



DEPARTMENT OF THE NAVY
COMMANDER
U.S. FLEET FORCES COMMAND
1562 MITSCHER AVENUE SUITE 250
NORFOLK, VA 23551-2487

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MEMORANDUM FOR THE RECORD

Subj: SURFACE SHIP MATERIAL READINESS IMPROVEMENTS

Ref: (a) Fleet Readiness Review Panel Report of 26 Feb 10
(NOTAL)

Encl: (1) Fleet Review Panel of Surface Force Readiness Findings
(2) Organization Actions
(3) Policy Actions
(4) Program and Process Actions
(5) Manning and Training Actions
(6) Wholeness Actions
(7) Type Commander Actions
(8) President, Board of Inspection and Survey Actions

1. Providing forces ready for tasking to Combatant Commanders is my highest priority. The Fleet Response Plan (FRP) is the means by which the Fleet provides rotationally and forward deployed forces ready to conduct prompt combat operations, and a surge force to sustain combat operations until Combatant Commander military objectives are achieved. The Fleet Training Continuum (FTC) ensures deploying ships perform to design specification and Sailors are provided with the tools, training and time needed to prepare them to deploy with confidence in their ability to accomplish all assigned missions.

2. Three years ago, Admiral Willard and I hypothesized that smaller crews, training cuts and reductions in ship maintenance capability and capacity - the cumulative impacts of cost-cutting decisions made over a span of two decades - had begun to degrade surface force readiness and would shorten ship service life. To gain a deeper understanding of the apparent degradation of surface force readiness, Admiral Willard and I convened a Fleet Review Panel (FRP) in September 2009 to assess Surface Force readiness across every aspect of the man, train, and equip domain and provide recommendations for corrective action. The FRP issued their final report in February 2010, confirming our hypothesis that that surface force readiness had degraded

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due to the cumulative effect of a number of independent actions taken over the past decade (reference (a)). A summary of the panel's findings is contained in enclosure (1).

3. Over the past three years, our Navy has taken significant actions to reverse negative surface force readiness trends. The purpose of this memorandum for the record is to document the actions taken to restore the material condition of the surface force. These actions include updating Fleet maintenance instructions to institutionalize maintenance processes and clearly delineate responsibilities; establishing surface ship class maintenance plans to improve public and private shipyard performance standards; and instilling greater discipline in the execution of maintenance funding. Additionally, with the stand-up of Navy Regional Maintenance Centers and the assistance of the Surface Force Type Commanders (TYCOM) and the President, Board of Inspection and Survey (INSURV), we have undertaken a series of improvement initiatives designed to address the deficiencies in material readiness, manpower and manning, training, organization, chain of command, culture, and financials identified by the FRP.

4. Actions to improve the quality, timeliness, and cost performance of surface ship maintenance and overall ship material condition in order to achieve ships' expected service life are identified in enclosures (2) through (8). These actions are grouped into the following categories:

a. Organization. Actions to improve the ability of the surface ship maintenance team to execute maintenance duties and responsibilities (enclosure (2)).

b. Policy. Actions to drive strict adherence to prescribed technical guidance and approved ship maintenance procedures (enclosure (3)).

c. Programs and Processes. Actions to improve material assessments, availability closeout and work certification, sustainment to expected service life, maintenance execution oversight, maintenance contract governance and quality reviews (enclosure (4)).

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d. Manning and Training. Actions to improve intermediate and depot maintenance capability/capacity/performance (enclosure (5)).

e. Wholeness. Actions that improve overall ship material readiness through actions generated by comprehensive and holistic assessments of systems and ship classes (enclosure (6)).

f. Type Commander. Type Commander actions to improve surface ship material health (enclosure (7)).

g. President, Board of Inspection and Survey. INSURV actions to improve material inspections and assessments (enclosure (8)).

5. The negative trends we are addressing were twenty years in the making and will take constant pressure over time to resolve. I am confident that we have arrested the decline in surface force readiness over the past few years through an aggressive and structured approach to program, process, and policy improvement; however, the surface force is in a fragile state today. Although considerable progress has been made to date, manpower challenges and recovering from significant under-funding of the maintenance account over the last two decades remain. Additionally, the Ballistic Missile Defense (BMD) mission itself is complex and technically very demanding. This unique mission will increase the complexity of our ships and amplify the problems we are working to resolve today.

6. Fewer resources will mean that there are things we will do less, but not less well. This will require shifting from the resource-based outcome model of the past and to an outcome-based resourcing model: ruthless prioritization of missions and associated requirements, tracking the flow of resources to ensure funded requirements are fully resourced; matching our talent - people - to critical tasks; and establishing vigorous feedback loops that monitor the impact of resourcing decisions on the operational and material health of our forces against unwavering standards.

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In the end it must be our choices, not simply our circumstances,
that will determine our future.



