NAVY MODERNIZATION PROCESS MANAGEMENT AND OPERATIONAL MANUAL (NMP-MOM)

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SUPERSEDES: SL720-AA-MAN-030 (Revision 2), dated December 2008

JANUARY 2010 **ONE BOOK**

Navy Modernization Process
Management and Operations Manual

NMP-MOM

All Sections and Appendices

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1	Introduction
2	General Policies and Responsibilities
3	Navy Modernization Entitled Process and Business Rules
4	Financial Management
5	Material Management
6	Configuration and Logistics Management
7	Advance Planning, Execution Planning, and Letters of Authorization
8	Navy Data Environment (NDE) System
9	Submarine Force Ship Change Design and Development Process

App	Title
A	Cross Reference, 17 Mar 2009
	Technical Instruction Guidance Document, Version 1.4, Ship Change Document Technical Specification, No.: TS9090-400C, 1 April 2009
B	Planning Yard Assignment Matrix, Revision 2, 17 Mar 2009
C	Ship Selected Records, Revision A, 11 Dec 2006
D	Navy Modernization Business Rules
E	Acronym List, 17 March 2009
F	Technical Specification, Liaison Action Record (LAR), TS9090-100A, June 2002 (Supersedes: TS9090-100, August 1993)
G	Navy Modernization Process Milestones, Rev 2, 17 March 2009
H	Technical Specification, Alterations to Ships Accomplished by Alteration Installations Teams, TS9090.310F, 1 June 2011
I	Technical Specification, Ship Alteration Drawings (SIDs) Preparation, Rev 2, No.: TS9090-600A, June 2002 (Supersedes: TS9090-600, Aug 1985)
J	Technical Specification, Ship Selected Record Drawings, Rev 2, No.: TS9090-800A, June 2002 (Supersedes TS9090-800, May 1986)
K	CFT 4 Metrics, Rev 2, November 2005 (Draft)
L	NMP Concept of Operations for Management and Oversight of the Navy Modernization Process, Rev 2, 1 November 2007 (posted 17 March 2009)
M	Non-Permanent Changes (posted 31 August 2009)

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This collection of NMP-MOM sections was assembled from versions stored on the Navy Data Environment (NDE) on 1 May 2012.

SECTION 1

INTRODUCTION TO NAVY MODERNIZATION PROCESS MANAGEMENT AND OPERATIONS MANUAL (NMP-MOM)

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References for Section 1

S1(a) NAVSEA SL720-AA-MAN-010/020 (Revision 2), Fleet Modernization Program (FMP) Management and Operations Manual

S1(b) COMFLTFORCOMINST 4790.3 Joint Fleet Maintenance Manual (JFMM)

S1(c) ASN (RDA) Memorandum of 09AUG06

S1(d) CJCSM 6510.01 CH-3 date 8 Mar 2006

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SUBSECTION 1-1 NAVY MODERNIZATION PROCESS MANAGEMENT AND OPERATIONS MANUAL (NMP-MOM) CONTENT

The following is a synopsis of each section of this manual:

- Section 1: Introduction
- Section 2: General Policies and Responsibilities - Describes overall top level policies and responsibilities governing planning and installation of Ship Changes (SCs) through the Navy Modernization Process (NMP).
- Section 3: Navy Modernization Process Business Rules – Describe the policies, processes, and procedures of the NMP, including initiation, submission, updates, all review cycles, and closeout of Ship Change Documents (SCDs). **(Surface Ships and Carriers Only).**
- Section 4: Financial Management - Describes policies, procedures, and responsibilities for budgeting, funding, and financial management of SCs.
- Section 5: Material Management - Describes the policies, procedures, and responsibilities for ensuring material identification for SCs, is available when required, and accurately reflects the as installed configuration.
- Section 6: Configuration and Logistics Management - Describes responsibilities for procuring, updating, and tracking key Integrated Logistics Support (ILS) elements to ensure availability of ILS products to support SCs when installed. This section also establishes, for the interim process, responsibility for the preparation of various ILS and Configuration Management End of Availability (EOA)/End of Installation (EOI) Status/Verification Reports.
- Section 7: Advance Planning and SC Letters of Authorization – Includes for the interim process, requirements for drafting, releasing, and changing Advance Planning Letters and SC Letters of Authorization (LOA).
- Section 8: Navy Data Environment-Navy Modernization (NDE-NM) - Describes content, capabilities, and management of the NDE-NM database.
- Section 9: Submarine Force Ship Change Design and Development Process- Describes the process for accomplishing Submarine Force ship modernization including establishing the submarine- unique Prioritized Undersea Enterprise (USE) Requirements Letter (PURL), the development of the minimum Modernization Matrix (MMM) and the process for planning and approving SCs.

SUBSECTION 1-2 INTRODUCTION

The legacy Fleet Modernization Program (FMP), documented in reference S1(a), provided a structure for the orderly identification, approval, design, planning, programming, budgeting, installation, life cycle support, and configuration control of military, technical, and survivability improvements to all ships. In 2004, the Surface Ships and Carrier Entitled Process for Modernization (the "Entitled Process" (EP)) was implemented and is documented in Sections 1 through 8 of this manual. In 2009, the submarine modernization process was added with detailed requirements in Section 9.

The NMP is designed to prevent unauthorized and non-supported alterations from being installed on Navy ships. Unauthorized alterations represent a substantial cost to the Navy in terms of the loss of configuration control, inefficiencies due to unexpected installation interference, systems and equipment that are not logistically supported, and resources expended to support items which are no longer needed. Unauthorized and unsupported alterations can adversely impact the interoperability of highly technical and integrated combat systems. This equates to a loss of combat effectiveness due to a reduction in Battle Group/Strike Group interoperability and individual ship capabilities. Unauthorized changes to a Navy ship are prohibited.

1-2.1 Surface Ship and Carrier Modernization

This subsection of the Navy Modernization Process Management and Operations Manual (NMP-MOM) provides an overview of the entire NMP. The NMP mission is to provide a disciplined process to deliver operational and technical modifications to the Fleet in the most operationally effective and cost efficient way. It defines a standard methodology to plan, budget, engineer, and install timely, effective, and affordable shipboard improvements while maintaining configuration management and supportability.

The NMP represents a sweeping change in the Modernization of Surface Ships and Carriers. It significantly modifies the FMP by reducing over 40 Change Types into two categories, Fleet Type Commander (TYCOM) changes and Program System Command (SYSCOM) or Program Executive Office (PEO) changes. Further, the NMP streamlines and consolidates a number of existing modernization practices, processes, meetings, and supporting documents to provide a single, hierarchical decision-making process for modernizing Surface Ships and Carriers.

The SCD is a document used to communicate a proposal and facilitate the decision process. The two types of SCDs, Fleet and Program, are defined in SUBSECTION 1-4.

Implementation of the NMP commenced in July 2004 with a shift from legacy FMP documentation to the SCD. One of the goals of the NMP is to populate the President's Budget with approved, fully funded changes selected based on Technical, War-fighting, Readiness, and Cost Benefits using a single structured process involving TYCOM and Office of the Chief of Naval Operations (OPNAV) Senior Decision-makers. Some key highlights are as follows:

- SCD Point of Entry: The SCD is now the change input vehicle for the single authoritative web-enabled database, Navy Data Environment (NDE). NDE and the SCD comprise a single modernization database and entry point for all changes.

- Hierarchical Decision Making Process: The Navy Modernization Decision Boards manage and provide oversight to the NMP. They provide strategic direction to the NMP and produce a Modernization Plan (MP) as an input to the Program Objective Memorandum/Procurement Request (POM/PR) each year. The three hierarchal Decision Boards, (O-6 Decision Board, 1&2 Star Decision Board, and 3 Star Decision Board) are responsible for all aspects of NMP. Voting members of the Boards, as defined in The CONOPS (Appendix L), represent appropriate Fleet and OPNAV organizations. Non-Voting Representatives from SYSCOMs, Ship Program Managers (SPMs), and PEOs assess the readiness of a SCD from an execution perspective to proceed to the next step of the approval process. The O-6 Board will evaluate all SCDs submitted, and prioritize approved SCDs based on available funding. The Flag Boards will provide disposition on Acquisition Program SCDs, resolve issues raised by the O-6 Board, and approve the prioritized Navy Modernization Plan (NMP) each year. Ultimate authority of Acquisition Programs shall be retained by the Milestone Decision Authority (MDA).

- Decision Aids In The NMP: The Decision-makers must have an overall view of the cost, technical merit, and benefit of a proposed SCD. This summary is provided in the form of a single, electronically generated document called the Recommended Change Package (RCP). The RCP displays these decision parameters to each of the board members to support approval, prioritization, and funding decisions. The RCP summarizes the results of three key assessments conducted during the SCD review process:

- Core and Virtual Technical Assessment Teams (TAT) consisting of SYSCOM and PEO technical personnel review the SCD to ensure the SCD is technically feasible and to identify any ship integration issues that may impact its overall benefit to the fleet, such as Weight and Moment, Heating, Ventilation and Air Conditioning (HVAC) requirements, interoperability, certifications, or association with other changes. The TAT may review the Fielding Plan (FP) and provide comments on the technical feasibility, but FP issues are not a determining factor for the TAT recommendations for Decision Board approval or rejection of a SCD.

- Cost Benefit Analysis (CBA): CBA CMs review cost and FP data in the Cost Structure Worksheet (CSW).

- Alteration Figure of Merit (AFOM): The AFOM is calculated using a weighted mathematical model that reflects the overall SEAPOWER 21 and other factors; (such as manpower, training, etc.) This model is weighted based on an annual TYCOM N8 “health assessment”, based on “gaps” in required Capabilities, of the 14 Mission Capability Packages (MCPs) that constitute the SEAPOWER 21 Operational Architecture. The TYCOMs provide inputs to the weighted model via numerical rating scales by subjectively evaluating the degree of war-fighting benefit anticipated for improvement in the SCD. TYCOM Staff Subject Matter Experts (SMEs) in Combat Systems, Command, Control, Communications, Computers, and Intelligence (C4I), and Hull Mechanical and Electrical (HM&E) disciplines conduct this evaluation.

- NMP Decision Points: There are decision points at the end of each phase in the life of an SCD, as detailed in Section 3 of this manual. Additionally, there are two modified paths

(Phase IIa/emergent) that a SCD can follow under special circumstances (see Section 3 of this manual for more details).

- NMP Outputs: When a SCD is approved at any phase, it becomes part of the MP, which provides NMP input to the Planning, Programming, Budgeting and Execution (PPBE) process. The approved SC is also scheduled to specific ships in NDE-NM, which in turn serves as the authoritative database of planned modernizations for each ship.

- The ship-specific list of modernization in NDE-NM forms the basis of the Hull Modernization Plan (HMP) for that ship. HMP products are used to develop the Maintenance and Modernization Business Plan (MMBP) for surface ships or the Availability Work Package (AWP) for aircraft carriers. SCs that are included in the HMP for a specific Chief of Naval Operations (CNO) or Shipbuilding and Conversion, Navy (SCN) (Aircraft carriers only) availability are included on the LOA specific to that availability.

- Availability planning activities are informed of planned modernization work through the HMP and LOA processes. There are several HMP products prepared for surface ship availability planning. The Advance Planning Hull Modernization Plan (AHMP) is prepared by the cognizant SPM in July of each year and provided to the Regional Maintenance Centers (RMCs) to facilitate necessary long lead-time planning for ships under their cognizance. The Execution Planning Hull Maintenance Plan (EHMP) is provided by the cognizant SPM in March of each year to the RMCs to support development of each ship's MMBP.

- SPM and TYCOM LOAs provide definitive installation authority for each CNO availability.

Training material is available online, at the following location: http://www.fmp.navy.mil

1-2.2 Submarine Force Modernization:

Submarine Force modernization does not follow Entitled Process procedures and will instead follow procedures outlined in the Submarine Force Modernization Section 9 of this manual. Modernization practices, processes, procedures and supporting documentation support a disciplined hierarchical decision-making process for submarine modernization.

One of the goals of the Submarine Force Modernization Program is to populate the President's Budget with approved, fully funded changes required to support mission requirements. Changes are approved based on Threshold attributes such as Safety/Security, Survivability/Escape, Obsolescence, Warfighting, Communications/ Technology, Reliability/Maintainability, and Cost Benefit/Return on Investment (ROI) using a structured process which involves Headquarters, Submarine Force (COMSUBFOR) TYCOMs and Chief of Naval Operation (OPNAV) decision-makers. Some of the key highlights are as follows:

- Ship Change Point of Entry: The Submarine Ship Change Document (SCD), a tailored version of the Surface Ship and Carrier EP Process SCD, is to be used to identify change candidates. The SCD replaces the Justification Cost Form (JCF), Ship Alteration Record (SAR) and Alteration and Improvement (A&I) Item used in the past to define change candidates for SSN Class submarines. TRIDENT and SSGN submarines will continue to

use legacy alteration types, i.e., TRIDs and Type Zero (TZ) Improvements. Submarine alteration types are detailed in Section 9 of this manual.

- The Submarine Force will continue to utilize the Justification Cost Form and the Ship Alteration Record in accordance with technical specifications 9090-210B and 9090-500C in lieu of a Ship Change Document. A Ship Alteration (SHIPALT) for the Submarine Force is functionally equivalent to a Surface Ship or Carrier Ship Change (SC).
- SSN SC information will continue to be entered into NDE-NM to the extent necessary to support ILS and budgeting requirements. The current Submarine Force Enterprise interactive databases will continue to be used for input and data sharing of SC information.
- Hierarchical Decision Making Process: Team SUB manages and provides oversight to the Submarine Force Modernization Program in accordance with Undersea Enterprise requirements. They provide strategic direction to the Modernization Program and produce a Modernization Plan (MP) for inclusion in the Program Objectives Memorandum/Program Review (POM/PR) each year. This is accomplished through the annual Prioritized Undersea Enterprise Requirements Letter (PURL) and associated Minimum Modernization Matrix (MMM). Annual prioritization of the MMM is accomplished live at the Submarine Modernization (SUBMOD) Conference by all stakeholders. The annual PURL is approved by both Submarine Force TYCOMs and represents the official Submarine Force Modernization Plan.
- Decision Aids in the Submarine Force Modernization Program: The Decision-makers must have an overall view of the costs, technical merit and benefit of a proposed ship change. SCDs and any necessary attachments containing the rationale for the change and summary assessment information are provided to all stakeholders:
- Technical Review from the NAVSEA, Ship Design Agent and system Participating Acquisition Resource Manager (PARM) engineers, as applicable, including technical feasibility, ship integration impact (arrangements, electrical power, HVAC, EMC/EMI, weight/moment, etc.), interoperability, certification (SUBSAFE, etc) and conjunctive compatibility with other changes.
- Return on Investment (ROI) analysis: Required by the SPM in approving a Ship Change for reliability, maintainability and cost reduction impact conducted by the SPM Change Manager using inputs from the equipment Participating Acquisition Resource Manager, Ship Design Agent and technical review. Proposed change technical benefits and design, procurement, logistics and installation costs along with annual operating costs are compared with current capability and operating cost to arrive at an ROI ratio.
- Process outputs: At the Annual Submarine Modernization (SUBMOD) Conference, all stakeholders review proposed and existing modernization and assign priorities relative to other modernization on the MMM, taking into consideration changing priorities and mission requirements. The output of this process is the Minimum Modernization Matrix (MMM) which provides the annual Submarine Force Modernization Plan and is used by the Resource Sponsor to develop annual modernization budgets.

SUBSECTION 1-3 BACKGROUND

Sea Enterprise is focusing headquarters leadership on outputs and execution, and is creating ideas that will improve our productivity and reduce our overhead costs. Sea Power 21 provides our nation with widely dispersed combat power from platforms possessing unprecedented war fighting capabilities. The global environment and the nation's defense strategy call for a military with the ability to respond swiftly to a broad range of global missions and homeland defense against terrorist threats. To meet these demands, ships must be deployable and surge ready when needed.

1-3.1 Goal

NMP is a Navy-wide initiative to create Surface Ship maintenance and modernization programs that will support the vision of "Sea Power 21" and it's "Culture of Readiness (COR)." The primary objectives of the NMP are as follows:

- Increase the efficiency of the planning process without compromising its effectiveness
- Define a common planning process for Surface Ship Maintenance, and Surface Ship and Carrier Modernization
- Install a disciplined management process with objective measurements
- Improve quality of work candidate description/requirement
- Reduce planning process churn, planning hand-offs, and inefficiencies in current processes
- Improve first pass yield…do it right the first time
- Improve on time delivery…product provided at the right time
- Apply cycles of learning…lessons learned regarding both positive and negative experiences
- Institutionalize the process and provide a continuous improvement methodology

1-3.2 Authoritative Database – Navy Data Environment (NDE)

NDE is the official U.S. Navy authoritative database for ship configuration and modernization.

1-3.3 Exceptions and Exemptions

The Deputy Commander for Nuclear Propulsion, Naval Sea Systems Command (NAVSEA) 08, is responsible for all technical matters pertaining to nuclear propulsion of U.S. Navy ships and craft, including all aspects of integration of the nuclear plant into the ship system. Nothing in this manual detracts in any way from these responsibilities. Accordingly, NAVSEA 08 will be consulted in all matters relating to or affecting the nuclear propulsion plant and associated nuclear support facilities. In addition, the procedures and requirements in this section are not applicable to alterations under the cognizance of NAVSEA 08. Strategic Systems Program Alterations (SPALTs) affecting the configuration and/or capabilities of systems and equipment are under the cognizance of the Director, Strategic Systems Programs (DIRSSP). Submarine TEMPALTs are exempt from this manual as noted in Section 9.

Exemptions are defined in three categories. The first category includes equipage (see Figure S1-1). The second category includes NAVSEA 08, small craft and installations performed during new construction. This policy does not apply to systems under the cognizance of the Nuclear

Propulsion Directorate of the Naval Sea Systems Command (NAVSEA 08). The third category is for maintenance replacement actions whereby there is no change in form, fit, function or capability of the replacement item, there is no impact to the ship's infrastructure AND is NOT fully or partially funded by a Navy Budget Submitting Office (BSO) e.g. the item is funded by a non-Department of the Navy (DoN) (other Department of Defense (DoD)) agency or commercial vendor. Improvements to the reliability, maintainability or availability of the item do not necessarily require a SCD. This determination must be made on a case-by-case basis, as detailed in Section 3 of this manual. However, a work document (i.e., an OPNAV 4790/2 Kilo, which must include updating Configuration Data Managers Database-Open Architecture (CDMD-OA)) and an OPNAV 4790/CK must be submitted when not initiating an SCD for maintenance replacements.

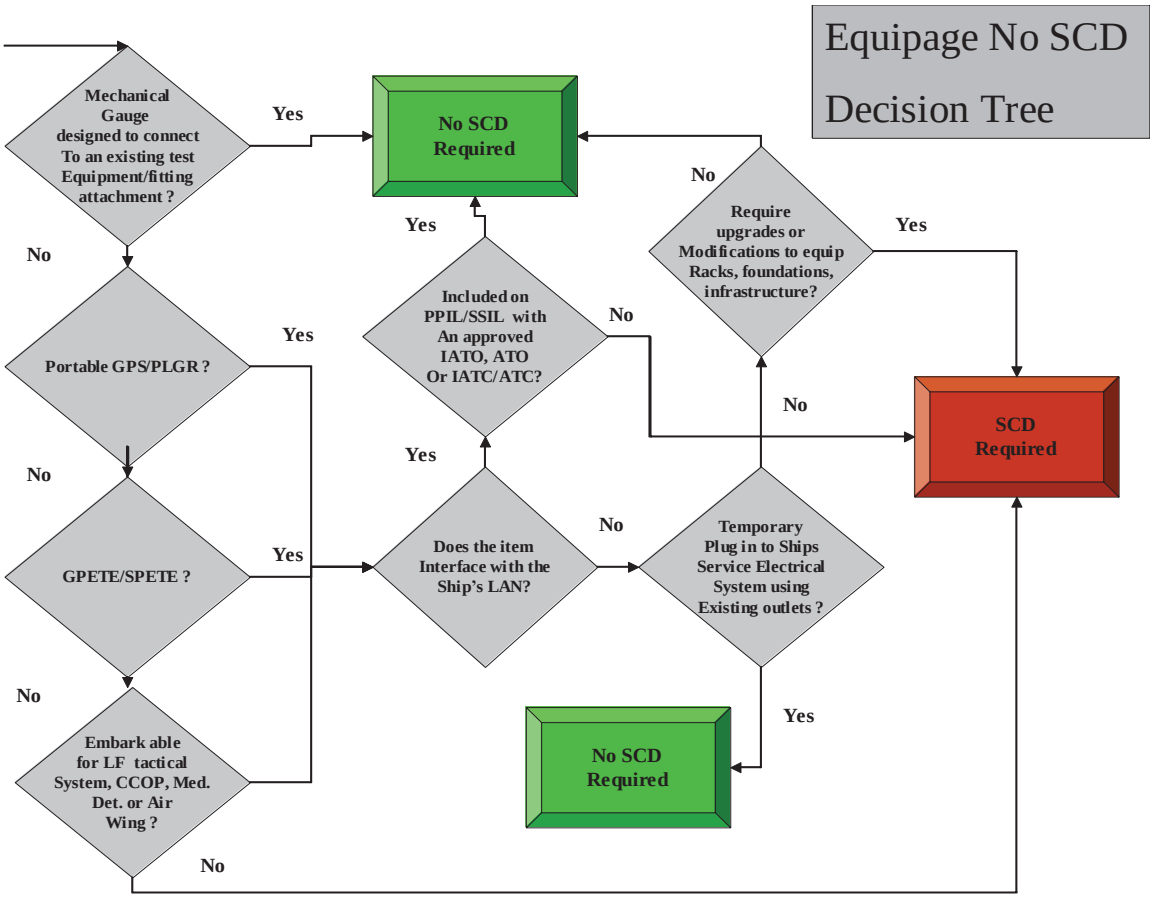

Figure S1-1 Exemptions of Equipage Decision Tree

SCDs are not required for Equipage. Equipage and other exemptions include items that are not permanently installed and are portable, examples include:

- Devices not attached to ships Local Area Network (LAN) or any shipboard data network
- Not hardwired into the ships electrical distribution system
- Test equipment meeting the above constraints

- Stand alone systems that will be carried on and off the ship, do not radiate and do not have any interface with shipboard equipment other than standard ships 115Vac/60Hz power (Plug-in type equipment), and do not require any upgrades to the infrastructure for support
- Installation of mechanical gauges that connect to fittings designed and installed for test equipment attachment. The installation of new test fittings and the use of test gauge fittings for other than test equipment attachment will require a SCD
- Landing Force (LF) owned tactical systems (e.g. Advanced Field Artillery Tactical Data System (AFATDS), Global Command and Control System-Joint (GCCS-J), Automated Deep Operations Coordination System (ADOCS), Command and Control Personal Computer (C2PC), etc.), servers, and workstations may retain the United States Marine Corp (USMC) approved software configuration while afloat. Any LF owned system that has received an Authority to Operate (ATO) or Interim Authority to Operate (IATO) and an Interim Approval to Connect (IATC) or Approval to Connect (ATC) from the appropriate USMC Designated Approving Authority (DAA), is authorized to connect to the Integrated Shipboard Network System (ISNS) without being included on the Preferred Parts List/Significant Supply Items List (PPL/SSIL). Such systems will be evaluated for interoperability during the Deploying Group Systems Integration Testing (DGSIT) process and will be automatically added to the PPL/SSIL upon successful completion of testing
- Air Wing, Air Combat Element, and Aviation Detachment embarked equipment and aviation systems included on the PPL/SSIL with an ATO or IATO authorization and require no infrastructure upgrades to store or support the operation
- Cryptological Carry Onboard Programs (CCOP) equipment included on the PPL/SSIL with an ATO or IATO authorization that require no infrastructure upgrades to store or support the operation
- Database updates (e.g. threat library updates, tech manual database updates, etc.)
- Small Craft may include Landing Craft Air Cushion (LCAC) Vehicles, Rigid Hull Inflatable Boats (RHIBs), Landing Craft Utility (LCU), Patrol/Security Craft, Amphibious Attack and Assault Vehicles (AAAV), etc.

Some examples would be a Personal Digital Assistant (PDA) (if certified for use with Information Technology-21 (IT-21)/ISNS/Navy/Marine Corps Intranet (NMCI)), Embarkable Laptops (If no LAN drops are added to Hull/Same Interface), Mobile Medical Equipment (i.e. Blood Analyzer or Microscopes), General and Special Purpose Electronic Test Equipment (GPETE/SPETE), and Portable Global Positioning System (GPS) Units/Precision Lightweight GPS Receiver (PLGR). While these items are exempt from the process, any infrastructure changes (e.g. Foundation upgrades, upgraded power requirements, installed racks, etc.) required to support these items must be submitted on an SCD.

1-3.3.1 Information Assurance and Vulnerability Management (IAVM)

The Navy Cyber Defense Operations Command coordinates monitors and oversees the defense of Navy computer networks and systems, including telecommunications and is responsible for accomplishing Computer Network Defense (CND) missions as assigned by Commander, Naval Network Warfare Command and Commander, Joint Task Force – Global Network Operations (JTF-GNO), reference S1(d) refers.

- IAVM is a process that provides positive control of vulnerability notification, corresponding corrective action, and IAVM status visibility for DoD network assets
- The IAVM program applies to any device on DoD owned, controlled, or contracted networks A device is considered a node on a network if it has its own network identification (i.e. IP and/or MAC address)
- IAVM compliance is tracked in Online Compliance Reporting System (OCRS)

1-3.3.2 IAVM Products

The following IAVM products may require the submission of a SCD and/or a technical review under the NMP:

- Information Assurance and Vulnerability Assessment (IAVA): An IAVA addresses severe network vulnerabilities resulting in immediate and potentially severe threats to DoD systems and information.

    - Corrective action is of the highest priority due to the vulnerability risk
        - Acknowledge: Identify and submit report of affected assets in OCRS no later than 5 days after IAVA release
        - Compliance: 30 days or less; if unable to meet compliance deadline, a mitigation plan must be submitted and approved for non-compliant assets
        - NMP information for program managers/IAVA sponsors: (Surface Ship and Carriers Only for Submarines see Section 9 of this manual)
    - IAVA products that do not alter the hardware or software capability of a system or equipment do not require a SCD.
    - In all cases where hardware or a software capability is modified, a Phase III SCD shall be submitted, but is not required to be approved for installation. For submarines hardware and software changes will be accomplished by a field change (FCs) or engineering Change (EC) as described in subsection 9-8.
    - In addition, when IAVA products alter the hardware configuration or software patch level of a system classified as an Strike Force Interoperability (SFI) Category (CAT) 1, a technical evaluation shall be conducted by NAVSEA 05W (not to exceed 3 days) in order to determine interoperability impact
    - In all cases IAVA products shall be installed and operational in accordance with the criteria set by Navy Cyber Defense Operations Command (NCDOC)
- Information Assurance Vulnerability Bulletin (IAVB): An IAVB addresses new vulnerabilities that do not pose an immediate risk to DoD systems, but are significant enough that noncompliance with corrective action could escalate the risk.

        - Acknowledge: Identify and submit report of affected assets in OCRS no later than 5 days after release.
        - Compliance: 45 days or less; if unable to meet compliance deadline, a mitigation plan must be submitted and approved for non-compliant assets.
        - NMP information for program managers/IAVB sponsors (Surface Ship and Carriers Only for Submarines see Section 9 of this manual).

    - IAVB products that do not alter the hardware or software capability of a system or

equipment do not require a SCD.

- In all cases where hardware or software capability is modified, a Phase III SCD shall be submitted, but is not required to be approved for installation. For submarines hardware and software changes will be accomplished by a field change (FCs) or engineering Change (EC) as described in subsection 9-8.
- In addition, when IAVA products alter the hardware configuration or software patch level of a system classified as an SFI CAT 1 a technical evaluation shall be conducted by NAVSEA 05W (not to exceed 3 days) in order to determine interoperability impact.
- In all cases IAVB products shall be installed and operational in accordance with the criteria set by NCDOC.

SUBSECTION 1-4 SHIP CHANGE TYPES

There are only 2 types of SCs in the NMP: Program Changes and Fleet Changes. Submarine Force modernization in Section 9 breaks these two types of SCs into further sub-categories.

Program changes are programmed for installation by SYSCOMs or PEOs, as well as funded for accomplishment by the SYSCOMs, PEOs or other organizations as agreed upon.

Fleet changes are programmed and budgeted as part of TYCOM Ship Maintenance funding. Fleet changes typically address safety of personnel and/or equipment, provide increased efficiency, reliability, or maintainability, and generally do not increase or add new capability.

Non-Navy SCDs are programmed for installation on Naval vessels by Non-Navy organizations, and they are funded for implementation by these organizations per previous agreement.

Combination SCDs are programmed for installation on Naval vessels by a combination of the above organizations, and their implementations are funded by those organizations per previous agreement. Under normal conditions these SCDs are funded by their Programs; otherwise they are funded by the Fleet.

SUBSECTION 1-5 PROCESS DEFINITIONS

Modifications to ships evolve from an idea to accomplishment of the change through a complex process involving many separate actions and participants. The following subsections provide an overview of that process of change definition, development, and installation. The Navy Modernization milestone charts in Appendix G of this manual identify the SC milestones for these actions and the associated responsible activities. These milestones vary between Surface Ships and Carriers as well as type of availability and may be tailored to apply to the unique situations where the dates must be accelerated to meet the contractual process milestones associated with the initial availability of a Multi Ship/Multi Option (MSMO) Contract or an availability that must be competed coast-wide. Milestones may also be accelerated when the TYCOM and SPM collaboratively determine this action is prudent to mitigate risk associated with first-ever installation of a SC, first-time SC installation within a specific ship class (First in Class Installation (FICI)), overseas installations, or similar situations where exceptional measures must be taken to manage impact. When this occurs, the platform TYCOM and/or SPM, as appropriate, will issue an "Exception to Navy Modernization Milestones" naval message at A-720, but no later than A-540, to ensure the complete availability planning team is working to the same milestones. In all cases, the PARM will be consulted to ensure the impact of accelerated milestones on product delivery is considered.

1-5.1 Ship Change Documents (SCDs)

The SCD is the single authorized document for all SCs. The SCD does not apply to exemptions listed in paragraph 1-3.3 or to the Submarine Force (see Section 9 for Submarine Force SC processes).

1-5.2 Programming and Budgeting

The PPBE Process is the vehicle for establishing the NMP financial requirements and their execution. Approved SCDs, which contain budgetary information within the CBA portion, will be included in the MP and proceed through the programming and budgeting cycles.

1-5.3 Budget Finalization

The annual POM/PR process is used to establish the NMP budget for planned SC installation.

1-5.3.1 Budget Review and Adjustment

The Office of the Comptroller of the Navy (NAVCOMPT) conducts formal budget hearings to ensure activity budget estimates are within guidance, contain valid costs and pricing, and are financially feasible. After completion of the reviews, a proposed budget decision is issued that may revise previously identified funding requirements.

1-5.4 Ship Change Installation Planning

Each fiscal year, the SYSCOM Comptrollers establish NMP charts of accounts by BSO programs in the Standard Accounting and Reporting System (STARS)/Headquarters Claimant Module

(HCM) based on approved budgets. The NMP budget execution process guides advance planning assignments for material procurement, design development, and ILS product impacts.

1-5.4.1 Drawing Preparation

Drawings (including Ship Change Installation Drawings (SIDs) and Installation Control Drawings (ICDs)) are used by the Installing Activities (IA) for the accomplishment of SC work. These drawings shall include, as required; system drawings, structural drawings, arrangement drawings, manufacturing drawings, rip-out drawings, assembly and detail drawings, diagrams, and cabling sheets.

ICDs are equipment specific drawings and should be used as general guidance to develop Ship Specific/Ship Class SIDs. SIDs are the authorized/approved drawings (A-180 Milestone) to be used by the IAs for shipboard implementation of SCs. ICDs should be used as supplemental information where SIDs are deficient in specific guidance, and should be accompanied by a Liaison Action Record (LAR) prior to their use.

1-5.4.2 Material Procurement

The definition of Material is any item that is tangible (to include Hardware, Software, and Firmware) used to change a ship's configuration.

Refer to Section 5 of this manual for detailed information.

