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BEFORE THE

SUBCOMMITTEE ON READINESS
OF THE
HOUSE ARMED SERVICES COMMITTEE

ON

READINESS AND SUSTAINMENT OF THE NAVY'S SURFACE FLEET

25 MARCH 2009

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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.

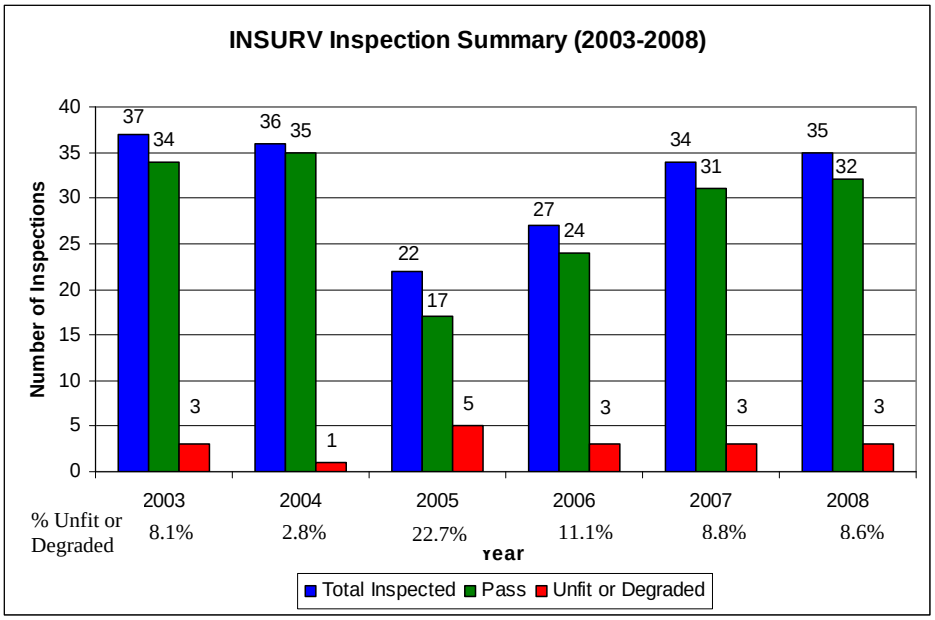
All shipboard maintenance requirements will be managed by the LCS Class Squadron (LCSRON) and the Maintenance Support Detachment (MSD) in San Diego. The MSD consists of two teams, the Maintenance Support and the Logistics Support Teams that will handle any and all maintenance and logistics issues for 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.

OPNAV N43:

- 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.