J. C. HARVEY, JR.

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FLEET REVIEW PANEL OF SURFACE FORCE READINESS FINDINGS

Overview. The Panel concluded that Surface Force readiness has degraded over the last ten years. This degradation has not been due to a single decision or policy change, but was the result of many independent actions. When examined in the aggregate, the historical data enabled identification of first order effects and unintended consequences that have impacted surface force readiness:

Material Readiness Systemic Findings

1. The historic source of support for shipboard maintenance, the Shore Intermediate Maintenance Activities (SIMAs) and Regional Maintenance Centers (RMCs), have undergone dramatic cuts in the past seven years, from nearly 8,000 billets to just over 2,500 billets in 2009.
2. The organizational move of RMCs to the Naval Shipyards has further reduced intermediate repair responsiveness.
3. The 9-week CNO availability schedule, begun in 1996 and fully implemented by late 1997, has proven to be of insufficient duration to accomplish required maintenance, in some measure, contributing to the backlog of deep maintenance requirements.
4. The lack of third party and self-assessment capability throughout the surface force prevents effective continuous maintenance.

Manning and Manpower Systemic Findings

1. Optimally Manned Ships, combined with the additional effect of reducing grade levels of selected billets, has caused a diminution of on-board level-of-knowledge, experience, and oversight of the work force across the ship. There is also a perpetual concurrent personnel loss of approximately 8% of Billets Authorized (BA) due to Individual Augmentation to support non-ship missions and unplanned manning losses due to legal, medical, school and pregnancy, etc.
2. Limitation to our legacy manning and distribution processes are resulting in low attained values of Navy Enlisted Classification (NEC) fit (rank, rating and NECs) with a 2009 manning average of 61% for at-sea surface units.

Training Systemic Findings

1. There appears to be limited formal in-rate training program requirements, and when in-rate training is in place, there is marginal execution.
2. Funding limits and onboard manning hampered efforts for ships to "grow their own." The biggest paradox in the Panel's findings on Navy schools is that C-School utilization rate is only 65% while Fleet NEC Fit is 60-65%. The Fleet needs 35-40% more C-School graduates while 35% of the available seats for each class go unfilled.
3. The level of knowledge of newly reporting officers is lacking. There is a surplus of ensigns assigned to each ship which challenges the capacity of the senior officers and Chief Petty Officers to train them.

Organization Systemic Findings

1. The decline in RMC manning and change in organizational realignments have not only impacted shipboard repairs and material readiness (maintenance responsiveness), but is detrimental to sea-shore rotation which returns Sailors to sea duty with enhanced technical expertise and maintenance "culture."
2. The surface force does not accurately know the full extent of the current total "deep" maintenance requirement, either by ship class or for the total force. This lack of knowledge drives late discovery of significant maintenance issues during planned availabilities which significantly drives up costs.

Chain of Command Systemic Findings

1. The lines of authority, responsibility, and accountability have become unintentionally blurred in the surface force and have hindered surface force effectiveness. It is important to understand that command relationships and the authority and responsibility are vested in the Type Commander. Moreover, it is important to understand that the concomitant responsibilities that Type Commanders have accreted in the establishment of the Fleet Readiness Enterprise as an element of the broader Navy Enterprise.

Culture Systemic Findings

1. It appears that a significant portion of the surface force is lacking in Personnel Qualification Standards (PQS) completions, and this in turn suggests that many of our ship leaders are at worst not dedicated to training their Sailors, or, more likely, simply are more tolerant of non-completion of PQS.
2. Many of our systems have redundancies designed into them to ensure operational capability is sustained in casualty situations or critical evolutions. There is some evidence to suggest that our ships are consciously accepting degradation in these redundancies in deciding to not replace expensive repair parts or pay for maintenance during availabilities.
3. The downward spiral of the culture is seen throughout the ship through the long-standing acceptance of poor housekeeping, preservation, and corrosion control. Over time, the ignored standard becomes the new norm. While the severity of current culture climate can be debated, its decline cannot.

Financial Systemic Findings

1. Surface ship maintenance has been significantly underfunded for over ten years. This is manifesting itself in the degraded material condition of the ships as reflected in recent Board of Inspection and Survey (INSURV) reports, corrosion audits, and Casualty Report (CASREP) data.
2. It may be legitimately said that insufficient funding applied over recent years has not been the result of an unwillingness to fund to the requirement as much as the result of not having a properly identified requirement. The end result is an understated requirement that has been underfunded in the budgeting process. Therefore, our maintenance requirements are frequently going to cost more in actual execution because of an unpredictable funding system - in other words, a lower return for each maintenance dollar invested.

ORGANIZATIONAL ACTIONS

Overview. Organizational actions to improve the ability of the surface ship maintenance team to execute maintenance duties and responsibilities take advantage of proven examples from the submarine and carrier maintenance communities. Actions streamline the chain-of-command; restore the capability and capacity to manage and execute work efficiently and effectively; and establishing the maintenance planning capability necessary to accurately estimate and budget maintenance requirements to achieve expected service life (ESL). Three principle organizations have been established and/or reconstituted to achieve these outcomes: Surface Maintenance Engineering Planning Program (SURFMEPP), Commander Navy Regional Maintenance Center (CNRMC) and Surface Team One (ST1).