1-5.4.3 Integrated Logistics Support (ILS)

Requisite ILS products are identified to the SPM in the ILS Certification located in the ILS module of NDE. Using this documentation, the SPM can evaluate the ILS readiness and resolve logistics issues prior to approving platform configuration changes. ILS Certification shall be completed in accordance with (IAW) Navy Modernization milestones identified in Appendix G of this manual. The impacted ILS products are identified and developed concurrently with development of the change to ensure delivery of all requisite ILS products IAW Appendix G. Refer to Section 6 of this manual for detailed information.

1-5.5 Ship Change Implementation

This is the process for preparation, installation, and support of a SC. The process involves developing final installation drawings, material fabrication and assembly, completing applicable certifications, identifying and providing all required ILS products provided to the ship, establishing new configuration baseline records, drawings, and Ship Selected Record (SSR) updates.

Refer to Section 3 of this manual for detailed information.

SUBSECTION 1-6 ACQUISITION PROGRAMS

The SCD is not a substitute for the statutory, regulatory, and requirements generation processes required of Acquisition Category (ACAT) programs, abbreviated acquisition programs, non-acquisition programs, and rapid deployment capability programs. All documentation, processes and policies identified in DoD 5000 series and Secretary of the Navy (SECNAV) 5000 series instructions, as well as the Joint Capabilities Integration and Development System (JCIDS) Instruction shall be met. Navy Modernization policies, requirements and procedures shall also be met per reference S1(b), and FMP Manual. Where guidance and policy conflict for execution of designated Acquisition Programs, Acquisition and JCIDS policy will take precedence.

A SCD should be initiated and submitted, IAW the NMP, prior to the first Acquisition Milestone or Navy Program Decision Meeting.

The Initiator/Submitter shall identify the appropriate ACAT Program Level, the MDA, and Program Manager of Record, cite the JCIDS requirement document, and other Non- Navy Modernization activities affected.

1-6.1 Acquisition Strategies Defined

The Department of Defense Instruction (DoDI) 5000.2 states that each PM must prepare, and the MDA must approve, an acquisition strategy. The acquisition strategy guides program execution from initiation through re-procurement of systems, subsystems, components, spares, and services beyond the initial production contract award and during post-production support.

The acquisition strategy evolves through an iterative process and becomes increasingly more definitive in describing the relationship of the essential elements of a program. A primary goal of the strategy is to minimize the time and cost it takes, consistent with common sense and sound business practices, to satisfy identified, validated needs for technologies, products, and services, and to maximize affordability throughout a program's useful life cycle.

In documenting the acquisition strategy, the PM provides a complete picture of the strategy for the decision-makers who will be asked to coordinate on or approve the strategy document. The PM ensures the document satisfies the requirements for the acquisition strategy to identify, address, describe, summarize, or otherwise document specific, major aspects or issues of the program or strategy.

The PM engages the Working-Level Integrated Product Team (WIPT) and Operational Test Agency (OTA) in the development of the acquisition strategy, and obtains concurrence of the PEO and Component Acquisition Executive (CAE), as appropriate.

The PM develops the acquisition strategy in preparation for program initiation, prior to the program initiation decision, and updates it prior to all major program decision points or whenever the approved acquisition strategy changes or as the system approach and program elements become better defined.

The MDA approves the acquisition strategy prior to the release of a formal solicitation. Approval usually precedes each decision point, except at program initiation, when the acquisition strategy is usually approved as part of the milestone decision review.

The acquisition strategy provides a summary description of the capability need that the acquisition of technology, products, and services is intended to satisfy. The summary:

- Highlights aspects of the capability need driven by family-of-systems or functional area needs for interoperability
- Highlights aspects of the capability need that reflect dependency on planned capability being achieved by other programs
- States whether the capability need is structured to achieve full capability in a time-phased, evolutionary approach, or in a single step

For time-phased needs, the summary:

- Defines the increment about to be undertaken, as well as subsequent increments
- Defines how the evolutionary approach will satisfy the full-capability need

The acquisition strategy prescribes accomplishments for each acquisition phase, and identifies the critical events that govern program management. The event-driven acquisition strategy explicitly links program decisions to demonstrated accomplishments in development, testing, initial production, life-cycle support, and the availability of capabilities, to be provided by other programs, on which this program depends.

The acquisition strategy defines the relationship among acquisition phases, efforts, decision points, solicitations, contract awards, systems engineering design reviews, contract deliveries, Test and Evaluation (T&E) activities, production lots, and operational deployment objectives. The PM depicts these relationships in a summary diagram as part of the strategy.

The acquisition strategy defines the program structure used to achieve full capability and the approach to be followed. There are two approaches:

- Evolutionary (the preferred approach)
- Single step to full capability

The acquisition strategy approach to be followed depends on the:

- Availability of time-phased capability needs in the Capability Development Document/ Capabilities Production Document (CDD/CPD)
- Maturity of technologies
- Relative costs and benefits of executing the program in increments versus a single step

1-6.2 MDA Acquisition Milestone A

An Acquisition Program Milestone Decision for an Acquisition Program is required for ACAT programs considered under the NMP as a SCD.

SUBSECTION 1-7 SECRETARY OF THE NAVY (SECNAV) WAIVER FOR DECOMMISSIONING SHIPS

1-7.1 Policy

The decommissioning status of Navy ships shall be evaluated as an integral part of the modification request. Modifications to be installed on ships within five calendar years of the ship's decommissioning have unique requirements, mandated by law, which must be followed before any appropriated funds can be obligated or expended for such purpose. To meet these requirements and to ensure vital modifications are expeditiously installed, all activities requesting modifications on ships within five calendar years of decommissioning will submit the required information, IAW reference S1(c).

1-7.2 Background

Section 8053 of the FY 98 DoD Appropriations Act (Section 8053) prohibited the use of appropriations to modify any weapon platform within five years of the planned disposal of that platform. The only modifications not covered by this statute were safety modifications. Covered modifications could proceed only if a Secretariat waiver of the restriction was issued for the modification based on the interests of national security. Section 8053 was enacted in FY 91 as an annual appropriations act provision, and then became permanent law in FY 98. Reference S1(c), issued in 2006, provides further guidance on compliance and remains current Navy policy.

1-7.3 Purpose

Disseminate information about recent amendments to the statutory prohibition against modifications of a weapons platform within five years of platform disposal. Provide guidance and uniform procedures for the consistent implementation of the amended statute throughout the Department of Navy. Assistant Secretary of the Navy (ASN) (Research, Development & Acquisition (RD&A)) is the Secretary of the Navy's delegate for determinations and approvals.

1-7.4 Scope

Office of the Assistant Secretary of the Navy (OASN) (RD&A) prepared a legislative proposal for the FY06 DoD Omnibus Authorization bill that would exclude modifications valued at less than $100,000 from SECNAV authorization and delegated authorization to the CNO who in turn delegated authorization authority to the Fleet Commanders. This proposal was approved by DoD, Office of Management and Budget and forwarded to Congress. Subsequently, Congress executed statutory relief in a form broader than requested by the Navy via Section 372 of the National Defense Authorization Act for Fiscal Year 2006. Section 372 excludes from the statutory restriction not only those modifications less than $100,000 in cost, but also those that involve reusable items (removed when the weapons platform is retired and installed on another platform) when the total cost of the modification (including removal, refurbishment and installation on another platform), as determined by the Secretary, is less than $1 million. Section 372 also codifies the statute at Section 2244a of Title 10, United States Code (Section 2244a).

1-7.5 Amended Statute

Title 10, United States Code Section 2244a prohibits modification of an aircraft, weapon, vessel, or other item of equipment that the Secretary plans to retire or otherwise dispose of within five years after the date on which the modification, if carried out, would be completed. Section 2244a provides that the following modifications are exceptions that are not covered by the Section 2244a prohibition:

- Safety modifications
- Modifications that cost less than $100,000
- Modifications that, as determined by the Secretary, cost less than $1,000,000 for reusable items that, upon the retirement or disposal of the platform will be removed, refurbished, and installed on another platform, require ASN (RDA) approval
- Title 10, United States Code Section 2244a allows the Secretary to waive the statutory prohibition for any modification covered by the statute if the Secretary determines that carrying out the modification is in the national interest of the United States. Whenever the Secretary issues such a waiver, the Secretary shall notify the congressional defense committees in writing

1-7.5.1 Safety Modifications

Title 10, United States Code Section 2244a notes that a Safety Modification is an exception not covered in that Section. No Secretarial determination is required for Safety Modifications. The requiring command shall create a Flag/Senior Executive Service (SES) signed Memorandum For the Record (MFR) documenting the Safety Modification as per reference S1(c).

1-7.5.2 Modifications Below the $100,000 Threshold

Title 10, United States Code Section 2244a stipulates that a modification costing less than $100,000 constitutes an exception not covered by Section 2244a. No Secretarial determination is required for such modifications. The requiring command shall therefore create a Flag/SES signed MFR documenting the modification as per reference S1(c).

SECTION 2: GENERAL POLICIES AND RESPONSIBILITIES

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References

S2(a) OPNAVINST 4790.4 (Series), Ship's 3M System Manual

S2(b) CINCLANTFLT/CINCPACFLTINST 4720.3, Series, Management of Afloat Combat Systems and C4I Installations and Improvements

S2(c) NAVSEA SL720-AA-MAN-010/020 Revision 2, Fleet Modernization Program (FMP) Management and Operations Manual

S2(d) Virtual SYSCOM Engineering and Technical Authority Policy, VS-JI-22

S2(e) COMFLTFORCOMINST 4790.3 Joint Fleet Maintenance Manual (JFMM)

S2(f) CNO Washington, D.C. 211344Z JUL 06

SUBSECTION 2-1 GENERAL POLICIES

2-1.1 Scope

This section of the Navy Modernization Process Management and Operations Manual (NMP-MOM) presents general system level policies for planning and execution of Ship Changes (SCs) through the Navy Modernization Process (NMP). Only those policies applying to more than one aspect of the program are documented in this section. Sections 3 through 9 provide detailed policies specific to the subjects of those sections. The governing principles of the NMP are:

- SCs are authorized only through the Navy Data Environment (NDE) - EP Module
- Changes to a Ship Change Document (SCD) Fielding Plan after the SC has passed Decision Point (DP) 3 may require approval of the O-6 Decision Board per paragraph 3-1.2.7.2
- First-time SCs will normally be programmed for accomplishment in the out-years to allow adequate time for the required design work and equipment procurement
- No funds shall be expended for ships scheduled for deactivation within five years without a Secretary of the Navy (SECNAV) Waiver or Memorandum For the Record (MFR) In Accordance With (IAW) Subsection 1-7 of this manual
- NDE is the official, authoritative repository for modernization planning, programming and material status information. Access to the NDE database shall be exercised using approved access methods or intersystem interfaces
- Integrated Logistic Support (ILS) products must be available to support the installation and checkout of systems and equipment. All ILS products, including Ship Selected Records (SSRs), must be updated/delivered IAW the Navy Modernization milestones of Appendix G in this manual for the availability in which the SC is installed. All ILS products must be available IAW Navy Modernization milestones (Appendix G) unless an impact assessment is approved

The Deputy Commander for Nuclear Propulsion, Naval Sea System Command (NAVSEA) 08, is responsible for all technical matters pertaining to nuclear propulsion of US Navy ships and craft, including all aspects of integration of the nuclear plant into the ship system. Nothing in this manual detracts in any way from these responsibilities. Accordingly, NAVSEA 08 will be consulted in all matters relating to or affecting the nuclear propulsion plant and associated nuclear support facilities. In addition, the procedures and requirements in this section are not applicable to alterations under the cognizance of NAVSEA 08. Strategic Systems Program Alterations (SPALTs) affecting the configuration and/or capabilities of systems and equipment are under the cognizance of the Director, Strategic Systems Programs (DIRSSP). The Submarine Force is exempt from the Entitled Process (EP) and related procedures outlined in this Section. Submarine Force modernization policies, responsibilities, processes and procedures are addressed in Section 9 Submarine Force Modernization.

SUBSECTION 2-2 RESPONSIBILITIES

2-2.1 Background

The Commander, Naval Sea Systems Command (COMNAVSEASYSCOM) acts as executive agent for the Chief of Naval Operations (CNO) in the execution of Navy Modernization. In accordance with reference S2(d), the Systems Commands (SYSCOMs) execute Technical Authority (TA) within their areas of responsibility, technical integrity, and expertise.

Communication, coordination, and cooperation between the TA and Program Management communities are essential in enabling them to fulfill their respective modernization responsibilities.

Reference S2(e) is the authoritative Fleet reference for the execution of ship modernization. Any conflict between reference S2(e) and this manual shall be brought to the attention of NAVSEA 04RP for resolution.

Most changes are planned for installation throughout a ship class, or baseline/flight within a class, and are installed by the executing activity (a shipyard or an Alteration Installation Team (AIT)) during a CNO or scheduled availability. Timelines for milestones are provided in Appendix G and will be designated as days (months for Submarine Force) before start of the availability, for example A-360 meaning availability start date minus 360 days, days before the start of installation (I-), or days after completion (C+). The Participating Acquisition Resource Manager (PARM) and Ship Program Manger (SPM) have an opportunity to resolve SC scheduling issues on any proposed changes the SPM determines are ready for installation IAW Section 3 of this manual. As applicable, the Advance Planning Letters and Letters of Authorization (LOAs), along with the Hull Modernization Plan (HMP) should be updated to reflect these additions/deletions, to support accurate planning for the CNO availabilities.

When the changes are installed by an AIT, the PARM is responsible for funding the installation, logistics and any support services required. Integrating the AIT-installed SC into an availability is the responsibility of the Naval Supervising Activity (NSA).

2-2.2 Scope

General system level responsibilities of major participants in the NMP are presented in paragraphs 2-2.3 through 2-2.18. Responsibilities pertaining to specific functions (material management, ILS, etc.) may be found in other appropriate manual sections.

Note: The responsible command (CNO, Program Executive Office (PEO)/SYSCOM, Type Commander (TYCOM), SPM, Regional Maintenance Center (RMC), NAVSEA 04RP, NSA) may task selected functions to other government activities or private contractors, but this does not diminish their responsibility for the SC products.

2-2.3 Chief of Naval Operations (CNO)/Resource Sponsor Responsibilities

During all Phases – the Resource Sponsor selects Modernization Plan (MP) Yes/No checkboxes of the Recommended Change Package (RCP) associated with the SCD. Once all Resource Sponsors have checked the MP checkbox, the SCD is moved to the Decision Board review state.

- Considers NMP MP as an input into the Planning, Programming, Budgeting, and Execution (PPBE) process
- Defines all policy for programming and execution
- Updates the CNO Availability schedule in Navy Data Environment-Navy Modernization (NDE-NM)
- Serve as SCD voters for the NMP Boards

2-2.4 PEO/SYSCOM Responsibilities

- Plans and executes the NMP MP for Program type SCs, and Fleet type SCs in a Shipbuilding and Conversion, Navy (SCN) availability, as directed by reference S2(a)
- Maintains technical and logistics authority over assigned equipment throughout its life cycle
- Accomplish all equipment configuration changes and coordinate installations with appropriate SPM
- When necessary, submits fielding plan changes as described in paragraph 3-1.2.7.2 for Program SCs, and Fleet SCs in a SCN availability
- At completion of availability (or SC installation if outside a CNO or SCN availability), delivers all required ILS products for Program SCs and Fleet SCs in a SCN availability
- Generates tasking documents and amendment requests, including completion dates for all Design Services Allocation (DSA) development efforts for Program type SCDs and Fleet type SCDs in SCN availabilities
- All Phases – Receives email notification of status transitions and reviews SCDs

2-2.5 Type Commander (TYCOM) Responsibilities

Note: For post-new construction SCN availabilities (e.g. CVN Refueling Complex Overhaul (RCOH)), the SPM fulfills TYCOM roles and responsibilities. This applies throughout this document.

- Plans and executes Fleet type SCs, except in a SCN availability
- During all Phases – Receives email notification of status transitions and reviews SCDs
- Updates ship availability schedule in NDE
- Maintains accurate Fleet Type SC programming status in NDE-NM to ensure timely completion of design efforts
- Reviews and comments on all Fleet SC proposals regarding essentiality, level of accomplishment and likelihood of being funded
- Reviews material availability for Fleet type SCDs, excluding SCN availabilities, and authorizing material procurements through programming in NDE-NM
- Serve as voters for the NMP Boards

- Manage the Alteration Figure of Merit (AFOM) sub-process in coordination with other TYCOMs and SEA04RP. Establish strategic weightings for AFOM
- When necessary, submits fielding plan changes as described in subsection 3-1.2.7 for Fleet SCs, except in a SCN availability
- Platform TYCOMs serve as installation approval authority for fully mature SCs, emergent SCs, and risk assessments for SCs missing critical milestones with the following exceptions:
  - SCs assigned Strike Force Interoperability (SFI) Category (CAT) 1 or 2 are subject to additional criteria IAW Reference S2(b). For these SCs, Commander Naval Network Warfare Command (CNNWC) is the designated installation approval authority for Atlantic Fleet ships and Commander Pacific Fleet (CPF) is the installation approval authority for Pacific Fleet ships except for SCN availabilities

  NOTE: All SCs are assigned a SFI CAT by the Submitter. This is validated during Technical Assessment Team (TAT) Review IAW Reference S2(b)
- Ensure Navy Modernization milestones are met IAW Appendix G
- Track SCs approved for installation with risk in assigned platforms and ensure timely completion of outstanding requirements
- Supports the CNO's direction to establish the Fleet Readiness Enterprise per reference S2(f)
- A "lead" TYCOM will be chosen on a rotating basis from Commander, Naval Surface Forces (CNSF), Commander, Naval Air Forces (CNAF) Commander, Submarine Forces (COMSUBFOR) (for Submarine Tenders) and NETWARCOM to periodically review and update the overall AFOM process, including software tools, assessment processes, model updates, and other AFOM specific functions. This cross-TYCOM team will be designated the AFOM Process Stakeholder Improvement Team
- Review individual SCDs based on platform type and assignment of standard rating scale index values to applicable capability and suitability AFOM attributes
- Enter supporting qualitative comments into NDE-NM based on internal staff and other Subject Matter Expert (SME) inputs
- Develop internal processes, reading lists and other applicable material to ensure adequate resources are available to the SMEs
- Electronically sign the SCD concurring with the Index values and comments in NDE-NM; including a recommendation for approval/disapproval

2-2.6 Ship Program Manager (SPM) Responsibilities

- Reviews and makes recommendation on all SCDs
- Provides final authorization of all SCs for installation via LOA. SPM authorization includes verification that (1) SC is part of the approved MP; (2) SCD is approved for installation; (3) SIDs approved; (4) ILS Certification approved; (5) Command, Control, Communication, Computers, Combat Systems and Intelligence Master Plan (C5IMP) Baseline authorized (if applicable)
- Conducts liaison with non-NAVSEA technical activities to obtain needed guidance and direction for execution of DSA tasks
- Develops projected SC drawing requirements (at the SC level), budget year Configuration Overhaul Planning (COP) requirements, logistics products and execution year SSR

requirements (at the hull level) of DSA budget development and planning
- Maintains current SC Material List in NDE-NM after Phase II Non Permanent Change (NPC) approval or Phase II(a)/III (as applicable)
- Identifies all previously developed or required documentation, technical data, and drawings maintained in-house when tasking design efforts
- Monitors SC development tasks to ensure that they are executed, completed, and delivered, with acceptable quality, within specified timeframes and IAW guidelines delineated in tasking documents
- Reviews all SC design efforts for conformance to material identification requirements as delineated in Section 5 of this manual
- Reviews and approves Liaison Action Record (LAR) requests IAW Appendix F
- Resource Financial Manager (RFM) for execution of modernization designated program changes under their cognizance
- Ensures LOAs and HMP are initiated and updated
- Reviews and approves ILS Certification
- For SCN funded availabilities (CVN RCOHs), SPM assumes select TYCOM responsibilities

2-2.7 NAVSEA Responsibilities

- Chairs the NMP 3 Star Flag Decision Board
- Chairs the NMP 1&2 Star Flag Decision Board
- Chairs the NMP O-6 Decision Board

2-2.7.1 NAVSEA 08 Responsibilities

The Deputy Commander for Nuclear Propulsion, NAVSEA 08, is responsible for all technical matters pertaining to nuclear propulsion of U.S. Navy ships and craft, including all aspects of integration of the nuclear plant into the ship system. Nothing in this manual detracts in any way from these responsibilities. Accordingly, NAVSEA 08 will be consulted in all matters relating to or affecting the nuclear propulsion plant and associated nuclear support facilities. Specifically for CVN SCDs, PEO Carriers and NAVSEA 08 have established a clear policy for coordination on changes affecting the propulsion plant.

2-2.7.2 NAVSEA 04RP Responsibilities

The FMP Program Office, NAVSEA 04RP, is responsible for the operation and maintenance of the production NDE as documented in reference S2(c). Other responsibilities of the FMP Program Office include:

- Functioning as Program Manager for NDE
- Manage, design and control automated interfaces between NDE and other information systems
- Act as the NAVSEA point of contact for users requesting NDE products/services
- Executes delegated responsibilities to act as the principal NAVSEA agent for the Modernization process as defined in CNO and NAVSEA Directives

- Manages the official database for modernization, NDE
- Maintains current the FMP/Surface Ships and Carriers EP for Modernization Management and Operations Manuals and other modernization related directives
- Manages the list of authorized Submitters to include the individual's name, activity and germane contact information
- Schedules NMP Decision Board meetings, coordinates their agendas, and manages the Boards' list of active action items
- Enter Mission Capability Package (MCP) Composite Scores into the Process Stakeholder approved software analysis tools and generate the AFOM model weights
- Update resulting AFOM model weights in NDE-NM
- Request CFFC N8 distribution of the ICP to the TYCOM N8s on or about March of each year

2-2.8 Naval Supervising Activity (NSA) Responsibilities

The NSA is the single Naval activity responsible for the integration, oversight and verification of all work accomplished by all activities (i.e. Naval Shipyards (NSYs), RMCs, Supervisors of Shipyards (SUPSHIPs) contractors, Type Commander (TYCOM) sponsored contractors, Fleet Maintenance Activities (FMAs), AITs, and Ship's Force) working within the assigned availability, and acts as the single point of contact for this work. The NSA will provide the oversight required to ensure that all work in the assigned availability is authorized and completed in compliance with applicable technical requirements and maintenance/modernization policy, and that all work meets schedule, cost, quality, and environmental/safety requirements. In accordance with reference S2(e) chapter 43 (Guidance For Enhanced Modernization And Alteration Installation Team Integration During Availabilities) the NSA/ Lead Maintenance Activity (LMA) has overall responsibility for the availability, and possess the authority to organize, structure and coordinate all availability execution matters. All other participants shall support the NSA/LMA in this regard. Specific NSA strategies to accomplish this oversight will vary; however, an integrated planning process, work control process, and ship certification process are essential to the success of the availability. Depending on the complexity of the availability, the NSA responsibilities include the following:

- Participate in selected work definition and planning conferences, review conferences, design reviews, major progress conferences, and problem reviews
- Facilitate planning efforts. Ensure detailed planning and integration of the work package is accomplished to provide a schedule that incorporates the availability planning steps of all organizations involved in the planning process (for example an IPTT). The schedule shall address work definition, key financial events, shipchecks, job summary, material preparations, and strategy preparations. Identify milestones with sufficient detail to measure intermediate progress toward each key event. Ensure orientation briefings and training are conducted as necessary so that personnel understand applicable project processes and requirements. Identify their appropriate points of contact
- Ensure Memorandums of Agreement (MOA), Standard Work Practices, and/or NAVSEA Standard Items are in place prior to the start of availability work.
- Coordinate preparations by assigned activities for all key events (i.e. docking, undocking, hot

operations, dock trials, fast cruise, sea trials, etc.) to include verification signature checklists of readiness to start

- Develop an Integrated Project Management Plan and Quality Plans to efficiently coordinate work strategies, apply lessons learned, and minimize conflicts. These plans integrate the individual strategies from all involved activities and address issues including, but not limited to:
    - Early start strategies
    - Sea trial agenda
    - Material/equipment requirements
    - Work Packaging
    - Temporary services
    - Crane service
    - Rigger service
    - Impacted areas and spaces, including required access to secure spaces
    - Hangar Bay, Flight Deck, dry-dock and pier side lay-down areas
    - Inspection requirements (gas free, SIGSEC, Telecommunications Electronics Material Protected from Emanating Spurious Transmissions (TEMPEST), weight tests, etc.)
    - Environmental/Safety requirements
    - SUBSAFE/Level I material
    - Hot work
    - Fire watches
    - Access cut requirements
    - Tank entry and closure
    - Work control
    - Impact of work on ship's crew habitability and Quality of Life
    - Co-location and communications plan (i.e. status reports, notification requirements, meetings, briefings, etc.)
    - Material condition assessment plan
    - Alteration installations
    - Total ship work certification process
- Maintain a list of activities working on the ship and ensure each activity has the proper credentials
- Coordinate preparations by assigned activities for all key events (e.g., docking, undocking, hot operations, dock trials, fast cruise, sea trials, etc.) to include verification signature checklists of readiness to start
- Progress and coordinate production work within schedule constraints. Define, identify and provide resolution to coordination problems and work conflicts. Advise the appropriate organizations (e.g., NAVSEA, TYCOM, Planning Yards, Ship's Program Manager, etc.) of significant quality, cost, and schedule impacts and identified problems/deficiencies
- Coordinate all safety programs (such as sail safety and sail closeout) efforts by assigned activities
- Prior to fast cruise, sea trials and availability completion, certify all authorized work has been completed unless waived. For work performed by contractors ensure all provisions of the contract have been fully executed
- Insert Section 6 text for NSA responsibilities for sight validation

- During work execution, review all changes to specifications and work items impacting propulsion plant or designated areas of nuclear powered ships to ensure requirements are met
- Participate in critiques and problem investigations (e.g. Trouble Reports) as necessary
- Monitor the effectiveness of AIT Managers execution of Quality Assurance (QA) oversight responsibilities. Monitor both the effectiveness and the quality of AIT Managers by assessing their execution of QA oversight responsibilities and by Quality Sampling. Request Qualification Records as needed in support of spot checks
- Perform inspections of installations, on a sampling basis, and use the sampling evidence to indicate conformance or nonconformance with NAVSEA requirements
- Attend AIT In/Out briefs and coordinate with the AIT Manager and Ship's Force to ensure satisfactory completion of alterations. Receive ILS products from the AIT and assure they are properly distributed
- Ensure completion reports are issued for any work not accomplished and assure a CSMP JCN is issued

2-2.9 Life Cycle Manager (LCM)/ Participating Acquisition Resource Manager (PARM) Responsibilities

- Program, budget, and procure all Headquarters Centrally Provided Material (HCPM) and corresponding installation and logistics product requirements
- Coordinate with SPMs and AIT/Program Support Managers to ensure matching of HCPM procurements with installations
- Maintain NDE-NM Material Dictionary (Material IDs) current, allowing for lead P-1 calculation for the budget
- Keep current the Procurement Lead Time (PLT) and material cost in the NDE-NM Material Dictionary
- Monitor material delivery and maintain current in NDE-NM the delivery status (Best Estimated Delivery Date (BEDD), Military Standard Requisitioning and Issue Procedures (MILSTRIPs), etc.)
- Notify SPM whenever substitution of NDE-NM material is being considered or accomplished
- Monitor SC development tasks to ensure that they are executed, completed, and delivered, with acceptable quality, within specified timeframes and in accordance with guidelines delineated in tasking documents
- Review and respond to LAR requests, and coordinate NSA, PY, and TA efforts in this area
- Conduct liaison with non-NAVSEA technical activities to obtain needed guidance and direction for execution of DSA tasks
- Generate tasking documents and amendment requests, including completion dates for all DSA development efforts
- Maintain current SC Material List in NDE-NM after Phase II NPC approval or Phase II(a)/III (as applicable)
- Deliver mature, fully developed, and element/combat system level tested equipment and computer programs to warfare system integration and interoperability test facilities to support the Test Bed Validation (TBV) and the related test event
- Review all SC design efforts for conformance to material identification requirements as

delineated in Section 5 of this manual

- Provide overall responsibility for execution of ILS requirements in support of SCs including ILS Certification IAW Navy Modernization milestone requirements listed in Appendix G
- Accountability to submit ILS documentation to support the certification of ILS IAW Navy Modernization milestone requirements as listed in Appendix G

2-2.10 Commander, Fleet Forces Command (CFFC) N8 Responsibilities:

- Assimilation, articulation, and dissemination of Integrated, Navy-Wide War Fighting Priorities for NMP Decision Board Members via the Merit Assignment Event and associated CNO-approved Integrated Capabilities Plan (ICP) that will be provided annually to the TYCOM N8s
- Perform periodic reviews of the requirements generation process and communicate CNO directed updates to the AFOM Process Stakeholder Improvement Team for subsequent revision or update
- Supports development and update of the Static 3 Star weights into the NDE-NM AFOM Benefit Structure (model) (reviewed annually) as follows:
    - The AFOM Benefit Structure (model) will mirror the CNO approved SP 21 Pillar and MCP Structures (also known as Functional Areas)
    - Process Stakeholder approved software tools will be used to generate the weights during the process; these tools will be a stand-alone and will not require an NDE interface at this time
    - CFFC N8 will articulate Navy-Wide requirements via the annual submission of the CNO-approved ICP to the TYCOM N8s
    - NAVSEA 04RP will calculate and enter the resultant MCP Composite Scores from the TYCOM N8s into the software tool(s) to calculate and distribute the resultant weights into the NDE-NM AFOM model
    - The weights will be visible only to the NAVSEA 04RP Process Administrator, the CFFC N8 and O-6, 1 & 2 Star and 3 Star Decision Board Members
- CFFC N8 will provide a representative to the AFOM process improvement stakeholder team to ensure connectivity and relevancy with the Naval Capabilities Development Process (NCDP)

2-2.11 Fleet Commanders Responsibilities

- Provide NCDP gap analysis for use with AFOM Merit Assessment Questionnaire (MAQ)
- Serve as installation approval authority for fully mature SCs, emergent SCs, and impact assessments for SCs missing critical milestones that are assigned SFI CAT 1 or 2. CNNWC is the delegated approval authority for Atlantic Fleet ships and CPF is the approval authority for Pacific Fleet ships
- <u>NOTE</u>: All SCs are assigned a SFI CAT by the Submitter. This is validated during TAT Review IAW reference S2(b)

2-2.12 Initiator Responsibilities

An Initiator can be any user with a NDE-EP account. This can include government employees, both military and civilian, as well as government contractors.

- Initiation of a SCD is neither part of the NMP, nor are any metrics collected on initiation. It is described here for informational purposes only. However, the SCD must be completed IAW Appendices A and D and Section 3 of this manual
- Create the SCD, fill-out the header, and all appropriate sections for the initiated phase of the SCD. The Initiator may delete the SCD if desired at any time prior to forwarding the SCD to the Submitter. Once the SCD has been completed, the Initiator forwards the SCD to the Submitter for submittal review
- Complete the mandatory sections of the SCD as thoroughly and accurately as possible. The only parts of the SCD not mandatory for the Initiator to complete are the Cost Benefit Analysis (CBA) and AFOM sections. However, it is still recommended that the Initiator complete the non-mandatory sections to the best of his/her ability. It should always be assumed by the Initiator that the SCD review activities may not initially have in-depth knowledge of the proposed change

2-2.13 SCD Submitter Responsibilities

Only a limited number of commands are designated as Submitting activities. Each of these activities has been assigned a specified number of “Authorized Submitters”. The list of authorized Submitters is maintained by NAVSEA 04RP based on numbers approved by the O-6 Decision Board. The Submitting activity is ultimately responsible for identification, training and performance of its assigned Submitters. Only civilian and military government employees may be assigned as Submitters.

The Submitting activity is the first approval authority for proposed modernization changes and is responsible for reviewing and ensuring that the SCD is complete, accurate, and “stands alone” as a valid document. Further instructions for the review process are located in Section 3 of this manual. The Submitting activity holds sole responsibility and accountability for the SCD throughout the SCD’s life cycle.

During all Phases, the SCD Submitter receives email notification of status transitions, reviews and edits all sections of SCD, and submits the SCD to TAT Review.

