancies will ultimately impact our future readiness and shorten the service life of these ships. There are early signs that surface ship material readiness is being impacted by three things: the lack of a refined and technically validated ICMP to define the 100% maintenance requirement for meeting expected service life, the current process for executing maintenance, and the amount of surface ship maintenance funding. In the last several years, the Navy, and Surface Warfare Enterprise have taken specific steps to address these issues. The Naval Sea Systems Command (NAVSEA) has allocated more technical resources to surface ships and is working to establish technical redlines for our surface ships that will help establish the foundation for each ship class ICMP. NAVSEA has also chartered the standup of SEA 21 within the Program Executive Officer Ships with assigned responsibilities as the full spectrum life cycle manager for surface ships. SEA 21 is leading the effort to conduct a bottom up review of each ICMP and provide work package development and oversight similar to what we have today on our submarines and aircraft carriers. Finally, from a resource perspective, ship maintenance must be part of a balanced approach within our operating accounts to ensure COCOM demand is being met, with acceptable risk, while at the same time ensuring that critical maintenance necessary

to ensure future readiness is being accomplished. Partners from the Navy's technical community and Fleet Maintenance community are present today to provide the committee with a more detailed account of the actions they are taking in their respective areas of responsibility to ensure we continue to maintain and sustain our naval forces.

NAVSEA OVERVIEW

A key component of Ship Readiness is a robust and proficiently executed process for Ship Maintenance and Sustainment. Ship Maintenance is much more than the conduct of industrial efforts in a Shipyard or other repair activity. Ship maintenance requires a solid foundation of engineering and analytics to make certain the right maintenance actions occur at the right time and for the right reasons. All of these activities are aligned to achieve a common set of goals, i.e., to ensure all platforms are capable of performing their full mission set and reaching their expected service life.

In determining required maintenance intervals, in the late 1990s, the Navy departed from "calendar-based" periodicities and long industrial periods that took ships away from the operating forces for lengthy periods of time. The Navy transitioned to a fully "engineered maintenance" set of practices that rely upon the principles of "reliability-centered maintenance" and "condition-based maintenance", resulting in the conduct of Phased Maintenance Availabilities of shorter duration. In 2002, the Navy made additional adjustments, under the Fleet Response Plan (FRP) initiative, that maximized the operational availability for all ships, and supported a "surge capability" using ships with tiered levels of training and work-up activities that occur between ship deployments.

CORE ELEMENTS

There are several basic elements in the ship maintenance approach implemented by the Navy for USS ships. They include:

- Maintenance planning to include:
  - Fully defined maintenance requirements (including identification of applicable criteria and tolerances)

- Detailed repair procedures where required
- Development of individual (i.e., job-specific) work packages that provide instructions, drawings, and other data necessary to accomplish the work

- An Integrated Class Maintenance Plan (ICMP) for each class of ships
- Comprehensive assessment of ship material condition on a continuing basis (including tests and inspections)
- Risk-based screening of required corrective maintenance actions keyed to the development of ship availability "work packages" (repair packages)
- A process for developing, controlling and installing configuration changes to ships (ship alterations or modernization) and upgrades to mission capabilities
- A utilization of Multi-Ship Multi-Option (MSMO) contract vehicles for surface ship maintenance, modernization, and repair within homeport areas to maximize the ship's operational availability, minimize the disruption in the quality of life for ship's crew and provide potential for learning curve cost reductions. MSMO contracts are executed under an approved acquisition strategy and form the cornerstone of Navy Fleet Maintenance and Modernization strategy for surface ships.

Dedicated engineering resources are necessary to execute the functions described above. A dedicated maintenance planning activity is necessary to perform the core functions and properly manage the process.

For Submarines, the maintenance planning activity is the Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) Activity, which is a tenant activity, located within the Portsmouth Naval Shipyard, in Kittery, Maine under the Deputy Commander, Undersea Warfare (SEA 07). For Aircraft Carriers, the maintenance planning activity is the Carrier Planning Activity (CPA). CPA is a NAVSEASYSCOM detachment located in Chesapeake, Virginia under the Program Manager, In-Service Aircraft Carriers (PMS 312). Both SUBMEPP and CPA are activities that have been in place for many years to manage efforts within their respective communities. We have been able to adjust CVN planned incremental maintenance periods from six months every 24

months to six months every 27 months and currently to six months every 32 months as a result of our engineering assessment of the tasks required to reach the CVN 50-year expected service life. At the same time, these changes improved operational availability and reduced the time spent in depot maintenance by 45 months over the 50-year service life. For the SSN 688 class submarine, SUBMEPP has been able to reduce the amount of ship's service life spent in depot maintenance from 22 percent when the first ship of the class was delivered in 1976 to 11 percent today.

For Surface Ships, however, these functions have been executed in a decentralized manner. Prior to 1994, an activity called the Planning & Engineering for Repair and Alteration (PERA-Surface) performed these functions for surface ships. However, it was disestablished under BRAC in 1993. The equivalent functions were then disbursed among several other organizations such as Regional Maintenance Centers and the Type Commander throughout the late 1990s and early 2000s.

Since 2000, the optempo for all Navy combat ships has increased 8% with a 19% increase in optempo for surface combatants. And while maintenance and ship operating budgets have also increased (approx 16 percent in 2002 dollars); it has also become apparent that because of the lack of a centralized life cycle maintenance activity, the focus of those additional maintenance dollars were aimed at near term ship readiness and made the surface fleet much more susceptible to changes in optempo.

The ship maintenance performance pricing models have been highly effective at focusing the process of planning and executing shipboard maintenance, ship availabilities and ship alterations on meeting ship expected service life. The reason they work so well is because they have been properly resourced and have an integrated process that incorporates all the necessary elements discussed above, under a single, responsive and responsible management team that has full visibility of all aspects of performance. By contrast, recent maintenance challenges in our older amphibious ships and the hull condition on our FFGs have had their roots in a lack of focused effort in executing life-cycle maintenance and management. With no closed-loop engineering effort to ensure that the proper maintenance requirement is being fully captured during each maintenance period and then applied to the future availabilities, we

will continue to have challenges ensuring that each ship meets its expected service life.

In Spring 2008, in response to a growing concern that the material condition of surface ships may not provide sufficient margins to ensure each ship would meet its designed service life, Commander, Naval Sea Systems Command recommended the establishment of a dedicated activity to provide centralized life-cycle management and support for U.S. Navy surface ships. The Surface Warfare Enterprise (SWE) approved that recommendation and the Navy will formally stand up the Surface Ship Life Cycle Management (SSLCM) Activity in May 2009 under the Deputy Commander for Surface Warfare (SEA 21). Partnering with U.S. Fleet Forces Command, the SSLCM Activity will assess and manage the maintenance requirements throughout the life cycle of ships in the surface fleet, in order to better plan and budget for long-term maintenance needs. The SSLCM Activity is modeled after, and will function similarly to, the Submarine Maintenance Engineering Planning and Procurement (SUBMEPP) Activity and the Carrier Planning Activity (CPA).

The activity will maintain, monitor and refine Class Maintenance Plans for all surface ships to maintain material readiness for the expected service life, develop life-cycle strategies to address system upgrades, and fully integrate the Integrated Class Maintenance Plan into each surface ship's maintenance schedule and availability planning process.

By analyzing return cost data and other indicators such as operational or technical risks for maintenance tasks, the activity will improve the prioritization of work going into future Baseline Availability Work Package development and validate existing maintenance strategies.

Other complementary engineering efforts include focused actions to extend the length of time ships can operate safely between dry docking availabilities (e.g., high-solids edge-retentive coatings for the ships' tanks), and process improvements intended to reduce or eliminate cumbersome work practices. The Navy has also implemented a continuing LEAN/Six Sigma program in its industrial activities which is targeting significant improvements in first-pass-yield (i.e., workmanship quality), lower reject rates, fewer defects, and less waste in the processes used.

INSPECTIONS

The Navy complements the above described maintenance planning models with additional activities that employ ship surveys or inspections. These are summarized as:

- Inspections and organizational level maintenance conducted by the ship's crew
- Board of Inspection and Survey (INSURV) chartered to survey ships to assess current material condition and warfighting readiness, including ability to support continued service (individual ships surveyed about every five years)
- Pre-Overhaul Tests & Inspections (POT&Is) performed on selected ship classes to better inform the work package development process
- Surface Ship Life Assessment Pilots conducted to determine the ability of a ship to meet its Expected Service Life (ESL)

The Surface Ship Life Assessment pilots are particularly important as they provide a solid analytical basis for making critical repair decisions in selected areas, and provide potential to build confidence that our surface ships can fulfill force-level requirements well into the future by assuring that they will remain effective warships for the full duration of their expected service life. This effort takes a best practice from industry and utilizes advanced finite element modeling techniques to provide a fully engineered view of the criticality of needed maintenance actions. NAVSEASYSCOM has currently undertaken four pilots: one on a DDG 51 Class ship (USS COLE, DDG 67); one on a CG 47 Class ship (USS MOBILE BAY, CG 53); one on a LSD 41 class ship (USS GERMANTOWN, LSD 42); and, one on a FFG 7 Class ship (USS UNDERWOOD, FFG 36). To accomplish the pilots, NAVSEASYSCOM has teamed with the American Bureau of Shipping (ABS) which is the Classification Society that provides similar services for the commercial shipping industry. At the conclusion of the four pilots, the information gathered will be used for further study, analysis and possible incorporation into future life cycle management initiatives including ICMP tasks, new maintenance procedures and possible changes in our maintenance processes. The Navy will also use this information to decide how best to incorporate periodic

engineering assessments into the maintenance planning sequence for each ship class.

The above changes are planned as long-term improvements to surface ship maintenance which are all being resourced within the President's budget. The Navy holds great confidence that these improvements will not only more closely mirror performance within the Aircraft Carrier and Submarine communities, but also be more reflective of performance broadly experienced across the commercial shipping industry where unplanned maintenance and vessel downtime are strictly avoided as a business necessity. That commercial process is essentially self-regulated through the relationship that exists between the ship owners and the Class Societies (e.g., ABS). Through broadening our partnership with ABS, both in new construction and now operating Fleet ships, the Navy will capitalize on that culture of successful ship sustainment practices that prevails generally across the worldwide commercial shipping industry.

LITTORAL COMBAT SHIP

While improving maintenance planning on existing ships, the Navy is also preparing for the Fleet introduction of new platforms. The Littoral Combat Ship (LCS) is a class of ship that does not conform to the legacy process used on earlier generation ships since the manning is reduced, coupled with a high level of automation, with much of the support, including maintenance functions, accomplished ashore.

Although the USS FREEDOM (LCS 1), built by a team led by Lockheed Martin, and INDEPENDENCE (LCS 2), built by a team led by General Dynamics, have two different seaframe designs, the maintenance concept is the same: maintenance actions beyond the capability or capacity of ships force (including more extensive facilities maintenance) will be assigned to shore support via the Maintenance Support Detachment (MSD) and appropriate contracting vehicles. Legacy systems such as fire pumps and air conditioners will be supported by existing infrastructure. An Interim Support Period (ISP) has been contracted for a trial period of three years during which the Government will conduct a Business Case Analysis (BCA) to determine an optimal long-term sustainment approach. The three-year period will give the Navy time to evaluate contractor

performance/responsiveness and appropriate usage and repair data in order to determine the optimal balance of ship's force, contractor, and organic Navy workforce needed to support LCS for the long term.

Preventative and corrective maintenance will be accomplished during regularly planned Continuous Maintenance Availabilities (CMAVs). Initial estimates for LCS 1 and 2 include the cost to execute preventative, facility and corrective maintenance that would traditionally be accomplished by the crew. Every 117 days there will be a CMAV coinciding with crew turnover where a contractor team will conduct necessary facilities, preventive and corrective maintenance. Every two years the ship will complete a Selected Restricted Availability (SRA). Docking SRAs (DSRA) will take place approximately every six years.

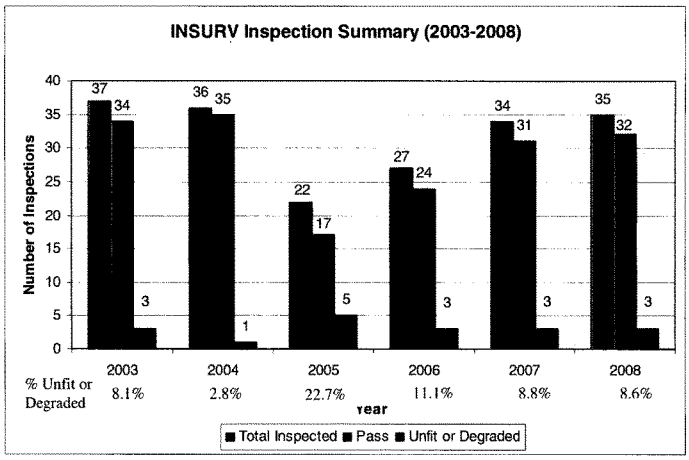
All shipboard maintenance requirements will be managed by the LCS Class Squadron (LCSRON) and the Maintenance Support Detachment (MSD) in San Diego. The MSD consists of two teams, the Maintenance Support and the Logistics Support Teams that will handle any and all maintenance and logistics issues for the LCS hulls. Those teams consist of personnel from the Regional Maintenance Center, Fleet Industrial Support Center (FISC), Navy Inventory Control Point (NAVICP), LCSRON, and the prime contractors.

Fleet Assessment of INSURV Results and Corrective Actions

U.S. Navy ships undergo material inspections (MI) every five years. Inspections are conducted by the Navy's Board of Inspection and Survey. Chief of Naval Operations receives reports on the results of each MI, as well as annual report summarizing Fleet trends and overall health. Between 2002 and 2008, the Surface Naval Force executed 191 MIs, with a "pass rate" in excess of 91%. Some failures in 2007 led Commander, Naval Surface Force to execute a range of assessments, reviews and corrective actions to ensure that any degrading trend in material condition of ships was quickly identified and arrested.

Board of Inspection and Survey: During the past six years, the Board of Inspection and Survey has completed 191 inspections, an average of about 32 per year. The following chart provides a summary of the results. The root causes of failures are ship leadership teams not following

procedures and policies, and not practicing the basics of equipment maintenance and operation.



INSURV assigns grades to 29 different areas during each inspection.

- 8 areas are trending positively: damage control, ballasting, electrical, ahead reversal, astern reversal, mine warfare, mine hunting and mine sweeping.
- 16 areas are trending steady: auxiliary, steering, main propulsion, full power, anti-submarine warfare, undersea warfare detect-to-engage, operations, anti-air warfare, weapons systems, gun demonstration, command and control, information systems, navigation, occupational health and safety, ventilation, and supply and habitability.
- 5 areas show with a general downward trend: deck, anchor, self-defense detect-to-engage, environmental protection, and aviation.

The areas demonstrating a downward trend are the result of material, supervisory and operator deficiencies. CNSF is correcting these trends through improvement in deck-plate knowledge of operators and Preventive Maintenance System (PMS) accomplishment rates, development of training courses and schools, improved troubleshooting procedures and techniques, and focused shipboard assessment teams for these deficient areas. The positive trends are a result of increased training, assessments, and directed actions by the Commander Naval Surface Forces, Commander Naval Sea Systems Command and Fleet Maintenance and Training resource

providers. Details of inspection results and trends from 2003-2008 are provided in the Report to Congress 110-335 on Ship Maintenance and Material Conditions.