Surface Maintenance Engineering Planning Program (SURFMEPP). SURFMEPP was established to accurately identify maintenance and assessment tasks required to be performed for a class of ships to achieve expected service life, standardize work packages, integrate maintenance and modernization work, and track corrosion control requirements. This organization was patterned after the Submarine Maintenance Engineering Planning Program (SUBMEPP) and the Carrier Planning Activity (CPA) which have successfully executed life cycle requirements for submarines and aircraft carriers. Key SURFMEPP products include:

Integrated Class Maintenance Plan (ICMP): ICMPs are the maintenance and assessment tasks that are required to be performed for a class of ships to meet their expected service life. The ICMP is updated based on technical analysis and periodic review with the applicable technical authority.

Baseline Availability Work Package (BAWP): The BAWP captures work requirements from the ICMP and assessments of a ship's actual, current material condition that must be completed for a ship to achieve expected service life. A significant portion of the initial BAWP is made up of material condition assessments for various critical systems and structures on the ship.

Technical Foundation Papers: The notional maintenance requirement that identifies and captures technical requirements for each ship class.

Corrosion Program Life Cycle Monitoring: Development of data entry and monitoring tools which capture structural ship tank material conditions resulting in a single authoritative data base for all tank maintenance from which to plan maintenance in accordance with the ICMP.

Commander, Navy Regional Maintenance Center (CNRMC). CNRMC was established as an echelon 3 commander to Naval Sea Systems Command (NAVSEA) in December 2010 to oversee and manage the execution of private sector depot-level repairs and modifications at shipyard and non-shipyard RMCs; and to provide technical and engineering assistance, contract management services and readiness assessments for all surface ships. Key CNRMC actions to date include increasing maintenance manning to restore lost I-Level maintenance capability/capacity to begin to improve responsiveness, increase RMC manning to improve depot availability oversight and management, and implementing standardized maintenance policies and processes across all RMCs.

Surface Team One (ST1). ST1 is modeled after the carrier and submarine equivalents and was established to improve maintenance availability performance by planning, coordinating and executing maintenance, modernization and sustainment work in a single, comprehensive and coordinated manner.

POLICY ACTIONS

Overview. Policy actions drive strict adherence to prescribed technical guidance and approved ship maintenance procedures by standardizing maintenance practices, establishing accountability, and ultimately, reestablishing a maintenance culture across the surface community. Three principle initiatives highlight our efforts to improve policy: (1) a significant update to the Joint Fleet Maintenance Manual (JFMM); Regional Maintenance Center (RMC) Policy Standardization (RPS) to achieve predictable, repeatable performance and improve efficiency and responsiveness; and (3) SHIPMAIN Review to assess compliance and effectiveness of both the governing directives and all aspects of the surface ship maintenance and modernization protocol.

Joint Fleet Maintenance Manual (JFMM). A comprehensive review of the surface ship maintenance program in the JFMM, has been conducted to ensure that all changes initiated over the past two years are fully integrated into existing policy. This JFMM review incorporated initiatives and results from the SHIPMAIN review, SURFMEPP programs, Surface Ship Readiness Initiatives (SSRI), Integrated Project Team Development (IPTD), Total Ship Readiness Assessment (TSRA), Quality Reviews, and Work Force Development and Work Certification and Availability Closeout. The JFMM updates will allow users to better identify, understand, and execute the maintenance process. Most importantly, the changes will provide a foundation for institutionalizing surface maintenance improvement. Efforts to significantly improve the ease of use for both afloat and ashore maintainers are ongoing.

RMC Policy Standardization (RPS). There is a continuing effort to develop and issue standardized guidance and policy across all RMCs and at all levels. This policy consolidation effort is the foundation for common, predictable, repeatable performance from the RMCs. Additionally, once trained to a common policy and protocol, RMC personnel can supplement other RMCs with minimum additional training to fill an emergent need.

There are 350 separate instructions under review in 20 categories gathered from the RMCs spanning the maintenance end-to-end (E2E) process. The review will result in 12 standard "role-based" desk guides for use at each RMC that will act as Maintenance Team Engineering Operational Sequencing System (EOSS) for the maintenance E2E process.

SHIPMAIN Review. The February 2010 Fleet Review Panel (FRP) Final Report identified several shortcomings in the performance of Navy surface ship maintenance and modernization. This led Surface Team One (ST1) leadership to direct the formal study of surface ship maintenance and modernization policy collectively known as SHIPMAIN. The following specific areas were reviewed:

- o The validity and effectiveness of SHIPMAIN policies;
- o Effectiveness of the End-to-End (E2E) Availability Planning and Execution Cycle;
- o Compliance by all activities governed under SHIPMAIN policy;
- o Non-compliance root causes; and
- o Effectiveness of the Information Technology (IT) tools that support SHIPMAIN.