The Submitting activity also:

- Coordinates with the major stakeholders as required (i.e. Resource Sponsor/TYCOM Representative/Fleet) to ensure the SCD reflects a valid Modernization requirement. This coordination acts as the “First Filter” to assist in obtaining a successful Board recommendation for addition to the MP
- Receives automatic notifications of SCDs requiring review (all authorized Submitters within the submitting activity will be allowed to review the SCD, but only the Submitter selected on the SCD will be notified)
- Reviews and completes (if necessary) assigned SCDs. Submitters are permitted by the EP

software to electronically assign all or portions of the SCD to personnel for review and/or completion. The Submitter will consolidate all comments/changes for final review and action. This process is for both the initial review of the SCD and changes to the SCD required by subsequent reviews (i.e. TAT review, CBA review, AFOM review, Modernization Board rework, Maintaining current Post DP 3 SCD data, etc)

- Provides documentation (e.g., Technical Data Package (TDP), Installation Control Drawing (ICD), Topside/Electromagnetic Interference/Radar Cross Section studies, etc) to support technical assessments
- Retains the ability to assign an alternate. However, it is the responsibility of the Submitter to ensure that notifications are forwarded to the alternate and that the alternate accepts and understands their participation. Submitter must notify SEA 04RP to transfer the Submitter role

2-2.14 Technical Assessment Team (TAT) Responsibilities

- TAT Change Manager (TAT CM) assigns the Core TAT for each SCD
- The Core TAT identifies and notifies appropriate Virtual TAT members, including Technical Warrant Holders (TWHs) of SCD submission and approval progress
- Core TAT coordinates the technical review, collates, adjudicates, and submits consolidated comments, resolves differences, coordinates with the Initiator/Submitter to make required changes, validates the SFI CAT if provided, and provides a recommendation to the TAT CM
- TAT CM makes final recommendation to the SPM

2-2.15 AFOM Reviewer Responsibilities

The AFOM Reviewer is a subject matter expert in one or more warfare, engineering or technical discipline as related to shipboard equipment, systems or capabilities. AFOM Reviewers are selected by the cognizant TYCOM AFOM Change Manager to review SCDs for their warfighting and readiness benefits by providing recommended quantitative AFOM Rating Scale values and qualitative assessments via the AFOM and Comments Tabs of the SCD. AFOM Reviewers are, in most cases, military or civil service members of the TYCOM staffs and/or their supporting contractors; however, other Subject Matter Experts external to the TYCOMs, such as the Port Engineers or RMC personnel, may be contacted for their input as well. Final review, acceptance and SCD incorporation of all AFOM Reviewer inputs is the responsibility of the TYCOM AFOM Change Manager.

2-2.16 CBA Reviewer Responsibilities

The CBA Reviewer will review the Submitter's Cost Structure Worksheet (CSW) entries in parallel with the AFOM review. The reviewer will verify items such as completeness, validation of appropriation feasibility, Budget Line Item (BLI), Program Element (PE) number, and other items to ensure that the CSW has been completed in the manner set forth in the Technical Instruction Guide (Appendix "A" of the this manual). The CBA Reviewer's role does not include verifying that the cost estimates are accurate to each specific change. It is the Submitters' role to have the correct costs entered. Upon completion of the CBA review, the

CBA Reviewer will either mark the CBA analysis complete, or recommend rework and provide subsequent comments on the current errors uncovered in the CSW. Once the AFOM and CBA reviews have been completed, the last party to perform their review will submit, and the SCD will move forward in the process to the Resource Sponsor review step.

During all Phases – the CBA Change Manager groups and notifies the CBA team, enters CBA comments and checks the CBA-complete checkbox, and submits the SCD to the Decision Board Review state. The CBA members will enter CBA comments.

2-2.17 Decision Stakeholders

The Fleet, Office of Chief of Naval Operations (OPNAV), TYCOMs, SYSCOMs and PEOs are involved in the decision-making process utilizing three Boards of stakeholders at the 3 Star Level, 1 & 2 Star Level, and O-6 Level. The three hierarchal Decision Boards are responsible for adjudicating all SCDs and management and oversight of the NMP. SCD voting is determined by the EP software. SCD voters represent appropriate Fleet and OPNAV organizations. SYSCOM and PEO representatives are included to validate the readiness of the change to proceed to the next step.

2-2.17.1 O-6 Decision Board

The O-6 Decision Board fulfills functions involving planning, process oversight and continuous improvement to the NMP plus:

- Approves SCs (Legacy or SCD, new item or change to an existing item) where the total cost of the SC is less than $50 million, except in cases where the scope and complexity dictate referral to a higher level Board. The O-6 Decision Board provides recommendations to the 1&2 Star Decision Board for any SC that is above $50 million

Note: Appendix D (Tasks 60, 140, and 220) provides specific actions required by the O-6 Board.

  - If the O-6 Decision Board disapproves of a SC (Legacy or SCD, new item or change to an existing item) where the total cost of the SC is less than $50 million, except in cases where the scope and complexity dictate referral to a higher level Board, and the SC has been through a DP the SC will be taken to inactive
  - If the SC has been through a previous DP and the O-6 Decision Board disapproves of the SC, the O-6 Decision Board will provide that recommendation to the 1&2 Star Decision Board for approval to inactivate the SC
- Supports the Fleet's prioritized modernization requirements, and bases its decisions and recommendations on those requirements
- Coordinates the development of the annual prioritized MP during each PPBE cycle

2-2.17.2 1 & 2 Star Decision Board

SCD voting is determined by the NDE-EP software and is generally conducted virtually. The 1&2 Star Decision Board fulfills functions involving planning, process oversight and continuous improvement to the NMP in addition to its SCD decision authority, plus:

- Provides oversight for O-6 Board decisions
- Approves process changes recommended by the O-6 Decision Board
- Sets process resource levels and ensures PPBE timelines are met
- Supports the Fleet's prioritized modernization requirements, and base its decisions and recommendations on those requirements
- Oversees development of the annual prioritized MP, reviews the MP proposed by the O-6 Decision Board, and forwards the MP for approval by the 3 Star Decision Board during each PPBE cycle
- Validates the O-6 Board decisions and provides Fleet/OPNAV/ Claimant recommendations to Acquisition Category (ACAT) III and ACAT IV and below program milestone decision authorities
- Reviews SC's where the total cost is above the $50M threshold, but below the $200M threshold (Legacy or SCD, new item or change to an existing item) and SC's that are beyond the O-6 Decision Boards approval authority

Note: Appendix D (Tasks 60, 140, and 220) provides specific actions required by the 1&2 Star Decision Board.

- Provides an endorsement and recommendations to the 3 Star Decision Board for SC's where the total cost is above the $200M threshold

2-2.17.3 3 Star Decision Board

The 3 Star Decision Board fulfills functions involving planning, process oversight and continuous improvement to the EP in addition to its SCD decision authority plus:

- Provides strategic direction to the NMP across all Warfare Enterprises and provides high level process oversight, ensures compliance with strategic plans, advocates annual priorities related to readiness/sustainment, and approves the annual prioritized MP
- Validates lower Board decisions and also approves SCs with a total cost above $200 million and SC's that are beyond the 1&2 Star Decision Boards approval authority
- Reviews any SC above the $200M threshold that are recommended for approval by the 1&2 Star Decision Boards

Note: Appendix D (Tasks 60, 140, and 220) provides specific actions required by the 3 Star Decision Board

- 3 Star Decision Board approval of SC's above the $200M threshold is required to add any SC to the MP (Legacy or SCD, new item or change to an existing item)
- Items above $200M that have been recommended for removal from the MP by the 1&2 Star Decision Board will be presented to the 3 Star Decision Board for their concurrence

2-2.18 Immediate Superior In Command (ISIC), Class Squadron (CLASSRON) and Ships Force Responsibilities

Support the Modernization process as defined in CNO, NAVSEA and Fleet Directives in the following areas:

- Shipcheck
- Pre-Installation Check Out (PICO)
- Frontline Quality Assurance
- ILS Support
- On Board Repair Parts (OBRPs) provisioning verification
- System Operation Verification Test and system operational testing
- Installation Acceptance

SECTION 3 NAVY MODERNIZATION ENTITLED PROCESS AND BUSINESS RULES

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References

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S3(b) NAVSEAINST 5400.97, Series, Technical Authority Principles and the Responsibility, Accountability and Authority of the NAVSEA Chief Engineer

S3(c) MIL-HDBK-61, Series, Configuration Management Guidance

S3(d) NAVSEAINST C9210.4, Series, Changes, Repair and Maintenance to Nuclear Powered Ships

S3(e) NAVSEA Technical Specification 9090-1500, Series; Provisioning, Allowance and Fitting Out Support (PAFOS) Manual

S3(f) NAVSEA Technical Specification 9090-100, Series, Liaison Action Record

S3(g) Joint Capabilities Identification and Development System (JCIDS) Instruction

S3(h) NAVSEA INSTRUCTION 4790.14C Completion Reports

S3(i) OPNAV 4790.4 (Series) – Ships 3M Manual

S3(j) Commander United States Fleet Forces Command/Commander, U.S. Pacific Fleet (CUSFFC/CPF) Instruction 4720.3 (series) C5ISR Modernization Policy

S3(k) NAVSEAINST 4790.8 (Series), Ship’s Maintenance and Material Management (3-M)

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SUBSECTION 3-1 INTRODUCTION TO NAVY MODERNIZATION PROCESS SHIP CHANGE DESIGN AND DEVELOPMENT

3-1.1 Scope

This subsection of the Navy Modernization Process Management and Operations Manual details the policies and procedures for all design, development, and documentation associated with the Navy Modernization Process (NMP) Ship Changes (SCs), beginning with initiation of a Ship Change Document (SCD) and concluding with the update of the ship's configuration (cost, schedule, performance, Quality Assurance (QA), Integrated Logistics Support (ILS), and Configuration Management (CM)) records based on actual installations. The Milestone charts in Appendix G summarize SC development milestones (unless otherwise noted all milestones are measured in days).

Exceptions and exemptions to the NMP are defined in paragraph 1-3.3 of this manual. Section 3 does not apply to the Submarine Force. Policies and procedures for all design, development, and documentation associated NMP SCs for the Submarine Force are contained in Section 9.

Within the NMP, modernization changes begin with an idea that must be documented, reviewed, submitted, and approved as a valid Navy requirement. There are two types of SCs, Fleet and Program. The differentiation between the two is based on financial budgeting between a Type Commander (TYCOM) and a System Command (SYSCOM) Program Executive Office (PEO), (Note: Fleet SCDs are funded by the PEO during a Shipbuilding and Conversion, Navy (SCN) availability.)

SCD Fielding Plans (FPs) shall address all applicable ships of the class. The only exceptions are;

1. Return on Investment (ROI) indicates investment costs are not recoverable in remaining service life of selected hulls;
2. Intent of change was previously accomplished;
3. Non Permanent Changes (NPC) applicable to selected platform(s)

   Note: The above exceptions shall be noted in the SCD.

The software system used to operate the NMP is the Navy Data Environment (NDE). Once a SC has been approved at Decision Point (DP) 3, the Submitter will utilize existing NDE modules, unless otherwise documented herein for interim procedures, until such a time as NDE can be modified for full implementation.

The following definitions provide essential clarity to support the differentiation of the business rules and processes for technical reviews and risk analysis, between ship changes that impact Ship Distributed Systems and ship changes that do not.

Modernization. Modernization consists of all efforts and costs that lead to changes of an In-Service Surface Ship or Carrier. These changes include upgrades or replacement of existing systems by new systems satisfying new requirements. This includes all product development,

procurement, and installation costs as well as costs that are not specific to particular alterations, but are required to execute an acquisition program. Product development costs are generally paid for with Research, Development, Test & Evaluation, Navy (RDTEN) 6.3 and 6.4 funding. Procurement and installation costs may be paid for with Other Procurement Navy (OPN,), Weapons Procurement, Navy (WPN,), Aircraft Procurement, Navy (APN), SCN or Operations and Maintenance, Navy (OMN). The domain includes RDTEN and procurement required for developing and upgrading systems. Any nuclear propulsion changes will be excluded from the NMP.

Sustainment. Sustainment is a subset of modernization that consists of all efforts required to correct or maintain a system's design capability, maintainability or reparability through internal equipment modifications that do not impact shipboard distributed systems. There are two types of sustainment:

- Sustainment Type 1 (ST1). An internal equipment modification that is a type of configuration change that provides new functionality but has no impact on ship distributed systems
- Sustainment Type 2 (ST2). An internal equipment modification that is a type of configuration change that provides no new functionality, and has no impact on ship distributed systems. For example:
  - System repair action that resolves a reliability issue
  - Corrective maintenance (repair) that results in a requirement to back fit to all systems

3-1.2 Navy Modernization Process

The NMP is comprised of five distinct phases, and three DPs, to take a proposed change from conception to completion in one document, the SCD. The intent of the SCD is to be the common lifecycle management document depicting a modernization change from concept to completion. This common streamlined process, see Figure S3-1, enables not only comprehensive documentation of a proposed change during Phases I, II, IIa, and III; but also provides a comprehensive review and decision capability with results being reflected in a Modernization Plan (MP). The intention of the MP is to provide a documented, prioritized listing of all SC funding and their Surface Ship/Carrier/Shore Facility applicability.

As outlined in paragraph 3-2.2, a SCD can be initiated at Phase I, II, or III, to be verified during the TAT review process.

There are minor differences in implementation of some processes and business rules for aircraft carriers within section 3. Aircraft carrier requirements are specifically noted throughout section 3 where applicable.

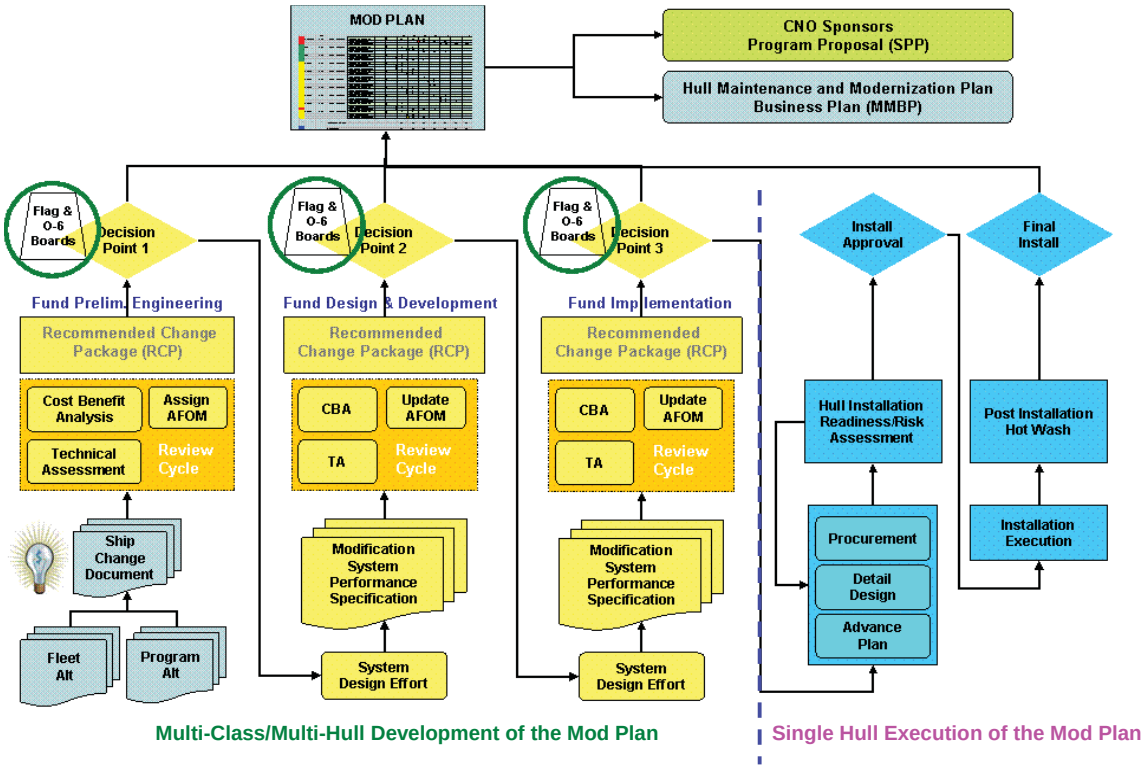


Figure S3- 1 Ship Change Development Process

3-1.2.1 Phase I – Concept Phase

The purpose of this phase is to identify a need for change, propose a resolution, and gain approval to proceed with development of that resolution into an engineered SC. Examples of products developed during this phase include:

- Proposed FP
- Estimate for Phase II and III design development
- Rough Order of Magnitude (ROM) estimate for Phase IV and V implementation and execution (FP scheduling)

Funding, if required, for Phase I documents will be provided by the developing activity and will not be budgeted as part of the MP.

3-1.2.2 Phase II – Preliminary Design

The purpose of this phase is to document design work for the SC, perform preliminary design development of the SC, and gain approval to continue detailed design. Included in preliminary design development can be selection of technologies, establishment of design parameters, and prototype development. Examples of products developed during this phase include:

- Design parameters
- Updated FP

- Refined estimates for Phases III, IV, and V
- Initiation of Installation Control Drawings (ICDs) or Interface Required Drawings (IRDs) and performance specifications
- Identification, (not necessarily quantification) of interfaces and distributive system impacts
- Design Budget Execution Plans
- Prototype Design

Funding for Phase II documents is budgeted as part of the MP after Phase I approval (DP 1), or is provided by the developing activity outside of the MP for SCs which enter the process at this phase.

3-1.2.3 Phase IIa

Upon approval at DP 1, the approving authority may determine a SC is eligible to move to Phase IIa. Phase IIa is utilized when a proposed SC design is mature to the point that DP 2 is not required. Phase IIa is a combination of the Phase II and III development and review processes and ends at DP 3. In order to qualify for Phase IIa, the following criteria must be met:

If the scope of the SC is an internal equipment modification, all of the following criteria must be met:

- The SC can be accomplished without changing an interface external to the equipment or system
- The change is made within the equipment or system
- The change does not negatively impact Strike Force Interoperability (SFI)
- The change does not impact shipboard distributive systems, Ship SSRs or interfacing equipment or systems, compartmental arrangement records, or Damage Control records

If the scope of the SC is a ship modification, all of the following requirements must be met:

- The change does not impact SFI
- The change does not impact ship stability records (weight & moment)
- The change does not impact or alter the 3-dimensional footprint of the equipment being replaced
- The change does not impact shipboard distributive systems, SSRs or interfacing equipment or systems, compartmental arrangement records, or damage control records
- The change does not impact manning levels

Refer to Phase III for additional guidance on Phase IIa.

3-1.2.4 Phase III – Detailed Design

The purpose of this phase is to document detailed design development of the SC. Installations may not begin in Phase IV until they have been added to the authorized section of the SPM LOA in accordance with (IAW) the milestones identified in Appendix G. Examples of products developed during this phase include, but are not limited to:

- Preliminary Interface Control Documents

- Performance Specification
- Quantification of interfaces and distributive system impacts (i.e. parametric data)
- Refined estimates for Phases IV and V
- Refined FP
- List of required certifications and qualifications
- Plan of Action and Milestones (POA&M) for completion
- Material list and logistically significant high cost and large quantity material. Refer to Appendix A

Funding for Phase III documents is budgeted as part of the MP after Phase II approval (DP 2), or is provided by the developing activity outside of the MP for SCs, which enter the process at this phase. (For SCs that utilize the Phase IIa process described in the previous subsection, DP 1 approval authorizes the development of Phase III documents.)

The supporting technical documentation provided with a SCD, at DP 3, must include the level of detail sufficient to support a critical design review. Installation may not begin until authorized in Phase IV.

3-1.2.5 Phase IV – Implementation

The purpose of Phase IV is to accomplish site-specific advanced planning of the SC. The attention is redirected from overall SC applicability to design for installation on a specific hull or at a specific location. This phase includes finalized design (including ship check/site survey and drawings, technical installation instructions, etc.), initiation of procurement, pre-installation certification and testing, installation readiness reviews, and risk assessments. For carriers, funding for ship check and SIDs is authorized at any DP. Examples of products developed during Phase IV include:

- SIDs
- ILS Certification
- Government Furnished Equipment (GFE) and Industrial Activity Furnished (IAF) material procurement
- Pre-installation certifications/qualifications
- Pre-installation testing
- Risk assessments
- Installation documents
- AIT POA&Ms
- Ship’s Maintenance and Readiness Model update (if this SCD changes configuration)

Funding for Phase IV is budgeted as part of the MP after Phase IIa or III approval (DP 3).

3-1.2.6 Phase V – Installation, Checkout, and Feedback

The purpose of Phase V is to execute the SC and provide feedback for future installation decisions. It is possible for a SC to be in Phase IV and V in parallel for different individual installations. Feedback from each individual installation is provided to update and refine technical and installation cost estimates. Once all planned installations have been completed,

this phase and the SC are closed out by providing feedback data reflecting final installation and closeout. Examples of products developed and services performed during Phase V include:

- Return Cost Reports
- LARs
- Post-installation certification, qualification and testing
- ILS Product delivery
- Alteration Completion Reports

Funding for Phase V is budgeted as part of the MP after Phase IIa or III approval (DP 3).

3-1.2.7 Fielding Plan Management

When a SCD is initiated at any phase, including Emergent SCs and NPCs, the Submitter will provide a FP in the CBA Cost Structure Worksheet (CSW) FP Tab that reflects the planned number of units, by /hull, per Fiscal Year (FY). After approval at the first DP, the SEA04RP Secretariat will set the appropriate permissions in Navy Data Environment-Navy Modernization (NDE-NM) to allow the SPM (for ship modifications only) or Participating Acquisition Resource Manager (PARM) to manually create an associated NDE-NM 70000-series record. Hull-specific information will be scheduled by the PARM in NDE-NM. The PARM and submitter must coordinate data entry to ensure the total number of production units (e.g. quantity per FY in the CBA CSW) match the numbers scheduled in NDE-NM at each DP, including any changes. For the purposes of the FP, each carrier will be considered its own class.

3-1.2.7.1 Management of Incremental Installation of SCDs

An increment of a SCD is a finite, definable, bounded portion of the total scope of work required to fully accomplish a single ship change. Increments are not to denote different versions of the same hardware or software system. Each version should have its own unique ship change and associated fielding plan developed and approved. Increments shall not be used to deliver phased or partial installation of a single production unit. If it is known during the development of a ship change that incremental installation is necessary and appropriate, the increments should be fully defined as part of the description of change and reviewed during the technical assessment team (TAT) review of the ship change. Incremental installations must be approved by the Decision Boards IAW Appendix D.

Exception: ST1 and ST2 software patch back-fits may be scheduled in NDE-NM concurrently with the resubmission of the SCD for ships that need to be revisited. The process to deliver the most up to date baseline software version to ships that have not had the system installed (forward fit changes) is provided in paragraph. 3-2.2.2.1 An electronic Configuration Control Board (eCCB) risk form shall also be submitted for any SFI CAT 1 or 2 change.

3-1.2.7.1.1 Ship Modifications

Incremental installation described in this paragraph only applies to ship modification type ship changes. When creating the ship change record in NDE-NM, the following applies:

- for a complete installation of the capability intended in the SCD, including installation of either single or multiple production unit(s), the NDE-NM record will be shown as increment 00.

- for incremental installation of a single or multiple production unit(s) over multiple visits, the NDE-NM record will be shown as increment 01 to 99 where each increment is a production unit and will be delivered over multiple visits. All increments together equal a complete delivery of the capability intended in the SCD.

3-1.2.7.1.2 Internal Equipment Modifications Incremental Installation

The process described in this paragraph only applies to internal equipment modification type ship changes.

- When creating the ship change record in NDE-NM, installation of single or multiple production unit(s) is managed by entering the total production units per hull in the quantity field of the NDE-NM record.

3-1.2.7.2 Fielding Plan Changes

The SC FP is approved at the first DP. Once a FP has been approved by the Decision Boards, it will remain in effect until the Decision Board votes to change it.

FP changes may result from funding modifications, or conversely cost impacts may result from changes to the FP. Changes that modify cost data must be reflected in the CBA CSW to ensure synergy with the MP Budget Line Item (BLI) Total Obligation Authority (TOA) figures.

3-1.2.7.2.1 Pre-Decision Point 3 Changes to the Fielding Plan

If the SC has entered the SCD review process in the following phases, the SCD Submitter shall wait and update the SCD FP as part of the standard SCD update procedures during the next phase, with the new FP. If the SCD has not entered the review process for a specific Phase, the SCD Submitter will update the FP and continue per the normal NMP.

- Phase I changes: Update the FP in Phase II/IIa
- Phase II changes: Update the FP in Phase III

After Decision Point 3 approval of a ship change, if it is then determined that an incremental installation of the ship change is necessary and appropriate, a LAR should be developed and issued IAW Appendix F of this manual. The description of change will be modified to include incremental installation plan and the LAR attached to the SCD. The CBA worksheet and fielding plan will be modified to reflect changes in installation costs and the incremental installations. The SCD will then be resubmitted in phase IV for review and board approval.

3-1.2.7.2.2 Post Decision Point 3 Changes to the Fielding Plan

FP change conditions and required actions are shown in the Figure S3- 2 FP Change Decision Matrix. The FP is changed by the Submitter through the NMP software. The Submitter also makes any changes to the CBA required by the FP change. The Decision Board or Resource Sponsor shall review the proposed FP change and either approve or disapprove the proposed

change or balance the MP respectively. These decisions will be made within a reasonable period of time, but should be accomplished sooner if installation of the proposed SC is in jeopardy. Once a FP has been approved by the Decision Boards, it will remain in effect until the Decision Board has voted to change it. Additional submission of a Phase IV SCD for fielding plan changes, for revote or rework does not negate a previous Decision Board action.

FIELDING PLAN DECISION MATRIX	SITUATIONS	
	Change in Planned Installation Window	Change in Hull Applicability
CONDITIONS: No Cost / Funding Impact		
Current FY	1, 2	
Same Planning Year	1, 2	
Cross FY	1, 2, 4	
In class Hull Substitution		1, 2
Add Hull		1, 2, 3, 4
Delete Hull		1, 2, 3, 4, 5
Cross Class Change - Class not identified on SCD		1, 2, 3, 4, 5
CONDITIONS: Cost Impact*		
Current FY	1, 2, 3, 5	
Same Planning Year	1, 2, 3, 5	
Cross FY	1, 2, 3, 5	
In class Hull Substitution		1, 2, 3, 5
Add / Delete Hull		1, 2, 3, 5
Cross Class Change		1, 2, 3, 5
Required Actions:		
1	PARM update NDE NM Schedule	
2	PARM notify TYCOM/SPM (and FLT CDR for SFI CAT 1 & 2 SCs)	
3	Submitter update CSW	
4	PARM provide information to Resource Sponsor	
5	O-6 Board Review and Re-vote	

***NOTE:** Funding Changes/Cost Impacts are defined as both changes to cost that:

1. Breach BLI total obligation authority (TOA) thresholds in the MP or,
2. Increase or decrease the obligations within a BLI/Program Element (PE) that would affect data integrity in the MP and available funding for potential Resource Sponsor Trade Off actions for SCs that are deemed requirements by the O-6 Decision Boards, but do not have adequate funding.

Figure S3- 2 Fielding Plan Change Decision Matrix

3-1.2.7.1.3 Legacy Alteration Fielding Plan Changes

Legacy alterations (i.e. Ship Alterations (SHIPALTs), Engineering Changes, Field Changes, Software Deliveries (SWDs), etc.) are currently part of the MP and authorized to be installed without development of a SCD. If any legacy alteration is currently in the mod plan for at least one ship/carrier of the class, then a change request form can be utilized to add additional ships/carriers of the class. Changes to the FP of a legacy alteration can only be accomplished by changing the funding profile to suit the new installation schedule. This is accomplished using a Legacy Alteration Change Request (LACR) form. The LACR is provided to the appropriate

Decision Board for decision.

3-1.2.8 Moving Chief of Naval Operations (CNO) Availability across Fiscal Years

When a move of availability dates across FYs is considered, the SPM in concert with the PARMs will develop a proposal that describes the impact of moving the dates to the modernization package.

This proposal will address impacts to:

- Baseline
- Current Year vs. Prior year funding
- Impact to milestones and execution risks due to missed milestones
- Expiring Legacy Alterations
- Issuance of new Authorization Letter

Once the proposal is developed, it will be provided to all applicable PARMs for review and comment.

After receiving and incorporating PARM comments, the SPM will submit the completed proposal to the TYCOM and SEA 05W for execution concurrence and baseline concurrence.

Upon receiving endorsement from the TYCOM and SEA 05W, the entire modernization package will be submitted to the appropriate Decision Board for approval to move across a FY.

When approved by the appropriate Decision Board, the TYCOM will issue a required announcement of availability date change (if not previously issued). The SPM will issue an Authorization Letter change reflecting the following:

- New FY dates of availability
- Details of SEA 05W concurrence of baseline changes
- Details of TYCOM concurrence of milestone impacts and executions risks. This does not relieve any SC [Submitter or PARM] of milestone maturity requirements
- Details of the Decision Board approval of utilizing SCDs revised FPs as detailed in the proposal
- Details of NDE actions required to meet the intent of the proposal

Any additions to the modernization package after submission of the updated Authorization Letter would be addressed IAW current policies and guidance.

3-1.2.9 Special Applications

SUBSECTION 3-2 through SUBSECTION 3-9 outline the standard process for initiating and administering a SC from initiation of the SCD (whether Phase I, II, or III) through Phase V wherein return cost data is developed. Most ship changes will follow this “standard” process. SUBSECTION 3-10, SUBSECTION 3-11, and SUBSECTION 3-12 outline procedures for initiating and administering non-standard ship changes (emergent, non-permanent, and condition based, respectively).

3-1.3 Scheduling of a SCD

SC applicability scheduling must be accomplished as soon as the SCD has successfully completed any DP and is entered in the MP. This scheduling will be accomplished as described below.

Specific ship FPs should only be managed in the NDE. Once the SCD has been approved and placed into the MP, NDE-NM must be updated for applicability and scheduling of all ships and sites in the SCD. Applicability and scheduling in NDE-NM must match the SCD FP IAW Section 8 of this manual.

NDE-NM does not currently recognize a SC alteration type; although the NMP no longer uses the term "SHIPALT" or other legacy alteration definitions, these types must be used in the interim, for scheduling purposes, until the NDE software is modified to accept the SC type. Therefore, for SCDs identified as a ship modification, the cognizant SPM must create a legacy alteration record in NDE-NM in order to schedule the SC. The legacy alteration record will have an alteration type of SHIPALT with the standard SHIPALT alteration ID format, identified at the class level (for surface ships) or hull level (for carriers). The SHIPALT number for SCDs will be a five-digit number consisting of the four-digit SCD number preceded by the number 7 (For example, SCD 0235 = NDE-NM alteration number 70235). The SHIPALT Title shall be "K" for Program SCs and "D" for Fleet SCs. For SCDs approved for incremental installation, the SPM will create a NDE-NM record for each increment described in the SCD. Increment 00 will always represent the complete delivery of the capability described in the SCD. Increments 01-99 will represent each increment of the capability to be delivered.

The SC shall be programmed in the NDE-NM modules by the sponsor activity or their designate. The availability, FY, and scheduled start and completion dates shall be consistent with the approved SCD FP. For SCDs approved for incremental installation, the sponsor activity or their designate is responsible for ensuring hull applicability and scheduling for each increment is consistent with the approved SCD.

3-1.4 Canceling a SCD

If the SCD has passed any DP, it will take approval by the Decision Boards to inactivate it. If the SCD has not passed a DP, the Submitter may cancel it at any time.

Once a SCD has passed any DP, it takes an action by the Decision Boards to stop it. The appropriate board must vote to remove the change from the MP. The NDE Secretariat will administer that vote. The following information must be provided to the appropriate Decision Boards for review:

- Change Tracking Number (CTN) #
- Current Phase number
- Current Phase Status
- Any funding expended to date (including current Phase)
- Phase status to which you need it to be reset
- Person requesting this action: Name, Phone #, email address

- Identity of the individual who will be making corrections: Name, Phone #, email address, and identify involvement (i.e. submitter, initiator, etc.)
- Reason for request

SUBSECTION 3-2 SCD Initiation

3-2.1 Scope

All SCs are documented, developed, and programmed using the SCD and will be submitted and tracked using the NMP, in NDE-NM.

Information concerning the definition of data fields and procedures on how to prepare the SCD are provided in the SCD Technical Specification (Appendix A). Details on how to prepare the CBA portion of the SCD are contained in Section 4 of this manual.