Ships with Unfit or Seriously Degraded INSURV:

Of the 191 INSURV inspections during the 2003-2008 period, there were 18 surface ships found to be unfit or seriously degraded; approximately 10%. The results for the ships with numerous issues are indicative of the ship's leadership team not following procedures and policies and not practicing the basics of equipment maintenance and operation. During some inspections, when the ship was unable to meet minimum equipment requirements and did not get underway, the inspection transitioned to a Limited Material Inspection (LMI). In all cases, after deficiencies had been corrected, underway demonstrations were later performed under the observation of the Type Commander or Immediate Superior In Command (ISIC). After June 2007, INSURV changed the sequence of the inspection. Since this change, LMI has not been used and INSURV began characterizing ships as fit or unfit for sustained combat operations.

Although engineering INSURV categories in general show positive or steady trends, most unfit and seriously degraded results are due to issues with engineering equipment. Of the 18 ships found unfit or seriously degraded, 7 had discrepancies throughout the engineering department on various equipments. Nine of the 18 ships had significant discrepancies with diesel engines. On-going efforts to improve the ships' ability to self-assess and maintain material condition are expected to reduce the occurrence of ships found unfit or seriously degraded.

CORRECTIVE ACTIONS

Subsequent to the 2007 MI failures (CHOSIN and STOUT), CNSF embarked on a "Back to Basics" focus for ships and ISICs. Direction to shipboard leadership re-emphasized Preventive Maintenance System (PMS) program execution, zone inspection techniques, material conditions documentation and maintenance of high operating standards. Class Squadrons (CLASSRONs) were also directed to apply focus to INSURV preparation and execution practices, and to assist the ships with the same.

Moving "outside the lifelines" in an effort to determine if systemic support problems existed, CNSF conducted a comprehensive review of overall readiness of surface ships. Known as the "Take a Fix" round of readiness briefs (Autumn 2008), CNSF assessed and reported on all readiness factors (maintenance, supply, training and personnel) across the Force. The review concluded that stressors were present in all readiness factors and "course corrections" were needed.

Pursuant to the "Take a Fix" briefings, specifically in the area of ship material condition and maintenance, CNSF chaired a Surface Ship Maintenance Strategic Offsite (SSMSO) to identify gaps in surface ship maintenance program, and to clarify roles and responsibilities for Navy organizations in the maintenance program continuum. The SSMSO was an executive level forum focused on critical issues facing today's surface ship maintenance program. Attendees included 17 Flags and SESs from OPNAV N43, COMNAVSEA, USFF, CPF, CNSF and subordinate CLASSRONs, and CRMC.

The overarching focus of the SSMSO was the commitment to charter, resource, activate, and support, the Surface Ship Maintenance Life Cycle Management (SSLCM) Activity, whose sole focus will be to establish rigorous, engineered life cycle maintenance plans and requirements for all surface ships. Naval Sea Systems Command also committed to providing critical technical and engineering validation of these forthcoming maintenance plans and requirements. SSLCM Activity will provide an important functional equivalent to the Naval Surface Force that is in place today for the CVN (Carrier Planning Activity) and SSN ("SUBMEPP") forces.

The specific decisions and actions forthcoming from the SSMSO are grouped according to the organization lead.

<u>OPNAV N43</u>:

- Pending the delivery of a technically validated integrated class maintenance plan (ICMP) for each class of surface ships by SSLCM Activity, OPNAV N43 will use "tailored" maintenance availability notional requirements as input to Program Review FY-11. "Tailoring" identifies emerging maintenance requirements on ship life cycle systems (hull structure, pipe, electric plant) which were not executed in historical maintenance actions. The

tailoring process makes incremental changes in ship depot maintenance notional mandays that more accurately reflects these new maintenance actions in the surface ship depot availability maintenance requirement. This tailoring process has been conducted for CG, DDG, FFG, LHD and LSD class ships.

- Review the Navy process for recording and reporting the surface ship maintenance unfunded technical requirement (UTR). The UTR is documented and approved maintenance actions that are not executed due solely to funding constraints. UTR is used in maintenance programming to adjust resourcing levels for continuous maintenance availabilities (CMAVs). CMAVs are short maintenance periods interspersed in the deployment and training cycle to provide essential maintenance to mission systems.

- Review and support the update to the OPNAV NOTE 4700. OPNAV NOTE 4700 provides policy for ship maintenance execution, as well as availability durations and notional requirements. OPNAV NOTE 4700 is updated annually.

- Intend to pursue full funding of surface ship program engineering/program logistics in POM 12. This is critical to support life cycle management (LCM), integrated logistic support (ILS), surface ship modernization, alteration and engineering changes. These efforts directly support and enhance the operation and maintenance of ship equipment and systems.

COMNAVSEA:

- Given the stand-up of SSLCM and the increased involvement by NAVSEA in surface ship life cycle maintenance, take necessary actions to resource the NAVSEA directorates to be able to execute actions as described below.

NAVSEA 21:

NAVSEA will work with CNSF and the CLASSRONs to provide improved maintenance technical requirements and availability planning assistance. Specifics include:

- Fully develop and manage the ICMP for each class of surface ship. The ICMP is the task-by-task plan and schedule for the major preventive and corrective maintenance tasks for the life of a ship. Maintenance

tasks in the ICMP have a periodicity associated with each, and the periodicities are engineered to ensure life cycle systems are maintained sufficient for that system or equipment achieve expected service life.

Today the ICMP database contains depot-level maintenance tasks, Intermediate Maintenance Activity (IMA) tasks, technical assistance tasks, and a few organizational-level tasks requiring off- ship assistance. It contains both time-directed and condition-directed "assessment" tasks as well as preventative and corrective tasks that may be needed pursuant to the assessment task.

- Involvement in availability planning through development of a baseline authorized work package (based upon detailed "ship sheets" for each hull). This action will serve to standardize by ship class, using the technical foundation in the ICMP, what a typical ship availability work package should execute. Ship sheets tailor a specific availability (based on conditions) resulting in a authorized work package (AWP).

- Act as gatekeeper and approval authority for all modifications to the ICMP and for proposed ship departure from specifications (DFS). A single point-of-contact (gate-keeper) will result in a tighter configuration control of (and ultimately a more accurate) ICMP.

- Develop the program engineering/program logistics (PREPRL) budget submission requirement for each fiscal year. PRE/PRL is critical to support life cycle management (LCM), integrated logistic support (ILS), surface ship modernization, alteration and engineering changes. These efforts directly support and enhance the operation and maintenance of ship equipment.

- Monitor the UTR for each ship hull in order to provide data to support OPNAV N43 UTR recording/reporting review. Improved tracking and understanding of the UTR will help to shape work packages.

NAVSEA 05:

- Provide the SSLCM Activity with appropriate technical authority guidance. Since the SSLCM Activity will influence the inputs into the ICMP and availabilities, it is vital that NAVSEA establish appropriate technical authority and business rules to preclude over-reach.

- Provide NAVSEA 21 with the technical support to validate the ICMP and to adjudicate all changes to the ICMP and proposed departure from specifications. (NAVSEA 05 is the Navy's ship systems engineering directorate and is the technical authority for final adjudication of shipboard technical matters.)

- Lead the effort to develop surface ship design and life cycle "redlines" that will support ICMP periodicities, requirements planning, and programming decisions. Redlines will serve as engineering and technical thresholds below which any additional material condition degradation will lead to a far more costly future corrective action to reverse the condition.

USFF/CPF:

- Standardize the financial execution policy for ship operations account (1B1B) so as to avoid ship-level resourcing variance between the two Fleets.

USFF N43:

- Coordinate with CNSF to accelerate the improvement of material readiness system data in support of better defining/understanding the surface ship maintenance requirement through the maintenance figure of merit (MFOM) tool. MFOM provides the Navy with a single, authoritative, centrally managed application that is designed to constantly and objectively calculate a material condition readiness value for each ship.

CNSF:

- Coordinate with NAVSEA 21 in support of availability planning to ensure the availability length, scope of work and post-availability ship training requirements are optimized. CNSF has already taken action to extend the planned maintenance availabilities for several classes of their ships.

CLASSRONs:

- Become an integrated part of each ship's maintenance team. Partner with NAVSEA 21 in support of:

  - Development of each ship's availability authorized work packages (AWP) from the NAVSEA 21 baseline AWP and maintenance team current ship maintenance plan (CSMP) and alteration inputs. The CLASSRON involvement here will ensure that the availability scope of work reflects appropriate ICMP tasks, addresses outstanding departure from specification or other technical issues, balances the life cycle issues and operational requirements.

  - Oversight of availability planning and inclusion of ICMP tasks. This provides dedicated senior (0-6 level) surface warfare officer oversight to this process.

CRMC:

- Coordinate with CNSF to appropriately define the port engineer's roles and responsibilities in support of the aforementioned initiatives. Port engineers who work for CRMC are the professional advisors of each ship's maintenance team. Their ability to manage and structure availability planning and to activate technical and engineering resources is critical to a ship's successful material readiness.

SUMMARY

In the aftermath of the Cold War, the United States Naval Surface Force made a number of business decisions to right size its footprint and achieve cost efficiencies consistent with operational tasking. Some programs and decisions were aggressive, with some unintended consequences. Navy Leadership today fully recognizes where these intentions overshot the mark, and understands the near-term and long-term actions required to correct the conditions. The "course corrections" can be summarized as improved deck-plate practices and management of shipboard material conditions, and a re-establishment of a robust maintenance requirements determination process that makes more informed budget requests. The overarching recognition by the Navy today is that a series of events associated with BRAC 1993

of the Planning and Engineering Repair Activity for Surface Ships (PERA-SURFACE) led to a condition in which the full, engineered, life cycle maintenance plans (requirements) for surface ships became weakly documented, uncontrolled and absent from the planning, programming, budgeting and execution system process. This condition stood in contrast to the carrier and submarine maintenance programs, which retained their robust, front-end maintenance requirements development activities ("SUBMEPP" and Carrier Planning Activity). This is the reason SSLCM Activity has been established, and the reason other requirements improvement processes are being vigorously pursued - to ensure surface ship maintenance budget requests reflect the resource levels necessary to achieve expected service life for the Surface Navy ship inventory.

The maturation of maintenance program requirements for surface ships will begin to be seen in the FY11 budget request, with increasing levels of technical rigor and life cycle scope in subsequent maintenance budget requests as SSLCM Activity achieves full operational capability. The implementation of a fully-functional and robust ICMP for all classes of surface ships is the primary maintenance program objective for all stake holders in the surface maintenance community.

DOCUMENTS SUBMITTED FOR THE RECORD

MARCH 25, 2009

REPORT TO CONGRESS

Ship Maintenance and Material Conditions

March 2009

Report on Ship Maintenance and Material Conditions

Requirement

The Senate Committee Armed Services Report (110-335), in accompaniment with the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009 (H.R. 5658), contained the following direction:

The committee directs the Secretary of the Navy to submit a report to the congressional defense committees with the fiscal year 2010 budget, which addresses ship material condition and readiness. The report shall include underway material inspection findings and trends of the Board of Inspection and Survey during 2003-2008, with an analysis of the cause for any downward trends and the actions underway to improve upon these trends. Further, the report shall specifically address the factors surrounding any ships found to be seriously degraded or unfit for combat operations. The report shall also address the Navy's findings with regard to unit level ability to self-assess and maintain material condition readiness.

In view of the current emphasis by the Navy to reduce shipboard manning, the report shall include the Navy's plan for maintaining material readiness for the Littoral Combat Ship (LCS), which the Navy currently intends to deploy for extended durations. To support these extended deployments, the Navy intends to utilize rotating crews, consisting of substantially less than 50 percent of current combatant crew manning levels. The LCS plan shall include a description of maintenance requirements, performing organizations, budget requirements, and any consideration by the Navy to outsource LCS maintenance.

Executive Summary

Purpose

This report on Ship Maintenance and Material Conditions was drafted in response to the requirement of SASC report 110-335. Commander, U.S. Fleet Forces Command has compiled the data contained within this document based on analyses from Commander, Naval Surface Force (CNSF) and President, Board of Inspection and Survey (INSURV).

Overview

Present within this report are five distinctive ship status reporting categories.

1. ***INSURV:*** Over a five year period, spanning 2003-2008, one hundred and ninety one (191) surface ship INSURV inspections were conducted. This report will provide a detailed analysis of INSURV results through the collation of data and the associated results, by groups, providing insight into equipment and maintenance demonstrations that are customarily performed while ships are underway.

2. ***Ships Unfit or Seriously Degraded at INSURV:*** Addresses ship degradation issues identified through INSURV inspections. Approximately 10% of the inspected ships fall into this category. The results for the ships with numerous issues are indicative of the ship's leadership team not following procedures and policies and not practicing the basics of equipment maintenance and operation.

3. ***An Overview of Unit Level Ability to Self-Assess and Maintain Material Condition Readiness:*** Describes an increase in ships' Operational Tempo (OPTEMPO) in recent years, in conjunction with ever-increasing demand on ships force, and the impact these factors have had on material condition and readiness.

4. ***Improvements to the Engineered Requirements Process:*** Addresses how changes to the maintenance strategy over the last 10 years have impacted the overall maintenance condition of surface ships.

5. ***Littoral Combat Ship (LCS) Maintenance:*** There are inherent complexities with the LCS maintenance construct. This report provides insight into some of those unique complexities that have led to the development new maintenance philosophy approach called the Interim Support Plan (ISP).

Findings

Board of Inspection and Survey: During the past six years, the Board of Inspection and Survey has completed 191 inspections, an average of about 32 per year. The following chart provides a summary of the results. The passing grade is 0.8 on a scale of 0-1. The root causes of failures are ship leadership teams not following procedures and policies and not practicing the basics of equipment maintenance and operation.

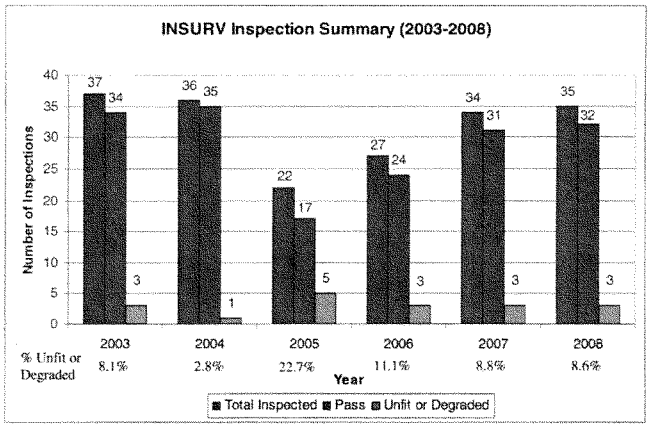


Figure 1

INSURV assigns grades to 29 different areas during each inspection.

- 8 areas are trending positively: damage control, ballasting, electrical, ahead reversal, astern reversal, mine warfare, mine hunting and mine sweeping.
- 16 areas are trending steady: auxiliary, steering, main propulsion, full power, anti submarine warfare, undersea warfare detect-to-engage, operations, anti-air warfare, weapons systems, gun demonstration, command and control, information systems, navigation, occupational health and safety, ventilation, and supply and habitability.
- 5 areas show with a general downward trend: deck, anchor, self-defense detect-to-engage, environmental protection, and aviation.

The positive trends are a result of increased training, assessments, and directed actions by the Commander Naval Surface Forces, Commander Naval Sea Systems Command and Fleet Maintenance and Training resource providers. The downward trend areas are a result of material, supervisory and operator deficiencies that are being addressed by the Force Commander as described in the body of the report.