The review generated a total of 53 findings and associated recommendations which cover a wide assortment of important SHIPMAIN issues and reflect the need to correct many diverse performance-impacting deficiencies. When viewed as a whole, the specific causes of the individual findings can ultimately all be attributed to one or more of three root causes:

- o Guidance provided in the JFMM requires improvement;
- o Existing SHIPMAIN training programs are not effective; and
- o Established oversight and accountability requirements are routinely not being administered.

Implementing the 53 recommendations will improve the quality of surface ship maintenance and modernization across all maintenance and modernization activities. Both Fleet Maintenance Officers have endorsed these recommendations and actions are now in place to incorporate those recommendations into current programs, policies and initiatives.

PROGRAM AND PROCESS ACTIONS

Overview. The following program and process actions were initiated to improve:

- o Material assessments to provide an accurate assessment of the material condition of a ship against the Integrated Class Maintenance Plan to enable accurate maintenance planning and budgeting;
- o Availability work certification and close-out to improve work quality, and maintainer performance, while increasing the accountability of all work including deferred work.
- o Sustainment to expected service life (ESL) through improvements in Hull Mechanical and Electrical (HM&E) maintenance and corrosion control.
- o Maintenance execution oversight to increase accountability and improve execution to plan.
- o Maintenance contract governance to improve the performance of Regional Maintenance Center (RMC) contract administration and to provide a forum for proactive engagement with the private maintenance sector; and
- o Quality reviews to train the work force, institutionalize what "right" looks like, and produce quality work.

Assessments. Total Ships Readiness Assessments (TSRA) are comprehensive material assessments of a ship's HM&E; combat systems; command, control, communications, computers and intelligence (C5I) systems; support equipment; and logistics conditions. TSRAs are tailored material assessment packages scheduled to occur at specific times during a ship's life cycle to improve maintenance availability planning, Current Ship's Maintenance Project (CSMP) management, equipment repair, ship's force technician proficiency, and operational availability (Ao). The desired outcome and noted results are:

- o Improved Sailor training and the ability of a crew to self-assess, identify trends in material condition, and provide quality inputs into sustainment programs;

- o Reduced growth and new work "incremental discovery" and the resulting cost/schedule increases for CNO availabilities and Continuous Maintenance Availabilities (CMAVs); and
- o Improved ship material condition and the ship's ability to conduct routine operations, training and deployment (increased Ao).

The Total Ships Readiness Assessment instruction promulgated in June 2012 integrates TSRA events into the ship's training cycle established by the Ships Force Readiness Manual (SFRM). By integrating material assessments with the training cycle, the process has been institutionalized to ensure well defined work package requirements over the life of the ship.

Availability Work Certification and Close-out. To ensure quality work and to reduce re-work, increased emphasis has been placed on the rigor in which repair work and modernization can be certified as completed during a maintenance availability. Disciplined technical adjudication of deferred work ensures critical maintenance is accomplished at the appropriate time and accurately reflected in future availabilities. Actions to date consolidate, streamline, and standardize the certification process, which will be codified in changes to the Joint Fleet Maintenance Manual (JFMM) and NAVSEA Standard Items. Changes will tie surface ship work certification to key availability completion events.

Sustainment. The following programs were established to sustain ships to ESL:

HM&E Sustainment Program. This program supports core engineering and logistics functions designed to improve surface ship readiness and life cycle sustainment. Using the carrier model, this program develops and maintains products to improve:

- o Obsolescence management;
- o Distance support;
- o Logistics support;
- o Training support;
- o Technical documentation deficiency remediation;
- o Fleet engineering support; and
- o Systems engineering support.

American Bureau of Shipping - Achieving Service Life Program (ABS-ASLP). ABS-ASLP is a NAVSEA initiated program that applies successful ABS 3rd-Party commercial corrosion control expertise and engineering practices and products to the Fleet. The program's objective is to complete more than 190 structural/corrosion surveys on 5 ship classes (CG, DDG, LHD, LSD, LPD) by FY17. The results of these surveys will be used to evaluate structural strength and fatigue, determine impacts on ESL, and identify corrective actions.

Maintenance Process Execution Oversight. The End-to-End (E2E) Availability Planning and Execution Cycle aligns ship maintenance with the Fleet Response Plan (FRP), which generates operational readiness, sustains operational readiness into the future, and enables continuous process improvement. The E2E process consists of five phases:

1. Advanced Planning
2. Planning
3. Integration
4. Execution
5. Closeout

Recent actions initiated to improve the effectiveness of the E2E process include:

- o Establishing monthly Flag-level review of significant phase events in the E2E process to ensure satisfactory progress is being accomplished, ensure established exit criteria are met prior to movement to the next phase, and to ensure availabilities are executed within cost, schedule and quality requirements.
- o Establishing well-defined lines of responsibility and authority for the completion of each phase of the E2E process.
- o Establishing an Integrated Project Team Development Program to provide surface ship CNO Availability Project Teams the foundation for repeatable success and ensure availabilities meet cost, schedule and quality requirements.