3-2.2 Initiate Ship Change Document (SCD)

Any NDE account holder can initiate a new SCD, even if that individual lacks SCD update capability. This Initiator can update that SCD as long as it remains in the Initiate phase. Once the Initiator hands over the SCD to the Submitter, only that Submitter may assign the SCD back to the Initiator for additional revisions. The Submitter can modify the SCD until it exits Submittal phase; thereafter, the SCD must be assigned back to the Submitter for modification.

Initiators fill out a SCD in NDE and, when the document is saved, it is assigned a CTN. The Initiator is allowed to ask for reviews by outside organizations, and the outside organizations will have an authentication block that allows the Submitter to know that this document has been reviewed by outside activities (i.e. Immediate Superior in Command (ISIC), Class Squadron (CLASSRON), PYs, PEOs, Ships Maintenance Teams, Submitting Activities, etc.).

The Initiator shall coordinate with the Submitter to determine the entry phase based on change maturity level. Where applicable, Technology/Software Technology Readiness Levels (TRL/STRL), as defined in Department of Defense (DoD) 5000.2R, may be used in support of this determination (see Table S3-1 for TRL Linkages to SCD Phase Entry). Some other specific situations that would warrant consideration of beginning the SCD at Phase III (or Phase II for NPCs) are:

- If the SC is equivalent to a legacy alteration approved prior to July 19, 2004 under the Fleet Modernization Process (reference equivalent legacy alteration)
- If the SC is software only and is a patch or upgrade of a previously approved software installation (reference approval of the original software installation)

Technology Readiness Level (TRL)	NMP SCD Entry Phase
1: Basic Principle Observed	**I**
2: Technology Concept Formulated	**I**
3: Analytical and experimental critical function proof concept	**I**
4: Component/breadboard: lab environment	**II**
5: Component/breadboard: relevant (simulated) environment	**II**
6: System/subsystem model or prototype: Relevant or simulated Operational Environment	**II**
7: System prototype demonstration in an operational environment	**II**
8: Actual system completed and qualified through test and demonstration	**III**
9: Actual system proven through successful mission operations	**III**

Table S3-1 TRL Linkages to SCD Phase Entry

The Initiator shall provide data for all mandatory SCD fields, at a minimum, prior to submission to the Submitter. A SCD shall include all applicable planned installations for all ship classes and affected shore facilities. Only information that is known by the initiator needs to be filled in as the SCD is initiated. The Initiator is required to submit 2 SCDs if they apply to both Surface Ships and Carriers.

When the Initiator has completed development, the SCD is forwarded to a Submitter. Upon submittal, the SCD tracking number and Title are locked. This number will follow the document throughout its development to completion. The submitting activities review SCDs for completeness and accuracy, including Alteration Figure of Merit (AFOM), and CBA data (See Appendix A for details on filling out a SCD). They are also the first filters for determining SC validity. When their review is complete the SCD will be submitted into the review process. Figure S3-3 and Figure S3-4 provide the process flow for Initiating and Submitting an SCD.

The Initiator and the Submitter will have the ability to review the draft SCD at any time in the preparation process. The SCD can be reviewed at any point in the process by anyone with an NDE account for comment, but can only be updated by the Initiator or Submitter.

The Initiator will be able to recall inactive SC information and import data to a new SCD if desired. All authorized SCDs will automatically be assigned a sequential tracking number by the system (NDE-EP) upon being submitted.

SCD submission Business Rules are outlined in Appendix D, block 10.

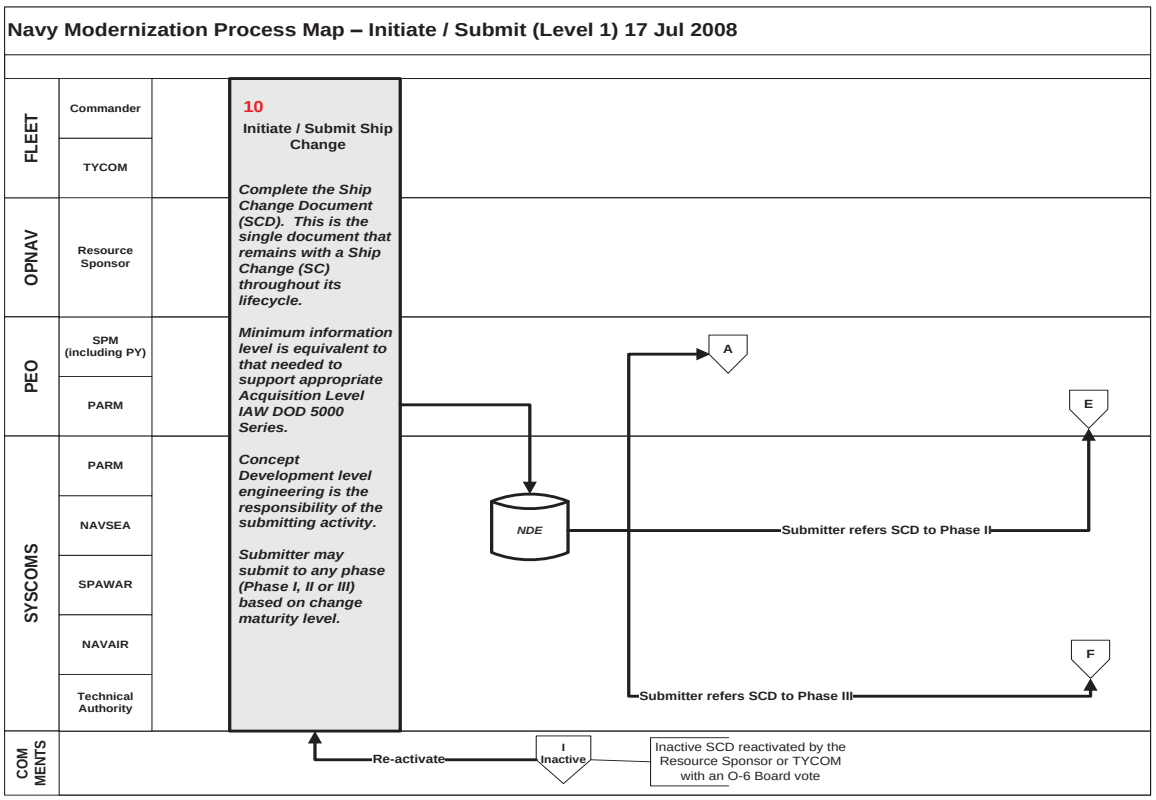


Figure S3-3 Initiation of SCD Flow Chart

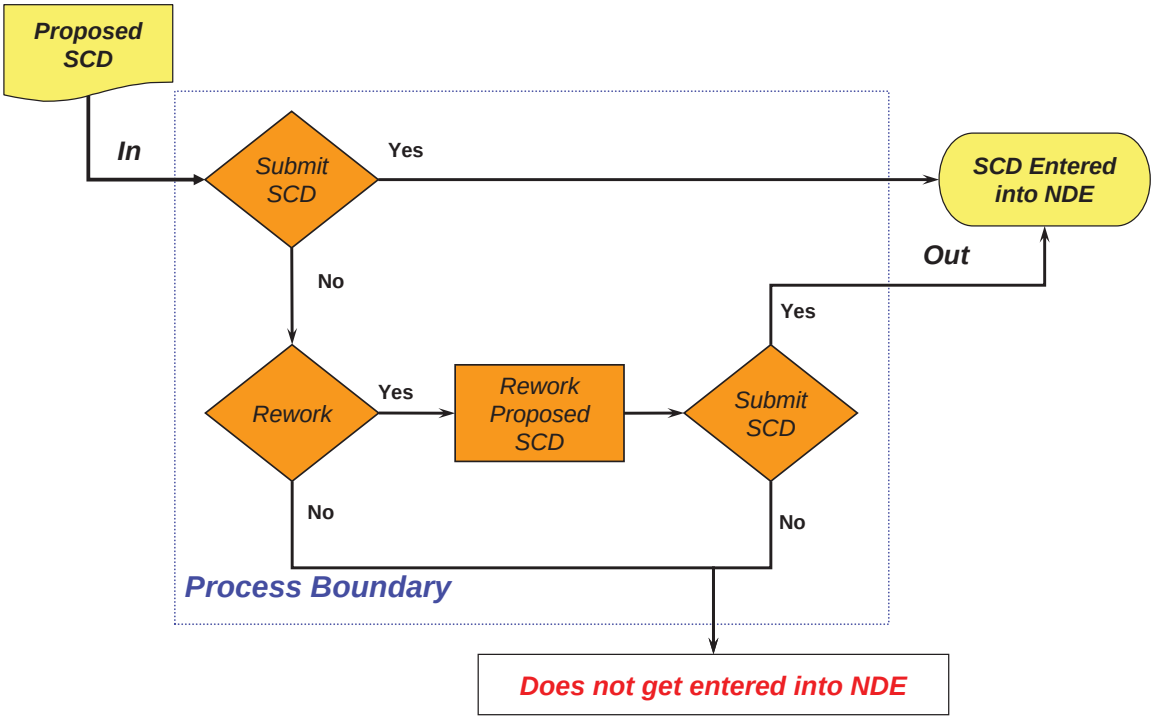


Figure S3-4 Create Ship Change Document

3-2.2.1 Initiation Exceptions

For initiation exceptions refer to paragraph 1-3.3 of this manual.

3-2.2.2 Policy and Process Guidance for the Spiral Development of Software/Firmware

All SCs are to comply with the Navy Modernization milestones in Appendix G. However, the following policies and processes are provided for SCs that fall under the evolutionary acquisition strategy of spiral development.

3-2.2.2.1 Software/Firmware being fielded under an already approved System/Equipment Ship Change Document

- The software/firmware listed on the SCD identifies the generic version of software to be fielded with a change prior to approval at Phase III
- Section B of the ILS certification document shall be the authoritative source for the documentation of software/firmware to the patch level that is planned for delivery for each applicable platform. There is no requirement to submit a separate SCD to document the version of software/firmware being delivered under an already approved system/equipment SCD. See Appendix G for ILS certification Navy Modernization milestone requirements
- Often, changes to the planned software/firmware become available under spiral development. When this occurs PARMs may take the following action to ensure the most recently certified software or firmware is delivered with a SC as long as the change is not providing new capability. Changes to the software and firmware under spiral development may be authorized via ILS revision until I-60. The Naval Sea systems Command, Integrated Warfare Systems Directorate (NAVSEA 05W) must be informed of any ILS revisions to software or firmware that are designated Category 1 or 2 for interoperability via risk form (cite system/equipment and NDE accomplishment sequence number for reference). When changes to software/firmware under spiral development being delivered is required (mission critical/safety item) after these milestones the following rules apply:
  - For SFI CAT 1 and 2 systems the PARM shall request authorization to install using the Emergent Change Process (SUBSECTION 3-10) and submit a Command, Control, Communication, Computers, Collaboration and Intelligence Master Plan (C5IMP) electronic risk form (electronic Configuration Control Board) to SEA 05W via the Afloat Master Planning System (AMPS) module of NDE. The PARM shall specifically cite the NDE accomplishment sequence number that is impacted so that SEA 05W may document the proposal in AMPS and obtain Naval Network Warfare Command/ Commander, Pacific Fleet (NETWARCOM/COMPACFLT) approval. All other actions required IAW SUBSECTION 3-10 apply
  - The Emergent Change Process will not normally apply to CAT 3 and 4 systems unless justification can be provided that the change directly impacts mission capability or is a safety item. In most cases CAT 3 and 4 changes shall be rescheduled for a ship's next availability
- For software/firmware upgrades being delivered to platforms for installation on systems or equipment already previously installed by a SC and the change will be installed and tested by AIT
  - A new SCD shall be submitted at the appropriate phase entry

- After A-120, PARMs must use SUBSECTION 3-10, Emergent Change Process for any software/firmware configuration changes that are mission critical or safety items requiring to be installed in the availability. If the change is not mission critical or a safety item, it shall be scheduled for a later availability in order to allow the new SCD to be approved

3-2.2.3 Capability/Program SCD Utilizing a Parent-Child Methodology

The EP software does not support automated management of Parent-Child SCDs. The intent of the Parent-Child relationship is to document a defined operational/technical requirement for which a "solution set" (comprised of multiple SCs) might not be fully known at the time of the preparation of the Parent SCD. Parent-Child SCDs are linked SCDs that describe and relate an overarching capability or concept, program and the associated technical or material solutions that address the overarching SCD. The child SCD provides flexibility by enabling submitters to define systems, accommodate equipment changes, or refine software versions. Child SCDs can be either Non-Permanent or Permanent changes.

The Parent SCD will outline the total program cost and merit of a planned capability (including: warfare capability, spiral development, and/or life cycle support) in broad terms. Each supportive Child SCD will describe a SC providing a specific contributing capability, functionality, or improvement within the scope of the Parent (can be entered at any Phase in the NMP, depending upon the maturity of the proposed Child SC). Once a Child SCD has been created and approved, it will stand alone as an individual SCD. It must be a complete SCD with its own description, and AFOM. (CBA, will be documented in the Parent SCD) etc. In addition, each Child SCD will decrement the funding line(s) provided in the Parent SCD. The Parent SCD will follow the last Child SCD through the NMP to close out.

In the Parent-Child relationship, SCDs can be defined as one of the following types:

- **Capability SCD**
  - Describes an over-arching capability
  - Contains the funding for all assigned System and Modification SCDs
  - Generally enters at Phase I and remains there until all assigned System SCDs are closed
- **System SCD**
  - Defines basic system capability
  - Installs the initial iteration of a system Hardware/Software (HW/SW)
  - Receives funding from a Capability SCD and/or directly from the NMP
  - Generally enters at Phase I and runs through all phases
- **Modification SCD**
  - Does not add capability to basic system capability
  - Installs updates to the parent system
  - Receives funding from the parent System SCD and/or can be directly from the NMP
  - Enters at a Phase appropriate to the maturity of the change
  - Most equipment changes should enter at Phase III
- **Software SCD**
  - Defines a software version for equipment in a Parent SCD
  - Generally enters at Phase III

- Patch level must be defined at Phase IV

Figure S3-5 depicts possible uses of Parent-Child SCDs to decrement funds of Capability, System, Modification and Software SCDs.

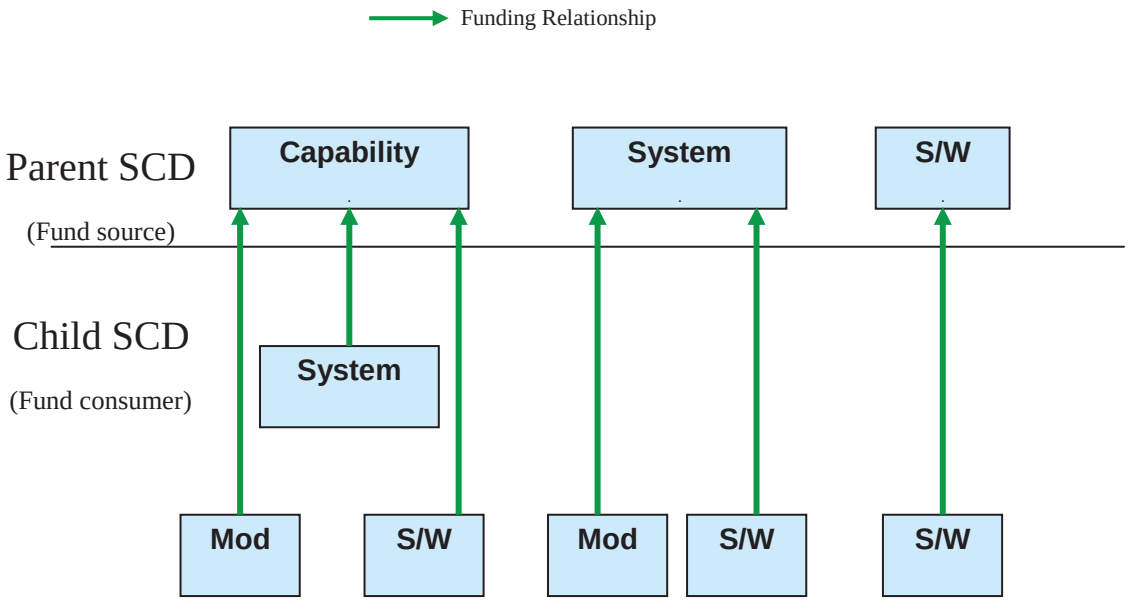


Figure S3-5 Parent-Child SCD tree

3-2.2.3.1 Cautions when using Parent-Child SCDs

The Parent-Child SCD is to be structured to ensure a direct relationship between the Parent and supportive Children SCDs to meet the stated operational/technical requirements as defined in the Parent SCD. It is not a mechanism for creating a cash reserve to be applied at the PARMs discretion. All Parent and Children SCDs will go through the standard process for approval within the NMP as defined in this manual. The scope of the capability defined by the Parent is critical. The specific benefit to the Navy should be clear (minimize applicable AFOM categories). Voting on the parent determines whether <u>any</u> of the children will be implemented, so be as clear as possible as to the scope of the Parent SCD and remember that the cost of the parent is a consideration.

The Parent-Child SCD provides a mechanism for budgeting for modernization, a basis for prioritization of Fleet needs, and flexibility for handling both planned and unplanned (i.e. obsolescence, Reliability, Maintainability and Availability (RMA), and safety) changes. It also reduces program management risk and budget manipulations.

SUBSECTION 3-3 Phase I

3-3.1 Scope

This subsection details SC documentation and development in the Concept phase of the SC. SCDs enter at Phase I if the Submitter determines that the SC requires documentation of the specific need and proposed resolution, and the proposed SC is not at the maturity level to warrant entry at a later phase. See Figure S3-6 for the Phase I SCD process flow. Business Rules for submitting a SCD can be found in Appendix D, Block 10.

3-3.2 Submitting SCD (Concept Phase)

The SCD will have been initiated IAW SUBSECTION 3-2. The Submitter shall ensure that he/she agrees with the need for the change and the high-level proposed resolution and proposed FP prior to submitting the SCD for technical review. The Submitter may enter any additional information necessary, and shall ensure all mandatory fields are completed.

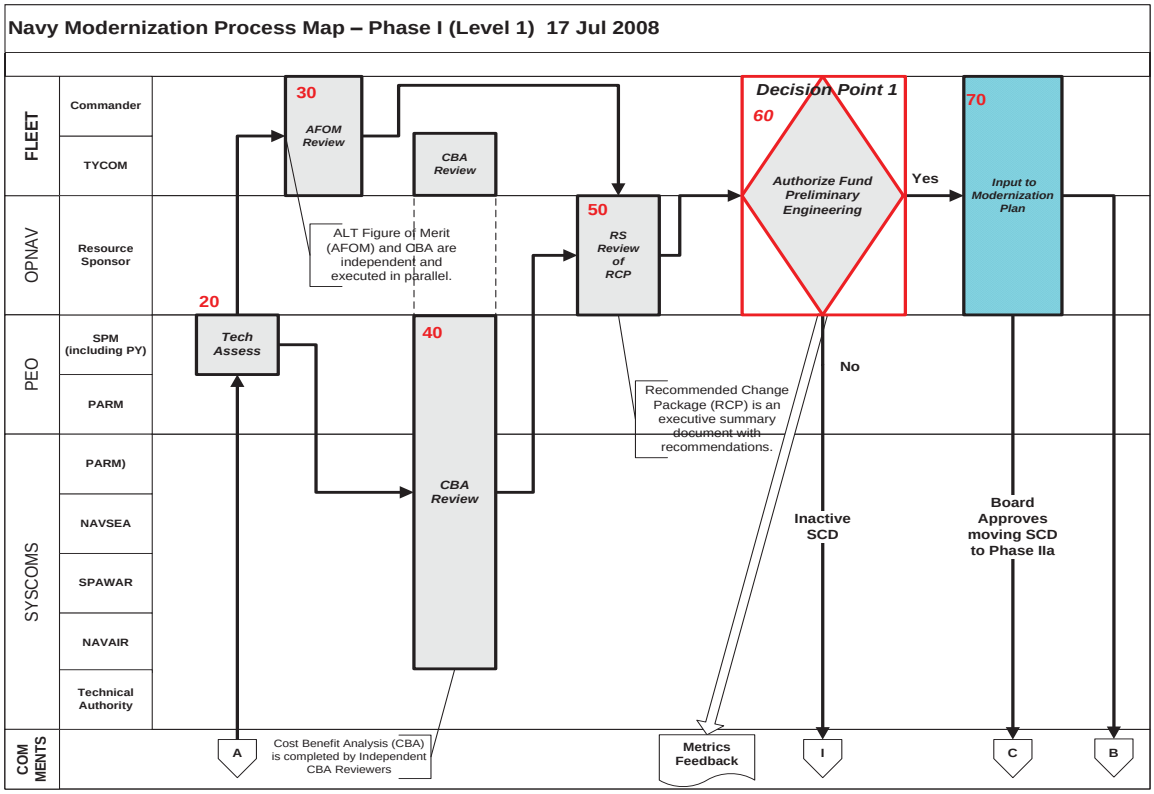


Figure S3-6 Phase I Top Level Flow Chart

3-3.3 DP 1 Technical Assessment

Phase I Technical Assessment Business Rules can be found in Appendix D, block 20.

3-3.3.1 Phase I Technical Assessment Team (TAT) Review

When the SCD has been submitted, the Technical Assessment Team Change Manager (TAT CM) associated with the applicable ship class is notified. Upon notification the TAT CM will either assign the SCD to a Core TAT Lead, who will distribute the SCD to the appropriate Virtual TAT members for review if necessary or the TAT CM will distribute to the appropriate Virtual TAT members. The review process will not include any subjective opinion of merit and all candidates for change shall receive fair, unbiased assessments by the TAT. The TAT will identify SCs that may supersede or be redundant with an existing SC. See Figure S3-7 for a breakout of the Technical Assessment hierarchy. Figure S3-8 provides a flow chart of the Phase I TAT review process.

The Core TAT Lead may use a "virtual" TAT comprised of technical experts, including Technical Warrant Holders (TWHs), as applicable, throughout the Navy technical community to review the SCD to ensure a valid assessment of technical merit.) The Virtual TAT may also include the HSI Assessment Team (HAT), NAVSEA 05W, the planning yards, and the Carrier Planning Activity. SCD review includes NAVSEA validation of the SFI CAT assignments IAW reference S3(j).

When the accomplishment of a SC affects the configuration of or installs or removes systems or equipments under the cognizance of Naval Air Systems Command (NAVAIR), Space Naval Warfare Systems Command (SPAWAR) or another activity outside NAVSEA, that activity shall be a member of the "virtual" TAT with responsibility to assess integration/interoperability impacts and provide technical comments back to the Core TAT Lead.

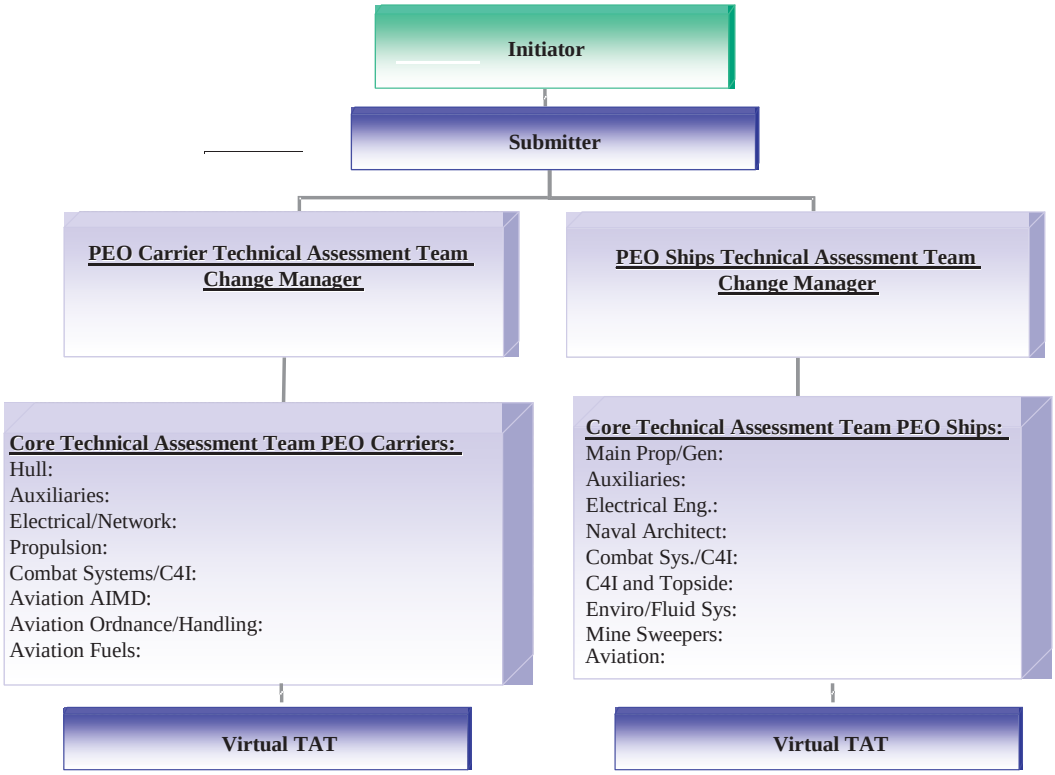


Figure S3-7 Technical Assessment Hierarchy

The Core TAT Lead is responsible for ensuring appropriate NAVSEA 08 concurrences are obtained during the TAT review.

The Core TAT Lead will communicate directly with the Submitter or Initiator to discuss proposed changes and updates. Upon TAT review completion, the virtual TAT members send their comments back to the Core TAT Lead, who reviews, consolidates, and then forwards them with their recommendation to the TAT CM.

The TAT CM will review inputs for completeness and technical feasibility as determined by the appropriate Technical Authority. Based on the extent of TAT comments, the TAT CM can return the SCD to the Submitter for updates.

If the SCD is returned to the Submitter, the Submitter will address the concerns of the TAT and re-submit the SCD. However, when the SCD is re-submitted to the TAT CM, it will simply be closed for editing and the Core TAT Lead will be reassigned the SCD to complete the TAT review. While the Submitter is reviewing and making changes the review timeline for the TAT is suspended. Upon completion of the Submitter review, the timeline resumes.

Upon final receipt of completion from the Core TAT Lead, the TAT CM will check the SCD to ensure the review is complete and the required questions are answered. When submitters request the use of Phase IIa, the TAT CM endorses the request.

Additionally, if ST1/ST2 designation is requested, the Core TAT lead and TAT CM shall concur with the ST1/ST2 recommendation. The SCD will then be forwarded with the TAT CM recommendation to the appropriate SPM for review.

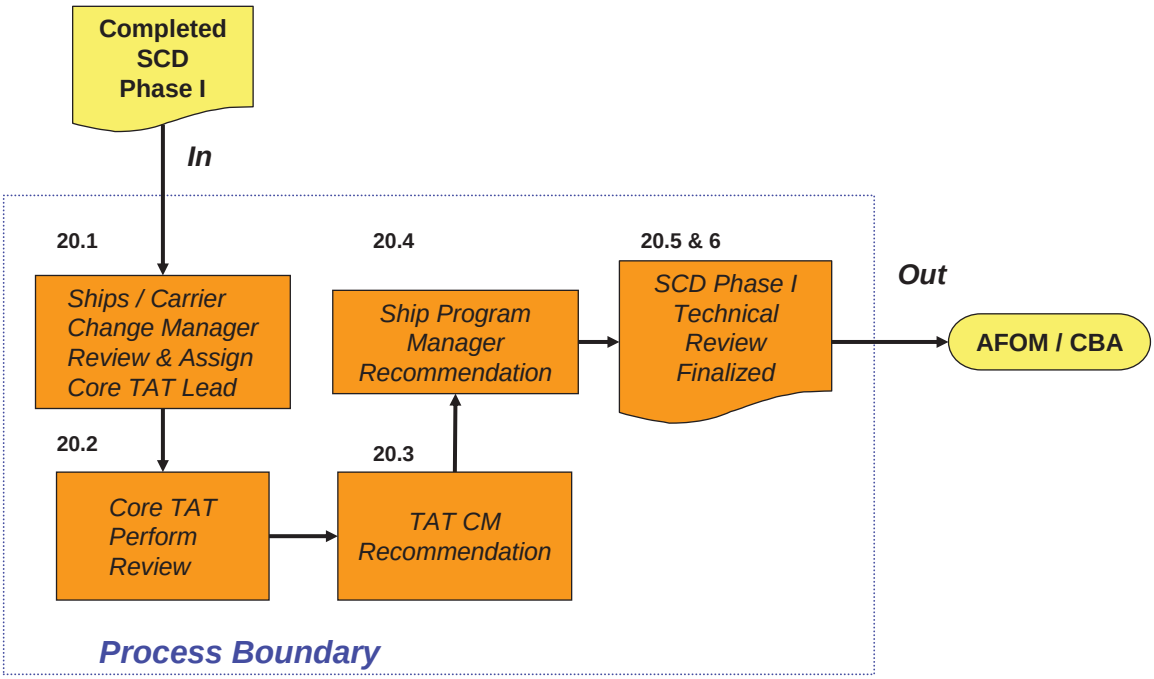


Figure S3-8 Technical Assessment Phase I Flow Chart

3-3.3.2 SPM Review

Since the SPM is the cognizant authority for ship configuration control and life cycle management, the Decision Boards need to be aware of the SPMs concerns in these two areas. The SPM will provide their recommendations on-line. The SPM has two (2) options for a Phase I SCD: Yes, recommended; or No, not recommended (requires comments and/or justification). Both options are forwarded to the CBA/AFOM for review. Should the SPM require additional clarification, the SPM will contact the Core TAT Lead or TAT CM and attempt to reach a resolution. Unresolved issues will be noted in the Technical review comments block.

The SPM will complete their review and provide recommendations/comments as required. The SCD will be then be forwarded to the AFOM and CBA teams for review.

3-3.4 Alteration Figure of Merit (AFOM) Review

The AFOM numerically translates stakeholder (TYCOM and Office of the Chief of Naval Operations (OPNAV)) interpretations of SEAPOWER 21 (SP-21) Navy War Fighting and Readiness Priorities into a quantitative output that provides NMP Decision Board voters with a decision aid that quantifies the war fighting relevance and benefit of each proposed SC as it applies to one or more platform types. The overall AFOM score will support the calculation of the MP Priority Index Value (P-value) discussed in paragraph 3-3.4.1. All SCDs are assigned an AFOM via a TYCOM review process with the following caveats:

- Statutory (defined by law or directive) and mandatory safety SCs will receive a default maximum AFOM score
- For NPCs, the AFOM tab must still be completed on the SCD. However, there will not be an AFOM score
- A maximum AFOM percentile score will be assigned by NDE-NM when two conditions are met: the SCD is defined as a “Parent” SCD, and an Acquisition Category (ACAT) box is checked by the Submitter. Appropriate references to acquisition documentation must be identified as discussed earlier. SCDs that are “Parent” ACAT will not be included as part of the Phase population calculations for AFOM
- Subsequent “Child” SCDs that delineate the material solution will have AFOM assigned per the Assign AFOM process via cognizant TYCOM review

The appropriate AFOM portal manager will forward to Subject Matter Experts (SMEs) for review. The AFOM SMEs will assign index values and calculate the AFOM. Upon completion, the calculated AFOM will be sorted into percentiles and forwarded to the AFOM portals for review and acknowledgement that the AFOM is complete.

The AFOM Process is divided into two sub-processes, AFOM assignment and the Annual Merit Assessment Event.

AFOM Business rules can be found in Appendix D blocks 30 and 30.1.

3-3.4.1 AFOM Assignment Process

The first part of the AFOM process is assignment (and update, as required, in later Phases) of the

AFOM via a TYCOM review. The AFOM is assigned as submitted SCDs enter the review process following TAT/SPM review. The AFOM assignment process requires the establishment of static weights in the NDE-NM AFOM Benefit Structure derived from the annual Merit Assignment Event discussed in paragraph 3-3.4.2.

This process begins upon submission of a Phase I, II, IIa or III SCD. The SCD contains capability checklists that directly map to the AFOM model. The Initiator or Submitter selects one or more of the Naval Capabilities (i.e. Functional Areas) that best describe the applicability of the proposed SC to the CNO-mandated Operational Architecture. At least one Naval Capability under the Capability Benefit must be checked for the Submitter to proceed with NDE processing of the SCD. All SCDs will be assessed vs. the Suitability matrix in the AFOM benefit structure to receive a mandatory Suitability Assessment by the TYCOM. Hull, Mechanical and Electrical (HM&E) SCs will also receive a minimum default classification under the SEA Base Pillar. Training systems will be assigned to the capability or capabilities that the proposed SCD supports. Medical SCs will be assigned by default to the SEA Base Pillar under the appropriate logistics or medical capability.