Ships Unfit or Seriously Degraded: An analysis of ships identified as "fit," unlike their "unfit" or "seriously degraded" counterparts, generally revealed strong command leadership involvement, proper preparation for INSURV inspections using well-planned schedules, supported by maintenance and self-assessment capabilities. CNSF with support from CLASSRONs, as well as the Operational Fleet Commanders and the Regional Maintenance Centers, has made these key elements central to the Ships Force's preparations for an INSURV inspection with predictive results forthcoming.

Self-Assessment and Maintaining Material Condition: In recent years, several changes within the Surface Warfare Enterprise (SWE), designed to improve cost efficiency through manpower,

training, and maintenance resource reductions, may have negatively affected individual ships' ability to self-assess and to maintain readiness, especially in the areas of Force manpower, training and technical competency. These areas are being reassessed and are discussed throughout the report.

Material status reviews revealed a need to take focused corrective actions to reverse the trend and improve ship readiness. Areas identified as needing improvement are enlisted manpower, training, and officer training and Integrated Class Maintenance Plans (ICMP). With technical support from Regional Maintenance Centers and Commander Naval Sea Systems Command, along with analytical support from Navy Total Force, a number of actions, detailed in the body of the report, such as increased training and more rigorous attention to life cycle maintenance planning, have been indentified and are being implemented. These changes have been designed to enable ships to do better self-assessment, to provide additional oversight, and to maintain long term material condition.

Improvements to the Engineered Requirements Process: In 1999, CNSF implemented a change in maintenance philosophy from "Engineered Operating Cycle" to a "Progressive" strategy in order to reduce the time spent in CNO availabilities. Some of the work previously scheduled for completion during major availabilities moved into Continuous Maintenance Availabilities (CMAV). The desired result from the change was an increase in operational availability for combatant commanders.

However, the change has also resulted in a greater focus on short term, get-the-ship-to-sea maintenance at the expense of structural and corrosion preventative maintenance tasks that enable long hull life. Refinements to the maintenance strategy, including additional assessments, finite element computer modeling, establishment of the Surface Ship Life Cycle Management Activity (SSLCM) to instill more rigor into the maintenance planning process, increased attention to life cycle maintenance, increased oversight by class squadrons, additional engineering requirements development, and increases in duration and work assigned to major availabilities are being implemented to enable ships to reach their full design hull life.

The following drawing depicts a typical section of the DDG 51 life cycle as of FY 99, before the change in maintenance philosophy.

Notes for Figure 2:

(1) Man-days (MD) are in thousands (K) and durations in months (M).

(2) Types of availabilities: Docking Selected Restricted Availability (DSRA), Selected Restricted Availability (SRA), and Continuous Maintenance (CM).

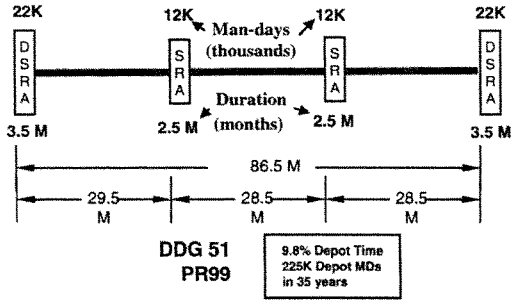


Figure 2

In comparison, the below drawing depicts a typical section of the DDG 51 life cycle as of FY 09, after the change in the maintenance philosophy.

Notes for Figure 3:

(1) Man-days (MD) are in thousands (K) and durations in months (M).

(2) Types of availabilities: Docking Selected Restricted Availability (DSRA), Selected Restricted Availability (SRA), and Continuous Maintenance (CM).

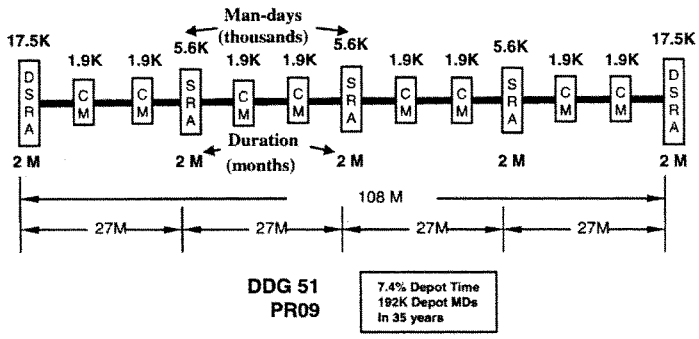


Figure 3

Over a 35 year life, the "Progressive" strategy provides an additional 10 months of operational availability.

Littoral Combat Ship (LCS): The LCS is a new U. S. Navy warship that has been developed using an accelerated schedule and spiral development of new capability. There are two different hull forms and three different mission package modules that allow the ship to perform a variety of specialized missions.

The ships have small crews that are sized for maximum operational efficiency, without the traditional allowances for maintenance specialists or under instruction trainees. Different designs by different shipbuilders, commercial grade equipment, reduced manpower, rotational crews and a strong reliance upon shore infrastructure have altered the traditional ship maintenance philosophy.

For USS FREEDOM (LCS 1) (Lockheed Martin) and USS INDEPENDENCE (LCS 2) (General Dynamics), an Interim Support Plan (ISP) has been implemented such that nearly all preventive, corrective and facilities (deep cleaning) maintenance is outsourced. As the Navy operates these ships, part of the contract responsibility is to collect and analyze maintenance related data to enable the Navy to finalize the future strategy for LCS maintenance.

1. INSURV Results 2003 - 2008

From 2003-2008, the Board of Inspection and Survey (INSURV) performed one hundred and ninety-one (191) surface ship inspections. INSURV results have been grouped into equipment and demonstrations categories that are performed underway. Overall trends are positive with some categories requiring further attention. Figures 4-8 depict inspection results from 2003-2008. The Vertical Axis represents an Equipment Operating Condition (EOC) score given to each ship. 1.0 represents a perfect score. Scores between .80 and 1.0 are considered Satisfactory, between .60 and .79 are Degraded and between 0.0 and .59 are Unsatisfactory.

Scoring for INSURV inspections is based on clear criteria that have been developed with technical rigor. These criteria are uniformly applied to enable direct comparisons between ships of various designs. Since November 2003, each functional area or demonstration is scored using the same grading criteria sheets for each inspection. If grading criteria changes are made, the Fleet is advised. Components within each functional area are graded and rolled-up using a weighted algorithm that generates an overall functional area score.

Trends in inspection areas

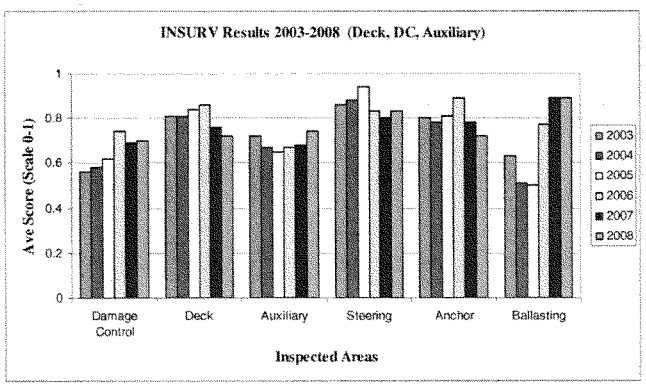


Figure 4

- Deck is showing a downward trend. Reports from INSURV inspectors attribute the trend to declining deckplate knowledge and poor performance of Preventive Maintenance System (PMS) maintenance requirements. At the beginning of FY07, the Naval Education and Training Command (NETC) added an A school for Boatswain Mates (BM). At the beginning of FY08 it also added Surface Common Core to the training path for surface ship personnel. This 12-day addition to the curriculum focuses on the Maintenance and Material Management (3M) system including PMS and basic deck seamanship,

CNSF has also initiated a pilot program on ships home ported in San Diego that evaluates and then trains ships force in assessing anchor machinery and ground tackle equipment. While the pilot program is in its infancy with only two ships completed, early feedback from trainers and ship's force indicates that the training is worthwhile and producing improvements.

- The Anchor underway demonstration grades are declining, while anchor machinery material grades have been fairly consistent between .60 and .72 with no established trend. Some of the declining anchor demonstration grades are due to several instances in which anchor chain components did not meet maintenance specifications. In these cases the demo was not conducted and scored a zero. CNSF has initiated a pilot program on ships home ported in San Diego that evaluates and then trains ships force in assessing anchor machinery and ground tackle equipment.

- Ballasting demonstration improvements are the result of increased attention to the conduct of this specialized capability by the amphibious squadrons and ship's force.

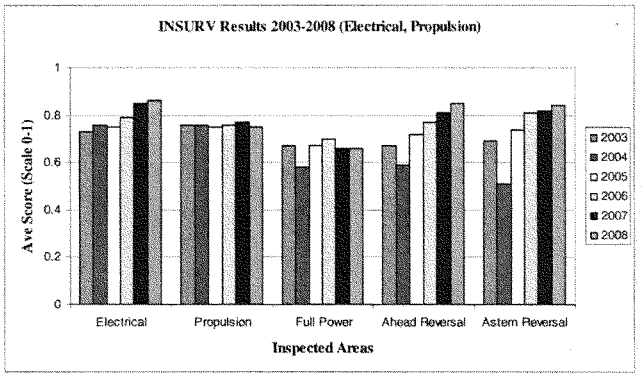


Figure 5

- The electrical (EL) and main propulsion (MP) categories overall are steady or improving.

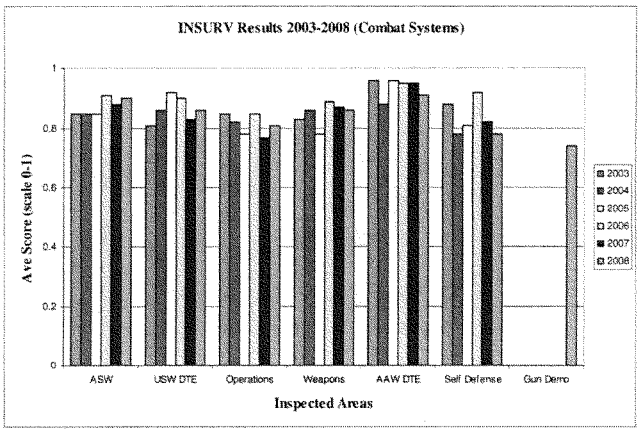


Figure 6

- The combat systems demonstrations results are generally constant with scores in the "satisfactory" range of > 0.8. The one area of decline is self-defense detect-to-engage (SD DTE). Material problems with radars and sensors result in reduced tracking capability. Some of the decline in 2008 is due to a change in grading criteria that occurred 1 Aug 2008. CNSF expanded the scope of Combat Systems assessments to include additional training and troubleshooting time and focus. The gun underway demonstration is a recently introduced event in which Cruisers, Destroyers, and Frigates perform a live fire demonstration.

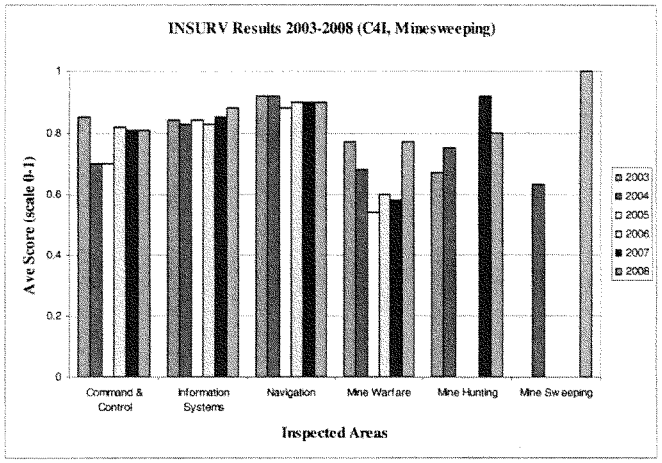


Figure 7

- The C4I and minesweeping demonstration overall are steady or improving. The Minesweeping results are from a relatively small sample size and the gaps in reporting data are influenced by inspections in which the underway demonstrations were not performed or scored, because the ship could not get underway or minesweeping gear was not operational.

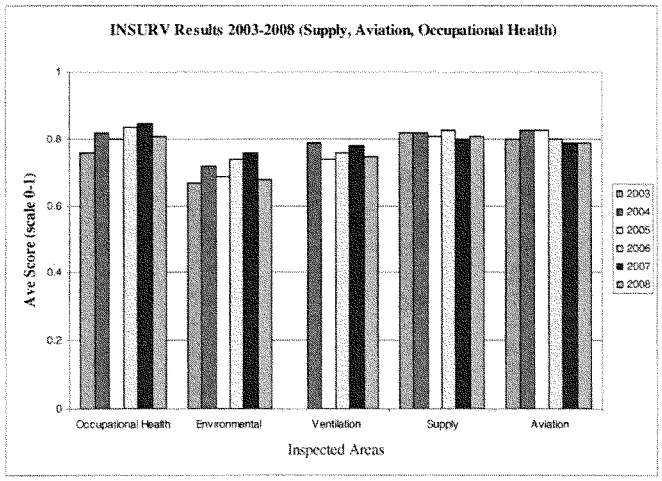


Figure 8

- The environmental protection area has a downward trend due to systems certifications expirations and oily water separators being out of commission. Maintenance and assessment documentation for oily water separators was found to be deficient. Coordination among OPNAV, NAVSEA and the Fleet is resulting in an improved understanding of these deficiencies, improvements to PMS and ship's force operations and potential engineering changes to equipment to facilitate easier maintenance and more reliability. An improved processing unit for plastic waste is being fielded and is expected to yield better operational and inspection results.

- Aviation (AV) has a downward trend due to problems with the firefighting systems, refueling systems and auxiliary support systems. CNSF efforts to improve accomplishment of PMS are expected to positively impact Aviation results, specifically the deck and auxiliary divisions on ships who are also responsible for equipment maintenance that is scored in the INSURV Aviation category. CNSF has also increased its support of ships and ISICs to improve ship's ability to assess and maintain aviation support equipment.

2. Ships with Unfit or Seriously Degraded INSURV:

Of the 191 INSURV inspections during the 2003-2008 period, there were 18 surface ships found to be unfit or seriously degraded; approximately 10%. The results for the ships with numerous issues are indicative of the ship's leadership team not following procedures and policies and not practicing the basics of equipment maintenance and operation. During some inspections, when the ship was unable to meet minimum equipment requirements and did not get underway, the inspection transitioned to a Limited Material Inspection (LMI). In all cases, after deficiencies had been corrected, underway demonstrations were later performed under the observation of the Type Commander or Immediate Superior In Command (ISIC). After June 2007, INSURV changed the sequence of the inspection. Since this change, LMI has not been used and INSURV began characterizing ships as fit or unfit for sustained combat operations. The following lists the ships found unfit or seriously degraded since 2003.

Although engineering INSURV categories in general show positive or steady trends, most unfit and seriously degraded results are due to issues with engineering equipment. Of the 18 ships found unfit or seriously degraded, 7 had discrepancies throughout the engineering department on various equipments. Nine of the 18 ships had significant discrepancies with diesel engines. Efforts outlined in section 3 of this report which address improving ships' ability to self-assess and maintain material condition are expected to reduce the occurrence of ships found unfit or seriously degraded.

2003

USS CHOSIN (CG 65): The inspection transitioned to an LMI and the ship did not get underway due to numerous engineering issues such as problems with the Gas Turbine Generators (GTG) and Central Information Systems Equipment (CISE) which must be corrected for safe and effective underway operations. The crew was unable to correct the conditions in the "repair before operate" category to support the underway portion of the INSURV inspection. The scope and magnitude of the repairs were beyond the time available to correct them within the INSURV inspection timeline.

USS KLAKRING (FFG 42): The inspection transitioned to an LMI and the ship did not get underway due to issues with the ship's generators. The crew's inability to self-assess, follow procedures, as well as their inability to adhere to operating guidance and perform quality maintenance, were also noted.