Maintenance Contract Governance. A Contract Governance Council (CGC) was established by Naval Sea Systems Command (NAVSEA) to improve the performance of Regional Maintenance Center (RMC) contract administration and to provide a forum for proactive engagement with the private maintenance sector. The CGC is a government-only standing body responsible for the continuous improvement of the contracts governance process and for providing strategic guidance for the Navy's overall ship maintenance and modernization contracting strategy. The CGC:

- o Oversees shipboard maintenance, modernization, and sustainment production work contracts;
- o Manages the portfolio of approved shipboard production contracts maintained by Commander, Navy Regional Maintenance Center (CNRMC);

- o Standardizes Regional Maintenance Center (RMC) contracting requirements for non-nuclear maintenance and modernization work to include repairs, modernization, installations, or alterations where potential exists for system or boundary entry, work control, or tag-out procedures; and
- o Develops Multi Ship Multi Option (MSMO) contract strategies.

Expected CGC impacts include:

- o Increased standardization in the execution of contracts across all RMCs;
- o Optimized the number of contract vehicles required for shipboard work;
- o Improved technical oversight;
- o Improved waterfront work integration;
- o Increased direct work per dollar spent at MSMO contractors;
- o Increased discipline in the contracting process with overall reduced contracting workload; and
- o Increased adherence to schedule, especially end of maintenance availability.

Quality Reviews. A CNRMC Quality Review program was established to ensure ships are maintained to design specification through quality work, and improve availability performance by reducing re-work. Additionally, by reinforcing maintenance standards day-to-day, the program re-establishes and institutionalizes "what right looks like." To achieve these outcomes, the program applies maintenance quality lessons learned and best practices both in the established RMC Quality programs and their oversight of the contractor to the following areas:

- o Organization
- o Training
- o Qualifications
- o Resources
- o Audit
- o Assessments

MANNING AND TRAINING ACTIONS

Overview. A key finding of the Fleet Review Panel was degradation in intermediate level maintenance support from the Shore Intermediate Maintenance Activity (SIMAs) and Regional Maintenance Centers (RMCs). Much of this was due to reductions in manning, both military (MILPERS) and civilian (CIVPERS), and shore based training programs. After a detail review of personnel resources and training requirements necessary to revitalize depot and intermediate level maintenance capability/capacity, a manning and training program was established to correct these deficiencies.

Restoring RMC Capability and Capacity. RMC capability and capacity are being expanded/reconstituted by increasing CIVPERS/MILPERS manning, improving maintenance training and workforce development, re-establishing Intermediate-Level (I-Level) capabilities, standardizing/aligning/improving RMC processes and practices through changes in policy, and improving maintenance governance. Central to this effort is a RMC Workforce Development Program that focuses on improving the workforce through training and career development. Specific RMC manning and training improvements that will be accomplished over the next year include:

- o Increasing RMC CIVPERS staffing to improve depot availability oversight, quality, and contract administration.
- o Providing Sailors access to "C" schools while stationed at RMCs to fill critical Navy Enlisted Classifications (NECs) at sea and ashore.
- o Returning journeyman-trained, qualified and experienced Sailors to sea by enrolling RMC eligible Sailors in the Navy Afloat Maintenance Training System (NAMTS). This program allows Sailors to receive NECs that can be directly applied to the United States Military Apprenticeship (USMAP) certification;
- o Revising NAMTS to close training gaps identified by a formal review of journeyman-level training capabilities;
- o Implementing Maintenance Assist Teams (MAT). MATs provide Intermediate Maintenance Activity (IMA) support directly to ships in areas where there is a critical shipboard need or lack of training, such as deck equipment, auxiliaries, and

- o maintenance/repair support, and training. This program will evolve into other areas as need arises.

Other RMC actions include:

- o Implementing Intermediate Maintenance Activity (IMA) Capability/Capacity strategies for all RMCs;
- o Completing planning to fully implement Total Ships Readiness Assessments (TSRA) in FY13;
- o Completing implementation of Work Certification/Availability Certification policies; and processes.
- o Standing-up Navy Regional Maintenance Office (NRMO) to provide independent third party oversight of work control/quality for all work in both the private sector shipyards and the IMA using best practice from the carrier and submarine maintenance communities.

WHOLENESS ACTIONS

Overview. The Fleet defines "wholeness" as providing the appropriate resources (manning, training, equipping and maintenance) and time required to prepare a unit to deploy with confidence in their ability to accomplish their assigned mission, sustain mission readiness, and achieve platform expected service life (ESL). From a maintenance perspective, ensuring ships and equipment perform to design (operationally ready) and achieve ESL (sustain performance) requires a holistic look at the entire material readiness life cycle of a ship from new construction to decommissioning. Focusing on specific ship classes and missions, Readiness Task Forces (TFs) were established to analyze all elements involved in maintaining material readiness through the life cycle and prioritized recommendations provided to address deficiencies and limitations.