The Submitter is responsible for providing or identifying the appropriate references to verifiable and authoritative requirements in support of the AFOM assignment. These include, but are not limited to, hyperlinks and engineering and/or acquisition documents included as attachments such as Capability Definition Documents (CDDs).

The TYCOMs will establish, via internal administrative and procedural processes, applicable rating criteria, standardized SME Reading and Review Lists and Rating Guidelines; they will use applicable and existing data sources and databases to conduct the SME review. This process is handled offline of NDE.

The NDE-NM SCD software will facilitate TYCOM AFOM assignment per the business rules contained in Appendix D blocks 30 and 30.1.

Once staff or other inputs are collected, the index values will be manually entered by TYCOMs into NDE using standing AFOM Benefit Structure Suitability and Capability Rating Scales that reside in NDE. These scales will be accessible (write permission) by the TYCOMs only with the following exceptions:

- Statutory (defined by law or directive) SCs and NPCs will not require rating scale access or TYCOM inputs (no AFOM is assigned in these specific cases)
- “Parent” SCDs that describe an overall capability where a material solution is not developed shall have a maximum AFOM assigned. Subsequent “child” SCDs that delineate the material solution will have an AFOM assigned per the Assign AFOM process. Statutory requirements, selected on the SCD via the Requirements checklist, will be assigned a default Maximum Overall AFOM (100th) and a statutory (S) identifier; the Maximum AFOM SCD will not be included in the Phase population or raw score calculations to avoid numerical perturbations (low Percentile scores) in the percentile calculations
- A maximum AFOM percentile score will be assigned by NDE-NM when two conditions are met: an SCD is defined as a “Parent” SCD, and the Submitter checks an ACAT box. Appropriate references to acquisition documentation must be identified as discussed earlier. SCDs that are “Parent” ACAT will not be included as part of the Phase population

calculations for AFOM
- The SEA 04RP Process Administrator will have access to the rating scale inputs for administrative corrections as required and dictated by the appropriate TYCOM

NDE-NM will electronically route the SCD to the appropriate Platform TYCOM, based on the following rules:

- HM&E: Appropriate Platform TYCOM (Surface or Air)
- Command, Control, Communication, Computers, Collaboration and Intelligence Surveillance and Reconnaissance (C5ISR): Appropriate Platform TYCOM (Surface or Air), info NETWARCOM
- Cross-Platform C5ISR: NETWARCOM; info Platform TYCOM(s)
- Cross-Platform HM&E: Commander, Fleet Forces Command (CFFC) N43

The TYCOMs will follow established internal administrative and procedural processes to facilitate AFOM assignment. If mapping changes are made by the TYCOM AFOM Change Coordinator (CC), NDE will notify the Submitter that changes were made. A comments block will be available with the notification message for the TYCOM to enter any comments/rationale for the change.

NDE-NM automatically calculates the AFOM using both the TYCOM-provided rating scale values and the Merit Assessment process weights discussed in paragraph 3-3.4.2. The assigned values indicate “how much” the proposed change will benefit the functional areas assigned in the AFOM model via the SCD checklists based on the associated improvement or degradation to a war fighting requirement/gap, existing ship, capability or system, to the weighted AFOM benefit structure if the change is installed.

The AFOM assignment process is managed by the TYCOM via assignment of Index rating scale values, which articulate an improvement or degradation to a war-fighting requirement/gap, existing ship, capability or system, to the weighted AFOM benefit structure if the change is installed. The index value is an integer that serves as a standard rating scale, defined in the range from 0-70 as follows:

70-Significant Improvement
60-Moderate Improvement
50-Marginal Improvement
40-No Change
30-Marginal Degradation
20-Moderate Degradation
10-Significant Degradation
0-Insufficient Information

Index values indicated above have underlying weights (e.g. an index value of 70 has a corresponding weight of 1.0), which are multiplied by the Merit Assignment-process established weights for each of the Capability and Suitability AFOM model attributes. The mathematical products are then summed to provide an overall raw score. Each SCDs raw AFOM score is divided by the highest raw score in the comparative Phase Population (Phase I, II, IIa, III) and multiplied by 100. This creates a normalized raw or “Percentile score.”

NDE will calculate the AFOM Percentile for an SCD using SCs in the same phase of development for normalized raw score (percentile) e.g. a Phase I SC Overall AFOM Percentile score would be calculated only against the population of SCDs that were in Phase I development and so forth.

The underlying weights associated with the TYCOM Index rating scale values noted above were established at process inception in July 2004, but may be revised as the AFOM Process Stakeholder (TYCOMs) dictates.

The outputs of the AFOM Assignment process are SCD and Recommended Change Package (RCP) percentile scores. These numerical outputs include TYCOM qualitative comments and recommendations for approval/disapproval. The NMP Decision Board members use these AFOM scores along with other review process data such as cost benefit, technical merit etc., to determine approval or disapproval of the SCD. AFOM percentile scores use a standard scale of 1-100 (e.g.: "35 th"). In addition to an overall AFOM percentile score, percentiles will also be assigned to the following subcategories:

- Capability AFOM
- Suitability AFOM
- Sea Base
- Sea Strike
- Sea Shield
- Force Net
- Quality of Service/Quality of Life

3-3.4.2 Annual Merit Assignment Event

This event establishes weights associated with the SP-21-based numerical model resident in NDE-NM. The weights reflect a consensus of priorities developed via the Naval Capabilities Development Process (NCDP).

Priorities are codified via the annual Integrated Capabilities Plan (ICP) provided by CFFC N8 on or about March of each year. The TYCOM N8s will then perform an ICP assessment process to ascertain the overall "health" of each of the applicable 61 capabilities mapped to the 14 Mission Capability Packages (MCP) in the SP-21 NCDP operational architecture. The ICP articulates Combatant Commander and Numbered Fleet-identified "gaps" in War Fighting capabilities. The TYCOM N8s ascertain the "health" of each applicable underlying capability assigned to a MCP to support calculation of an overall "MCP Composite Health Score". This ensures synchronization with the NCDP and future naval capabilities processes and translates the ICP into a usable form for the NMP AFOM process.

A software tool is used to translate the composite scores of each MCP into a numerical set of NDE-NM AFOM model weights. The weighted model reflects established NCDP "gaps" in capabilities.

Completion of the Merit Assignment Event is a pre-requisite to establish the numerical priorities that are mathematically combined with a continuous SCD review process, regarding the proposed benefit, to calculate the AFOM.

3-3.5 Cost Benefit Analysis (CBA) Review

The CBA review process facilitates the collection of all appropriate cost data into a single, authoritative database (NDE-NM) in order to support the decision making process and to correctly quantify the return on investment and payback period as well as to establish requirements for budgets to support development and installation of changes. The CBA review is expected to catch inappropriate financial data entered manually by the user.

The CBA Coordinator will assign the SCD to a set of CBA Reviewers. The CBA Reviewers navigate through the SCD to review the details of the SCD. The system displays cost structure data (e.g., work breakdown structure with costing information), when the CBA Reviewers request it. The CBA Reviewers navigate to the CBA section of the SC, and the system displays CBA information that has been entered. The CBA Reviewers will verify that the data is accurate and complete (see Section 4 of this manual for more information). The CBA Reviewer will work with the Submitter to make corrections to the CBA prior to moving on to the next step. The CBA Reviewer can assign the CBA back to the Submitter so the suggested corrections can be made. Once the review is complete, the CBA Reviewers forward the SCD to the CBA Coordinator, who indicates the SC CBA review is complete and submits the SCD. The system verifies that all mandatory data has been added to the SCD and verifies that there are no active assignments (i.e., part of SC assigned to someone). The system calculates the AFOM percentile ranking, if the AFOM review is also complete, then the system submits the SC to the next step.

For details on the CBA, refer to see Section 4 of this manual.

3-3.6 Resource Sponsor Review of RCP

The SCD will be forwarded to the appropriate Resource Sponsor(s) for review, and the sponsor(s) will indicate if the there is funding available to complete the SC by checking yes or no. If yes is checked that is an indication that funding is available in the budget, assigned to the correct funding line and if appropriate provide funding options. If there is no funding available, the SCD is forwarded to the Decision Board to determine if a trade off for funding is required. Resource Sponsors are expected to provide an answer on the RCP. If changes are required to the funding data, the Resource Sponsor can assign the SCD back to the Submitter for corrections.

The information on the SCD will be summarized into a RCP. The RCP is a summary of the SCD; including Description of Change, impact if not installed, TAT, AFOM, CBA, SPM review comments; and total funding required to execute the SCD if approved. This information is provided to the Decision Boards as a single document.

Resource Sponsor Review of RCP Business Rules can be found in Appendix D, block 50.

3-3.7 Decision Point 1 Approve Funding for Preliminary Engineering

When the Decision Board approves a SCD at DP 1, it authorizes that SCD to be placed into the MP. SCD approval is the Board's direction to continue with preliminary engineering of the SC and is the Board's commitment to fund the SC to the level indicated in the SCD. The financial requirement identified in the SCD will be included in the MP and integrated into the budget process.

O-6 Board decisions on the merit of the SCD are based on unanimous agreement among Board voters. Voting tally is Yes (approve) or No (disapprove). If, upon completion of voting by designated voters, the result is non-unanimous, then voting will be reset by the NDE Secretariat, and the RCP will immediately be sent back to the Board for a re-vote. When a RCP is returned for a re-vote, the NDE Secretariat will inform the voters of the result of the first vote and request they try to resolve the disagreement. All re-votes will include a statement in the comments section of the RCP with the voter's rationale in sufficient detail and clarity that it can be used to prepare a voting package for the 1&2 Star Decision Board.

There will only be one re-vote allowed. If a unanimous decision is not reached after one re-vote, the RCP will be sent to the 1&2 Star Decision Board for resolution/adjudication. The NDE Secretariat will prepare the voting package for the 1&2 Star Decision Board.

Decisions by the 1&2 Star Decision Board and the 3-Star Decision Board are based on the votes of the majority of the voting members. A unanimous vote is not required.

When a SCD has gone through the voting process and the results are to "Disapprove" it for inclusion in the MP, the SCD will be placed in an inactive status in NDE-EP. The SCD can only be re-activated by request to the NDE Secretariat from either the cognizant TYCOM or Resource Sponsor.

When a SCD has gone through the voting process and the results are to "Approve" it for inclusion in the MP, the SCD will be added to the MP and it will transition to the next phase. Figure S3-9 provides a diagram of the Decision Board voting process at each decision point.

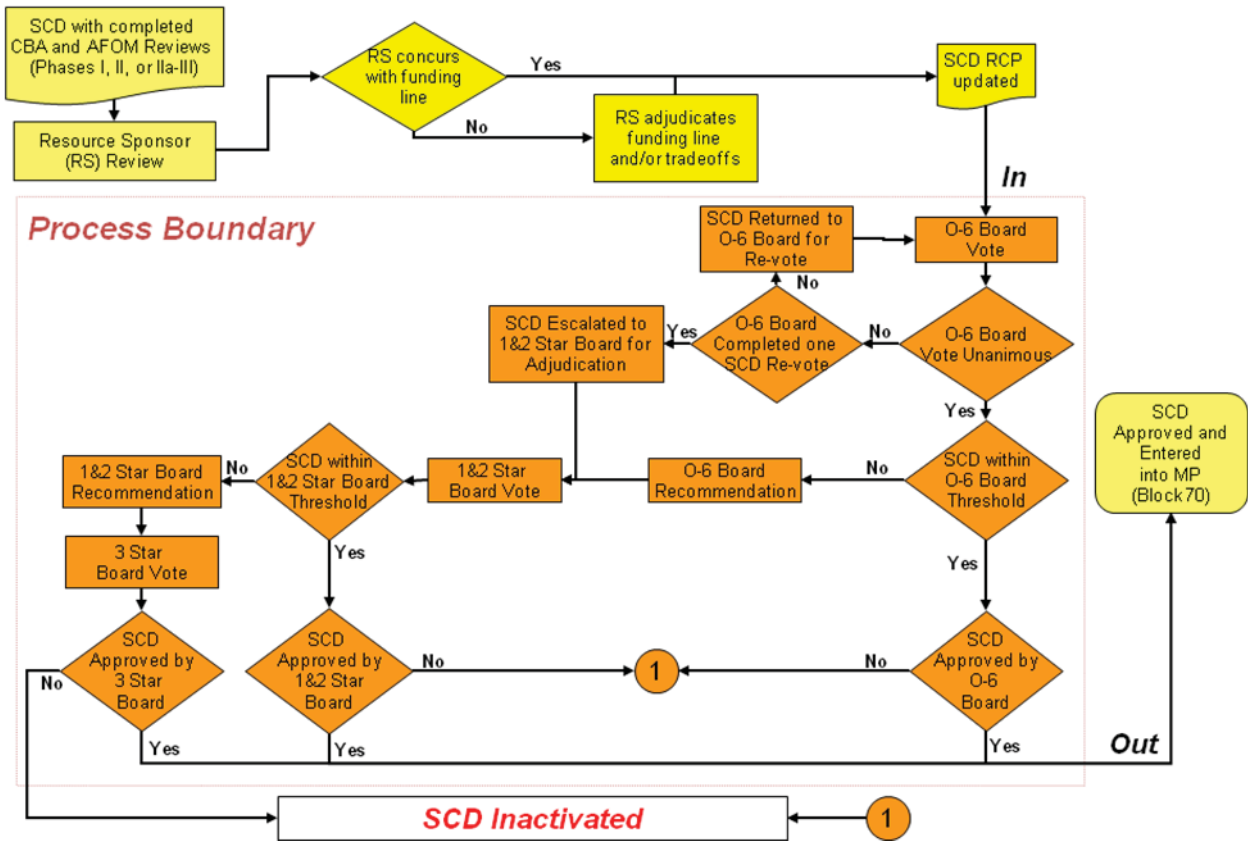


Figure S3-9 Decision Board Flow Chart

A description of the voting process for DP 1 can be found in Appendix D, block 60.

3-3.8 Input to Modernization Plan

SCs that make up the MP have been voted on for their inclusion in the plan.

Based on the results of the Decision Boards, approved SCDs are used for the development of a comprehensive MP to fulfill Navy requirements. Once a SCD has been entered into the MP, the Submitter can begin scheduling. Details on Scheduling can be found in paragraph 3-1.3.

Currently the system/application process for all SCDs is that when it has been approved through the cognizant Decision Board voting process and the Decision Board approval section of the SCD is completed/endorsed, the SCD record is then automatically added to the database with the MP field set to 'Yes'. When a lower Decision Board votes on a SCD outside of its thresholds, the MP field will be set to 'No' and the Proposed Modernization Plan (PMP) field is set to 'Yes.' Those SCDs are then to be packaged together for submission to the next higher Decision Board for review and approval.

Once a record has been established in the MP database, any changes to that record will be made only upon approval of the cognizant Decision Board. All changes are to be documented in the comments section of the record. A fine line exception to this process is that if a SCD is approved at a subsequent Phase level from its initial entrance point, the financial data (CBA) is

automatically updated to reflect the current information of the Phase level of that SCD.

SUBSECTION 3-4 Phase II

3-4.1 Scope

This subsection details SC documentation and development in the Preliminary Design phase of the SC. See Figure S3- 10 for the Phase II SCD process flow. There are two ways a SCD can enter Phase II:

- Updating a Phase I SCD with the results of preliminary design as described in paragraph 3-4.2
- Enter the NMP with a Phase II SCD if the Submitter deems the design maturity of the SC is sufficient that it does not warrant preliminary design efforts and associated review (Phase I)
- Submitter must execute the requirements of paragraph 3-3.2 in addition to ensuring the SCD meets the requirements of paragraph 3-4.2 below

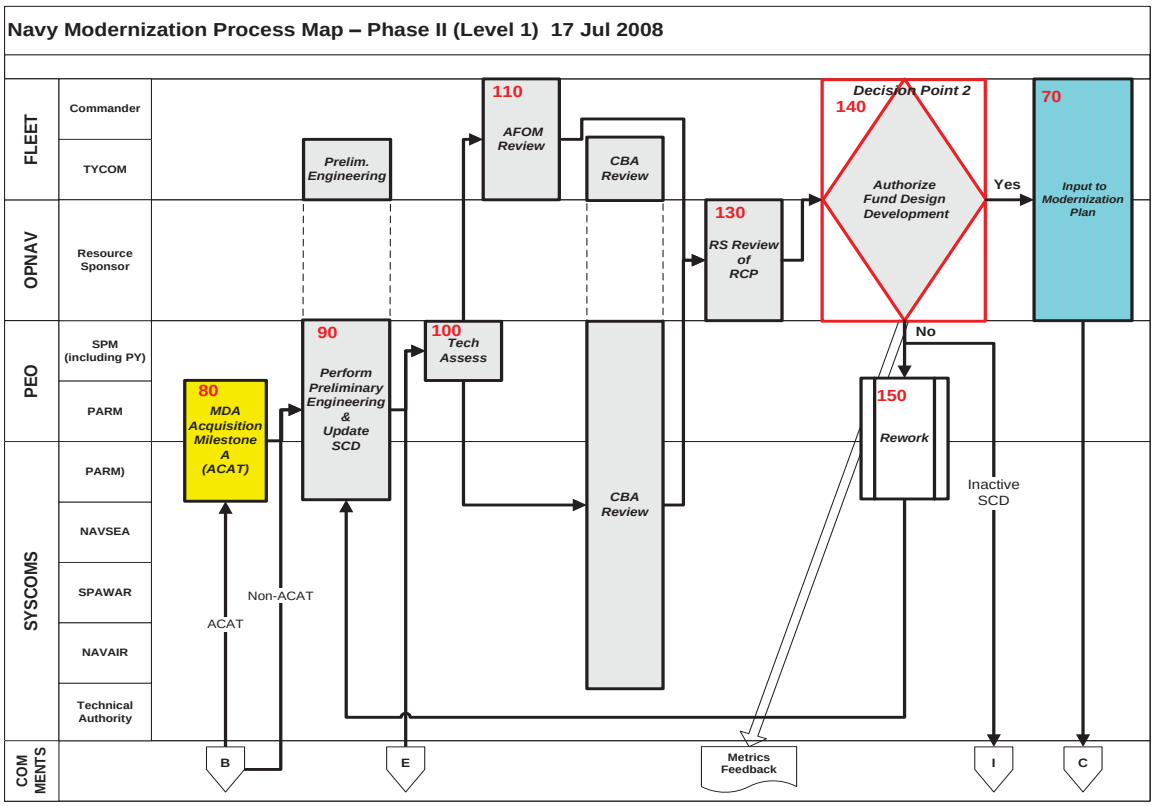


Figure S3- 10 Phase II Top Level Flow Chart

3-4.2 Updating SCD (Preliminary Design Phase)

The SCD will be updated based on the results of Preliminary design. As more detailed information becomes available, the data should be entered into the SCD. Additional technical data (i.e. preliminary drawings, technical specifications, test results, engineering load identification, NPC requirements IAW SUBSECTION 3-11, etc.) that a Submitter wants to

provide in amplification of required fields in the SCD information may be placed in a folder as part of the EP baseline software within NDE. The Submitter shall identify any Low Rate Initial Production (LRIP) units to be installed in Phase III for approval by Decision Boards (if applicable).

If the SCD is in jeopardy of not being completed because of insufficient funds, the Submitter needs to submit an updated SCD to the Decision Boards reflecting the adjustments.

The variances against the previous CBA will be evaluated against the threshold limits. If life cycle cost estimate in any phase increases by a factor greater than those laid out in Section 4 of this manual, the previous Decision Board shall re-evaluate the SC and approve the increase in required funding (i.e. Phase IV Cost Growth - Budget estimate must be within +/-10%. A revised SCD must be resubmitted to DP 3).

If a threshold is breached, the appropriate Decision Boards must make one of the following decisions:

- Continue installs and adjust the MP as required
- Stop installs and adjust the MP
  - Closeout SC and leave as one of a kind fully supported
  - Remove initial SC and closeout

3-4.3 Phase II Technical Assessment Review

3-4.3.1 TAT Review

When the SCD has been submitted, the TAT CM associated with the applicable ship class is notified. Upon notification, the TAT CM will either assign the SCD to a Core TAT Lead, who will distribute the SCD to the appropriate Virtual TAT members for review if necessary or the TAT CM will distribute to the appropriate Virtual TAT members. The review process will not include any subjective opinion of merit and all candidates for change shall receive fair, unbiased assessments by the TAT. The TAT will identify SCs that may supersede or be redundant with an existing SC. See Figure S3-7 for a breakout of the Technical Assessment hierarchy.

The Core TAT Lead may use a “virtual” TAT comprised of technical experts, including TWHs, as applicable throughout the Navy technical community to review the SCD to ensure a valid assessment of technical merit. The Virtual TAT may also include the HAT, NAVSEA 05W, the planning yards and the Carrier Planning Activity. SCD review includes NAVSEA 05W validation of the SFI CAT assignments IAW reference S3(j).

When the accomplishment of a SC affects the configuration of or installs or removes systems or equipments under the cognizance of NAVAIR, SPAWAR or another activity outside NAVSEA, that activity shall also be a member of the “virtual” TAT with responsibility to assess integration/interoperability impacts and provide technical comments back to the Core TAT Lead.

The Core TAT Lead is responsible for ensuring appropriate NAVSEA 08 concurrences are obtained during the TAT review.

The Core TAT Lead, will communicate directly with the Submitter or Initiator to discuss proposed changes and updates. Upon TAT Review completion, the virtual TAT members send their comments back to the Core TAT Lead, who reviews, consolidates, then forwards them with their recommendation to the TAT CM.

The TAT CM will review inputs for completeness and technical feasibility as determined by the appropriate Technical Authority. The TAT CM can assign the SCD to the Submitter for updates.

If the SCD is returned to the Submitter, the Submitter will address the concerns of the TAT and re-submit the SCD. However, when the SCD is re-submitted to the TAT CM it will simply be closed for editing and the Core TAT Lead will be reassigned the SCD to complete the TAT review. While the Submitter is reviewing and making changes the review timeline for the TAT is suspended. Upon completion of the Submitter review, the timeline resumes.

Upon final receipt of completion from the Core TAT Lead, the TAT CM will check the SCD to ensure the review is complete and the required questions are answered. The SCD will then be forwarded with the TAT CM recommendation to the appropriate SPM for review.

The phase II TAT process map is shown in Figure S3-11.

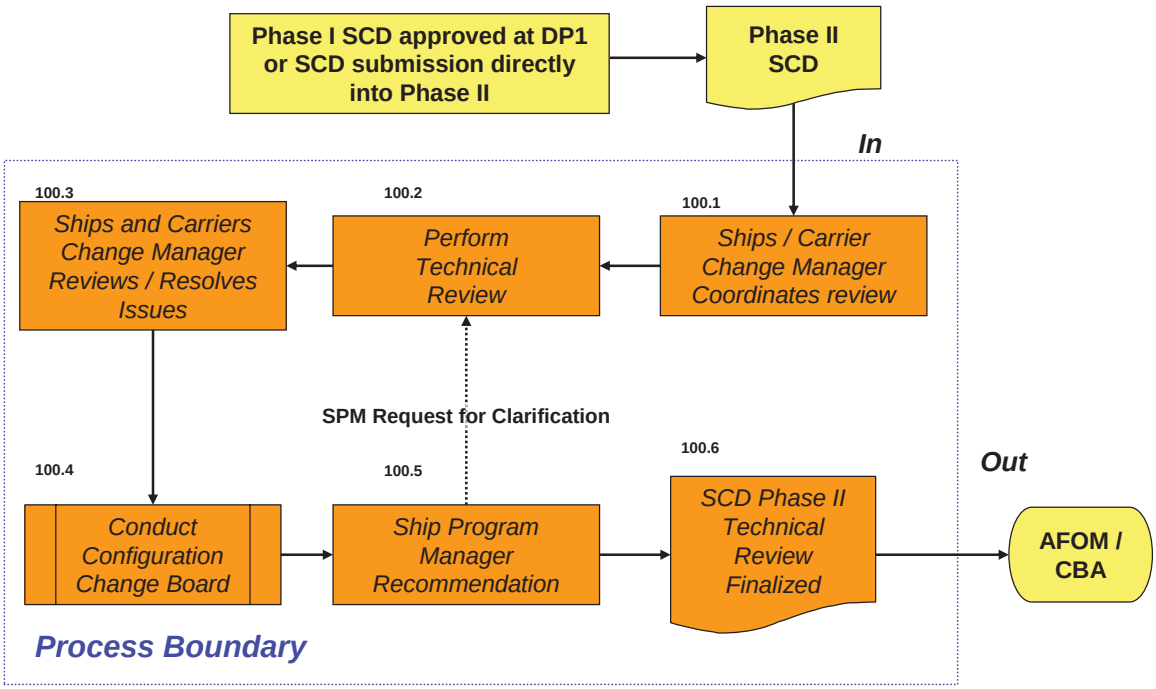


Figure S3-11 Technical Assessment Phase II Flow Chart

3-4.3.2 SPM Review

The SPM will provide their recommendations on-line. The SPM has two (2) options in Phase II: Yes, recommended; or No, not recommended (requires comments). Both options are forwarded to the CBA/AFOM for review. Should the SPM require additional clarification, the SPM will contact the TAT CM and attempt to reach a resolution. Unresolved issues will be noted in the

technical review comments block. Any negative recommendation must include a justification from the reviewer. The SPM will provide a recommendation and complete their reviews and provide comments as required. When the SPM has completed their review the SCD will be forwarded to the AFOM and CBA teams for review.

If minimum material required fields are not entered by NMP Phase II DP 2, the SPM should recommend rework. Minimum material required fields can be found in Section 5 of this manual.

Phase II Technical Assessment Business Rules can be found in Appendix D, block 100.

3-4.4 Phase II AFOM Review

If the SCD is entering the NMP at Phase II, the Initiator checks-off the warfare capability areas impacted by the SC in the SCD AFOM section to facilitate TYCOM assessment and determination of an initial AFOM calculated as a measure of the relative improvement/benefit a SCD contributes to ships capability.

If the SCD entered the NMP at Phase I, the TYCOM assessor will update the AFOM as required based on review of SCD and engineering/acquisition documents (blocks 12/13).

The purpose of the AFOM review is to translate subjective stakeholder (TYCOM and OPNAV) opinions regarding SP-21 Navy War Fighting and Readiness Priorities into a quantitative output that provides Navy Modernization Decision Board voters visibility to the war fighting relevance and benefit of each proposed SC as it applies to one or more platform types.

The TYCOM AFOM CC navigates through the SCD to review the details of the SC and navigates to the AFOM assessment location in the SC. The system displays the AFOM assessment page of the SC with default AFOM values pre-populated. The system assigns the SC to an AFOM benefit capability and suitability matrix. The system assigns minimum default classifications based on the SC characteristics. Once that is completed, the system displays and enables the areas where the TYCOM AFOM CC can enter in the SC AFOM information. The TYCOM AFOM CC will validate the Naval Capabilities Mapping, and changes any mappings as necessary. The system redisplays the page of the SC with the updated data.

The TYCOM AFOM CC reviews the AFOM inputs from various AFOM SMEs, if applicable, and manually compiles them into one set and enters them as AFOM values for the applicable AFOM criteria. The TYCOM AFOM CC indicates the AFOM review is complete and submits the SC for next step. The system verifies that there are no active assignments (i.e., part of SC assigned to someone) and flags the SC that the AFOM review is complete. The system calculates the Total AFOM value for this review as a weighted average sum of AFOM Weights and TYCOM AFOM CC entered values. The system calculates the sub category AFOM Percentile Rankings and the Overall Percentile Ranking, then verifies that all AFOM reviews are complete, i.e., all AFOM SMEs have submitted their respective edits. The system then sends the SC to the next step in the NMP.

If the TYCOM AFOM CC indicates that the Submitter must answer questions and possibly revise SC in order to complete review, the system provides the capability to enter information about the desired revisions or clarifications, including a reason for the modification request. The

system verifies that all mandatory data is entered for return to submitter, including an explanation for return and sends a notification to the Submitter. The Submitter will make any necessary updates/corrections to the SCD and return the SCD to the AFOM review where it will continue in the normal review process.

Phase II AFOM Business Rules can be found in Appendix D, blocks 110 & 110.1.

3-4.5 Phase II CBA Review

The CBA review process facilitates the collection of all appropriate cost data into a single, authoritative database (NDE-NM) in order to support the decision making process and to correctly quantify the return on investment and payback period as well as to establish requirements for budgets to support development and installation of changes. The CBA review is expected to catch inappropriate financial data entered manually by the user.

The CBA Coordinator will assign the SCD to a set of CBA Reviewers. The CBA Reviewers navigate through the SCD to review the details of the SCD. The system displays Cost Structure data (e.g., work breakdown structure with costing information), when the CBA Reviewers request it. The CBA Reviewers navigate to the CBA review location of the SC, and the system displays CBA information that has been entered. The CBA Reviewers will verify that the data is accurate and complete (see Section 4 of this manual for more information). The CBA Reviewer will work with the Submitter to make corrections to the CBA prior to moving on to the next step. The CBA Reviewer can assign the CBA back to the Submitter so the suggested corrections can be made. Once the review is complete, the CBA Reviewers forward the SCD to the CBA Coordinator, who indicates the SC CBA review is complete and submits the SCD. The system verifies that all mandatory data has been added to the SCD and verifies that there are no active assignments (i.e., part of SC assigned to someone). The system calculates the AFOM percentile ranking, if the AFOM review is also complete, then the system submits the SC to the next step.

For details on the CBA, please see Section 4 of this manual.

3-4.6 Phase II Resource Sponsor Review of RCP

The information on the SCD will be converted into a RCP. The RCP is a summary of the SCD; including Description of Change, Impact if not installed, TAT, AFOM, CBA, SPM review comments; and total funding required to execute the SCD if approved. The RCP will be forwarded to the appropriate OPNAV sponsor(s) for review, and the sponsor(s) will indicate if the there is funding available to complete the SC by checking yes or no. If yes is checked, that is an indication that funding is available in the budget, and if no is checked, there is no funding available and tradeoffs will be needed to fund the SC if the Decision Boards approve the idea. This information is provided to the Decision Boards as a single document.

Phase II Resource Sponsor Review of RCP Business Rules can be found in Appendix D, Block 130.

3-4.7 Decision Point 2 – Approve Funding for Design/Development

When the Decision Board approves a SCD at DP 2, it authorizes the SCD to be placed into the MP. SCD approval is the Board's direction to continue with detailed design and development of the SC, and is the Board's commitment to fund the SC to the level indicated in the SCD. Board approval at DP 2 is also direction to procure and install a prototype, when the requirement is indicated as part of a permanent SC, and all non-permanent change (NPC) SCs. The financial requirement identified in the SCD will be updated or included in MP and integrated into the budget process.

O-6 Board decisions on the merit of the SCD are based on unanimous agreement among Board voters. Voting tally is Yes (approve) or No (disapprove). If, upon completion of voting by designated voters, the result is non-unanimous, then voting will be reset by the NDE Secretariat, and the RCP will immediately be sent back to the Board for a re-vote. When a RCP is returned for a re-vote, the NDE Secretariat will inform the voters of the result of the first vote and request they try to resolve the disagreement. All re-votes will include a statement in the comments section of the RCP with the voter's rationale in sufficient detail and clarity that it can be used to prepare a voting package for the 1&2 Star Decision Board.

There will only be one re-vote allowed. If a unanimous decision is not reached after one re-vote, the RCP will be sent to the 1&2 Star Decision Board for resolution/adjudication. The NDE Secretariat will prepare the voting package for the 1&2 Star Decision Board.

Decisions by the 1&2 Star Decision Board and the 3-Star Decision Board are based on the votes of the majority of the voting members. A unanimous vote is not required.

When a SCD has gone through the voting process and the results are to "Disapprove" it for inclusion in the MP, the SCD will be placed in an inactive status in NDE. The SCD can only be re-activated by request to the NDE Secretariat from either the cognizant TYCOM or Resource Sponsor.

When a SCD has gone through the voting process and the results are to "Approve" it for inclusion in the MP, the SCD will be added to the MP and it will transition to the next phase.