USS GARY (FFG 51): The inspection transitioned to an LMI and the ship did not get underway due to numerous engineering issues including inoperable Gas Turbine Engines (GTE).

2004

USS PELELIU (LHA 5): The inspection transitioned to an LMI and the ship did not get underway due to issues with emergency diesel generators.

2005

USS JARRETT (FFG 33): The inspection transitioned to an LMI and the ship did not get underway due to issues with auxiliary equipment and diesel generators.

USS ESSEX (LHD 2): The inspection transitioned to an LMI and the ship did not get underway due to issues with emergency diesel generators.

USS SALVOR (ARS 52): The ship met minimum equipment standards on day three, however shortly after getting underway propulsion diesel throttle control was lost and the ship returned to the pier. The inspection transitioned to an LMI. Material condition discrepancies were noted with the Main Propulsion Diesel Engines (MPDE), Ship Service Diesel Generators (SSDG), High Pressure Air Compressors (HPAC), Low Pressure Air Compressors (LPAC), and Air Conditioning / Refrigeration (AC/R) equipment.

USS NICHOLAS (FFG 47): The inspection transitioned to an LMI and the ship did not get underway due to issues with diesel generators and high pressure air compressors not meeting minimum equipment standards. Diesels and compressors were subsequently repaired.

USS DEFENDER (MCM 2): The inspection transitioned to an LMI and the ship did not get underway due to issues with propulsion and auxiliary equipment.

2006

USS SENTRY (MCM 3): The inspection transitioned to an LMI and the ship did not get underway due to numerous issues with engineering equipment such as the Magnetic Minesweeping Gas Turbine Generator (MMGTG) being inoperable, #1 MPDE failure to start, and multiple fuel and lube oil leaks.

USS DEXTROUS (MCM 13): The inspection transitioned to an LMI and the ship did not get underway due to issues with diesel generators and air conditioners.

USS CHAMPION (MCM 4): The inspection transitioned to an LMI and the ship did not get underway due to issues with engineering equipment, in particular 10 of 12 safety devices were inoperable, four significant refrigeration leaks on the Air Conditioning (A/C) units, excessive leakage on the stern tube, and inability to purify lube oil.

Note: Starting in June 2007, INSURV stopped transitioning to Limited Material Inspections (LMI) for ships unable to get underway. From this point forward, INSURV has declared these ships to be unfit.

2007

USS ASHLAND (LSD 48): The ship was found unfit due to water contamination of one reduction gear from a faulty lube oil purifier and also due to material issues with diesel generators. The ship was assigned an additional, continuous maintenance availability to correct deficiencies.

USS PIONEER (MCM 9): The ship was not able to maintain minimum equipment for propulsion diesels during the underway and all demonstrations were not able to be performed. The ship was found unfit. INSURV conducted a second inspection in 2008 and the ship was found fit.

USS RODNEY M DAVIS (FFG 60): The ship was found unfit due to material deficiencies with the evaporators and one of two steering units being out of commission. The steering unit was repaired after the inspection and the evaporators were replaced by a previously scheduled alteration with reverse osmosis units.

2008

USS CHOSIN (CG 65): The ship was found unfit due to numerous combat system and engineering discrepancies. These deficiencies were corrected during a scheduled maintenance availability after the inspection.

USS STOUT (DDG 55): The ship was found unfit due to numerous combat system equipment deficiencies and 1 of 4 gas turbines being Out-of-Commission (OOC). These deficiencies were corrected during a scheduled maintenance availability after the inspection.

USS SHOUP (DDG 86): The ship was found unfit due to a port rudder post casualty. The casualty was repaired and the ship resumed normal operations.

3. Overview of Unit Level Ability to Self-Assess and Maintain Material Condition Readiness

Specific areas targeted to improve a ship's capacity to conduct self-assessment and to maintain material condition readiness are manning, training, and maintenance.

- ***Manning***: CNSF is working with the Naval Personnel Command to ensure ships have the correct manpower and training to operate and maintain their systems. Specific efforts include:

- Management and oversight by the TYCOM and CLASSRONS to include assessment of the number of billets filled and the proper assignment of personnel.

- FFG class manning and manpower summit held to develop courses of action to correct potential deficiencies with FFG manpower and manning. Specific manning issues are being addressed within current assets as individual hulls prepare to deploy based on the assigned mission.

- Engineman Barrier Removal Team (BRT) comprised of representatives from the Navy Personnel Command, Center for Naval Engineering, and LSD/MCM/PC CLASSRONs is looking at improving engineman (EN) training, diesel engine inspector requirements and overall rating proficiency.

- Assessing the feasibility of providing special duty incentive pay for engineman Chief Petty Officers that have the LSD 41 propulsion system technician designator.

- Naval Personnel Command is planning to improve the system of assigning Sailors to ships by adding more discrete, skill-set information about individual jobs. This will enable the system to better match Sailors with specialized training to specific jobs on individual ships requiring that skill set. The system in place today assigns Sailors to ships based on seniority and training within much broader categories (rates) and leaves it up to the ship to assign people to individual jobs.

- Changing LSD class officer manning to include making the Main Propulsion Assistant (MPA) a second tour Limited Duty Officer (LDO) and ensuring that either the Commanding Officer or Executive Officer leadership team have prior shipboard engineering experience.

- Evaluating surface officer career paths to recommend changes that would enhance a ship's capability to self-assess and upkeep material condition.

- Additionally, the Center for Naval Analyses is studying the impact of reduced shipboard manning. The study will report out the effects reduced manning will have on readiness and ship's ability to self-assess. The initial report from the study is due to be delivered by June 2009, with additional assessments and analysis determined by the results of that initial report.

- ***Training*:** Center for Naval Analyses is reviewing the impact of computer based training with a report due out in June 2009. The study will also determine if computer based training fully supports the train to qualify program. The study will verify if our Sailors are receiving all of the prerequisite skills and qualifications needed to fill each billet in an LCS class ship. Other initiatives include:

- The Navy Inspector General is investigating if computer based training is delivering the right prerequisite skills training and qualifications to our Sailors. A blended learning solution may be needed to better train our Sailors in this highly technical environment.

- Partnering with Military Sealift Command (MSC) to provide civilian diesel engineering expertise to USN ships.

- Conducting a surface warfare officer waterfront introductory course that instructs new officers to a breadth of shipboard material issues.

- ***Maintenance*:** The ship's maintenance and material management (3M) system is the foundation for keeping ships combat-ready. Efforts to improve 3M performance include a comprehensive Barrier Removal Team (BRT) that is currently preparing a revision to the Surface Force instruction on 3M, as well as changes to the certification process. Additional actions include:

- Partnering with NAVSEA on ship service life assessment studies for LSD, DDG, CG and FFG class ships and executing American Bureau of Shipping (ABS) surveys. The effort will incorporate surveys and finite element computer modeling to provide an objective assessment of a ship's ability to meet its expected service life. This recently begun pilot will analyze four ships (USS MOBILE BAY (CG-53), USS COLE (DDG-67), USS GERMANTOWN (LSD-42), and USS UNDERWOOD (FFG-36)) while each is in an availability; the first targeted availability has just recently started.

- Piloted the Surface Warfare Enterprise Assessment Process (SWEAP), which initially focused on LSD class material assessment and will be expanded to other classes of ships. SWEAP is intended to improve ship Integrated Class Maintenance Plans (ICMP).

- Implementing the Surface Ship Life Cycle Management Activity (SSLCM) as the authority for applying Integrated Class Maintenance Plans (ICMPs).This activity will provide surface ships with the engineering life cycle support similar to that provided to submarines and aircraft carriers. .

- Increasing the duration of selected maintenance availabilities and periodic continuous maintenance availabilities to ensure critical life cycle repairs are conducted.

- TYCOM/CLASSRON active oversight to improve processes for zone inspections, material assessments as well as preparations for INSURV underway material inspections.

4. Improvements to the Engineered Requirements Process

About 10 years ago, the surface ship maintenance strategy shifted from an engineered operating cycle for maintenance planning to a progressive maintenance strategy. In retrospect, this change supports short–term readiness but sacrificed the critical, focused, engineered approach to enable surface ships to reach full service life.

The primary response to the declining trend is the establishment of the Surface Ship Life Cycle Management Activity (SSLCM) that will instill engineering rigor into the Integrated Class Maintenance Plan (ICMP), both in work package development and in availability execution. Comprehensive ICMP planning and execution will enable ships to achieve full service life. By

establishing the SSLCM the Surface Warfare Enterprise, in partnership with NAVSEA, is restoring the necessary emphasis to deep, long term maintenance tasks that have recently been subject to deferral or cancellation.

The following additional actions are being taken:

- The partnering effort with NAVSEA and ABS (discussed in section 3) will identify areas that require additional maintenance and targeted attention for selected ships.

- The development of hull specific availability requirements and increased technical rigor will enable ships to achieve full design hull life.

5. Littoral Combat Ship (LCS) Maintenance

Maintenance: The rotational crewing concept and size of the crew drives the maintenance philosophy. The seaframe crew size on LCS is small when compared to legacy ships of similar size and displacement. Rotational crewing requires extensive support from the shore infrastructure. These two factors necessitated a new approach (the Interim Support Plan) to accomplishing maintenance.

Under this new maintenance approach, the crew will focus on accomplishing emergent underway repairs that are within its capability and will accomplish corrective, preventive and facilities maintenance that is within capability and capacity. The majority of preventive, corrective, and facilities maintenance and emergent repairs that can not be accomplished by ship's force due to lack of capability or capacity will be outsourced to Lockheed Martin (LM) and General Dynamics (GD) under the Interim Support Plan (ISP). The small remaining portion of maintenance would be accomplished utilizing organic Navy assets resident in Regional Maintenance Centers and Naval Shipyards.

The Interim Support Plan is a maintenance philosophy that enables the Navy to leverage the existing LM/GD shipbuilding infrastructure, experience and original equipment manufacturer (OEM) network to support the ship. All shipboard maintenance requirements will be brokered through the LCS Class Squadron (LCSRON) and the Maintenance Support Detachment (MSD) in San Diego. The MSD consists of two teams, the Maintenance Support and the Logistics Support Teams that will handle any and all maintenance and logistics issues for LCSs. Those teams consist of personnel from the Regional Maintenance Center, Fleet Industrial Support Center (FISC), Navy Inventory Control Point (NAVICP), LCSRON, and the prime contractors.

The Interim Support Plan has been contracted for a trial period of three years with the government having the option to continue to utilize this concept long term. The three year period will give the Navy adequate time to evaluate contractor performance/responsiveness and determine the right balance of ship's force, contractor and organic Navy workforce needed to support LCS long term.

Every 117 days there will be a Continuous Maintenance Availability (CMAV) that will coincide with the crew turnover period when a contractor team will conduct planned facilities, preventative and corrective maintenance. Every two years the ship will go through a Selected Restricted Availability (SRA). Docking SRAs (DSRA) are scheduled approximately every six years.

Budget Requirements: Commander, Naval Surface Forces (CNSF) is currently budgeting through the annual PPBE process. Based upon the requirements for other ship classes, CNSF is developing out-year budgeting requirements for CNO Availabilities, Continuous Maintenance (CM), and the ISP for both LCS Platforms. CNSF and OPNAV N43 are developing man-day requirements for Docking Scheduled Restricted Availabilities (DSRA), which will occur about every six years, and Scheduled Restricted Availabilities (SRA), which will occur about every two years. We are negotiating the ISP which will then inform the budget report. Initial maintenance programming estimates for LCS 1 and 2 are approximately $7M per ship per fiscal year. The Navy will refine maintenance estimates as LCSs enter service and maintenance needs continue to be evaluated.

WITNESS RESPONSES TO QUESTIONS ASKED DURING THE HEARING

MARCH 25, 2009

RESPONSES TO QUESTIONS SUBMITTED BY MR. TAYLOR

Admiral MCMANAMON. A previous one-year test aboard two MCM 1 class ships demonstrated that the operational availability of the existing engines could be satisfactorily improved through a series of engine improvements. Test results showed engine operations in excess of 13,000 hours with a 56% reduction in corrective maintenance when compared to the class average. There were minimal critical component failures and no catastrophic casualties. Most failures experienced were repairable on board with stocked parts.

The Navy developed and executed a planned product improvement program as part of its maintenance and modernization program for the MCM 1 class Isotta-Fraschini engines. This program has demonstrated a 15% increase in the operational availability of the existing engines. The following improvements were installed on all MCM 1 Class ships' Isotta-Fraschini main propulsion and ship's service diesel engines: improved cylinder heads, redesigned main bearings, improved cylinder liners, gallery cooled pistons, improved rings, as well as improved filter systems for combustion air, fuel oil and lube oil.

Additionally, the Navy is conducting an AVENGER class MCM service life sustainability study. The study will determine the equipment/systems requiring modernization to continue all 14 AVENGER-class MCMs in commission through 2030.

The AVENGER-class MCM was designed for a 30 year life span. They are planned to decommission between 2017 and 2024. [See page 15.]

Admiral CULLOM. None of the $417 million ship depot maintenance shortfall is a result of fuel price changes. Maintenance and fuel are funded in separate budget line items. [See page 15.]

RESPONSES TO QUESTION SUBMITTED BY MS. SHEA-PORTER

Admiral MCMANAMON. The Navy's training methodologies, organizational manning, and maintenance philosophy have all evolved over time. Within the training area, selection of specific training methodologies to optimize the learning transfer of the knowledge, skill, and/or ability (KSA) of the individual is a foundational part of the curriculum development process to create a Navy course. The resultant Blended Training Solution (combination of instructor lead training, lab training, computer-based training, simulation training, etc.) requires assessment if a Sailor's KSA's are not adequate to support the work assigned. Currently CBT accounts for 33% of training in Navy accession training schoolhouses; regular Training Requirement Reviews facilitate maintaining Navy courses to current Fleet requirements.

There is great value in the effectiveness and efficiency of CBT. However, there is some concern that the pendulum has swung too far away from traditional schoolhouse based training and there needs to be a better balance between the two forms.

The Navy is assessing if CBT is delivering the right prerequisite skills training and qualifications to our Sailors. The Center for Naval Analyses is reviewing the impact of CBT with a report due later this year. The Navy will take appropriate actions based on this report. [See page 16.]

RESPONSES TO QUESTION SUBMITTED BY MR. NYE

Admiral CAMPBELL. The mid-year review of the FY09 unfunded requirement is still in progress and currently at the Commander, U.S. Fleet Forces/Commander, Pacific Fleet level. In mid-March 2009, the Office of the Assistant Secretary (FINANCIAL MANAGEMENT AND COMPTROLLER), provided guidance regarding the annual mid-year review of unfunded requirements for the Navy's Operation and Maintenance (O&M,N) accounts. All O&M,N appropriation holders were directed to follow the guidance to generate, evaluate, prioritize, mitigate and forward all additional requirements identified since the beginning of the current fiscal year. The chain of command will evaluate, prioritize and mitigate issues and forward all unresolved mid-year issues to the office of the Chief of Naval Operations (OPNAV) in the few weeks. OPNAV will decide how to address each unresolved unfunded issue

and whether additional funds will be requested. Any modifications to the FY09 initial ship maintenance shortfall will be made at that time. The several unplanned and unfunded requirements that DoN is currently addressing have rough order of magnitude (ROM) estimates and more thorough evaluations of the total cost of repair, required funding and plans of action are being conducted. As with the mid-year issues, these repair costs will be evaluated, prioritized and mitigated within the entire Navy program prior to any additional funds being requested outside of DoN. Fleet readiness remains one of the Navy's highest priorities and as such is receiving the highest level of attention from the Navy leadership. [See page 17.]