Wholeness Studies/Readiness Task Forces (TFs). Readiness TFs have developed and managed short and long-term recommendations for life cycle management of a ship class or system to ensure they remain operationally ready (perform to design) to ESL. TFs have been completed for:

- o Mine Countermeasures Class (MCM)
- o San Antonio Class (LPD 17)
- o SPY Aegis Weapon System (AWS)
- o Aegis Ballistic Missile Defense (BMD)

TFs have reviewed all aspects of class operational readiness, to include:

- o Readiness metrics;
- o Factors driving reduced readiness;
- o Shipboard manning and training;
- o Infrastructure support;
- o Navy Training System Plans (NTSPs);
- o Spare parts;

- o Integrated Logistics Support (ILS) documentation; and
- o Maintenance requirements and resourcing

Data analysis resulted in a prioritized list of actionable recommendations captured in a detailed Plan of Action and Milestones (POA&M). Each TF's final report serves as a blueprint to enhance current life cycle management planning and execution.

- o MCM: 51 Items, \$445M
- o LPD-17: 482 Items, \$1,125M
- o SPY AEGIS: 51 Items, \$248M
- o AEGIS BMD: 41 Items, \$178M

TYPE COMMANDER ACTIONS

Overview. The surface ship type commanders have instituted a number of changes with respect to policy guidance and programs designed to improve surface material readiness.

Surface Force Readiness Manual (SFRM). The recently-issued Surface Force Readiness Manual (SFRM) provides the overarching strategy and policy to generate and sustain surface ship materiel and operational readiness, ensuring ships are able to meet operational tasking and reach expected service life. The SFRM integrates manning, maintenance, training, and sustainment through all Fleet Response Plan (FRP) phases. It begins with meticulous maintenance planning to generate the materiel readiness required to support unencumbered, effective training and operational readiness that ultimately leads to a self-sufficient ship.

The SFRM provides a continuum that educates ships on what the standards are; determines where the ship is relative to those standards; helps the ship achieve standards compliance through training, assessments, and maintenance actions; and circles back periodically to ensure the lessons and effects of this process endure. This ship readiness generation model integrates maintenance and training into a coherent plan of mutually supportive events that provides ships sufficient time to properly maintain, operate, and employ ship systems safely and confidently. The goal of the process is to provide trained Sailors deploying with their ship at the peak of readiness, prepared to overcome deployment challenges while sustaining a high level of readiness throughout the entire FRP.

Shipboard Training. "The Ship is the Classroom." The initiatives that deliver maintenance training to our Sailors on the deckplates continue to produce tangible readiness improvement. The various assist teams, mini-camps, and Maintenance and Operator Shipboard Training (MOST) initiatives provide valuable training for Sailors on their equipment, in their spaces. Since every ship is unique, this style of ship-specific training avoids the broad "not exactly what you will see on your ships" course content often experienced in schoolhouse instruction. Instead, this training is truly hands-on, over-the-shoulder instruction that emphasizes standards and demonstrates

"what right looks like." The training embodied in "the ship is the classroom" delivers hull-specific instruction, instills pride of ownership, brings system experts from the technical communities to the waterfront, provides technical oversight of maintenance, and eliminates the need for some generic schoolhouse courses of instruction. Not only is there cost avoidance with the elimination of duplicative schoolhouse training, but the corresponding decrease in training pipeline length reduces the Individuals Account by getting Sailors to their ships faster. This initiative utilizes the following teams:

- o Maintenance Assistance Teams (MATs): MATs provide hands-on training and reinforcement of material readiness standards for valve, deck, auxiliary, gun, gas turbine, and electrical systems. These teams are made up of Intermediate level maintenance qualified Sailors who work hand-in-hand with ship's company on specific systems.
- o Readiness Assistance Teams: Engineering (ERAT), Combat Systems (CSRAT) and INSURV (IRAT) Readiness Assistance Team members work one-on-one with Sailors on program management, material self-assessment, and the implementation of proven practices that instill self-sufficiency and ownership. All Readiness Assistance Teams adhere to a training philosophy of "find, fix, train, document." These teams are contracted subject matter experts (SMEs), with the vast majority being former senior enlisted in-rate specialists.
- o Mini-camps: NAVSEA In-service Engineering Agents (ISEAs) provide hands-on, shipboard training on complex deck, oil pollution abatement, helo hangar door, controllable pitch propeller, compressed air, and lube oil systems during dedicated mini-camps.
- o Deck Self-Assessment and Groom Team (D-SAGT): PMS-317 sponsors a team of technical experts who focus on LPD-17 Class deck equipment. D-SAGT provides classroom and hands-on training, assesses 21 deck systems, and reviews technical documentation and deck department qualification administration for accuracy. At the end of the visit, the team delivers comprehensive training materials for each system.

Aegis SPY Radar Readiness Improvement Program. To combat a trend of reduced SPY radar performance and lower system operational availability (Ao), the Aegis SPY Radar Readiness Improvement Program was implemented in November 2011.