A description of the voting process for DP 2 can be found in Appendix D, block 140.

3-4.8 Rework

During the voting process, when a SCD contains insufficient information or the information contained requires additional amplification, the SCD will be returned to the Submitter to clarify or provide additional or revised SCD data to respond to documented questions or concerns from the Navy Modernization Decision Board(s).

If, in the course of reworking a SCD, the Submitter may determine that the SC is no longer in the best interest of the Navy to accomplish and wants it moved to an inactive status. The Submitter will resubmit a revised SCD, and shall provide a response to the appropriate Decision Board with a justification for the recommendation in the description block of the SCD.

Rework Business Rules can be found in Appendix D, block 150.

3-4.9 Input to Modernization Plan

SCs that make up the MP have been voted on for their inclusion in the plan.

Based on the results of the Decision Boards, approved SCDs are used for the development of a comprehensive MP to fulfill Navy requirements. Once a SCD has been entered into the MP, the Submitter can begin scheduling. Details on Scheduling can be found in paragraph 3-1.3.

Currently the system/application process for all SCDs is that when it has been approved through the cognizant Decision Board voting process and the Decision Board approval section of the SCD is completed/endorsed, the SCD record is then automatically added to the database with the MP field set to 'Yes'. When a lower Decision Board votes on a SCD outside of its thresholds, the MP field will be set to 'No' and the PMP field is set to 'Yes.' Those SCDs are then to be packaged together for submission to the next higher Decision Board for review and approval.

Once a record has been established in the MP database, any changes to that record will be made only upon approval of the cognizant Decision Board. All changes are to be documented in the comments section of the record. A fine line exception to this process is that if a SCD is approved at a subsequent Phase level from its initial entrance point, the financial data (CBA) is automatically updated to reflect the current information of the Phase level of that SCD.

Input to MP Business Rules can be found in Appendix D, block 70.

3-4.10 MDA Acquisition Milestone B

An Acquisition Program Milestone Decision for an Acquisition Program is required for ACAT Programs considered under the NMP as an SCD.

The SCD is not a substitute for the Statutory, Regulatory, and Requirements generation processes required of ACAT programs, abbreviated Acquisition programs, non-Acquisition programs, and rapid deployment capability programs. All Documentation, processes and policies identified in DoD 5000 series and the Secretary of the Navy (SECNAV) 5000 series instructions, as well as the Joint Capabilities Identification and Development System (JCIDS) Instruction shall be met IAW reference S3(g). Navy Modernization policies, requirements and procedures shall also be met IAW the Joint Fleet Maintenance Manual (JFMM). Where guidance and policy conflict for execution of designated Acquisition Programs, Acquisition and reference S3(g) will take precedent.

An SCD should be initiated and submitted, IAW the NMP, prior to the first Acquisition Milestone or Navy Program Decision Meeting.

For an Acquisition program, the Initiator/Submitter shall identify the appropriate ACAT Program Level, the MDA, and Program Manager of Record, cite the JCIDS requirement document IAW reference S3(g), and other Non-Navy Modernization activities affected.

MDA Acquisition Milestone B Business Rules can be found in Appendix D, block 160.

SUBSECTION 3-5 Phase II(a)/III

3-5.1 Scope

This subsection details SC documentation and development in the Detailed Design phase of the SC. See Figure S3-12 for the Phase IIa/III process flow. There are two ways a SCD can enter Phase III:

- Updating a SCD initiated at an earlier phase with the results of detailed design as described in paragraph 3-5.2
- Enter the NMP with a Phase III SCD if the Submitter deems the design maturity of the SC is sufficient that it does not warrant detailed design efforts (Phase II) as described in paragraph 3-5.2. Submitter must execute the requirements of paragraphs 3-3.2 and 3-4.2 in addition to ensuring the SCD meets the requirements of 3-5.2 below

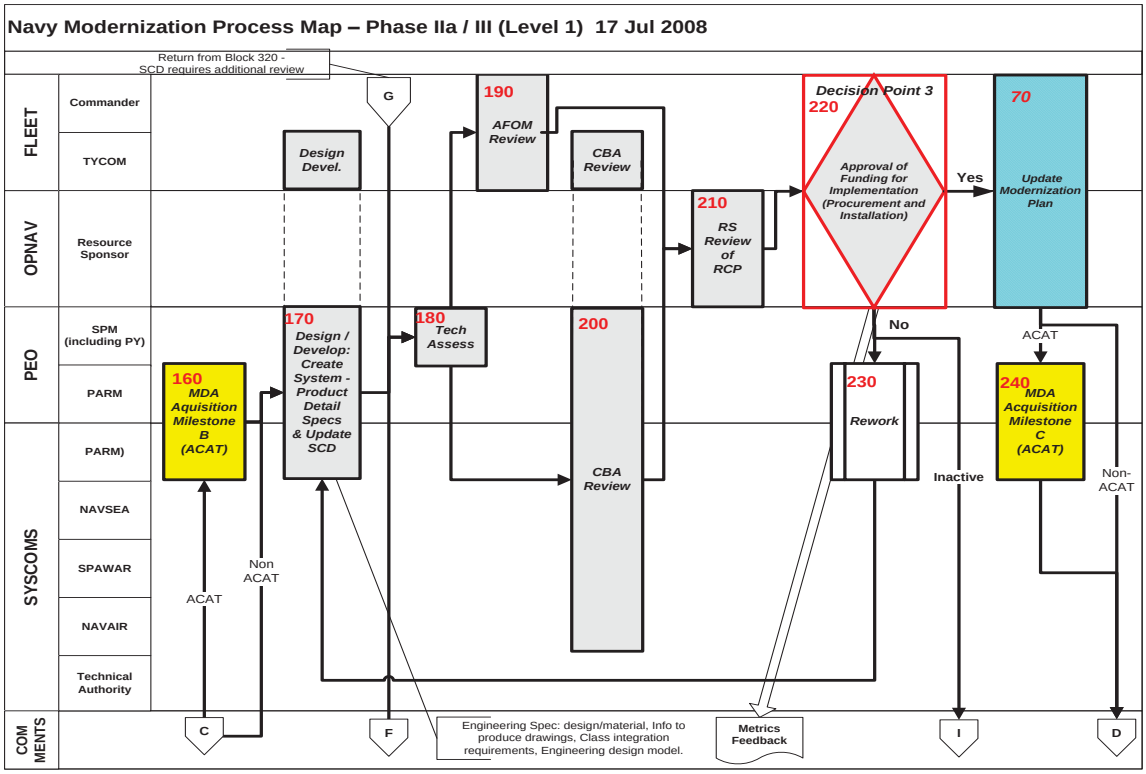


Figure S3-12 Phase IIa/III Top Level Flow Chart

3-5.2 Update SCD (Detailed Design Phase)

The SCD will be updated based on the results of detailed design. As more detailed information becomes available, the data should be entered into the SCD. Additional technical data (i.e. preliminary drawings, technical specifications, test results, Engineering Load identification, etc.) that a Submitter wants to provide as amplification of required fields may be attached to the SCD. Technical data provided during Phase III is to be at the Preliminary Class Level SID or Preliminary ICD level of detail.

SW should be identified with a general description of the SW identified at a ".x" level (i.e. 7.2.5.x). This will be a functional/capability level.

Design and Development Business Rules can be found in Appendix D, block 170.

3-5.2.1 Identification of Sustainment Type 1 or 2 Action

SCD submitter shall, when appropriate, identify and justify ST1 and ST2 actions (see paragraph 3-1.1).

- The submitter shall identify ST1 or ST2 in the Executive Summary and provide supporting justification comments in the description of change area of the SCD

3-5.3 Phase IIa/III Technical Assessment Review

Phase IIa/III Technical Assessment Business Rules can be found in Appendix D, block 180.

3-5.3.1 TAT Review

When the SCD has been submitted, the TAT CM associated with the applicable ship class is notified. Upon notification the TAT CM will either assign the SCD to a Core TAT Lead, who will distribute the SCD to the appropriate Virtual TAT members for review if necessary, or the TAT CM will distribute to the appropriate Virtual TAT members. The review process will not include any subjective opinion of merit and all candidates for change shall receive fair, unbiased assessments by the TAT. See Figure S3-7 for a breakout of the Technical Assessment hierarchy. The TAT will identify SCs that may supersede or be redundant with an existing SC.

If ST1/ST2 designation is recommended, the Core TAT lead reviews the submitter's request which should be documented in the Executive Summary and ensures supporting justification is provided in the SCD description of change.

The Core TAT Lead may use a "virtual" TAT comprised of technical experts, including TWHs, as applicable, throughout the Navy technical community to review the SCD to ensure a valid assessment of technical merit. The Virtual TAT may also include the HAT, NAVSEA 05W, the planning yards, and the Carrier Planning Activity. SCD review includes NAVSEA 05W validation of the SFI CAT assignments IAW reference S3(j).

When the accomplishment of a SC affects the configuration of or installs or removes systems or equipments under the cognizance of NAVAIR, SPAWAR or another activity outside NAVSEA, that activity shall be a member of the "virtual" TAT with responsibility to assess integration/interoperability impacts and provide technical comments back to the Core TAT Lead.

The Core TAT Lead is responsible for ensuring appropriate NAVSEA 08 concurrences are obtained during the TAT review.

The Core TAT Lead will communicate directly with the Submitter or Initiator to discuss proposed changes and updates. Upon TAT review completion, the virtual TAT members send their comments back to the Core TAT Lead, who reviews, consolidates, then forwards them with their recommendation to the TAT CM.

The TAT CM will review inputs for completeness and technical feasibility as determined by the appropriate Technical Authority. The TAT CM can assign the SCD to the Submitter for updates.

If the SCD is returned to the Submitter, the Submitter will address the concerns of the TAT and re-submit the SCD. However, when the SCD is re-submitted to the TAT CM it will simply be closed for editing and the Core TAT Lead will be reassigned the SCD to complete the TAT review. While the Submitter is reviewing and making changes the review timeline for the TAT is suspended. Upon completion of the Submitter review, the timeline resumes.

Upon final receipt of completion from the Core TAT Lead, the TAT CM will check the SCD to ensure the review is complete and the required questions are answered. Additionally, the TAT CM concurs with proposed ST1/ST2 recommendations. The SCD will then be forwarded with the TAT CM recommendation to the appropriate SPM for review.

The TAT review process for Phase IIa/III is shown in Figure S3-13.

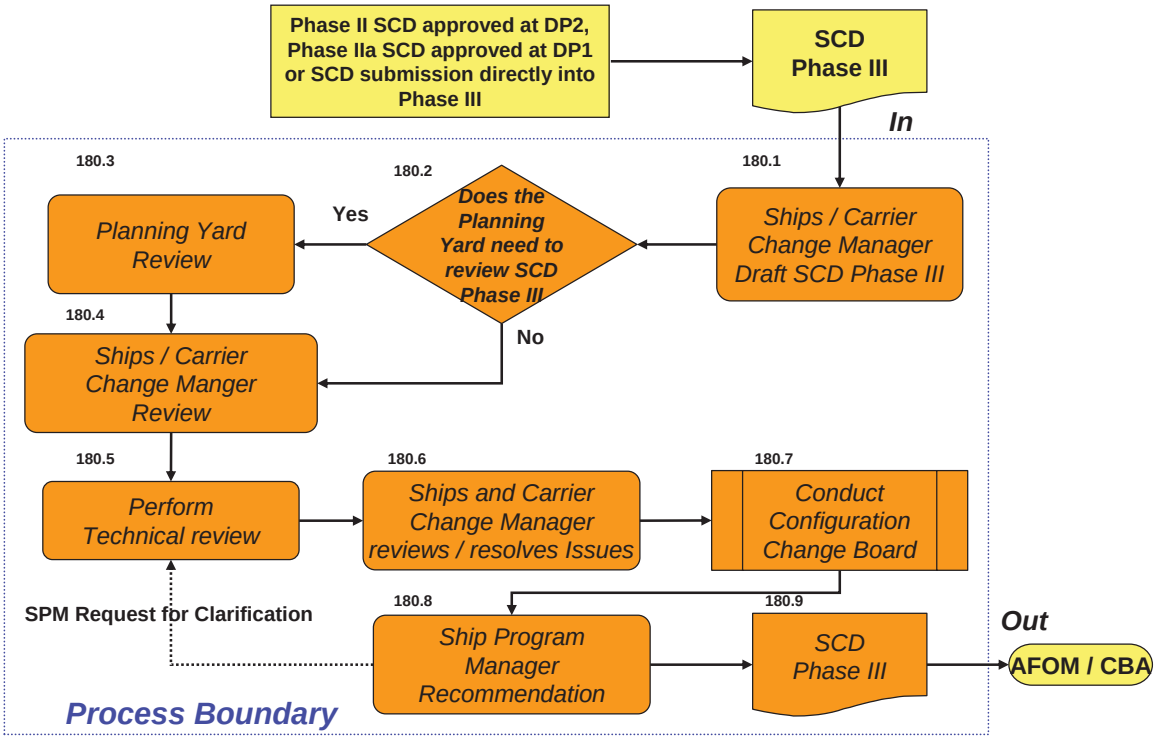


Figure S3-13 Technical Assessment Phase IIa/III Flow Chart

3-5.3.2 SPM Review

The SPM will provide their recommendations on-line. The SPM has two (2) options in Phase III: Yes, recommended; or No, not recommended (requires comments). Both options are forwarded to CBA/AFOM for review. Should the SPM require additional clarification, SPM will contact the Core TAT Lead and attempt to reach a resolution. Unresolved issues will be noted in the Technical review comments block. Any negative recommendation must include a justification from the reviewer. The SPM will provide a recommendation and complete their

reviews and provide comments as required. When the SPM has completed their review the SCD will be forwarded to the AFOM and CBA teams for review.

3-5.4 Phase IIa/III AFOM Review

If the SCD is entering the NMP at Phase III, the Initiator checks-off the warfare capability areas impacted by the SC in the SCD AFOM section to facilitate TYCOM assessment and determination of an initial AFOM will be calculated as a measure of the relative improvement/benefit a SCD contributes to ships capability. This process has a threshold completion of 7 days, measured from time of receipt of the SCD by the TYCOM(s) to submission of rating scale index values in NDE.

If the SCD entered the NMP at an earlier phase, update the AFOM as required based on review of SCD and engineering/acquisition documents (blocks 12/13).

The purpose of the AFOM review is to translate subjective stakeholder (TYCOM and OPNAV) opinions regarding SP-21 Navy War Fighting and Readiness Priorities into a quantitative output that provides Navy Modernization Decision Board voters visibility to the war fighting relevance and benefit of each proposed SC as it applies to one or more platform types.

The TYCOM AFOM CC navigates through the SCD to review the details of the SC and navigates to the AFOM assessment location in the SC. The system displays the AFOM assessment page of the SC with default AFOM values pre-populated. The system assigns the SC to an AFOM benefit capability and suitability matrix. The system assigns minimum default classifications based on the SC characteristics. Once that is completed, the system displays and enables the areas where the TYCOM AFOM CC can enter in the SC AFOM information. The TYCOM AFOM CC will validate the Naval Capabilities Mapping, and changes any mappings as necessary. The system redisplays the page of the SC with the updated data.

The TYCOM AFOM CC reviews the AFOM inputs from various AFOM SMEs, if applicable, and manually compiles them into one set and enters them as AFOM values for the applicable AFOM criteria. The TYCOM AFOM CC indicates the AFOM review is complete and submits the SC for next step. The system verifies that there are no active assignments (i.e., part of SC assigned to someone) and flags the SC that the AFOM review is complete. The system calculates the Total AFOM value for this review as a weighted average sum of AFOM Weights and TYCOM AFOM CC entered values. The system calculates the sub category AFOM Percentile Rankings and the Overall Percentile Ranking, then verifies that all AFOM reviews are complete, i.e. all AFOM SMEs have submitted their respective edits. The system then sends the SC to the next step in the NMP.

If the TYCOM AFOM CC indicates that the Submitter must answer questions and possibly revise SC in order to complete review, the system provides the capability to enter information about the desired revisions or clarifications, including a reason for the modification request. The system verifies that all mandatory data is entered for return to submitter, including an explanation for return and sends a notification to the Submitter. The Submitter will make any necessary updates/corrections to the SCD and return the SCD to the AFOM review where it will continue in the normal review process.

Phase IIa/III AFOM Review and Assignment Business Rules can be found in Appendix D, blocks 190 & 190.1.

3-5.5 Phase IIa/III CBA Review

The CBA review process facilitates the collection of all appropriate cost data into a single, authoritative database (NDE-NM) in order to support the decision making process and to correctly quantify the return on investment and payback period as well as to establish requirements for budgets to support development and installation of changes. The CBA review is expected to catch inappropriate financial data entered manually by the user.

The CBA Coordinator will assign the SCD to a set of CBA Reviewers. The CBA Reviewers navigate through the SCD to review the details of the SCD. The system displays Cost Structure data (e.g., work breakdown structure with costing information), when the CBA Reviewers request it. The CBA Reviewers navigate to the CBA review location of the SC, and the system displays CBA information that has been entered. The CBA Reviewers will verify that the data is accurate and complete (see Section 4 of this manual for more information). The CBA Reviewer will work with the Submitter to make corrections to the CBA prior to moving on to the next step. The CBA Reviewer can assign the CBA back to the Submitter so the suggested corrections can be made. Once the review is complete, the CBA Reviewers forward the SCD to the CBA Coordinator, who indicates the SC CBA review is complete and submits the SCD. The system verifies that all mandatory data has been added to the SCD and verifies that there are no active assignments (i.e., part of SC assigned to someone). The system calculates the AFOM percentile ranking, if the AFOM review is also complete, then the system submits the SC to the next step.

For details on the CBA, please see Section 4 of this manual.

3-5.6 Phase IIa/III Resource Sponsor Review of RCP

The information on the SCD will be converted into a RCP. The RCP is a summary of the SCD; including Description of Change, Impact if not installed, TAT, AFOM, CBA, SPM review comments; and total funding required to execute the SCD if approved. The RCP will be forwarded to the appropriate OPNAV sponsor(s) for review, and the sponsor(s) will indicate if the there is funding available to complete the SC by checking yes or no. If yes is checked that is an indication that funding is available in the budget, and if no is checked then there is no funding available and tradeoffs will be needed to fund the SC if the Decision Board approves the idea. This information is provided to the Decision Boards as a single document.

Phase IIa/III Resource Sponsor Review of RCP Business Rules can be found in Appendix D, block 210.

3-5.7 Decision Point 3 – Approve Funding for Implementation (Procurement and Installation)

When the Decision Board approves a SCD at DP 3, it authorizes that SCD to be placed into the MP. SCD approval is the Board's direction to proceed with procurement and installation of the SC, and is the Board's commitment to fund the SC to the level indicated in the SCD. The financial requirement identified in the SCD will be updated or included in MP and integrated

into the budget process.

O-6 Board decisions on the merit of the SCD are based on unanimous agreement among Board voters. Voting tally is Yes (approve) or No (disapprove). If, upon completion of voting by designated voters, the result is non-unanimous, then voting will be reset by the NDE Secretariat, and the RCP will immediately be sent back to the Board for a re-vote. When a RCP is returned for a re-vote, the NDE Secretariat will inform the voters of the result of the first vote and request they try to resolve the disagreement. All re-votes will include a statement in the comments section of the RCP with the voter's rationale in sufficient detail and clarity that it can be used to prepare a voting package for the 1&2 Star Decision Board.

There will only be one re-vote allowed. If a unanimous decision is not reached after one re-vote, the RCP will be sent to the 1&2 Star Decision Board for resolution/adjudication. The NDE Secretariat will prepare the voting package for the 1&2 Star Decision Board.

Decisions by the 1&2 Star Decision Board and the 3-Star Decision Board are based on the votes of the majority of the voting members. A unanimous vote is not required.

When a SCD has gone through the voting process and the results are to "Disapprove" it for inclusion in the MP, the SCD will be placed in an inactive status in NDE-NM and can only be re-activated by request to the NDE Secretariat from either the cognizant TYCOM or Resource Sponsor.

When a SCD has gone through the voting process and the results are to "Approve" it for inclusion in the MP, the SCD will be added to the MP and it will transition to the next phase. Installation may not begin until authorized in Phase IV.

A description of the voting process for DP 3 can be found in Appendix D, block 220.

3-5.8 Rework

During the voting process, when a SCD contains insufficient information or the information contained requires additional amplification the SCD will be returned to the Submitter to clarify / provide additional or revised SCD data to respond to documented questions or concerns from the Navy Modernization Decision Board(s).

Rework Business Rules can be found in Appendix D, block 230.

3-5.9 Input to Modernization Plan

SCs that make up the MP have been voted on for their inclusion in the plan.

Based on the results of the Decision Boards, approved SCDs are used for the development of a comprehensive MP to fulfill Navy requirements. Once a SCD has been entered into the MP, the Submitter can begin scheduling. Details on Scheduling can be found in paragraph 3-1.3.

Currently the system/application process for all SCDs is that when it has been approved through the cognizant Decision Board voting process and the Decision Board approval section of the SCD is completed/endorsed, the SCD record is then automatically added to the database with the MP field set to 'Yes'. When a lower Decision Board votes on a SCD outside of its thresholds, the MP field will be set to 'No' and the PMP field is set to 'Yes.' Those SCDs are then to be packaged together for submission to the next higher Decision Board for review and approval.

Once a record has been established in the MP database, any changes to that record will be made only upon approval of the cognizant Decision Board. All changes are to be documented in the Comments section of the record. A fine line exception to this process is that if a SCD is approved at a subsequent Phase level from its initial entrance point, the financial data (CBA) is automatically updated to reflect the current information of the Phase level of that SCD.

Input to MP Business Rules can be found in Appendix D, block 70.

3-5.10 MDA Acquisition Milestone C

An Acquisition Program Milestone Decision for an Acquisition Program is required for ACAT Programs considered under the NMP as an SCD.

The SCD is not a substitute for the Statutory, Regulatory, and Requirements generation processes required of ACAT programs, abbreviated Acquisition programs, non-Acquisition programs, and rapid deployment capability programs. All Documentation, processes and policies identified in DoD 5000 series and SECNAV 5000 series instructions, as well as the JCIDS Instruction shall be met IAW reference S3(g). Navy Modernization policies, requirements and procedures shall also be met IAW the JFMM, and FMP Manual. Where guidance and policy conflict for execution of designated Acquisition Programs, Acquisition and reference S3(g) will take precedent.

An SCD should be initiated and submitted, IAW the NMP, prior to the first Acquisition Milestone or Navy Program Decision Meeting.

For an Acquisition program, Initiator/Submitter shall identify the appropriate ACAT Program Level, the MDA, and Program Manager of Record, cite the JCIDS requirement document IAW reference S3(g), and other Non-Navy Modernization activities affected.

Acquisition Milestone C Business Rules can be found in Appendix D, block 240.

SUBSECTION 3-6 Phase IV

3-6.1 Scope

This section addresses final engineering, procurement (equipment, material, and documentation) finalizing the technical data package, obtaining any required certifications, finalizing installation scheduling to coincide with material receipt, pre-installation testing, and identification of any required impact assessment(s) required prior to installation of the SCD. The Phase IV process map is shown in Figure S3-14.

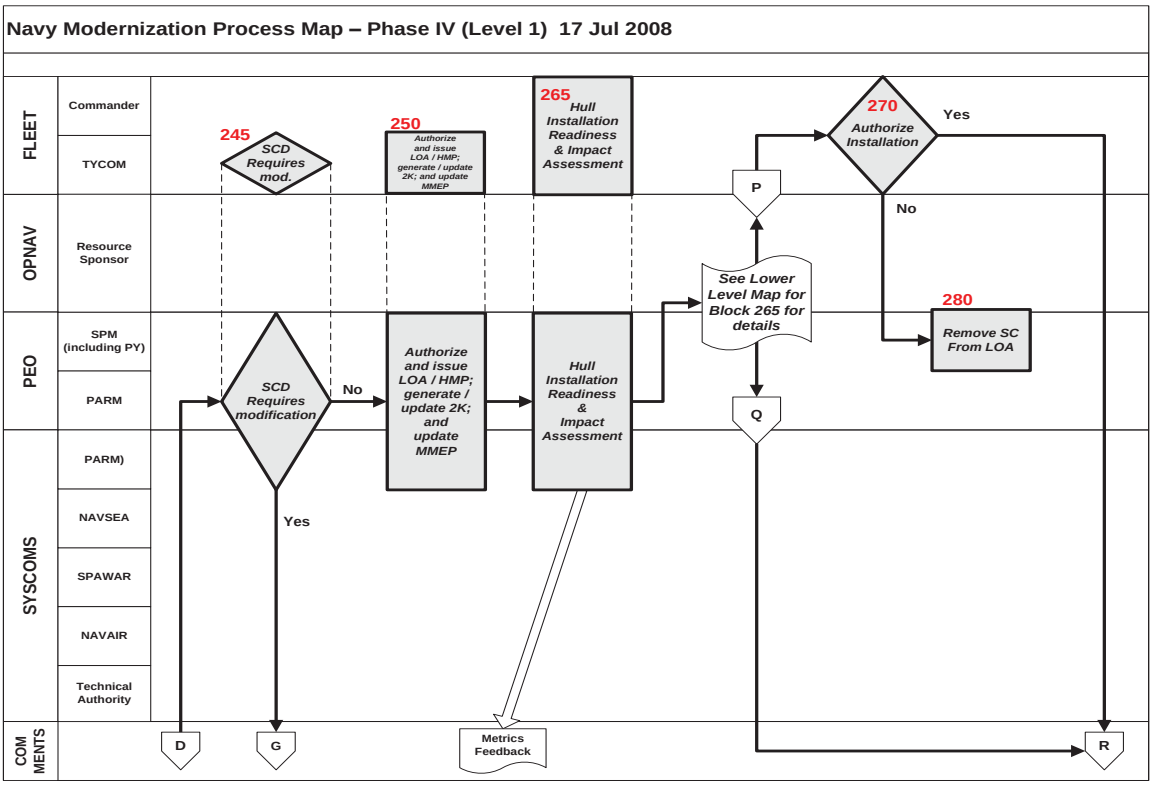


Figure S3-14 Phase IV Top Level Flow Chart

Phase IV information is taken at the SCD level, which will include all Ship/Shore facilities applicable to that SCD. The intent of this phase is a replication of Phase III at the platform level and permits the commencement of execution, upon DP 3 approval.

Modernization conducted outside of designated Modernization windows must comply with the Target Completion Date (TCD) waiver process and the provisions of this section.

If a SCD is in jeopardy of not being completed because of insufficient funds, the Submitter needs to submit an updated SCD to the Decision Boards reflecting the adjustments.

The variances from the previous CBA will be evaluated against the threshold limits. If life cycle cost estimate in any phase increases by a factor greater than that laid out in Section 4 of this manual, the Decision Board shall re-evaluate the SC and approve the increase in required

funding (i.e. Phase IV Cost Growth - Budget estimate must be within +/-10%. A revised SCD must be resubmitted to DP 3).

If a threshold is breached, the appropriate Decision Boards must make one of the following decisions:

- Continue installs and adjust the MP as required
- Stop follow-on installs and adjust the MP
  - Closeout SC and leave as one of a kind fully supported
  - Remove initial SC and closeout

3-6.2 Authorize and issue Letter of Authorization (LOA)/Hull Modernization Plan (HMP); and Generate/Update 2K

The Advance Planning Hull Modernization Plan (AHMP), Execution Planning Hull Modernization Plan (EHMP), Advance Planning Letter, and LOA are not related to SCD approval. They are time-phased planning documents to support SC installation requirements including long lead time planning; development of the Maintenance and Modernization Business Plan (MMBP); hull specific availability planning and SC authorization management; and generation and update of OPNAV Form 4790/2-K. The process map for developing these documents is shown in Figure S3- 15. The SPM and TYCOM are responsible for developing, maintaining and issuing the documents as shown in Table S3- 2. Note that for Carriers, work packaging will be performed IAW the Carrier Team One "Integrated Project Teams for Carrier Maintenance Desk Guide."

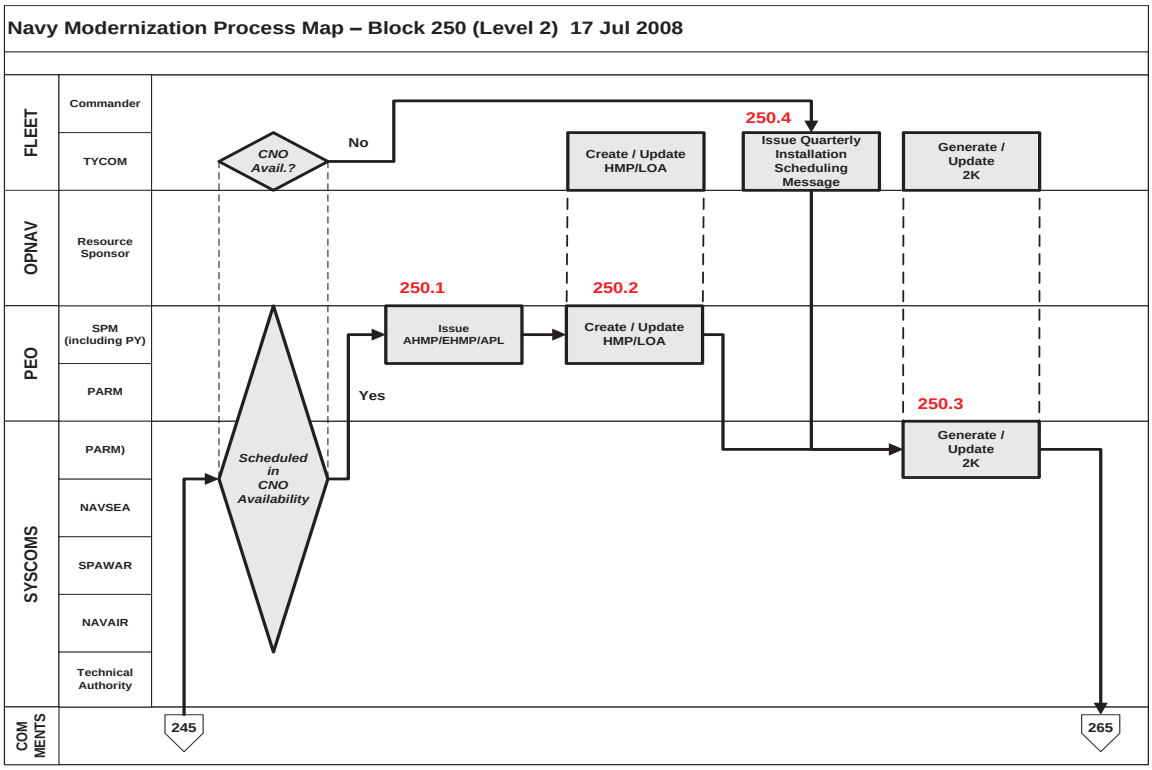


Figure S3- 15 Authorize and Issue LOA/HMP Process Flow Chart

HMP PRODUCT	RESPONSIBILITY	SHIP CHANGE TYPE	
		PROGRAM	FLEET
AHMP	SPM	X	X
	TYCOM		
EHMP	SPM	X	
	TYCOM		X
Advance Planning Letter	SPM	X	
	TYCOM		X
LOA	SPM	X	
	TYCOM		X
TYCOM QISM	SPM		
	TYCOM	X	X

Table S3- 2 SPM/TYCOM HMP Product Responsibilities

3-6.2.1 Issue Advance Planning Hull Modernization Plan and Execution-year Planning Hull Modernization Plan; Issue Advance Planning Letters and Letters of Authorization

The AHMP and EHMP will be developed and issued IAW NMP defined milestones (see Appendix G for a listing of all Navy Modernization milestones). Guidance for AHMP and EHMP is provided in Section 7-3 of this manual. Business Rules can be found in Appendix D, Block 250.

Advance Planning Letters (when utilized) and LOAs will be initiated, maintained, and updated IAW NMP defined milestones (see Appendix G for a listing of all Navy Modernization milestones). Guidance for issuing Advance Planning Letters and LOAs is provided in Section 7-5 of this manual. Business Rules can be found in Appendix D, Block 250.

TYCOM Quarterly Installation Scheduling Message (QISM) shall be accomplished IAW Section 7-5 of this manual.