QUESTIONS SUBMITTED BY MEMBERS POST HEARING

MARCH 25, 2009

QUESTIONS SUBMITTED BY MR. ORTIZ

Mr. ORTIZ. Extending ships' operational life beyond their expected service life addresses a shortfall in acquisition, while uncertainty about the ability to achieve the expected service life raises issues regarding shortfalls in maintenance and sustainment. The Navy has not technically articulated the maintenance requirement if it wants to keep its ships operating 30–45 years. How is the Navy assessing whether its ships will achieve their expected service life, and what is it doing to extend ship service life? What efforts are being undertaken to improve the capability of the ship's crew to do self-assessment of the ship's material condition? What benefits would derive from extending the ship life assessment pilot program beyond fiscal year 2009?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. Reaching ESL for our surface platforms is a key underpinning of the Navy's 30-year shipbuilding plan and our ability to reach a minimum 313-ship Navy. The Navy initiated four Surface Ship Life Assessment Pilots in FY09 to help determine the ability of a ship to meet its Expected Service Life (ESL).

The Surface Ship Life Assessment pilots provide a solid analytical basis for making critical repair decisions in selected areas, and provide potential to build confidence that our surface ships can fulfill force-level requirements well into the future by assuring that they will remain effective warships for the full duration of their expected service life. This effort takes a best practice from industry and utilizes advanced finite element modeling techniques to provide a fully engineered view of the criticality of needed maintenance actions. NAVSEASYSCOM has currently undertaken four pilots: one on a DDG 51 Class ship (*USS COLE,* DDG 67); one on a CG 47 Class ship (*USS MOBILE BAY,* CG 53); one on a LSD 41 class ship (*USS GERMANTOWN,* LSD 42); and, one on a FFG 7 Class ship (*USS UNDERWOOD,* FFG 36). To accomplish the pilots, NAVSEASYSCOM has teamed with the American Bureau of Shipping (ABS) which is the Classification Society that provides similar services for the commercial shipping industry. At the conclusion of the four pilots, the information gathered will be used for further study, analysis and possible incorporation into future life cycle management initiatives including ICMP tasks, new maintenance procedures and possible changes in our maintenance processes. The Navy will also use this information to decide how best to incorporate periodic engineering assessments into the maintenance planning sequence for each ship class. The benefit of extending the ship life assessment pilot program beyond FY09 is that more ships would be included in the process and receive an in-depth assessment of remaining ship life.

Additional activities currently used to assess a ship's material condition are:

- Inspections and organizational level maintenance conducted by the ship's crew
- Integrated Class Maintenance Plan (ICMP) condition assessment tasks performed by Regional Maintenance Center personnel
- Board of Inspection and Survey (INSURV) chartered to survey ships to assess current material condition and warfighting readiness, including ability to support continued service (individual ships surveyed about every five years)
- Pre-Overhaul Tests & Inspections (POT&Is) performed on selected ship classes to better inform the work package development process

Mr. ORTIZ. Ship commanding officers often face the quandary of deciding whether to stay in a maintenance availability longer or opt not to do maintenance work and risk more work later, potentially at a premium price. Please explain the criticality of the class maintenance plan to service life sustainment and service life extension of non-nuclear surface combatants such as cruisers and destroyers. How does engineered operating cycle versus a progressive maintenance plan affect service life?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. Prior to the 1980s, the Navy operated on a time-driven maintenance philosophy where equipment was overhauled to like-new status on fixed time intervals regardless of actual equipment material condition. Time-directed equipment

overhauls were bundled into large, preplanned, and fully integrated complex ship overhauls. The approach was less than optimal in that equipment often did not need complete overhauls and equipment overhauls often induced subsequent equipment failures. Through the 1980s and 1990s, the Navy followed industry best practices and transitioned to condition based maintenance. Condition based maintenance was introduced through the phased maintenance program implemented on fast combat stores ships in order to improve operational availability and was later expanded to include amphibious and some surface combatant ship classes. Success of these and other programs led to Navy wide adoption of condition based maintenance for all ships and aircraft in 1998.

Under a condition based maintenance philosophy, maintenance is performed based on objective evidence of need. Today, class maintenance plans consist predominantly of material condition assessment tasks and qualified repair tasks. Material condition assessment tasks objectively measure material condition and establish objective evidence of the need to accomplish specific corrective maintenance. Qualified repair tasks are screened, brokered to a maintenance availability, and executed based on the results of material condition assessments. Failure to properly execute class maintenance plans will lead to late detection of material condition discrepancies. Because most material condition discrepancies get worse over time, late detection of discrepancies leads to more costly subsequent repair and ultimately, higher cost to achieve intended service life.

Accurate class maintenance plans and effective execution of class maintenance plan requirements are therefore absolutely essential to economical achievement of intended ship service life.

Engineered operating cycle is a maintenance availability scheduling strategy where maintenance requirements are scheduled and grouped into large depot maintenance availabilities. The Engineered operating cycle strategy also allowed time for and tight integration with the extensive modernization efforts being implemented prior to the 1990s.

Progressive maintenance planning refers to a number of maintenance scheduling and contracting strategies (e.g., Multi-Ship Multi-Option contracting and continuous maintenance). These strategies move most depot maintenance required over a ship's service life out of large availabilities. The maintenance is instead executed in shorter, more frequent depot maintenance availabilities (e.g., phased maintenance availabilities or selected restricted availabilities) or during operationally available times when the ship can be in a continuous maintenance availability without interfering with operational commitments through an equipment or component change-out program.

For surface ships, progressive maintenance has a number of advantages over the engineered operating cycle strategy. Because progressive maintenance can be scheduled and executed during the shorter, more frequent maintenance availability periods, the length of time that material condition discrepancies are left uncorrected is minimized, allowing for less growth of material condition degradation and subsequent costs to repair. Because less maintenance is conducted during any one particular depot maintenance period, availabilities are less complicated, take up a smaller percentage of the operating cycle, incur less depot overhead costs and are less likely to go over budget or off schedule.

However, there are two disadvantages to the progressive maintenance strategy. Maintenance planning can be more difficult under progressive maintenance because availabilities are shorter, and short maintenance period overruns can impact operational commitments. Additionally, because equipment is not routinely brought back to the more expensive "like new" post-overhauled condition, progressive maintenance may entail slightly greater per ship operational risk associated with successfully achieving intended service life.

Mr. ORTIZ. How confident are you, in a constrained funding environment and in light of anticipated decreases in defense funding in FY10 and beyond, that sufficient funding, manpower, and technical support can be provided for SEA 21 to provide full-spectrum lifecycle management and to the Surface Ship Life Cycle Management (SSLCM) Activity to assess and manage maintenance requirements?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. The Navy will formally stand up the Surface Ship Life Cycle Management (SSLCM) Activity in May 2009 under the Deputy Commander for Surface Warfare (SEA 21).

Partnering with U.S. Fleet Forces Command, the SSLCM Activity will assess and manage the maintenance requirements throughout the life cycle of ships in the surface fleet, in order to better plan and budget for long-term maintenance needs. The SSLCM Activity is planned as a long-term improvement to surface ship maintenance and is being addressed in the President's Budget submission so it can be ap-

propriately resourced, balancing the competing requirements of ship operations, maintenance and modernization.

Mr. ORTIZ. In Commander Naval Surface Forces' comprehensive review of surface ships' overall readiness, what readiness factors were reviewed, what stressors did the review find, and what course corrections were found to be needed?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. In an effort to determine if systemic support problems existed, CNSF conducted a comprehensive review of overall surface ships readiness. Known as the "Take a Fix" round of readiness briefs (Autumn 2008), CNSF assessed and reported on all readiness factors (maintenance, supply, training and personnel) across the Force.

In the area of maintenance, three gaps or stressors were identified: (1) Strategy and organization. The long-range, lifecycle maintenance planning function for surface ships was missing. Submarines and aircraft carrier lifecycle maintenance is guided by two dedicated organizations (Submarine Maintenance Engineering, Planning and Procurement Activity (SUBMEPP), and Carrier Planning Activity (CPA)) who build long-range lifecycle maintenance plans based on engineered, task-level maintenance requirements. An equivalent organization does not exist for surface ships. This lack of centralized surface ship lifecycle management, coupled with a condition-based repair philosophy, limits the ability to accurately forecast maintenance requirements and translate them into credible budget requests. The Surface Ship Lifecycle Management (SSLCM) Activity of NAVSEA 21 will be established (8 May 2009) as the activity responsible for this long-range, lifecycle maintenance management. NAVSEA 05 (Systems Engineering) is responsible to validate and approve the underlying engineering requirements and associated maintenance tasks that deliver the planned service life of shipboard systems.

(2) Measurements. An accurate measurement of the current ship maintenance backlog (both planned and deferred work), and its associated cost, is needed as an input to the maintenance requirements development process. A measurement technique does exist to measure and capture this information ("unfunded technical requirement", UTR), but requires strengthening of the underlying current ships maintenance package (CSMP) input. OPNAV N43 and NAVSEA 04 have developed the UTR technique; CNSF, through their "Back to Basics" campaign, is seeking to improve the inputs to the CSMP, which will then improve the UTR measurement.

(3) Tools and processes. Each surface ship class maintenance strategy should be guided by a technical foundation paper (high-level maintenance strategy), which provides assumptions and boundaries for the Integrated Class Maintenance Plan (ICMP). The ICMP is a task-by-task listing of engineered maintenance requirements needed over the planned service life to maintain prescribed engineering standards and system technical attributes. ICMPs are then "filtered" into class-standard Baseline Availability Work Packages (BAWP), which guide notional availability planning. Each ship then combines ICMP tasks in the BAWP with ship-specific corrective maintenance actions to form the ship- and availability-specific Availability Work Packages (AWPs). The SSLCM Activity of NAVSEA 21 is responsible for the development of these tools and processes. They will work with the Ship Class Squadrons (CLASSRONS), who will be the ship-specific executive agents for BAWPs and AWPs.

Residual supply storeroom shortfalls have been experienced as a result of funding constraints experienced during FY08 and FY09. The relaxation of 100% on hand/on order TYCOM policy for parts was necessary to support the substantial decrease in funding levels. Although the aggregate range/depth percentages still remain above TYCOM goals, potential exists for a "bow wave" of parts should the requisitioning of material requirements be restored to normal parameters. CNSF continues to monitor range/depth percentages across the Force on a daily basis to ensure no severe degradation in logistics readiness occurs.

In the area of training, Afloat Training Group (ATG) has had a difficult time keeping up with the training requirements for the fleet. They are fully capable of providing effective training however, manning reductions have limited their capacity to match every ship's schedule. The fleet has relied on more computer based training (CBT) and the ATRC waterfront detachment was disestablished. Numbered Fleet Commander (NFC) tasking during Basic Phase, Component Commander's (COCOM) Request For Forces (RFF) make it difficult for ATG and the ship to provide and receive effective training.

Corrective actions included establishing a Surface Warfare Officer (SWO) introduction course on the waterfront. Engineman career progression was reviewed and the formal training curriculum is being revised. A Anti Submarine Warfare Officer (ASWO) Course and an Engineering Readiness Assist Team (ERAT) was established. Initiatives are in progress with Naval Education and Training Command

(NETC) and Surface Warfare Officer School (SWOS) to bring back the Senior Officer Ship Material readiness Course (SOSMRC). ATG Limited Team Training (LTT) procedures were changed to stress less on assessment and more on training by ATG. Main battery Non-Combatant Expenditure Allocation (NCEA) was increased to improve gun systems readiness (INSURV finding). A two-phase Shipboard Training Team course to better prepare ships for the Basic Phase of the Fleet Response Training Plan to include Combat Systems and Engineering LTT visits was instituted. In addition, revised USW continuous certification requirements were implemented with emphasis on external assessment and resources. A16-week Basic Phase and increased Maintenance Phase entitlement was codifed in the revised Fleet Training Continuum (FTC) (USFF instruction approval pending) as part of an increased emphasis on basic level surface platform training and performance.

In the area of personnel, a myriad of manpower decisions were made independently across a number of years resulting in a synergistic negative impact on shipboard manpower and manning. Optimal Manning (OM) concept, which applied to most ship classes, compounded by several extremely difficult POM cycles (POM 08/10) reduced manpower even further. The reduction in manpower on the FFG 7 class was the result of POM 08 required fiscal balancing. In addition, OPNAV's directed "Top 6 Alignment," though it did not reduce overall manpower on ships, it did reduce the pay grade of the billets and the associated personnel with the unintended consequence of reducing experience level, a significant impact to units with already reduced or Optimal Manning. Finally, the Navy Individual Augmentation program to support the Overseas Contingency Operations continues to reduce the available manning for ships.

Corrective actions taken include a PR09 issue to fund additional enlisted billets on DDGs, and a PR11 issue submitted to refund billets on FFG 7s to support a revised Required Operations Capabilities (ROC)/Projected Operational Environment (POE) which will require the ships to be capable of full multi-mission operations. Additionally, action has been taken to support imminently deploying ships through the reassignment of personnel from future deploying units to those deploying within the next several months to ensure ships are fully manned to meet deployment requirements. This action resulted in the degradation of the manning level for some ships.

Mr. ORTIZ. The Aegis Program Executive Office PEO was involved in the full life of that ship, from design to development of training for sailors and life-cycle maintenance. What has the Navy learned from the Aegis experience about life-cycle sustainment and how can those lessons be applied to improve the life expectancy of other ship classes?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. Initial design of Aegis Cruisers and Destroyers included life-cycle sustainment as an overall design factor. The entire Aegis concept included a detailed systems engineered approach to meeting the mission of the ship. Organizations charged with sustaining these platforms over their lifecycle were integral participants in the design of the Aegis Combat System (ACS) and the platforms on which it is employed. This involvement during initial design and follow on improvements has resulted in a team of engineers, technicians and trainers who are better prepared to support these ships. The Aegis program was a complete "Cradle to Grave" organization that integrated HME, Combat Systems, Training, Logistics, In-Service support and modernization and upgrades. This expertise was transitioned to the homeports in support of in-service cruisers and destroyers with the Combatant Homeport Engineering Teams (CHET) and the Aegis Modernization Test Teams (AMTT) including a strong building yard planning yard component. These organizations, and headquarters commands, were constructed to allow continuous feedback which has proven instrumental in applying lessons learned from Fleet operations through both the iterative improvement to cruisers and destroyers during the construction process and in developing their mid-life upgrades. The mid-life upgrades of the modernization programs allow for further sustainment of these ships and enable the achievement of a 35 year expected service life in support of the Navy's 313 ship requirement.

It is the intent of the Navy to apply many of the lessons learned in sustaining the Aegis Cruisers and Destroyers to other surface ships. In order to facilitate application of these lessons, and those obtained from other platforms, the Naval Sea Systems Command established the Deputy Commander for Surface Warfare (SEA–21). SEA–21 provides the Fleet with an organization focused toward sustainment of the surface force. This organization is further partnered with PEO SHIPS, forming Team Ships, to continue the tradition of including lifecycle sustainment as a primary factor in the ship design and construction process as the Navy introduces new platforms and capabilities to the Fleet. The Navy's Surface Ship Lifecycle Manage-

ment (SSLCM) Activity will take full advantage of the existing stakeholders (Program Manager's Representatives, Engineering Field Representatives, Planning Yard representatives, etc. to apply best practices to ensure that every surface ship meets its expected design life.