The initiative improves SPY material performance and operational readiness. It also increases command awareness and involvement, crew proficiency, competency, and confidence. The governing tenets are increased Planned Maintenance System (PMS) periodicity and increased reporting of SPY performance to boost preventive maintenance execution, improve ship's force ability to troubleshoot/identify leading indicators, and provide detailed radar status to leadership.

- o SME Access: To reverse declining SPY material readiness trends, several initiatives have been established to improve shipboard access to NAVSEA and Lockheed Martin SMEs to quickly address Aegis Weapon System (AWS) performance issues. Initiatives include 24/7 online Aegis and Ballistic Missile Defense (BMD) tech team support, shore-based SME assessment of at-sea AWS health via Operational Readiness Test System maintenance, and shipboard SME visits during all phases of the Aegis Warfare Training continuum.
- o Aegis "experts" to-sea: This initiative provides one or two contracted SME(s) to embark Aegis ships during deployment training and deployment. The at-sea technical representatives provide the ship and Strike Group enhanced maintenance and troubleshooting capability for AWS / SPY, expert hands-on training to Sailors, and technical support for PMS and corrective maintenance. This additional Aegis support effort is yielding benefits for BMD and Carrier Strike Group deployers by providing enhanced maintenance and troubleshooting capability for AWS systems and technical support and detailed evaluation of the performance of the Aegis Weapons System and SPY radar.
- o Advanced Warfare Training (AWT): Comprised of a three-phased training curriculum that provides detailed maintainer, watch stander, and watch team training. Phase One focuses on AWS sub-system alignment, trend analysis, and maintenance execution. Phase Two provides watch stander training on Battle Orders and the detect-to-engage process. Phase Three provides watch team training on Battle Orders, core tactics, communications, and mission planning. Currently, only BMD and Aegis Baseline 7.1 ships receive the full complement of AWT phases, but Phase One of AWT has been expanded to all Aegis ships for the remainder of FY12 and all of FY13 due to the success of AWT in improving Ao on these ships. Beginning in FY14, the full complement of AWT phases will be conducted in all Aegis ships.

o Parts support:

Forward-staging of Aegis parts: To improve the accessibility of Aegis repair parts and the speed with which those parts flow to our ships on deployment, critical Aegis parts are staged in Bahrain for use by both FIFTH and SIXTH Fleet assets. The original set of 33 parts forward-staged earlier this year has been recently expanded to 152. The first incremental increase of 65 additional parts has already been shipped to theater, and the second set of 54 parts will be in Bahrain by Q1 FY13.

Aegis Sparing Models: As part of Aegis/BMD sparing initiatives, an increased sparing allowance is undergoing analysis on USS LABOON during her BMD deployment. LABOON received new allowances for 118 additional BMD-specific parts to increase the range of onboard spares. This increased allowance is intended to raise SPY Ao from 0.938 to 0.95. In addition, a ship-specific, demand-based sparing model is being incorporated to complement the readiness-based sparing initiatives that increase the range of parts and the depth of onboard spares for high-demand, high-fail items.

BMD Pack-up Kit (PUK): To ensure BMD deployers have increased parts sparing for BMD-specific parts, BMD deployers receive a standardized parts PUK containing 34 parts for SPY/AWS, VLS, WSN-7, GCCS-M, EHF/SHF, TADILs, and ADNS/ISNS networks. An additional nine BMD parts are also forward-staged in Sigonella to increase BMD sparing range and depth for deployed ships.

Corrosion Control Initiatives. In 2010, surface force Type Commanders (TYCOMs) reviewed all aspects of surface ship corrosion control, and with the support of NAVSEA, initiated changes to the way we attack corrosion in our surface ships. The initiatives target proper identification, training, tools, and technical support to our Sailors, who are the first line of defense against corrosion.

- o Corrosion Control Assistance Team (CCAT) Establishment: CCAT is a joint NAVSEA and Fleet initiative created to educate and assist Fleet Sailors in ship preservation and corrosion control. The team conducts training and brings expertise, tools and new technology to our ships during an intensive corrosion control and prevention visits. Based on about two years of run time, the CCAT benefits have outweighed the costs by a factor of two to one. From FY11 through April 2012, work was completed by ship's force with CCAT aboard at a cost of

\$9.0M that would have otherwise been deferred for depot level activity costing \$19.8M.

- o Corrosion Control Program Manager (CCPM) Establishment: CCPMs provide the Quality Assurance (QA) needed to ensure all our deck applications, especially non-skid, are properly installed for maximum service life. This structure emulates the QA process administered on our aircraft carriers by the aviation community.
- o Extended Durability Non-skid (Type V) Use for Roll-on Applications: Type V non-skid has a three-year service life vice the one-year service life of the lower quality non-skid currently authorized as a NAVSEA standard item.