3-6.2.2 Issue OPNAV Form 4790/2K

OPNAV Form 4790/2Ks (hereafter referred to as 2Ks) will be initiated and updated IAW reference S3(i). The SPM Overhaul Download report from NDE-NM for the CNO/Continuous Maintenance Availability (CMAV) Availability periods will be generated and data will be manually loaded into the Integrated Class Maintenance Plan (ICMP) for creation of Master and

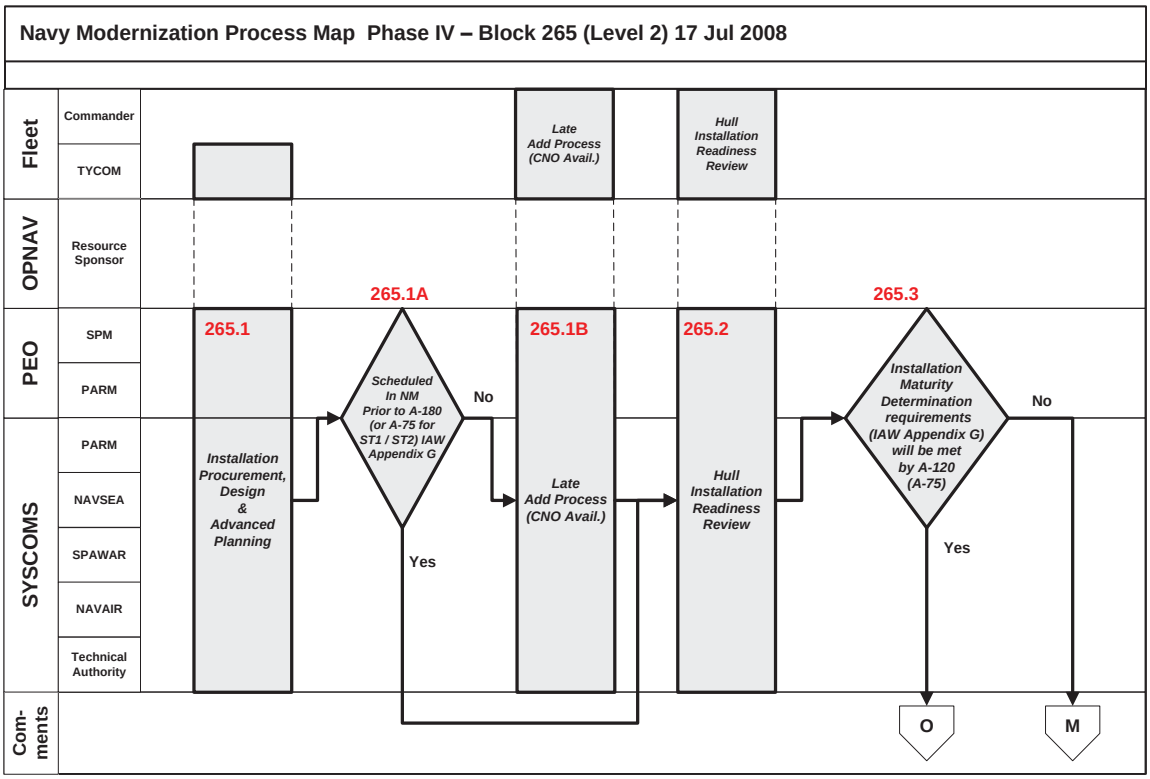
applicable associated 2K(s).

Navy policy (reference S3(i)) instruction states that "all off-ship activity maintenance and modernization work (work assigned a TYCOM Screening Code of 1, 2 and 3) will be documented by a 2K." This includes technical assists, modernization (including AIT), First In, First Out (FIFO), CIS, Indefinite Delivery, Indefinite Quantity (IDIQ), CNO, CMAV, and other types of work. The Maintenance Team will ensure that this work is planned in NM, Authorizing Instructional Material (AIM), or Navy Enterprise Maintenance Automated Information System (NEMAIS) as appropriate. The Maintenance Team is responsible for work closeout. Ship's force remains responsible for acceptance of work. The requirement to document completion 2Ks is contained in reference S3(k) and paragraph 3-7.3.6.

A 2K will be generated with the proper Allowance Parts List, Equipment Identification Code (EIC), Hardware Systems Command (HSC) and Record Identification Number (RIN) in accordance with reference S3(k) and updated as sections of the SCD are updated through SC maturity (primarily in phases III and IV).

3-6.3 Installation Procurement, Design and Advance Planning

Figure S3- 16 provides the detailed process maps for the Hull Installation Readiness and Impact Assessment (Block 265).



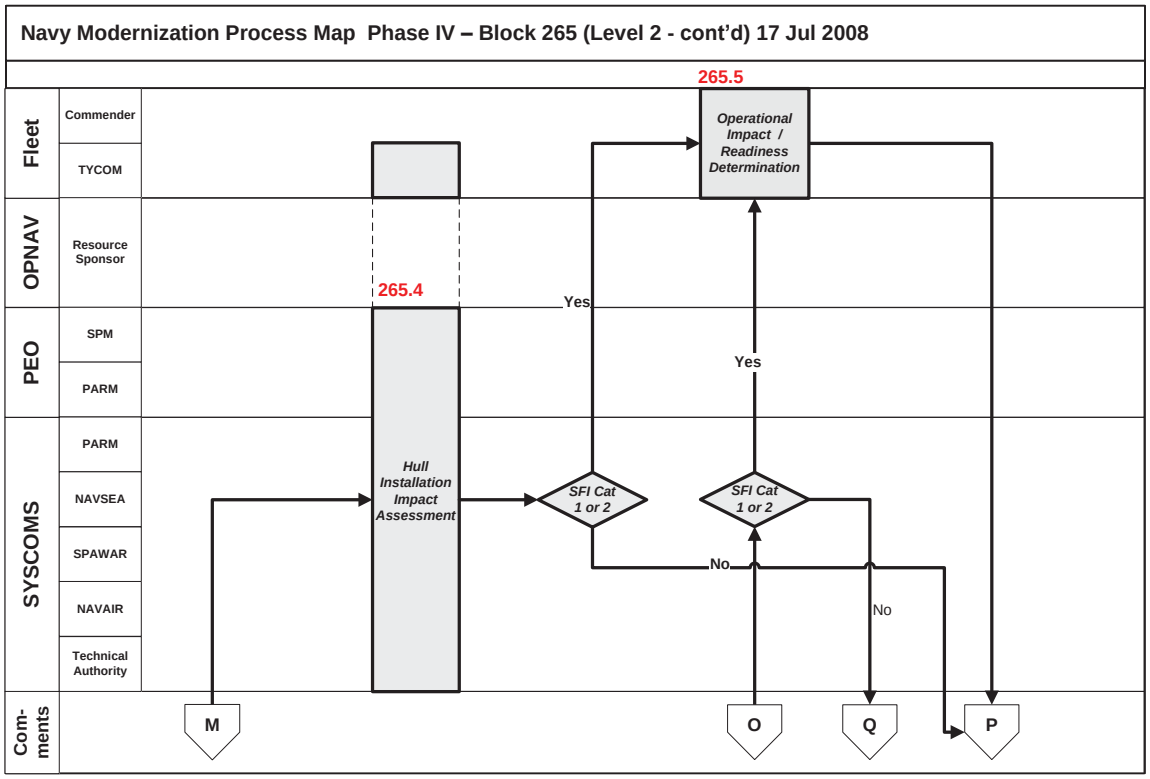


Figure S3- 16 Hull Installation Assessment Process Flow Charts

The NMP recognizes the functional differences and unique internal process requirements for design, procurement, pre-installation testing and certification between ship modification changes and system/equipment level changes, and within individual systems and equipments. The NMP is not intended to replace individual internal processes. However, the outputs of these individual processes must conform to the requirements of the NMP. Amplifying information with respect to this interrelationship is provided in the subsections that follow.

The primary objective of Advance Planning, Detail Design & Procurement, is to execute technical final design as defined in the SCD, commence detailed transformation of the SC from a total SCD applicability to an individual (Hull/Site) installation, complete drawings as necessary for SC procurement & installation, and ensure that all material is identified, procured and available for installation of the SC. The process flow is shown in Figure S3- 17.

The PARM, SYSCOM or Sponsor of the change shall develop detailed system design requirements for all systems and equipments to be installed. These design requirements shall be provided to the SPM, the PY (for ship impact changes only), and (for C5ISR changes only) to PEO Integrated Warfare Systems (IWS) (for C5ISR changes only) to support ship integration and test efforts. SID approval may be delegated by the SPM to the Class Planning Yard.

For new systems or equipments being installed, approved Installation Control Drawings/IRDs must be provided IAW MIL-D-23140D. This information will be used to develop and approve the required ship integration documentation, including the topside/EMX/RADAR Cross Section (RCS) studies and analyses, the Technical Data Package (TDP), and the SIDs.

For software, a Version Description Document (VDD) shall be provided. This document will be used to determine the computer program testing and certification requirements

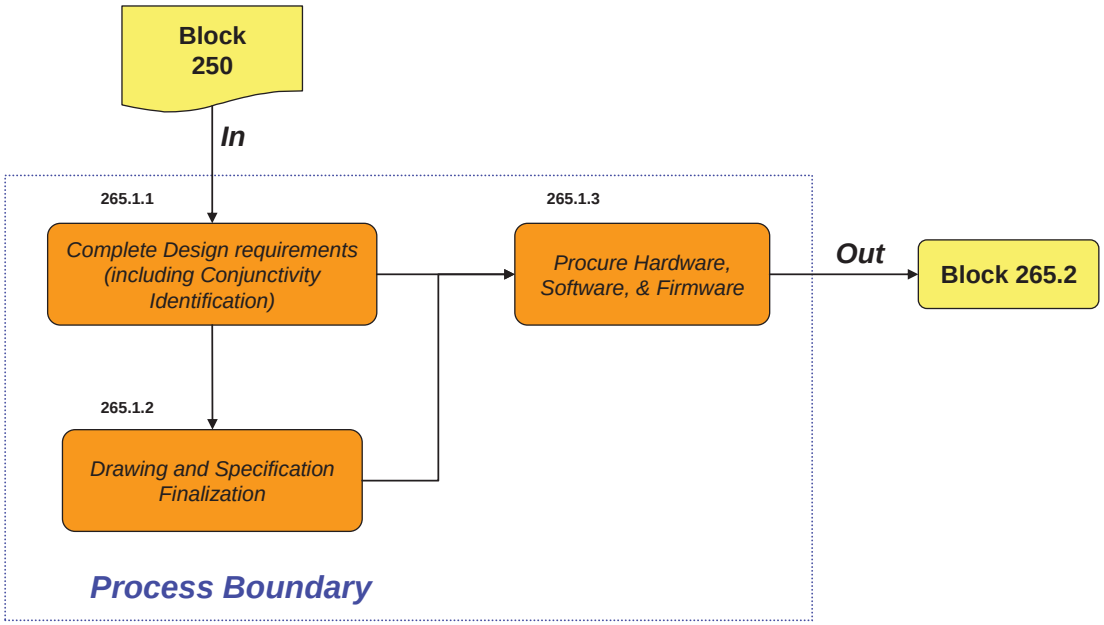


Figure S3- 17 Installation Procurement, Design and Advanced Planning Flow Chart

3-6.3.1 Ship Change Installation Drawings (SIDs)

Drawings, change instructions, material procurement and logistics required for SC installation will be developed or accomplished as necessary utilizing internal processes. If the scope of the SC affects only internals to the equipment, SIDs are not required. Equipment level drawings should be developed to ensure that all technical requirements are identified. SIDs shall be accomplished IAW Appendix I of this manual. Accomplish ship checks as required to support development of SIDs IAW milestones in Appendix G.

3-6.3.1.1 Ship checks for SIDs

Ship checks (Design, Verification, Production and Proofing) are accomplished in support of the development of SIDs. All ship checks will incorporate a validation/verification of actual Hull/Site configuration. They include:

- The design information on SIDs is developed based on a ship check of the actual configuration of the ship
- The design information presented on prepared SIDs may be verified by ship check
- The total scope of work presented on SIDs (SC work) may be ship checked together with anticipated repair work for possible impact
- If SC proofing is required, (see SUBSECTION 3-8) the SIDs are checked against the accomplished SC work to verify that the SIDs reflect the work actually accomplished
- Identify the location and details of all Damage Control, Fire Fighting, and Fire Protection equipment and systems (e.g., detection, suppression, equipment stowage)

3-6.3.1.2 Verification Ship checks

The PY conducts verification ship checks for high risk or complex SCs. When conducted, the verification shall include impacts to Damage Control, Fire Fighting, and Fire Protection equipment and systems (e.g., detection, suppression, equipment stowage), in order to verify that the design information presented on the SIDs reflects the actual conditions on the applicable ship. This ship check is generally conducted after preparation of the SIDs but before the required issue date IAW Navy Modernization milestone charts in Appendix G.

3-6.3.2 Certifications and Testing

All pre-installation testing will be accomplished and documented in accordance with the appropriate installation and testing plans. In addition, testing should be adequate to obtain all required certifications (i.e. interoperability, safety, software, ILS, etc…). If not accomplished, as with all other certifications, an impact assessment must be documented and approved by the Fleet.

All SFI CAT 1 and 2 SCDs shall be C5IMP baselined. SFI Categories and the C5IMP Baseline process are defined in reference S3(j).

See Section 6 of this manual for more information on ILS, Certifications, and Testing.

3-6.3.3 Material Procurement

Material identification commences in Phase II, is updated in Phase III, and will be considered a baseline at DP 3 (For NPCs material is baselined at DP 2). This will provide one consolidated listing of applicable HW, SW and FW for an associated SCD. As detailed design is finalized, the baseline information from Phase III shall be updated. In addition, information as to what was planned for procurement and what was actually procured shall be recorded, in the Phase IV SCD material section.

See Section 5 of this manual for more information on Material.

3-6.3.4 AIT POA&M

Ship Changes accomplished by AITs require close coordination among the various stakeholders to ensure integration with other shipboard activities and overall success in completing installation. As required in paragraph 1.5.3 of Appendix H (TS9090-310 (series)), the AIT Manager will develop a POA&M and provide it as part of the work package submittal to Regional Maintenance and Modernization Coordination Office (RMMCO) for review and verification. The POA&M shall address all relevant requirements specified in Appendix H, addressing all actions/milestones from advance planning through installation and report of completion and verification of ILS products.

3-6.4 Late Additions

Any SC added to an availability for installation after Appendix G milestones, is considered a late

addition. As a late addition it must either be mature with concurrence from the Platform TYCOM, or have an approved Hull Installation Impact Assessment.

A late add interoperability impact assessment (C5IMP eCCB) is required for all SFI CAT 1 and 2 SCs that are added for execution between Naval C5I Modernization Conference (NCMC) Baseline Reviews.

3-6.5 Hull Installation Readiness Review

The Hull Installation Readiness Review will be conducted, in a virtual manner within NDE-NM, by all stakeholders. (Face-to-face meetings may also be called at the discretion of the Naval Supervising Authority/Regional Maintenance Center (NSA/RMC), TYCOM, and/or SPM.). Stakeholders shall ensure all technical documentation is complete, all material has been procured and is available for installation, pre-installation testing has been accomplished IAW the appropriate installation and testing plans, and all certifications have been completed as identified in the SCD. If the SC is mature, it may be authorized for installation IAW paragraph 3-6.7.2. The Hull Installation Readiness Review process flow is shown in Figure S3-18.

If the SC will not meet maturity milestones IAW Appendix G, an impact assessment is required as defined in paragraph 3-6.6.

3-6.5.1 Hull Installation Readiness Review Criteria

Hull Installation Readiness Review Criteria will include those items in Table S3-3 as applicable.

SCD DP3 Approved (DP2 for NPC)
Material Readiness
AIT POA&M
SIDs Complete
SC Scheduled in NM
ILS Certification
Included on Planning Documents (i.e. LOA, TYCOM QISM, etc…)
C5IMP Baseline approved (SFI Category 1 and 2) IAW reference S3(j)
Conjunctivity analysis
Impact on Fleet Response Training Plan (FRTP). (Modernization window analysis/ waiver)
Provisioning Parts List/Significant Supply Items List (PPL/SSIL) certification
Designated Approving Authority (DAA) certification
Topside Certification (EMI)
Electromagnetic Interference (EMI) impact assessment
Radiation Hazard (RADHAZ) Certification
System Electromagnetic Compatibility (EMC) Certification

Ship EMC Certification
Electromagnetic Spectrum Compliance
Naval Center for Tactical Systems Interoperability (NCTSI) Interoperability Certification
Navigation Certification
Security Defense Information Technology Security Certification and Accreditation Process (DITSCAP) Accreditation
Training Certification
Warfare System Integration and Interoperability Test (WSI2T) analysis
Warfare system/element (system) level Certifications
Weapon Systems Explosive Safety Review Board (WSESRB) decision
Ship Check Complete
SECNAV Waiver
TCD Waiver
SOVT Complete
Initial Platform Certification Decision (IPCD)

Table S3-3 Hull Installation Readiness Review Criteria

3-6.6 Hull Installation Impact Assessment

The standard impact assessment process allows the evaluation, recommendation, and approval for installation of a SC that:

- Fails to meet one or more applicable Hull Installation Readiness Review criteria
- Is in jeopardy of not meeting one or more applicable Hull Installation Readiness Review criteria
- Misses any one of the critical milestones of Appendix G
- Is added to the availability after Appendix G milestones (late add)

The impact assessment form will document the resolution to any identified discrepancy(s), at a hull level, by presenting a complete assessment to include technical/operational shortfalls, costs, NMP milestones and impact(s). One impact assessment identifying all associated impacts is required per SCD/hull, and shall be completed, submitted and a recommendation provided IAW the NMP milestone charts in Appendix G. An impact assessment shall be submitted as soon as the determination is made that all products will not be available at the time of installation. Any updates to the impact assessment invalidate previous approval for that SCD/hull.

Impact is the potential for variation in the cost, schedule or performance of a program or its products. While such variation can include positive opportunities, impact is more generally considered to be the potential for negative consequences. A description of impact is in future terms that help identify both possible future effects and the root cause(s). Impact is classified into either three levels of program risk (high, moderate, low) based on likelihood and

consequence or four levels of system safety risk (high, serious, medium, low) based on probability or frequency of occurrence, and severity.

Impact Assessment Criteria:

- Naval Aviation Enterprise/Surface Warfare Enterprise (NAE/SWE):
  - PARMs shall submit a late add impact assessment for any ship change that requires the development of SIDs or impacts ships distributed systems that is added to NDE-NM after A-180
  - PARMs shall submit a late add impact assessment for ST1 and ST2 SCs that are not added to NDE-NM before A-75 or have not obtained a waiver by A-75
- SPM:
  - The SPM may request a late add impact assessment from the Submitter for any ship change if it is deemed that it may have a significant impact to the availability if added to the work package after A-180
- C5IMP:
  - A late add interoperability impact assessment (C5IMP eCCB) will be required for all SFI CAT 1 and 2 SCs that are added for execution between NCMC Baseline Reviews
- Maturity:
  - PARMs are required to submit maturity impact assessments IAW the Navy Modernization milestones in Appendix G

Impact assessment business rules can be found in Appendix D, block 265.4.

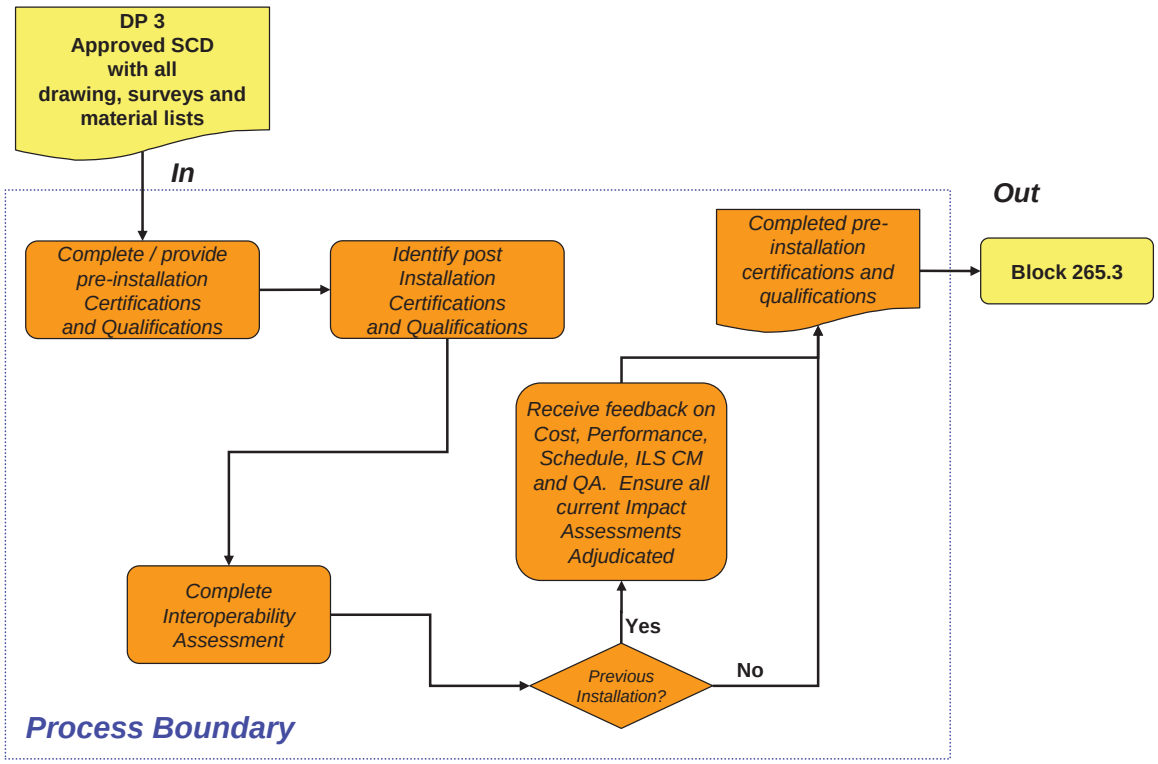


Figure S3-18 Hull Installation Readiness Review Flow Chart

3-6.6.1 Impact Assessment Process

The standard impact assessment process that allows the evaluation, recommendation, and approval for installation of a SC falls within the submission criteria of paragraph 3-6.6. This is accomplished via the Risk forms in NDE-AMPS. (The use of Naval Messages for submission and evaluation of Impacts/Risks is also being utilized until the NDE-AMPS process is fully mature).

Approving authority will make a final determination based on the following factors:

- Specifically, what is the added operational value for the warfighter? Does the warfighter, (not program manager), require this installation, or is this a “nice to have”
- What is the operational impact on the warfighter if the proposed installation does not occur? Is there an acceptable and executable fallback position
- What is the impact on operator and maintainer? How much additional training is required? Is the training available? If so, how is it to be delivered? Is this upgrade transparent” or “invasive”
- What is the difficulty and impact of installation? Is this the first time this installation has been accomplished
- When is the proposed installation to be installed with respect to the operational schedule? For example, will this installation occur prior to Composite Unit Training Exercise (COMPTUEX) or Amphibious Squadron – Marine Expeditionary Unit (PHIBRON-MEU) Integration, or after Joint Task Force Exercise (JTFEX)
- What is the extent of upgrade – Is this a modification to SW, HW, and/or FW; or new HW, SW and/or FW
- Is this a standalone system or interoperable with other key systems? If interoperable, does affected SYSCOM/PEO concur
- Is the change Safety related
- Does the change affect manning or workload
- Is the change logistically supported (i.e. drawings, technical manuals, onboard repair parts, etc.)
- Does this impact concurrent and/or prior SCs/Legacy alterations

3-6.7 Installation Recommendations

NAVSEA 05W will evaluate all SFI CAT 1 and 2 installations and process IAW reference S3(j)and Appendix D Block 265.4. The SPM(s) will evaluate the maturity of the SC based on their established internal processes. Once the SC has been evaluated, the SPM(s) or NAVSEA 05W will forward a recommendation (either mature and ready for installation, or not mature with appropriate Impact Assessments) to the Operational Commander(s) for review as defined in Appendix D Block 265.5. Operational Commander(s) will evaluate the SC based on their established internal processes and forward their recommendations to the appropriate Approval Authority as defined in Appendix D Block 270.

3-6.7.1 Operational Impact/Readiness Determination (SFI CAT 1 and 2 only)

The appropriate Operational Commander shall determine the operational impacts (if any) associated with the installation of the SC on a specific hull. The inputs will be reviewed and a recommendation made to the appropriate Fleet Commander to support the approval authority determination IAW Appendix D block 270.

3-6.7.2 Installation Approval Authority

The appropriate approval authority shall either accept or reject impacts and all associated costs, and ensure the installation has been coordinated with other technical authorities as needed. Note that acceptance of impact does not absolve the SC sponsor (PARM/Life Cycle Manager (LCM)/TYCOM) from the requirement to complete the planning products for which the impact was accepted.

Platform TYCOMs serve as installation approval authority for fully mature SCs, emergent SCs, and impact assessments for SCs missing critical milestones with the following exceptions:

- SFI CAT 1 and 2 SCs - Naval Network Warfare Command (NNWC) is the delegated approval authority for Atlantic Fleet ships and CPF is the approval authority for Pacific Fleet ships.

Once installation approval authority has been granted, installation of the SC is authorized for the specific hull under the conditions agreed upon. The TYCOM shall manage SCs approved, with impacts, and ensure completion and/or delivery of Hull Installation Readiness Criteria which did not achieve NMP milestones. In support of the TYCOM, the acceptance of impact does not absolve the alteration sponsor (PARM/LCM/TYCOM) from the requirement to complete the planning products for which the impact was accepted.

Approval Authority Business Rules can be found in Appendix D, Block 270.

3-6.7.3 Issue Updated LOA/HMP; Quarterly Scheduling Message

Once a SCD received final approval for installation, the SPM will update the HMP, and Issue the updated LOA. There are two status categories of SCs reflected in the LOA; “Authorized” and “Plan Not Authorized (PNA).” The distinction between the two categories is that the SC has reached the appropriate maturity to be installed or have the appropriate, approved, risk assessments to permit actual installation accomplishment. Carriers use the Modernization Readiness Assessment (MRA) as their updated LOA.

LOAs will be updated IAW Appendix G. The HMP will be updated IAW defined timeframes to support Fleet Response Plan (FRP) and MMBP requirements.

Business Rules can be found in Appendix D, block 250.

3-6.8 Mail Out Software Requirements

Policies and processes herein are not applicable to Information Assurance and Vulnerability Assessment/Information Assurance Vulnerability Bulletin (IAVA/IAVB), or routine library or database updates.

It is the intent of this section to ensure that changes delivered by mail or download to the fleet for ship's force installation are documented in NDE, that changes are reviewed and classified for SFI by SEA 05W, and that ultimately the change is ILS certified and documented in Configuration Data Managers Database-Open Architecture (CDMD-OA).

- It is the PARMs responsibility for coordinating with each TYCOM ISIC the delivery of changes to the fleet via mail or download for ship's force installation. Detailed policy and processes for such methods of delivery may vary depending on the TYCOM and the specific situation/change. As a minimum the PARM shall provide the following information to the TYCOM for consideration:
  - Scope (man hours of effort required to complete the task)
  - Pre-installation check out/system configuration requirements needed to commence change
  - Post-installation testing requirements
  - Ship's Force skill level required (rating, grade, Navy Enlisted Classification (NEC), school, or experience necessary)
  - Interfaces impacted and that test plan is available to recertify them
  - Address impacts to crew training and plan to accomplish
  - Cite applicable hulls by name and current version of software/firmware installed
  - Any impact to Combat Systems or Navigation Certifications
  - Address mission criticality/safety of ship impact if installation is delayed to ship's next modernization window
  - Whether or not the change will impact NSA/RMC Combat Systems Light Off & Test Plan
  - Point of contact information for subject matter / technical expert if required by ship's force for assistance in installing change
  - Procedures for returning system to pre-installation operating condition in event the change is unsuccessful
- SCs covered by this section may not be proposed for mail or download delivery for ships force installation unless the change has an approved DP 3 SCD or an approved emergent installation request
- PARMs are to coordinate in advance with each TYCOM in order to obtain proposed dates that each ship is expected to conduct an installation via e-mail out or download. These dates are to be used and will be subject to Appendix G milestones. In the event the TYCOM does not provide a specific availability, the PARM will submit the SCD and use the modernization window start and end dates (MOD WINDOW) for scheduling. In this case, Appendix G milestones do not apply and the responsibility for planning and scheduling the change with the RMC/NSA becomes the responsibility of ship's force just like any other planned Organizational-Level (O-Level) work being accomplished during the availability. In most cases PARMs will be able to target specific availabilities at scheduling conferences
  - In the event that the change is funded by Operations & Maintenance, Navy (O&MN) and

no modernization window exists, the PARM shall coordinate with the TYCOM to establish a Window of Opportunity (WOO) for the change to be installed (TCD waiver required)

- AITs, as agents for the PARM/PEO, are responsible for reporting completion of changes. Once the TYCOM approves the delivery of a change via mail out or download, ship's force becomes the installation agent for the PARM/PEO and is responsible for reporting the completion of the change. However, as in AIT installations, the ultimate responsibility for tracking and ensuring that changes are installed and documented as complete in NDE and CDMD-OA belongs to the PARM/PEO. The PARM/PEO shall provide Ship's Force installation agent with specific detailed procedures and necessary documentation to report completion (e.g. 4790/CK, completion message draft)
- The PARM/In Service Engineering Agent (ISEA) sponsoring the software change is responsible to ensure all necessary ILS products are delivered and that the change is properly documented in CDMD-OA. The mail out package must include the Software (SW) Repairable Identification Code (RIC) (e.g. CDMD-OA RIC, Naval Inventory Control Point (NAVICP) RIC or a Pseudo-Repairable Identification Code (XRIC) [to be superseded by a NAVICP RIC/Allowance Parts List once established] as part of the completion message and ILS package

3-6.9 SCD Changes Post Decision Point 3 (DP2 for NPCs)

There are several situations where changes to the SCD will require the SCD be returned for approval and/or review, post DP 3, as cited in Table S3- 4 below. All FP changes are addressed in paragraph 3-1.2.7.2.

The Submitter shall provide an updated SCD to the appropriate Decision Boards reflecting the SCD change. The change may require TAT/SPM/Resource Sponsor review, and will contain specifics as to the differences between planned and actual capabilities, costs, and FPs. Once these assessments have been completed, the SCD will be sent to the appropriate Decision Board for approval.

A request by the Submitter to cancel the SCD prior to complete fielding, requires a Decision Board vote.

Based on the above actions, the MP will be adjusted to reflect the Board decisions.

Change	Submittal Review	TAT Review	CBA Review	AFOM Review	Resource Sponsor	Decision Board
Post installation technical issues	x	x		Capability only		x
Pre installation technical issues	x	x	As Required	Capability only	As Required	x
Backfit requirement	x	x	x	x	x	x
Change in SFI Category	x	x				x
Inactive status SCD being brought back for a vote to reactivate						x
Installation Discontinued (SCD submittal for closeout costs)	x		x		x	x
Changing duration Permanent to NPC	x	x			x	x
Changing duration NPC to Permanent	x	x	x	x	x	x
POC updates	x					
Change in Scope	x	x	x	x	x	x
Change in Category	x	x	x	x	x	x
Change in Funding	x				x	x
FP Change - No Change in Funding	x					x

Table S3- 4 SCD Revision Matrix

3-6.9.1 Non-Capability Change Definition

A Non-Capability Change refers to a backfit to a SC that has been completed on some, but not all, applicable hulls, and that does not provide functionality beyond the scope of the original SCD. This action will not require a new SCD except as noted below.

For software SCs, this is limited to software patches that fix an issue preventing the software from supplying a function that was part of the original SCD.

For hardware SCs, this is limited to backfits that involve a form/fit/function replacement that must be performed on previously installed ships AND will be applied to all remaining installations.

If a SC has been completed on all hulls and closed out before a backfit is identified as described above, then a new SCD shall be processed instead of modifying the existing SCD.

These Non-Capability Changes are <u>not</u> to be used to denote different versions of the same hardware or software system, e.g. APX-14(V)3 vice (V)2. Each version should have its own unique SCD and associated FP developed and approved.

3-6.9.2 Non-Capability Change Examples

A SC is developed to install software on the LHA1 class. After installation on the first two hulls

of the class, a bug is discovered that requires a software patch to be installed. The software patch only enables the software to fulfill its functional requirements as defined in the original SCD and does not provide any enhanced functionality beyond that. The SCD shall be updated to reflect the new software patch level.