Mr. ORTIZ. Your testimony states that "a key tenet of our ability to maintain forward-deployed and surge-ready naval forces is the proper resourcing, planning and execution of maintenance needed to prepare and sustain our ships. The same testimony states that Fleet Response Plan, "when fully funded," enables the Navy to continuously deploy three Carrier Strike Groups to points around the globe, surge three more in 30 days and deploy a seventh in 90s days." What happens when sufficient resources are not found and accounts are not fully funded?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. If sufficient resources are not found, the Navy will be required to balance the risk between the operating, maintenance, and procurement accounts in a manner that takes into account the short term risks of not meeting current operational demands with the longer term risks of either not meeting expected service life or recapitalizing our ships and aircraft.

Mr. ORTIZ. Your testimony states "A well established process exists to identify and program the resources required for ship maintenance," yet it also states that "one of the greatest obstacles to the surface fleet's ability to articulate the 100% maintenance requirement necessary to reach expected service life" is the lack of a detailed surface ship class maintenance plan. What steps is the Navy taking to bring greater rigor to the surface fleet maintenance requirements process and to ensure that these requirements are fully resourced?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. The Navy is taking several steps to bring greater rigor to the surface fleet maintenance requirements. These include:

- Establishment of SEA 21 as the full spectrum life cycle manager for surface ship readiness
- The creation of the Surface Ship Life Cycle Maintenance Activity (SSCLMA) to manage and improve class maintenance plans and create more accurate baseline availability work packages
- Establishment of technical redlines for surface ships for NAVSEA 05 similar to those that exist on submarines and aircraft carriers
- Conducting a bottom up review of surface ship class maintenance plan to ensure the 100% technical requirement required to meet expected service life is embedded in the our ship class maintenance plans
- In conjuction with the American Bureau of Shipping (ABS), conducting a pilot program to survey a ship from each of four major ship classes to establish baseline material conditions for use in building future class maintenance plans

The Navy will continue to take a balanced approach that manages the risk to our operational, maintenance and procurement accounts to meet both current and future readiness demands in light of current fiscal constraints.

Mr. ORTIZ. If only five weeks of a nine-week depot availability involves "real wrench turning," what will need to be done to get more time in depot for surface combatant ships? Does the Navy have sufficient infrastructure, manpower and funding to increase that time to 15–16 weeks? How can the Navy meet its FRP requirements with extended depot time?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. The current notional Fleet Response Plan (FRP) cycle for surface ships is 27 months in duration: 9 week (2 months) maintenance availability, 4 months Basic Phase training, and 3 months Integrated Phase training, which generates 18 months (67%) where a unit is employable (available for tasking).

Extending maintenance period to a 15–16 week maintenance availability (approximately 4 months), while maintaining the notional training cycle and timelines, leaves 16 months (59%) where a unit is employable. Aggregating this change across the surface force structure and making minor schedule changes, the Navy would still be able to meet the most stressful operational plan (OPLAN) requirements, and the SECDEF approved Global Force Management Allocation Plan (GFMAP) presence requirements.

With respect to maintenance infrastructure, most surface ship maintenance is sourced from the private sector which has demonstrated significant expansion capabilities. As for manpower and funding impacts, current maintenance execution practice involves assignment of a funded 2–4 week continuous maintenance availability (CMAVs) prior to and/or following the scheduled CNO availability. These CMAVs

enable the start of funded depot repair work (tank cleaning and gas freeing, interference lay-out and removal, open-and-inspection), as well as preliminary alteration production work. Thus, a nine-week CNO availability was, from a funding allocation perspective, essentially a 12–16 week availability.

Mr. ORTIZ. Your testimony states operational tempo for Navy surface combatants has increased 19% since 2000. While maintenance and ship operating budgets also have increased, the focus of those additional maintenance dollars were aimed at near-term ship readiness, making the surface fleet much more susceptible to changes in optempo. Is the Navy funding the maintenance it needs or doing the maintenance it has funding for? When you look at the sharp rise in operational availability and the slight rise in maintenance funding, are we funding short-term readiness gains in operational availability at the expense of maintenance required to fund long-term readiness?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. The Navy is funding the maintenance it needs. In the case of Aircraft Carriers and Submarines, we have a proven process that has allowed us to fully articulate and fund the 100% technical requirement needed to fund both short-term and long-term readiness to ensure these ships reach their expected service life. While surface ship maintenance has also been funded near 100% of the stated surface ship maintenance requirement, our process for accurately identifying that specific 100% technical requirement was lacking. Our planning requires specific improvements. To that end, the Navy is taking several steps to bring greater rigor to the surface fleet maintenance requirements. These include:

- Establishment of SEA 21 as the full spectrum life cycle manager for surface ship readiness
- Stand up, under SEA 21, of the Surface Ship Life Cycle Maintenance Activity (SSCLMA) to manage and improve class maintenance plans and build baseline availability work packages
- Establishment of technical redlines for surface ships for NAVSEA 05 similar to those that exist on submarines and aircraft carriers
- Conducting a bottom up review of surface ship class maintenance plan to ensure the 100% technical requirement required to meet expected service life is embedded in the our ship class maintenance plans
- With the American Bureau of Shipping (ABS), conducting a pilot program to survey a ship from each of four major ship classes to establish baseline material conditions for use in building future class maintenance plans

Once properly established, the 100% technical requirement will allow surface ship maintenance to compete on a level playing field with other Navy requirements for funding. The Navy will take a balanced approach that manages the risk to our operational, maintenance and procurement accounts to meet both current and future readiness demands.

Mr. ORTIZ. In Commander Naval Surface Forces' Surface Ship Maintenance Strategic Offsite, what gaps were identified in the surface ship maintenance program?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. Gaps identified were primarily process gaps in work package development and strengthening the technical foundation for work to be accomplished or deferred during surface ship maintenance availabilities.

Comparable organizations such as the Submarine Maintenance Engineering, Planning and Procurement Activity (SUBMEPP) or Carrier Planning Activity (CPA) equivalent do not exist for surface ships. This lack of centralized surface ship life cycle management coupled with the current condition based repair model stresses the ability to accurately forecast maintenance requirements and translate them to budget requests. An accurate assessment of the current ship maintenance backlog, and its cost, has to be developed. Each surface ship class needed to have a specific Baseline Availability Work Package (BAWP) and a coordinated Integrated Class Maintenance Plan (ICMP). Ship Class Squadrons (CLASSRONS) did not have the tool necessary to help manage the Availability Work Package (AWP) to establish an accurate cost and schedule baseline for each availability. Notional availabilities were inaccurate and did not reflect actual cost and schedule return data.

As part of a holistic effort, three key organizations were tasked to improve overall surface ship maintenance execution.

1. CLASSRON's are responsible for development of baseline and final Availability Work Packages (AWPs) and inclusion of Integrated Class Maintenance Program (ICMP) work items in appropriate availabilities.

2. NAVSEA 21 is responsible for development and management of the ICMP. Additionally, NAVSEA 21 will establish the Surface Ship life Cycle Maintenance (SSLCM) Activity in May 2009.
3. NAVSEA 05 (Systems Engineering) is responsible for validating technical content of the ICMP, for adjudicating all deferral requests and for providing engineering support to SEA 21.

Mr. ORTIZ. What are the timelines for completing the integrated class maintenance plans for each class of surface ships? When will the Navy complete the review of its process for recroding and report the surface ship maintenance unfunded technical requirement (UTR). Please provide for the record the UTR for surface ship maintenance each year since fiscal year 2000.

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. Integrated class maintenance plans currently exist for every surface ship class. However the Navy is conducting a bottom up review to ensure they are complete and technically accurate. The Navy expects to complete this review in late fiscal year 2010. Conducting a bottom up review of surface ship class maintenance plans will ensure the technical requirement required to meet expected service life is embedded in ship class maintenance plans. Once established, the technical requirement will allow surface ship maintenance to compete with other Navy requirements for funding. The Navy will take a balanced approach that manages the risk to our operational, maintenance and procurement accounts to meet both current and future readiness demands.

The Navy calculates the surface ship maintenance unfunded technical requirement (UTR) for the previous fiscal year at the beginning of the next fiscal year. The UTR identifies future budget requirements for maintenance work that was not performed. UTRs are planning tools used to identify needed maintenance work and associated costs in order to avoid future operational impacts or mission effectiveness of performing maintenance at a later date. For example, FY08 UTR was calculated on October 1, 2008, the beginning of FY09. This year's UTR will be calculated on October 1, 2009, at the beginning of FY10. The UTR process is reviewed annually at the time of calculation to ensure it is aligned with current Navy practices and desires. Slight adjustments are typically made to the process; however, a complete change has not occurred since 2001.

Table 1 contains the surface ship unfunded technical requirement (UTR) for fiscal years 2001–2008 (POM04–PR11). UTR is expressed as the average for a single ship in the class in man-days to remove effects of inflation and location. UTR values are affected by ships' operational availability and individual funding levels. Table 1 reflects supplemental funding received in FY03–FY05 to reduce maintenance backlog.

UTR as a concept was introduced to the surface community in FY00. The UTR calculation method was significantly revised in 2001. These changes made UTR comparisons prior to 2001 invalid. The following steps were added in 2001:

- Work must be identified prior to the start of an availability to ensure the opportunity exists to provide funding.
- Service jobs inherent to availabilities are not considered.
- All jobs are reviewed for validity using reliability-centered maintenance practices. Therefore, jobs not integral to the mission, safety, or structural integrity of the ship are removed. This typically accounts for 1% of the jobs considered for UTR.

Beginning in FY06, a UTR business rule was added for classes that had no depot availability period during a single fiscal year. For classes with no availabilities during a fiscal year, the last valid UTR is carried forward. This business rule has been applied twice: LHD–1 Class in FY07 and LHA–1 Class in FY08.

The following classes do not have UTR calculated for all years FY01–FY08: DD–963 Class and PC–1 Class. Responsibility for calculating UTR and representative availabilities for the PC–1 Class was assumed by the Maintenance Resource System in FY05. Prior to that year, UTR data was not collected for PC–1. UTR was no longer calculated for the DD–963 Class following the final depot availability in FY04. DD–963 Class decommissioned (decom) in FY05.

Table 1

Average Surface Ship UTR in Man-Days

FY01—FY08

	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08
CG–47	1,808	890	204	82	760	380	410	849
DD–963	1,458	879	855	Decom	N/A	N/A	N/A	N/A
DDG–51	1,733	691	350	173	480	147	364	599
FFG–7	731	589	36	45	223	302	490	687
LHA–1	11,233	400	0	114	26	1,164	1,734	1,734
LHD–1	4,993	2459	666	0	980	755	755	3,379
LPD–4	3,038	347	0	1657	81	715	650	423
LPD–17	2,430	1007	323	101	1006	612	972	913
MCM–1	70	3	17	5	43	94	30	112
PC–1	N/A	N/A	N/A	N/A	338	2	0	0

Mr. ORTIZ. Your testimony states that "Port engineers" who work for the [Regional Maintenance Centers] are the professional advisors of each ship's maintenance team. What issues is the Navy experiencing in regard to recruitment and retention of qualified port engineers?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. The Navy is not experiencing any problems with recruitments or retention of Port Engineers. The current contract structure allows for greater flexibility in attracting qualified contracted Port Engineers. The strategy for attracting qualified candidates utilizes maritime trade magazines, direct interface with Maritime Academy Job Boards and Industry word of mouth to find qualified Port Engineers. Currently the 5 Maritime Academies being utilized are Maine, Massachusetts, New York, Kings Point and California. Based on contract requirements we are able to promptly find the right blend of experience and education in recruiting potential candidates. Surface Forces currently employs 114 port engineers in a mix of government civil service and contracted personnel. The current average retention for this aggregate community of Port Engineers is 10.64 years.

Mr. ORTIZ. How do multi-ship, multi-option (MSMO) maintenance contracts contribute to achieving or extending ship expected service life? What steps is the Navy taking to resolve the difficulties it has experienced in successfully awarding MSMO contracts on the East Coast?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. Multi-Ship Multi-Option (MSMO) contract vehicles for ship maintenance, modernization, and repair within homeport areas maximize the ship's operational availability and surge readiness, minimize the disruption in the quality of life of the ship's crew, and provide potential for learning curve cost reductions. They form the cornerstone of Navy Fleet Maintenance and Modernization strategy for surface ships. Proper maintenance and modernization programs, such as the Cruiser and Destroyer Modernization programs, ensure our ships achieve their expected service life.

There has been an extensive assessment of the Navy's MSMO contracting process and Navy continues to work with Industry to improve the MSMO contracting process. The Navy has made the following commitments and improvements:

(1) MSMO processes have been revised to capitalize on previous availabilities and repair work to improve Notional Work Package (NWP) relevance and Independent Government Estimate (IGE) accuracy. Specifically, historical data from previous CNO Availabilities, Continuing Maintenance (CM), and Emergency Maintenance (EM) periods for each ship class will be used to identify common work items for each ship class. Those common items will be used to develop the NWP included in the solicitation. In addition, historical cost data for those common work items will be utilized to formulate the IGE. These changes will provide credible, accurate data that will be the building blocks of future MSMO solicitations.

(2) The MSMO post-award debriefing process has also been revised to provide to each bidder greater detail of the Government's analysis of its proposal. This expanded debriefing format will provide each bidder with an in-depth review of the Government's evaluation of its cost and technical proposals, with the goal of an improved bidder understanding of shortcomings in its proposal that can, in turn, help the bidder improve its competitiveness for future MSMO contract awards. This expanded format has been successfully piloted; a debriefing "template" is under development to standardize this approach.

(3) The Navy will publish the upcoming MSMO solicitation and contract award schedule in an earlier and more predictable manner. This will provide our Industry Partners with timely information to plan their resource allocation and to establish teaming arrangements, all of which will enhance the competitive marketplace for the benefit of all parties.

(4) In accordance with FAR 15.201, the Navy conducted a "MSMO Industry Day" in Norfolk, VA. In an effort to increase transparency, NAVSEA discussed the MSMO process and engaged with industry on feedback for process refinements. To further communicate the Navy's improvements to the MSMO strategy, a follow-on Industry Day is scheduled for April 22, 2009, at the Washington Navy Yard.

Mr. ORTIZ. One of the three things your testimony cites as early signs that surface ship material readiness is being impacted is the current process for executing maintenance. What examination have you made regarding how reductions in ship manning and ashore maintenance billets, and changes in crew training in apprentice and journeyman technician schools, onboard ship, and through reduced shore intermediate maintenance facilities is having on ship material readiness?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. We are continuing to examine the impact of manpower and training changes to ship material readiness. Surface ship manpower reductions have occurred since 2003 for various reasons, including cost savings, policy changes (e.g. elimination of visual signaling requirement and consolidation of Boatswain's Mate of the Watch with Quartermaster of the Watch) and technological advances (SmartShip installs and moving most Pay and Personnel functions ashore). Ship class manpower cuts since 2003 until 2008 are as follows:

CG	13%
DDG	13–15% (dependent on flight)
FFG	11%
LHA	06%
LHD	10%
LSD	04%
LPD–4	05%

Optimal Manning determines the minimum quantity and quality of personnel required to operate ships in both Condition I (general quarters) and Condition III (wartime steaming, maintained for 60 days). Ship classes with manpower requirements determined using optimal manning initiatives are funded at 100 percent of the number of required billets. One-hundred percent manning has not been consistently met due, in part, to the number of personnel assigned as individual augmentees, including those in post IA deployment dwell time. While on board manning is less than optimal, the overwhelming majority of ships are succeeding at these manning levels. Ships with good leadership who adhere to Navy's material maintenance program have fared well during INSURV inspections. The Center for Naval Analysis (CNA) is conducting a study to better quantify the effect optimal maiming has on the combat readiness of ships, with an expected completion in June 2009. We continue to assess our manning levels and will adjust as necessary.