Propulsion Executive Steering Committee (PESC). NAVSEA reorganized this forum (initially established in 2003) under Surface Team One to promote synergy between the PESC and other Sustainment programs that are integral to propulsion system readiness. Specific linkages include aligning propulsion system long-range maintenance requirements with Surface Maintenance Engineering Planning Program (SURFMEPP) processes and products; execution and validation of material condition assessments (issued by SURFMEPP) from Total Ships Readiness Assessments (TSRA); and coordination of systems engineering efforts with the Hull, Mechanical and Electrical (HM&E) Sustainment Program. PESC is a forum that fuses operational experience (surface force type commanders), lifecycle engineering solutions (NAVSEA), and Chief of Naval Operations (OPNAV) sponsorship to drive improved system Ao. Specific actions under the PESC include failure mode/ root cause analysis, enhanced assessment programs; improved propulsion systems fluid management; performance monitoring (local and distant); prototyping and fielding plans for design improvements; enhanced operator training; establishment of centers of excellence; and propulsion unit depot-level repair programs / central asset management. Recently, the results of PESC have revealed significant improvements: LSD 41 Class main propulsion diesel engine Ao rose from approximately 0.82 (2007) to 0.99 (2011). During the same time period, in the area of main propulsion gas turbine engines, mean time between failure (MTBF) increased 44% from 958 hours to 1383 hours. The PESC process demonstrates that tangible material readiness improvements are achievable when rigorous systems engineering, lifecycle maintenance planning, process discipline, and long-term resource commitments come together.

Maintenance Availability Management. To improve Life Cycle Integration into Depot Level CNO availability work packages, Availability Work Package Managers (AWPMs) have been added to the surface force Type Commanders to emulate the proven practice of AIRLANT and SUBLANT. The incorporation of AWPMs results in increased awareness and technical rigor in work packages through the use of deferral letters vetted through our Navy Technical Warrant Holders. In addition, a Port Engineer (PE) Certification Program was initiated in 2012 to define the professional development and training requirements in the PE career path. The Certification program enhances the PE skill set through qualification achieved in a four-level certification process.

Military Sealift Command Engineers. Three years ago, the former LPD/LSD CLASSRON conducted a deep-dive on LSD Readiness that identified significant deficiencies in training and expertise for main propulsion diesel engine maintenance and operations. As a result, surface force type commanders partnered with Military Sealift Command (MSC) to leverage MSC's extensive main propulsion diesel experience and apply the appropriate maintenance and operational practices appropriate for our diesel powered amphibious ships. Since inception in October 2011, two MSC Engineers (per ship) are assigned to LSD/LPD class ships to conduct training and provide recommendations for training and operating improvements. We have compiled well over 300 unique observations and instituted revisions to PMS, technical documentation, and maintenance and operating practices.

PRESIDENT, BOARD OF INSPECTION AND SURVEY ACTIONS

Overview. Independent, third-party material inspections against established performance standards are a critical check on the ability of the Fleet and maintenance communities to sustain ships to expected service life (ESL). Board of Inspection and Survey (INSURV) Material Inspection (MI) results were key indicators of negative surface force readiness trends and were one of the reasons why the Fleet Review Panel was established. Improving Fleet material readiness often requires improvement to the inspection and reporting processes. Accordingly, the President of the Board of Inspection and Survey is taking the following actions (not all inclusive).

Broader and Deeper Inspection. A bottom-up review was completed in 2011 and resulted in the following actions:

- Implement BMD demonstrations. A BMD demonstration was piloted on three ships. The pilot phase was completed in June 2012 - formal grading and reporting has commenced as of 1 July 2012.
- Implement two new submarine demonstrations (countermeasures, and electrical distribution).
- Shoot all guns during material inspections.
- Conduct structural assessments on all surface ships, not just surface ships older than 15 years.
- Increase auditing associated with MIs to include the status of tanks and voids and the completion of maintenance per class maintenance plans, technical manual tracking system, hull structure, deficiency tracking, modernization, and remote monitoring systems.

More Frequent Inspection. Surface ship material inspections occur roughly every two Fleet Response Plan (FRP) cycles (about 60 months). In the off cycle, the Type Commander (TYCOM) will conduct an INSURV-like event - a Mid-Cycle Material Assessment (MCMA) - to measure material condition and to train crews in standards. MCMA inspection teams will be a mix of TYCOM and INSURV personnel. INSURV will provide checklists and demonstration/equipment operational capability (EOC) grading.

More Sophisticated Grading. INSURV will switch from SAT/DEGRADED/UNSAT grading to INSURV Figure of Merit (IFOM), which is a single, weighted average of the 30 EOC and demonstrations on a scale of 0 to 100. All other aspects of the MI will remain exactly as they are today; inspections will be conducted on the same things in the same way; INSURV will continue to generate numeric scores for EOCs and demonstrations; and INSURV will report if a ship is "unfit for further service" as required by Title 10. IFOM will allow INSURV to more accurately report ship material condition relative to others, provide a better statistical basis for comparison across the Fleet, and support better trend analysis.