Computer Based Training (CBT) is a significant component of apprenticeship training. Consequently new recruits receive less classroom and hands-on training. As with the legacy training construct, the Revolution in Training relies heavily on utilizing experience levels on board ship to provide oversight to the new recruit. However, total training has not been significantly reduced between 2003 and 2009. The average recruit reaching the fleet in 2003 received 282 days of training, versus 275 in 2009 (a 2.5 percent decrease). Some schools were significantly shortened. For example, the training pipeline for a Gas Systems Turbine Technician was reduced from 355 days to 290 days; however, we increased the number of Sailors reporting to their commands having completed Class "A" School. The percentage of unrated firemen reaching the fleet declined from 4.8 percent in 2004 to 0.3 percent in 2009. Likewise, the percentage of unrated Seamen declined from 16 percent to 8 percent during the same period.

The journeyman level technician is critical to equipment readiness. The technical training associated with Navy's Journeyman, or Class "C", schools, regardless of method of delivery, has not resulted in less prepared Sailors. The curriculum comprising Class "C" school training delivered via CBT has remained largely unchanged, unless modification is required by acquisition of new capabilities or equip-

ment. Regular training requirement reviews facilitate maintaining course content designed to meet Fleet requirements.

Historically, Shore Intermediate Maintenance Activities (SIMAs) and Fleet Technical Support Centers (FTSCs) permitted active duty technicians to continue honing their technical skills in repairing ships while assigned to shore duty. This better prepared them to perform ship repairs upon returning to sea duty. As an efficiency measure, Fleet Forces Command requested that 2200 SIMA billets, in excess of seashore rotation requirements, as well as FTSC billets, be converted to civilian performance. Completed in fiscal year 2008, this initiative established a more proficient and lower cost workforce to provide intermediate level ship maintenance, but reduced opportunities for Sailors to learn journeyman level skills. Approximately $250 million in realized savings was transferred from the Military Personnel, Navy (MP,N) account to Type Commander continuous maintenance to support the reduced capacity. Material degradations and rising costs due to increases in contracted maintenance have quickly outpaced the realized savings. Reductions in manning, along with reduced experience levels of technicians, have resulted in a situation in which the ships are challenged to train newly arriving personnel to an acceptable proficiency level. The Navy Inspector General (IG) is currently conducting an investigation into determining if CBT delivers appropriate levels of prerequisite skills training and qualifications for our Sailors. When the Navy IG completes the investigation and releases the findings, CNSF, with all surface ship providers, will take appropriate actions to rectify any indentified short-comings.

In addition to the factors above, increased Operational Tempo presents the greatest challenge with respect to readiness. Since 9/11, the Navy OPTEMPO has increased by approximately 8%, and OPTEMPO for our surface combatants is up by 18%. We are examining the initiatives and policy changes discussed above and see that each change had a valid reason, at the time, in terms of improved efficiency and cost savings. As we continue our pursuit of identifying the root causes of the material readiness decline, we will make any necessary resource adjustments.

Mr. ORTIZ. Chief of Naval Operations Admiral Gary Roughead has stated that a crew of 40 people will not be enough to maintain the Littoral Combat Ship through its lifecycle. Manning and maintenance requirements are not defined adequately in the LCS interim support plan. What is the life-cycle support strategy for LCS? What work will be done in the private and public sectors?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. The Littoral Combat Ship (LCS) is a class of ship that does not conform to the legacy process used on earlier generation ships since the manning is reduced, coupled with a high level of automation, with much of the support, including maintenance functions, accomplished ashore.

Although the *USS FREEDOM* (LCS 1), built by a team led by Lockheed Martin, and *INDEPENDENCE* (LCS 2), built by a team led by General Dynamics, have two different seaframe designs, the maintenance concept is the same. Specifically, maintenance actions beyond the capability or capacity of ships force, including more extensive facilities maintenance, will be assigned to shore support via the Maintenance Support Detachment (MSD) and appropriate contracting vehicles. Legacy systems, such as fire pumps and air conditioners, will be supported by existing infrastructure. An Interim Support Period (ISP) has been contracted for a trial period of three years during which the Government will conduct a Business Case Analysis (BCA) to determine an optimal long-term sustainment approach. The three-year period will give the Navy time to evaluate contractor performance/responsiveness and appropriate usage and repair data in order to determine the optimal balance of ship's force, contractor, and organic Navy workforce needed to support LCS for the long term.

Preventative and corrective maintenance will be accomplished during regularly planned Continuous Maintenance Availabilities (CMAVs). Initial estimates for LCS 1 and 2 include the cost to execute preventative, facility and corrective maintenance that would traditionally be accomplished by the crew. Every 117 days there will be a CMAV coinciding with crew turnover where a contractor team will conduct necessary preventive and corrective maintenance. Every two years the ship will complete a Selected Restricted Availability (SRA). Docking SRAs (DSRA) will take place approximately every six years.

All shipboard maintenance requirements will be managed by the LCS Class Squadron (LCSRON) and the Maintenance Support Detachment (MSD) in San Diego. The MSD consists of two teams, the Maintenance Support and the Logistics Support Teams that will handle any and all maintenance and logistics issues for the LCS hulls. Those teams consist of personnel from the Regional Maintenance Center, Fleet Industrial Support Center (FISC), Navy Inventory Control Point (NAVICP), LCSRON, and the prime contractors.

Mr. ORTIZ. What is the plan to return sailors to waterfront schools a year after their first cruise? When will this plan be implemented and when will funding be requested?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. The normal process is for schools to be scheduled to occur before and after a Sailor's first shipboard tour which could be up to five years in duration. Formal schools are conducted by Naval Education and Training Command (NETC) with quotas controlled by the detailers at Naval Personnel Command (NAVPERS). NAVPERS also funds the Sailors to attend these schools. On an as-needed basis, officers and enlisted personnel are sent by their commands to schools to obtain critical skills. These schools could occur at any time during a Sailor's tour, but typically not within one year of transferring or leaving the Navy, and are paid for out of the ship's training funds account. These schools may be formal schools, with a Navy Enlisted Code earned upon successful completion, or waterfront schools depending on the skill taught and whether the school is for individuals or teams. Officers additionally attend Surface Warfare Officer training during their initial tour as part of their indoctrination and qualification process.

Amplifying information:

Combat Systems and Deck training is based on an Apprentice-Journeyman-Master construct and begins with "A" schools based on a Sailor's rate prior to their arrival at their first ship. Sailors gain experience and qualifications during their initial tour and then attend "C" schools prior to their second tour.

Engineering training follows an Apprentice-Journeyman-Master construct similar to topside training. All engineers attend Basic Engineering Common Core (BECC) before reporting to a "strand" training course based on their rate. BECC combined with the strand course constitutes the Apprentice level training. After an engineer's first tour, they attend "C" school based on their rate and earn NECs prior to their second ship tour.

In the Surface Officer world when an officer executes their first set of orders, they are sent to one of five pipeline schools en route to their first ship. These schools provide fundamental skills that the ship will require based on first tour division officer billets and include: Ammunition Administration, Anti-submarine Warfare Officer, Legal Officer, TTWCS/ATWCS, and EKMS Administration. Once the officer has been permanently assigned to a ship, he or she is required to attend the first available four-week SWO Introduction Course, which is provided at each Fleet Concentration Area. The first three weeks of the course covers subjects ranging from Division Officer Fundamentals, Engineering, Maritime Warfare, Navy Familiarization, Ship Simulators, Watchstanding, and School Ship visits. The 4th week focuses on Leadership and it is managed by the Center for Personal and Professional Development. When the officer completes the course, he/she returns to their ship to complete all applicable fundamental, system, and watchstation Professional Qualification Standards (PQS). Dependent on ship's schedule and the officer's drive, the PQS is normally completed in 8 to 12 months. Once the PQS is complete the officer will attend a three-week Surface Warfare Officers School Advanced Shiphandling and Tactics (SWOS ASAT) course in Newport, RI. The course focuses on advanced Surface Warfare fundamentals, Seamanship and Navigation, and Maritime Warfare. Funding is provided by PERS–41 to attend SWOS ASAT. It is calculated based on travel to and from homeport. For ships deployed away from homeport, a quota request will be submitted to and approved by PERS–41. Additional training is provided after an officer's first tour based on their second tour assignment. For instance, if a junior officer is going to be the Damage Control Assistant then they will attend DCA School en route to their next command.

Mr. ORTIZ. The Navy surface fleet is heavily reliant upon private-sector contractors for ship maintenance. The reliance has translated into, and is reflected in, the changes in maintenance training at the Navy's "A" (apprentice-level) and "C" (journeyman level) schools and onboard ship. For example, the engineman course at "C" school that previously took two months is now 13 days. Onboard ship, sailors no break down engines; they call in a contractor technical representative (CTR) instead. It would seem logical that the smaller the crew size, the more critical the individual sailor is to ship operation. If you no longer have intermediate maintenance shore infrastructure and if do not have engineered maintenance plan to support service-life extension, then it would seem apparent that you need to have very qualified sailors who can provide onboard care of the ship's systems. Is the product that the "A" and "C" schools are producing adequate to meet the needs of the fleet at a time of high operational tempo, reduced manning of crews, and pressure to fill individual augmentee billets? How do you incorporate maintenance back into the C school side after you have contracted out so much intermediate maintenance and

reduced maintenance infrastructure ashore? How do we put a renewed value on on-board training?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. The surface engineering 'A' (Apprentice level) schools and 'C' (journeyman level) schools production rates are closely aligned to FY09 production goals. Of the eight ratings that comprise surface engineers, six (EN, EM, GSE, GSM, HT and MR) are on or ahead of production goals. The other two (MM and IC) are slightly behind goal with sufficient capacity to meet goal by the completion of the fiscal year. Of the 17 total Surface ratings, the only Surface rating that will not meet the planned production goal for FY09 is the Combat System rating of ET. The content of the engineering schools was thoroughly reviewed and validated by a working group chartered by the Commander, Naval Surface Forces, US Atlantic Fleet in 2002, and then revalidated by SURFOR and AIRFOR in 2008. The goal of the working group was to conduct an Engineering Functional Analysis and define requirements for surface engineers in the 21st Century. The working groups had representatives from the US Navy, US Coast Guard, Merchant Marine, British Navy, academia and industry. Significant efficiencies were gained by providing the right training at the right time in a sailor's career. As a result, many courses attained a degree of efficiency that enabled the content to be delivered in significantly shorter training periods. While it may appear that an individual course was significantly reduced in length implying that the course is not meeting the training goal, training content was re-engineered to ensure that Sailors are being properly trained.

The training requirements review process managed by Naval Education and Training Command ensures that course reviews are conducted on a periodic basis. The reviews enable the stake holders to update content training in response to shipboard system changes and to determine if Fleet objectives are being met. If the Fleet identifies training deficiencies, the courses are modified appropriately.

The Navy is currently developing man-machine interface operating constructs and more robust automation for new construction ships as well as backfit capabilities for ships in service which reduce manpower requirements to operate and maintain ships. These also reduce the unique skill sets required of Sailors on legacy platforms. This is in response to OSD and DoN objectives to reduce Total Ownership Cost (TOC) for weapon systems and capabilities. Achieving this manpower TOC reduction requires systematic approaches to how ships are designed, maintained, operated, supplied and equipped. This includes embedded technologies to reduce corrective maintenance actions, automated performance monitoring and data collection capabilities to reduce operator loading, distance-support concepts to move non-operational tasks off ships to centrally managed support fimctions, and contract strategies to deliver business efficient logistic support to ships at the right location, time and cost. On board training is still being pursued in terms of skill retention for operators and maintainers who can practice scenario-based individual and teamwork skills and decision making/troubleshooting.

QUESTIONS SUBMITTED BY MR. FORBES

Mr. FORBES. "What are the results of the mid-year review of surface ship maintenance requirements?" "Have there been additional requirements identified in the mid-year review that have affected the surface ship maintenance shortfall?" "What is the resulting total surface ship maintenance shortfall for the remainder of FY09?"

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. The Office of the Assistant Secretary (FINANCIAL MANAGEMENT AND COMPTROLLER) letter dated 13 March 2009 provided guidance regarding the annual mid-year review of unfunded requirements for the Navy's Operation and Maintenance (O&M,N) accounts. All O&M,N appropriation holders were directed to follow the process to generate, evaluate, prioritize, mitigate and forward all additional requirements identified since the beginning of the current fiscal year. During every phase of the process, each echelon command conducts a thorough review of the requirement prior to advancing that mid-year issue to higher authority; ultimately, to be reviewed and addressed by the Chief of Naval Operations (CNO). As of now, the beginning of the year ship maintenance shortfall of $417M has been mitigated by USFF, CPF and CNO by $262M leaving $155M as the current recognized ship maintenance supplemental request. The several unplanned and unfunded requirements that DoN is currently addressing have rough order of magnitude (ROM) estimates of $161M and more thorough evaluations of the total cost of repair, required funding and plans of action are being conducted. Fleet readiness remains one of the Navy's highest priorities and as such is receiving significant attention from the Navy leadership.

Mr. FORBES. The Recent Non-disclosure agreement prohibits the exchange of information pre-decisional or otherwise. What does this mean? Does this mean that senior DOD officials will be unable to share unscripted data with Congress? Congress is mandated to raise and support armies and navies—without the support of DOD, this task is very hard to achieve. The NDA also prohibits sharing information other than with required government agencies and then list OMB. Does this mean that DOD is prohibited from exchanges with Congress in relation to developing budget priorities?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. The Department of Defense was directed by OMB (Memorandum M–09–11 dated 19 February 2009) to refrain from making commitments about programs not specifically mentioned in the Department Budget Overview or address account level details until the release of the full Budget in April. We now expect that the full FY 2010 President's Budget will be released in early May. The Secretary of the Defense recently reiterated this direction in a memorandum dated 8 April 2009 to the Military Departments, Agencies and Staffs that the normal budget process rules apply and that DOD is "obliged to protect from disclosure the details of the proposed budget until released by the President." The Department of the Navy is obligated to comply with the direction provided. The specific non-disclosure agreement which is referenced within this question was not provided to any of the witnesses at this hearing. As such, it is impossible to address these concerns. Specific questions regarding the application of the DOD non-disclosure agreement would need to be addressed by OSD.

Mr. FORBES. In January 2009, the Navy announced its decision to homeport a nuclear aircraft carrier at Mayport Naval Station in Florida. Mayport has never homeported a nuclear-powered carrier. We are told that the military construction price tag will be $456 million dollars, plus a one-time maintenance cost of $85 million and $24 million in personnel change of station costs. That's $565 million. Additionally, the Navy estimates that it will cost an additional $25.5 million in annual recurring costs compared to keeping a carrier in Norfolk. This is due to the recurring cost of base operating support and sustainment restoration and modernization costs, and travel and per diem for transitory maintenance labor. Can you help me understand how ship maintenance and readiness will be conducted on a nuclear aircraft should we move one to Florida? Were you consulted on the maintenance impacts of this arrangement during the Navy's decision-making process? Will the Navy be able to do perform all of the required maintenance work in Mayport, or will a Mayport-homeported carrier still need to travel to Norfolk for certain maintenance work? Specifically, how often, and at what cost, will the Navy be required to fly specialized workers down to Florida? Do you feel this is an effective utilization of manpower? What other impacts—such as on quality of life and worker efficiency—do you believe will result from such an arrangement?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. Ship maintenance and readiness for an aircraft carrier stationed in Florida will be performed in a manner similar to the way it is currently conducted in San Diego. As in San Diego, with the exception of drydocking, the Navy can conduct the full spectrum of repair work required to support a ready carrier. The Navy has been successfully executing CVN maintenance availabilities in San Diego since 1998. The relationship between Mayport and Norfolk Naval Shipyard will be the same as the proven relationship between San Diego and Puget Sound Naval Shipyard.

The Navy's policy is that, when possible, we conduct maintenance in the homeports of our ships for crew Quality of Life reasons. During scheduled 6-month maintenance availabilities, conducted about once every 32 months, the Navy will be required to fly Naval Shipyard personnel to Mayport. The travel and per diem costs associated with that travel are estimated to be $23M. A CVN homeported in Mayport will be required to travel to Norfolk about five times in a 50-year life; four times for scheduled 10.5-month docking periods at Norfolk Naval Shipyard and once for a 39-month mid-life refueling overhaul conducted at Northrop Grumman Shipbuilding—Newport News (NGSB–NN). This is similar to CVNs homeported in San Diego that are required to travel to Puget Sound Naval Shipyard four times for docking and to NGSB–NN for a mid-life refueling overhaul.

This arrangement works well on the west coast. The best indication of the effect on shipyard worker quality of life is there has been no difficulty in assembling qualified crews of voluntary workers to conduct the remote site maintenance. There is no indication of a loss of worker productivity compared to availabilities conducted in the home shipyard.

Mr. FORBES. How much funding has the Navy requested in the 09 supplemental request to meet year-end shortfalls in Ship Depot Maintenance funding levels? How

much of the Navy's total FY09 requirement for ship depot maintenance will be funded if Congress fully funds your requests for FY09?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. The Navy has requested a total of $440 million in FY09 supplemental funding for ship maintenance, of which $155M has not yet been appropriated. The Navy plans to fund all remaining FY09 ship maintenance availabilities. We are taking targeted risk in our other operational accounts, while continuing to meet COCOM demands, to fund these availabilities. This plan is contingent upon receipt of the balance of supplement funding not yet appropriated.

Mr. FORBES. How does the Navy anticipate budgeting for these costs in FY10? Given the recent incidents involving the *USS Port Royal,* the *USS New Orleans* and the *USS Hartford* and the likely emergent costs associated with getting these ships back into service at a time of war, does the Navy feel that these and other unanticipated costs can be properly accounted for in the regular FY10 budget and beyond, or do you anticipate targeted supplemental funding requests to handle such issues?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. The Navy has a process for adding unfunded prior year ship depot maintenance requirements (deferred maintenance) to future years and including that amount in future budget requests. The Navy baseline budget does not include allowances for extraordinary events like those that have affected *USS Port Royal, USS New Orleans* and *USS Hartford.* When they occur resources must be realigned and previously scheduled work must be deferred. Supplemental funding for *Port Royal, Hartford* and *New Orleans* would reduce the amount of deferred maintenance added to future budget years.

Mr. FORBES. I understand that the Navy's stated policy on contracting for the DDG modernization program is to conduct these modernization projects in the homeport region of each destroyer. Is this still the plan?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. Yes, execution of DDG modernization is planned to be conducted in the ships homeport region. DDG modernization utilizes a Multi-Ship Multi-Option (MSMO) contract vehicle within homeport areas. This strategy provides potential for learning curve cost reductions, maximizing the ships operational availability and minimizing the disruption to the quality of life to ships force. MSMO contracts operate under an ASN(RD&A) approved acquisition strategy and form the cornerstone of the Navy Fleet Maintenance and Modernization strategy for surface ships.

QUESTIONS SUBMITTED BY MR. NYE

Mr. NYE. In January 2009, the Navy announced its decision to homeport a nuclear aircraft carrier at Mayport Naval Station in Florida. Mayport has never homeported a nuclear-powered carrier and requires a minimum of $456 million Mil-Con dollars, a one-time maintenance cost of $85 million, $24 million in personnel costs, and $25.5 million in annual recurring costs compared to keeping a carrier in Norfolk. That's more than $565 million in infrastructure costs, which is double the original estimated cost. It is my, and many of my colleagues' estimate, that the total project cost for Homeporting a Carrier at Mayport will approach $1 billion. All this with $4.6 billion in unfunded 2009 budget priorities, $800 million in unfunded modernization and restoration projects at its four existing nuclear-capable shipyards, and a surface ship maintenance shortfall of at least $417 million. Is the infrastructure that would be required to be built at Mayport, FL to homeport a CVN identical to that at Norfolk, VA? If the answer is the infrastructure not identical: a. Does this mean the Navy will not be able to perform all of the required maintenance work in Mayport, and a Mayport-homeported carrier will still need to travel to Norfolk for certain maintenance work? b. Specifically, how often, and at what cost, will the Navy be required to fly specialized workers down to Florida? If the answer is the infrastructure is identical: c. Which parts—exactly—of the nuclear maintenance capacity that will be requested for Mayport are duplicative to the maintenance capacity in Norfolk? Given these funding realities, it would appear to me that spending more money to duplicate maintenance capacity in Mayport will only exacerbate your unfunded priorities. d. Maintaining the necessary fleet vessel numbers is the most important mission for Navy fleet readiness. Will you pledge today to review the requests you make to your superiors to find where possible duplicative or unnecessary funding can be cut in order to obtain this preeminent goal?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. No, the infrastructure required to be built in Mayport is not identical to that in Norfolk, VA. Specifically, the infrastructure will not include a CVN capable dry dock. However, the Navy's policy is, when possible, to conduct maintenance

in the ship's homeport to enhance crew Quality of Life. In this respect, the infrastructure required to homeport a CVN in Mayport is similar to the infrastructure that exists in San Diego today. The Navy has been successfully executing CVN maintenance availabilities in San Diego since 1998. The relationship between Mayport and Norfolk will be the same as the proven relationship between San Diego and Puget Sound with the same flexibility and dispersal objectives.

During scheduled 6-month maintenance availabilities, conducted about once every 32 months, the Navy will be required to fly Naval Shipyard personnel to Mayport. The travel and per diem costs associated with that travel are estimated to be about $23M. A CVN homeported in Mayport will shift homeports to Norfolk about five times over a 50-year life; four times for scheduled 10.5-month docking periods at Norfolk Naval Shipyard and once for one 39-month mid-life refueling overhaul conducted at Northrop Grumman Shipbuilding-Newport News (NGSB–NN). This is similar to CVNs homeported in San Diego that are required to shift homeports to Puget Sound Naval Shipyard four times for docking and to NGNN for one mid-life refueling overhaul.

Mr. NYE. If the answer is the infrastructure is identical:

c. Which parts—exactly—of the nuclear maintenance capacity that will be requested for Mayport are duplicative to the maintenance capacity in Norfolk? Given these funding realities, it would appear to me that spending more money to duplicate maintenance capacity in Mayport will only exacerbate your unfunded priorities.

d. Maintaining the necessary fleet vessel numbers is the most important mission for Navy fleet readiness.

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. The infrastructure is not identical so the above questions do not apply.

Mr. NYE. Will you pledge today to review the requests you make to your superiors to find where possible duplicative or unnecessary funding can be cut in order to obtain this preeminent goal?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. The Navy agrees that an important mission for Navy fleet readiness is our ability to reach our goal of a floor of 313 ships. A key tenet of this plan is our ability to reach the expected service life for our ships and provide the maximum response out of all the fleet assets consistent with fiscal resources. To this end, the Navy reviews all funding requests to ensure they represent the most effective and efficient use of the resources required to meet all DON strategic and operational guidance. The Department of Defense (DOD) has determined that the final decision on whether to permanently homeport an aircraft carrier in Mayport, Fla., will be made during the 2010 Quadrennial Defense Review (QDR). The QDR will assess the need for carrier strategic dispersal in the broad context of future threats, future Navy force structure, and likely cost effectiveness.

Mr. NYE. It is my understanding the Navy reported shortfall in Navy surface ship maintenance was $417M as of October 1st, 2008. There have been several unplanned and unfunded surface ship maintenance requirements since that time, including the *USS Port Royal* grounding and the most recent collision between a U.S. sub and the *USS New Orleans*. What are the results of the mid-year review of surface ship maintenance requirements and have there been additional requirements identified in the mid-year review that have affected the surface ship maintenance shortfall and if so, what is the resulting total surface ship maintenance shortfall for the remainder of fiscal year 09? a. In order to cover the current shortfall, you will certainly request substantial funding in the upcoming supplemental, how much funding exactly will you be requesting? b. If it isn't enough, that just kicks the problem into the next year and doesn't allow us to properly maintain the fleet. Maintaining the necessary fleet vessel numbers is the most important mission for Navy fleet readiness. I would like you to provide me a plan of how the Navy will rectify their surface ship maintenance funding deficit.

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. The Office of the Assistant Secretary (FINANCIAL MANAGEMENT AND COMPTROLLER) letter dated 13 March 2009 provided guidance regarding the annual mid-year review of unfunded requirements for the Navy's Operation and Maintenance (O&M,N) accounts. All O&M,N appropriation holders were directed to follow the process to generate, evaluate, prioritize, mitigate and forward all additional requirements identified since the beginning of the current fiscal year. During every phase of the process, each echelon command conducts a thorough review of the requirement prior to advancing that mid-year issue to higher authority; ultimately, to be reviewed and addressed by the Chief of Naval Operations (CNO). As of now, the beginning of the year ship maintenance shortfall of $417M has been

mitigated by USFF, CPF and CNO by $262M leaving $155M as the current recognized ship maintenance supplemental request. The several unplanned and unfunded requirements that DoN is currently addressing have rough order of magnitude (ROM) estimates of $161M and more thorough evaluations of the total cost of repair, required funding and plans of action are being conducted. Fleet readiness remains one of the Navy's highest priorities and as such is receiving significant attention from the Navy leadership.

Mr. NYE. The Navy recently suspended ship maintenance due to a funding shortfall. Its unfunded budget requirements for 2009 was $4.6 billion; the sea service also has a backlog of nearly $800 million in unfunded modernization and restoration projects at its four nuclear-capable shipyards. Given these funding realities, it would appear to me that spending more money to duplicate maintenance capacity in Mayport will only exacerbate your woes. How will you ensure that these added costs are accurately captured in future fleet readiness and maintenance budget requests to Congress?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. The Navy has experience establishing the maintenance facilities necessary to support homeporting CVNs in San Diego and has been successfully executing CVN maintenance availabilities in San Diego since 1998. The Navy will leverage that experience to ensure we accurately capture the cost to establish and maintain the infrastructure, as well as execute CVN maintenance in future fleet readiness and maintenance budget requests to Congress.

Mr. NYE. The Navy's Environmental Impact Statement includes a "purpose and need statement" that is to guide the Navy's decisionmaking regarding homeporting additional ships at Mayport. The Navy's purpose and need statement indicates that the Navy's action should utilize the available facilities at Naval Station Mayport in an effective and efficient manner in order to minimum new construction. The Navy chose the option that maximizes new construction for a type of ship that the former Secretary of the Navy has indicated that SOUTHCOM and Fourth Fleet does not need. Former Secretary of the Navy, Donald Winter, said this at the Current Strategy Forum in June 2008. "The 4th Fleet demonstrates the Navy's commitment to the region by creating presence in support of combined training operations, humanitarian operations, and disaster response. And this can be done without using a carrier battle group. We should also remember that it is sometimes more effective to have a smaller combatant that can access many of the littoral areas where we need to go. Smaller platforms are also more suitable for training, as they are more compatible with the navies with which we will be operating. We must balance our presence requirements with the missions and threats we are likely to face in a given region." a. Given the fact that we know many of the existing frigates at Mayport will be retired soon and given the unique types of missions we encounter in Fourth Fleet's operating areas, such as counter-drug operations, theater support cooperation, military-to-military exercises and training, do you agree with Secretary Winter's assessment that the Fourth Fleet does not need a carrier group to accomplish its objectives "without a carrier battle group," or do you believe that homeporting a nuclear carrier at Mayport is necessary to provide the right mix of assets to support the US Fourth Fleet and justifies spending $565 million to implement?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. The Fourth Fleet is routinely capable of accomplishing its engagement missions in the SOUTHCOM AOR without an aggregated carrier strike group (CSG). The Navy's objectives for homeporting a CVN in Mayport are independent of Fourth Fleet operations in the SOUTHCOM AOR. The Navy's objectives for homeporting a CVN in Mayport are to create a strategic dispersal alternative for Atlantic Fleet based CVNs and provide an alternative CVN nuclear maintenance capability on the East Coast. The Navy's decision was based on the following:

- Currently the Hampton Roads area is the sole East Coast location capable of supporting the operational, maintenance, and training needs of CVNs
- A catastrophic event of any type in the Hampton Roads Area, whether to the ships themselves, the shipping channel, the supporting maintenance and training infrastructure, or the surrounding community (Northrop Grumman Newport News Shipyard and/or the public/private skilled nuclear labor force) has the potential to severely limit East Coast Carrier operations
- The flexibility of a 2nd CVN capable homeport reduces risk, provides the Navy operational readiness and flexibility, and is consistent with homeporting strategies in place on the West Coast (i.e., Bremerton and San Diego)

QUESTIONS SUBMITTED BY MR. WITTMAN

Mr. WHITTMAN. Given the fact that we know many of the existing frigates at Mayport will be retired soon and given the unique types of missions we encounter in Fourth Fleet's operating areas, such as counter-drug operations, theater support cooperation, military-to-military exercises and training, do you agree with Secretary Winter's assessment that the Fourth Fleet can accomplish its objectives "without a carrier battle group," or do you believe that homeporting a nuclear carrier at Mayport is necessary to provide the right mix of assets to support the US Fourth Fleet and justifies spending $565 million to implement?

Admiral CULLOM, Admiral CAMPBELL, Admiral ECCLES, and Admiral MCMANAMON. The Fourth Fleet is routinely capable of accomplishing its engagement missions in the SOUTHCOM AOR without an aggregated carrier strike group (CSG). The Navy's objectives for homeporting a CVN in Mayport are independent of Fourth Fleet operations in the SOUTHCOM AOR. The Navy's objectives for homeporting a CVN in Mayport are to create a strategic dispersal alternative for Atlantic Fleet based CVNs and provide an alternative CVN nuclear maintenance capability on the East Coast. The Navy's decision was based on the following:

- Currently the Hampton Roads area is the sole East Coast location capable of supporting the operational, maintenance, and training needs of CVNs
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- The flexibility of a 2nd CVN capable homeport reduces risk, provides the Navy operational readiness and flexibility, and is consistent with homeporting strategies in place on the West Coast (i.e., Bremerton and San Diego)

The Navy's Environmental Impact Statement includes a "purpose and need statement" that is to guide the Navy's decision-making regarding homeporting additional ships at Mayport. The Navy's purpose and need statement indicates that the Navy's action should utilize the available facilities at Naval Station Mayport in an effective and efficient manner in order to minimum new construction. The Navy chose the option that maximizes new construction for a type of ship that the former Secretary of the Navy has indicated that SOUTHCOM and Fourth Fleet does not need. Former Secretary of the Navy, Donald Winter, said this at the Current Strategy Forum in June 2008.

"The 4th Fleet demonstrates the Navy's commitment to the region by creating presence in support of combined training operations, humanitarian operations, and disaster response. And this can be done without using a carrier battle group. We should also remember that it is sometimes more effective to have a smaller combatant that can access many of the littoral areas where we need to go. Smaller platforms are also more suitable for training, as they are more compatible with the navies with which we will be operating. We must balance our presence requirements with the missions and threats we are likely to face in a given region."

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