A SC is developed to install a Large Screen Display meeting specific requirements. Over the course of accomplishing the SCD, the exact model and manufacturer of the display changes, although all installed displays meet the requirements. The SC has not been installed on all applicable hulls. The SCD shall be updated to reflect the new hardware configuration, and the sponsor will need to decide whether or not to recommend backfitting (replacing) the already-installed displays.

3-6.9.3 Non-Capability Change Documentation

A SCD Fielding Plan change IAW paragraph 3-1.2.7.2 to reflect the backfit will be required in this situation, to show the original as well as the backfit installation Fiscal Years. If additional funding is required, a CBA change will be required in the EP module.

SUBSECTION 3-7 Phase V

3-7.1 Scope

This section addresses installation of the SC, feedback from installations, evaluation of installations to determine whether to continue, and final closeout of the SC. The Phase V process map is shown in Figure S3- 19.

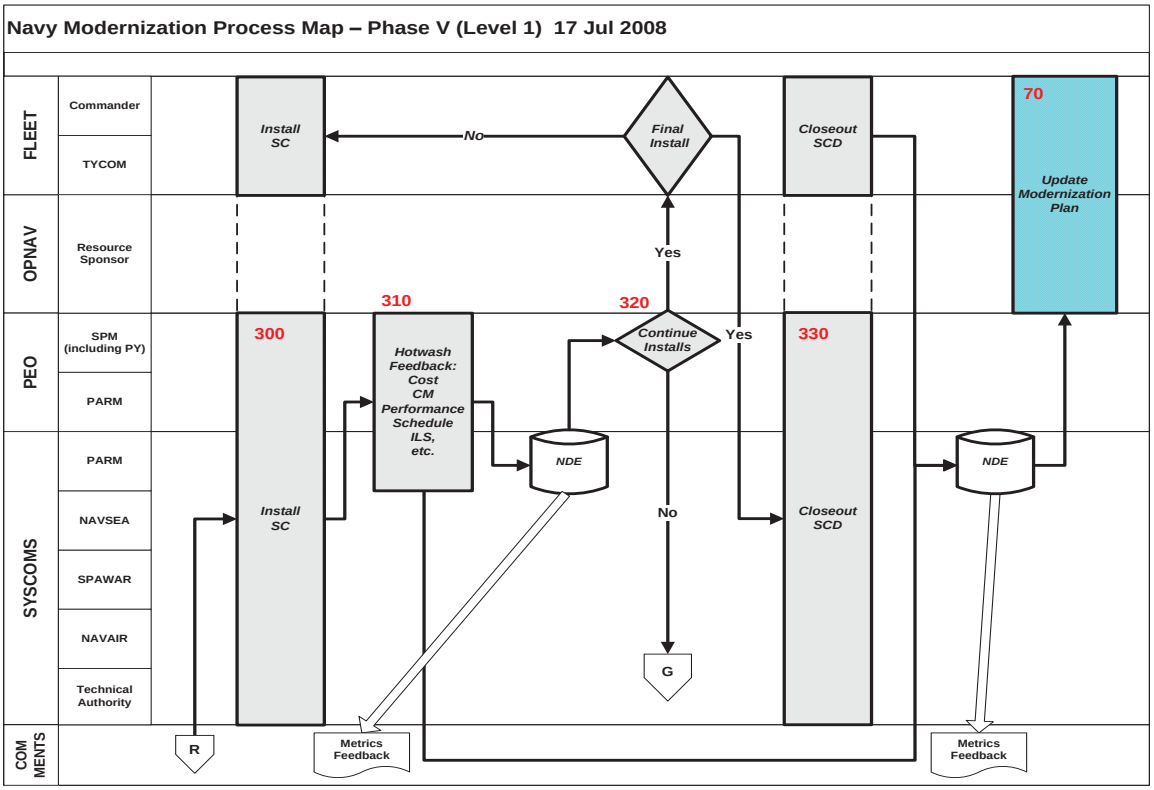


Figure S3- 19 Phase V Top level Flow Chart

Phase V is the process that collects information from each installation and feeds it back into the SC for use in future installations, ultimately culminating in closeout of the SC following the final installation. All pre-checkout, installation, validation, and testing in accordance with documentation via established internal process for executing activity and NSA shall be completed.

3-7.2 Install SC

Once the Installation Readiness Assessment is completed in Phase IV, and all Impacts have been either mitigated or accepted by the cognizant TYCOM, the SC is ready for installation. Note that acceptance of Impact does not absolve the SC sponsor (PARM/LCM/TYCOM) from the requirement to complete the planning products for which the Impact was accepted.

Business Rules can be found in Appendix D, block 300.

3-7.2.1 SC Check In (for AIT installations)

RMMCO Check In is required for all SCs being installed by an AIT. RMMCO Check In requirements are contained in Appendix H. AITs are required to comply with all RMMCO Check In requirements prior to going onboard the ship to accomplish the installation.

3-7.2.2 Installation of SC

The designated Executing Activity will execute the work based on the technical documentation developed during Phase IV. The RMC/NSA is responsible for government oversight of all work performed during an availability. The AIT Supervisor/On-Site Installation Coordinator assigned by PARMs are responsible for overseeing contractor work and shall work closely with the RMC/NSA to ensure the proper integration and installation of the SC.

3-7.2.3 Testing of SC

Testing of the SC will be accomplished IAW the Test Plan. The results of the testing shall be documented and provided as feedback to the SC.

3-7.2.4 ILS Delivery

The SC sponsor (PARM/LCM/TYCOM) is responsible to ensure the SC-specific ILS is delivered to the ship's Maintenance Support Center (MSC) upon completion of the installation. For AIT installations, this is part of the RMMCO Check Out process IAW Appendix H.

3-7.2.5 Validation of Installation and ILS Delivery

The RMC/NSA is responsible for validation of the installations and that ILS has been delivered to the ship. The RMC/NSA is also responsible for developing the Completion Report at the end of the installation/availability. The SC sponsor (PARM/LCM/TYCOM) is responsible, for AIT installations, to provide the RMC/NSA with data required for the Completion Report and 2K Closeout.

3-7.2.6 Completion Report

The RMC/NSA will issue a Completion Report at the end of the availability IAW the JFMM, Appendix H, and reference S3(h).

3-7.3 SC Feedback

Feedback on the SC installation is key in determining schedule, performance, quality, and providing lessons learned regarding the SC. Feedback is required for issuance of Completion Reports and closeout of associated 4790/2Ks.

Feedback Business Rules can be found in Appendix D, block 310.

3-7.3.1 Installation Return Costs

This information is currently under development.

3-7.3.2 Configuration Management

During Phase IV, the SC sponsor (PARM/LCM/TYCOM) or designated agent (i.e. ISEA/AIT/PY) will have submitted to the Configuration Data Manager (CDM) the CDMD-OA work files for each SC. This shall have occurred no later than 60 days prior to installation start. These work files will have been combined with additional data from the PY and processed into the ship's database as Configuration Overhaul Planning (COP) data by the CDM.

Upon installation completion, the Executing Activity shall submit CDMD-OA "end of installation" work files updating the pre-loaded COP records, providing any additional data IAW TS 9090.700 series. Completion of the installation and accuracy of the reported configuration will be verified by the NSA/CDM and will be checked against the CDMD-OA record. The record will be corrected or updated as necessary prior to closing the SC COP file. Upon completion of the installation and site validation by the NSA or designated representative, the installation status code and validation will be updated in CDMD-OA.

3-7.3.3 Schedule (Completion Date and Status)

The SC sponsor shall ensure that the actual completion date of the SC is entered into the appropriate field(s) in NDE-NM. For CNO availabilities, the availability completion date may be used as the SC completion date.

When a Completion Report for a SC is received, the SPM or designated activity will place the SC in status "R" (Installed – ILS/Testing Not Complete) in NDE-NM.

3-7.3.4 ILS

Once the NSA/SPM has verified that all ILS has been delivered to the ship, the SC may be placed in status "C" (Complete) in NDE-NM.

Outstanding ILS is to be tracked by the SPM or designated activity until delivery is confirmed. Monthly messages from the PARM to the SPM or designated activity and TYCOM are required providing status of outstanding ILS until delivery is confirmed. ILS issues will also be tracked as Integrated Logistics Support Management Team (ILSMT) action items and/or in the End of Availability/End of Installation (EOA/EOI) reporting structure.

3-7.3.5 Technical Feedback

LARs processed during planning and execution of the SC shall be attached to the SC in the EP module so that they may be evaluated for possible application on future installs, and to document any technical, logistics, or other issues which arose with the SC. The SPM or designated activity is responsible to ensure all LARs have been properly documented and attached to the SC. LARs are covered in more detail in SUBSECTION 3-9 of this manual.

3-7.3.5.1 Partial Accomplishment

If a SC is only partially accomplished for some reason, a meaningful description of the additional effort required to complete the installation will be provided in the Completion Report. This information may necessitate that remaining work be scheduled for a later availability.

3-7.3.6 OPNAV 4790 2K Closeout

Processing and closeout of 2Ks is covered in reference S3(k). As applicable, a 2K associated with a particular hull SC can be closed out once all feedback information required by the 2K is received and the SC can be considered complete. Using the feedback provided above, the SC sponsor (PARM/LCM/TYCOM), Fleet Commander (FLTCDR) for C5I, and SPM will determine whether to recommend stopping future installations of the SC, and whether the SC requires revision.

Technical, ILS, Material, CM, or other issues may require evaluation by the SPM, PARM, or TYCOM to determine if the SC merits further installation. Any recommendation to stop future installations must be evaluated and decided on by the appropriate Decision Board.

Continue Install Business Rules can be found in Appendix D, Block 320.

3-7.3.7 Installation Return Cost Evaluation

The SC sponsor shall evaluate the installation return costs to determine if the SC CBA requires revision. A change in the estimated cost of future installs could result in a need to revise the FP of the SC, or other SCs in the same budget line, in order to balance the MP. Revising the CBA and any subsequent FP changes are to be accomplished IAW paragraph 3-1.2.7.2 and will require a decision by the appropriate Decision Board.

3-7.3.8 Superseding Installations

If the SC is superseded prior to completion of all planned installs, then a recommendation to stop future installs shall be presented to the appropriate Decision Board for adjudication. (For example, a new radar version is to be fielded prior to completing all installs of the current version.)

3-7.4 Final Install and Closeout of SC

Upon final planned installation completion, the SC shall be reviewed by the Submitter to ensure that all planned installations are complete, and confirm that all ILS has been delivered for all installations. Once this is accomplished, the SC may be closed out.

Final Install Business Rules can be found in Appendix D, Block 330.

SUBSECTION 3-8 PROOFING OF SHIP CHANGES

3-8.1 Scope

This subsection addresses the process referred to as “Proofing.” It is performed as a part of the accomplishment of the SC(s) on the first ship scheduled to receive the SC or combination of SCs.

3-8.2 Ship Level

3-8.2.1 Background

In the accomplishment of high visibility, major, or complex SCs or the integration of several major or complex SCs, which are accomplished during the same availability, it may be desirable to assure that the accomplishment of the SC or combination of SCs achieves the desired results. When required the decision to conduct proofing is made during the SC development process and is a specifically funded event which is noted in the applicable Advance Planning and LOA issued by the SPM for the first ship scheduled to receive the SC(s). Only those SCs which indicate "PROOFING REQUIRED" in the respective SCD shall be proofed.

3-8.2.2 Proofing Process

Proofing of a SC or a combination of SCs is normally conducted by the cognizant PY or, in some cases, by another activity with the participation of the PY. The applicable SCD(s) provides basic information on specifically what functions are to be proofed, the rationale for proofing, and the activity responsible to conduct the proofing (normally the PY).

When required, post installation inspections shall include a determination of the space configuration, taking into consideration the future susceptibility/vulnerability to fire or battle damage. The physical configuration inspection will include the adjacent compartments to the installation to identify the present space usage, including material stowage, by the ships force to alert ship managers to possible problems that could affect the ships current and future Damage Control posture such as burn bag or other combustible/flammable stowage, and space utilization changes.

3-8.2.3 Planning Requirements for Proofing

As soon as the PY receives a LOA from the SPM which indicates that proofing of one or more SCs is required as part of the availability, the PY should begin planning for the proofing event, usually conducted near the end of an availability. The planning includes making a determination of the technical characteristics which are to be demonstrated (from the applicable SCD(s) and contacts with the HSC Technical Point(s) of contact indicated on the SCD(s)) and then determining what methods are to be used to demonstrate the specific characteristics (generally, special testing is developed which demonstrates the specific characteristics). If a SCD indicates that the proofing is to be conducted by an activity other than the PY (generally a system or equipment ISEA), the PY will establish points of contact with the designated activity and

provide assistance as required to insure that the required technical characteristics will be adequately demonstrated by the proofing.

3-8.2.4 Proofing Documentation

The activity designated to perform the proofing will develop all documents (generally special tests or operational demonstrations necessary to demonstrate the characteristics which are required to be proofed in accordance with the applicable SCD(s)). NAVSEA 05 shall approve the methods selected for proofing before the actual development of documentation. The final proofing procedure shall be reviewed, and may be required to be approved by, the cognizant NAVSEA 05 prior to performance of proofing. In cases where the at-sea participation of the ship is required, the approval of the Commanding Officer of the applicable ship and the applicable TYCOM is required.

3-8.2.5 Performance of Proofing

The performance of proofing requires coordination between the activity responsible for the proofing, the NSA/RMC overseeing the assigned ship availability, and the cognizant LCM/PARM. The NSA/RMC is responsible for the scheduling and integration of all testing to be performed in support of a given availability and shall schedule all tests or demonstrations in support of SC proofing. In some cases proofing may be conducted during sea trials or after the EOA. For example, weapons systems demonstrations (target tracking, gunnery and missile demonstrations, etc.), have special support or operational requirements for proofing (e.g., airborne or submerged targets, live fire testing, use of gunnery or missile ranges, support ships or aircraft). In these cases, coordination with the applicable TYCOM and support activities will also be required prior to the proofing.

The proofing is generally witnessed by representatives of the SPM, PY, LCM/PARM, ship’s force, and other activities as required.

3-8.2.6 Proofing Report

The activity responsible for the proofing shall prepare a Proofing Report which describes the results of the proofing, overall technical evaluation of the SC, and recommended changes/corrections to the SCDs, SIDs, or other SC documentation which would improve the performance or accomplishment of the SC(s). The report shall be submitted to the cognizant SPM.

3-8.2.7 Proofing Follow-up

After successful proofing, the PY shall ship check the applicable ship and verify that the applicable SIDs accurately reflect the "as-installed" configuration of the SC. The applicable SID master files are then revised to reflect the actual ship configuration. The SIDs which may have been prepared for follow-on ships of the class receiving or scheduled to receive the proofed SC(s) are reviewed against these corrected drawings for possible corrections/revisions to insure successful accomplishment of the SC(s) in follow-on ships.

3-8.3 System/Equipment Level SCs

3-8.3.1 HM&E

The initial production installation of a Machinery Alteration (MACHALT) kit is called the proof-in installation. The proof-in is used to verify the accuracy of the hardware and ILS products in the MACHALT kit. Naval Surface Warfare Center, Carderock Division-Ship Systems Engineering Station (NSWCCD-SSES) Major Project Office (MPO) will schedule and direct installation of a MACHALT proof-in kit. This verification effort will ensure accuracy of MACHALT Instruction procedures; form, fit, and function of the kit hardware; completeness of the ILS products; and availability of supporting tools and test equipment as well as Installation and Checkout (I&C) spares. NSWCCD-SSES MPO will certify validation of the MACHALT Instruction through the proof-in installation process.

3-8.3.2 ORDALT Proof-in Phase

The proof-in is part of the Ordinance Alteration (ORDALT) preparation and is the responsibility of the LCM or the designated ISEA. A proof-in should demonstrate that the ORDALT would achieve the change approved by the Configuration Control Board (CCB). The activity responsible for the proof-in of the ORDALT is identified in the CCB. Proof-ins are preferably accomplished in a shipboard environment by technicians having the same skill level as those who will generally be installing the SC. The functions of the proof-in are to ensure:

- The accuracy of the ORDALT Instruction procedures
- The form, fit and function of kit material
- The accuracy and completeness of all ILS products

The activity performing the proof-in is responsible for providing all required ILS products, including sufficient On Board Repair Parts (OBRPs) for any proof-in that remains as a permanent installation until Material Support Date (MSD) is achieved.

Proof-in and evaluation determine whether immediate action must be initiated to correct discrepancies in the initial alteration design package (hardware or computer program packages) and/or related documentation prior to authorizing subsequent installations or additional procurement. Proof-in and evaluation, including validation and verification of the SC instruction, SC kit and ILS products shall be certified by the performing activity as directed by the PM.

SUBSECTION 3-9 LIAISON ACTION RECORD (LAR)

3-9.1 Scope

This subsection addresses the preparation of the LAR, which is the formal documentation tool for technical communications among PYs, NSAs/RMCs/Installation Activities (IAs), and the SPMs in the installation of SCs. LARs shall be used to facilitate the resolution of design questions and change requests regarding drawings, changes to technical documentation and tasking assignments, and the transmittal of waivers and deviations and shall be the only vehicle used by NAVSEA for the transmittal of technical requirement changes to PYs after approval of a SCD. LARs are not to be used to authorize work or deal with programmatic changes. Appendix F of this manual states "cost and impact information should not be included in the LAR, but should be provided in supplementary documentation". LAR shall follow guidance in Appendix FS3(f).

3-9.2 Initiation of LARs

At A-480, the NSA/RMC shall establish points of contact with the applicable PY. In situations where the availability is being offered to the private sector, the Planning Supervisors of Shipbuilding, Conversion and Repair (SUPSHIP) shall establish initial contact. The NSA/RMC will establish contact with the PY as soon as the industrial activity is selected. Each activity will designate individuals as points of contact and supply the names, codes, telephone numbers, and functional areas of these individuals. Each activity will also maintain a log of all LARs and LAR responses applicable to a specific availability.

3-9.3 Execution of LAR

3-9.3.1 NSA/RMC Generated LARs

An NSA may generate LARs to:

- Request clarification of information provided on SCDs, SIDs, test requirements, specifications, etc., provided by the PY
- Request modifications to design information provided by the PY
- Request on-site engineering support

Request deviations and waivers from installation design requirements (see paragraph 3-9.3.4).

3-9.3.2 PY Generated LARs

A PY may generate LARs to:

- Request SPM/PARM clarification of information provided on SCDs, SC guidance drawings, test requirements, specifications, etc., after a SCD is issued
- Request on-site engineering support from the SPM/PARM
- Request modifications to or reassignment of SPM/PARM tasking related to SC design or

accomplishment
- Request deviations and waivers from SC design requirements imposed by the SPM/PARM (see SUBSECTION 3-7)

Provide advance notification to the NSA/RMC of urgent and mandatory or new requirements which may impact on-going production work.

3-9.3.3 Ship Program Manager (SPM) Generated LARs

A SPM/PARM may issue a LAR to forward SC requirements changes to a PY after the applicable SCD(s) has been approved and issued.

The LAR shall be developed and processed IAW Appendix F of this manual. The initial request may be made by telephone, message or fax when urgency demands, but must subsequently be followed up with a written serialized LAR.

3-9.3.4 Deviation and Waiver LARs

A LAR may be utilized to forward a request for major and minor critical departures from specified requirements per reference S3(c). For nuclear-powered vessels, all minor departures on propulsion plant systems or support systems shall be IAW reference S3(d). Deviations from non-reactor plant, non-deviation submarine drawings must be submitted on Form DD 1694 Request for Deviation/Waiver as an attachment to the LAR. The completed Form DD 1694 shall be sent directly to the cognizant SPM by the activity requesting the departure (i.e., PY or NSA/RMC). If a request is developed by a NSA/RMC, a copy of the request shall also be forwarded to the applicable PY for information.

Excepting minor departures covered by reference S3(d) and deviations from non-reactor plant drawings, minor departures (per reference S3(c)) may be approved at the local NSA/RMC level. The NSA/RMC will forward copies of all locally approved departures to the applicable PY at end of availability plus two months (EOA+60). A LAR shall be used as the forwarding document for these departures.

3-9.4 Review/Approval of LARs

NSA/RMC generated LARs that do not involve waivers and deviations will be routed to the PY or on-site representative for action. Irresolvable LARs and those initiated by the PY will be forwarded to the appropriate SPM. The SPM will notify the originating activity of the date of response, particularly when a response will require more than fourteen days or will exceed the requested response date. The response to a LAR will be communicated on the LAR form or by letter/message to the originating activity. LARs generated by the SPAWAR, LCMs, equipment managers, etc., to reflect requirements changes, will be forwarded via the cognizant SPM for approval.

SUBSECTION 3-10 EMERGENT CHANGE PROCESS

3-10.1 Scope

This subsection addresses modernization requirements identified for a specific hull, Carrier Strike Group (CSG), or Expeditionary Strike Group (ESG) requiring approval, funding, and installation during the execution year. Emergent SCs are those items that require immediate installation (30 days or less) and/or reprioritization of tasking and reallocation of resources to support accelerated development and installation. The emergent change process is only applicable if at least one of the following SC criteria applies:

- Safety items
- Mission critical capability
- Critical software; firmware or other deficiencies

Detailed Business Rules on Emergent Changes are located in Appendix D, Block 10, paragraph Q.

3-10.2 Background

The responsibilities and procedures contained in this document have been designed to provide orderly and systematic accomplishment of necessary design and documentation functions in support of the modernization process. These procedures, however, may not be sufficiently responsive, because of military or technical necessity, and some deviation from specified procedures and responsibilities may be required.

3-10.3 Emergent Process

The PARM or the designated representative will issue an impact assessment message to the appropriate installation approval authority as described in paragraph 3-6.7.2. The following items must be identified in the appropriate document(s):

- Resource sponsor, budget line item, and program element needed to support funding.
- Proposed change must meet all certification milestones, if not risk mitigation and POA&M for accomplishment and request for waiver of specific items. If waived, approving authority assumes all technical risks and associated costs
- Place “EMERGENT” in parenthesis at the end of the subject line
- Estimated installation completion date

In conjunction with the message, a Phase II or III SCD should be initiated if one hasn’t been already submitted. The SCD can be submitted as a non-permanent install at Phase II for the ships listed on the message or as a Phase III listing all applicable ship installations, including the ships listed on the message.

All pertinent technical information regarding the SC shall be included in the message; this information shall also be included in the associated SCD submission.

Approving authority reviews and approves/disapproves the emergent change requirement via Naval Message (RMC/RMMCO must be included on the message). The TAT Review will be expedited on all Emergent changes prior to release of the Naval Message approving installation. During the course of the TAT review, SEA 05W will determine if the Emergent change impacts the warfare system and make a platform certification assessment IAW the Naval Warfare System Certification Policy (NWSCP). Assessment results will be provided to the approving authority as part of the associated SCD submission.

If approved, the requesting activity can commence installation for the ships listed on the A-O message.

3-10.4 Execution of Emergent Requirements

The SPM in conjunction with the Submitter/PARM will indicate the SCDs high priority to appropriate development and design activities. The Ships Design Manager (SDM) and the SPM will review the emergent change development status and reprioritize schedules to best facilitate the development of the emergent change within the specified time period. This may include delaying the development of lower priority SCDs, providing extra manpower or material resources, and closely monitoring the status of all related products within the design phase. The SPM will be informed of any problems in meeting completion dates by development activities or the cognizant engineering authority. The SPM will approve procedural changes and deviations it deems necessary to ensure the satisfactory completion of the emergent requirement. Should the SPM determine that sufficient resources or materials would not be available; they will advise the OPNAV Platform Sponsor, approving authority and revise or cease the SCD development process for the emergent requirement.

The RMC/NSA will take all possible actions to accomplish the tasking within the completion date specified in the impact assessment message. The appropriate RMC/NSA will immediately notify the SPM/PARM/submitter when delays, interruptions, or lack of required guidance are evident. Upon approval of an emergent SC, the applicable SPM will coordinate with the TYCOM to create an availability if necessary within NDE-NM to install the SC. The SPM will program the emergent SC into the availability and process any escrow changes where applicable.

3-10.5 Alteration Installation Team (AIT)/Planning Yard (PY) Efforts on Emergent Requirements

The assigned PY is responsible for the installation design of ship and ship system modifications and shall normally be tasked to develop installation designs. On those occasions where, due to urgency, an AIT is tasked to develop installation design for a SC, the SC installation design must be submitted to the PY for review and approval prior to SC accomplishment. The PY will review the drawings for technical adequacy and accuracy and provide approval. The installation drawings developed for AIT installations are to be IAW Appendix H of this manual. The SPM will program or schedule the emergent SC into an availability or window of opportunity.

SUBSECTION 3-11 NON-PERMANENT CHANGES (NPCs)

3-11.1 Scope

This document outlines the policy, process, and responsibilities for development and approval of NPCs proposed for accomplishment aboard operational Fleet ships. Detailed Business Rules on NPCs are located in Appendix M.

3-11.2 Requirements

All additional requirements for NPCs are in Appendix M.

SUBSECTION 3-12 CONDITION BASED MAINTENANCE SCD REQUIREMENTS

3-12.1 Scope

This subsection addresses Condition Based Maintenance that results in a configuration change to a system or equipment. Modernization through Attrition and Modernization in lieu of Repair (MTA/MILR) are two examples of condition based maintenance that can be scheduled on an "as fails" basis. An MTA/MILR SCDs is a Fleet generated SC used to facilitate condition based maintenance. Approval is based on the technical merit, ROI, AFOM, and total cost of the SC. Installation will be determined by the TYCOM during the execution year.

MTA/MILR actions are changes to components, or systems that are form/fit/function software or hardware replacements sponsored by the Fleet and executed on an as fails or condition-based maintenance criteria, that also result in a configuration and/or logistics change. MTA/MILR actions targeted for a ship class(es), but without a known hull-specific FP may be required to enhance maintainability, resolve hardware or software obsolescence, or to address declining Intermediate or Depot level repair resources. MTA actions may not impact shipboard or interfacing systems, certifications and do not result in additional operational capability.

3-12.2 Background

The procedures for MTA/MILR SCDs are designed to provide a vehicle to perform upgrades that would only be performed during repair of a piece of equipment or based on some other event occurring that is not modernization related.

3-12.3 Process

- The hull applicability shall be provided when the SC is initiated
- MTA/MILR SCDs will be completed as a standard SCD with the exception that the proper quantity will be indicated in the "To Be Completed" column of the CBA fielding plan for each applicable hull
- The MTA/MILR block must be checked on the SCD. In the interim process, it must be noted that "this is an "MTA/MILR item" in the executive summary of the SCD
- MTA/MILR actions shall be identified by the legacy alt type "Alteration Equivalent to Repair (AER)"
- MTA/MILR SCDs must be approved through Decision Point 3 prior to execution. Once approved, the SC will be added to the Aircraft Carrier Class Maintenance Plan (ACCMP) or the Surface Ships ICMP. The TYCOM will schedule the SC for installation as required. Prior to scheduling, TYCOM will verify funding and man hours are sufficient to support the installation. Total funding will not exceed controls allotted for that execution year

SUBSECTION 3-13 SHIP SELECTED RECORDS (SSRs)

3-13.1 Scope

This section addresses the tasking and preparation of SSR drawings and data. SSRs are specifically designated by the CNO and are maintained throughout the life of the ship. SSR items and update procedures are detailed in Appendix C of this manual.

The PY is responsible for providing to the cognizant NSA/RMC two copies of the ship's SSR update reflecting all known configuration changes previously accomplished and the SCs authorized for accomplishment during the availability. The cognizant NSA/RMC forwards a request for SSR NLT A-120 and the PY provides them prior to Start of Availability (SOA).

3-13.2 Background

SSRs are documentation of design or characteristics of HM&E systems, and related information by hull. They are selected because of their value for operational, maintenance, modernization, training, and consulting purposes to individual ship's forces, fleet commands, shipyard personnel, training centers, and other naval activities.

SSR drawings and data are updated by the PY as tasked by the SPM. The update is to be done during the scheduled availability's year and is to be funded NLT A-360 via the SCD. The update will be reflected in two products. These products are the interim "printer’s proof copies" delivered to the ship prior to the end of the ship's availability (or Fast Cruise, if applicable) and the final copies provided to the ship by EOA+60, except Training Aid Booklets (TABs), which should be delivered by EOA+180. The NSA/RMC will verify the delivery status of the Selected Record Drawings (SRDs) and Data at the designated milestones for all ships.

3-13.3 Initiation of SSRs

Except as noted in Appendix C of this manual, the PY has life cycle responsibility for SSRs for those ships assigned to it. The PY maintains custody of the SSR Masters (vault copies) and maintains the SSRs configuration on a continuing basis. NSWCCD-SSES, Standard General Markup Language (SGML) Repository is the custodial location of Electronic Master Copies of SGML Manuals used by the PYs to support the individual ships.

3-13.3.1 Tasking for SSRs for SCs Installed During Scheduled Availabilities

Tasking for SSR maintenance and update incident to an industrial availability is accomplished, via the SCD, through the SC LOA. The Technical Instruction (TI) is used for private PYs. The PY may, in turn, task SSR work to Technical Manual Maintenance Activities (TMMAs) or ISEAs as necessary but retains the responsibility for accuracy of the final product. The task will require that the work be done during the availability.

3-13.3.2 Tasking for SSRs for SCs Installed Outside Scheduled Availabilities

If a significant SSR update is required as the result of an availability not covered by a SC LOA, the PY must inform the cognizant SPM of the circumstances, including the scope of work and an estimate of funds required for accomplishment. All SSR operations not incident to a scheduled industrial availability are separately funded by SCs sponsor as directed by the SPM.

3-13.4 Execution of SSRs

The PY insures the incorporation of all required changes and/or modifications to SSR drawings and data. Changes from any source may impact PY maintained documents and necessitate revision. Sources of changes are:

- Maintenance activities performing industrial availabilities
- SCs accomplished by forces afloat or AIT for assigned ships
- Reactor Plant Planning Yards (RPPYs) modifications to reactor plant and associated systems for nuclear-powered ships

3-13.4.1 Industrial Availabilities

For industrial availabilities of the PY is responsible for identifying ship's SSRs affected by the SCs authorized for accomplishment during the availability. The PY includes any changes indicated in the marked-up Ship's Master Copies, which are furnished to the PY representative by the Ship’s Force at the SOA. The PY provides interim SSR drawings and data to the ship at EOA-30, or by Fast Cruise, if applicable.

3-13.4.2 SSR Update/Changes

The PY will identify the SCs being installed during the availability along with the impacted SSRs. Document change activity will be captured in the revision block or via the change page listing of the impacted documents. The PY is responsible for incorporating all changes resulting from the availability in the SSR.

For industrial availabilities of nuclear powered ships, the PY is responsible for providing to the cognizant NSA/RMC two copies of the ship's SSR update reflecting all known configuration changes previously accomplished and the SCs authorized for accomplishment during the availability. The cognizant NSA/RMC forwards a request for SSR NLT A-120 and the PY provides them prior to SOA.

3-13.4.3 Expanded SSR Drawing Baselines

The number of SRDs required for each ship varies with the ship class (see Appendix C of this manual). The required size of the drawing baseline has been increased for most ships. The PYs will produce the additional drawings on a ship-by-ship basis as tasked by the SPM. The PY will assume the full maintenance responsibility, storage, update, validation, certification, and distribution for each ship's total SRD suite.

As tasked by the SPM, the PY ensures the distribution of final printed copies by EOA+60. During periods of budget constraints, the delivery schedule for SSRs may be modified by the SPM. For computerized Damage Control Plates, the PY ensures distribution of final printed copies within 45 days following EOA.

Forty-five days after EOA, the PY provides the ship with a delivery status report/letter indicating, for each SSR item, the anticipated delivery date and the transmittal identification of any item being forwarded. All deliveries of corrected copies must be completed NLT EOA+60, or notification of delay is required, in writing, to the cognizant SPM identifying the document and cause of delay. During periods of budget constraints, the delivery schedule for SSRs may be modified by the SPM. The PY has the primary responsibility to maintain and update SSR. However, it is essential for the industrial activity to establish close liaison with the PY before, during, and after all availabilities to ensure that accurate and timely exchange of information takes place to facilitate periodic update of all SSR.

3-13.5 Verification of SSR

The PY will verify to the ship that SSR affected during the availability have been updated and reflect the current ship configuration. This verification of accuracy and currency is made in writing by the PY with the preprinted SSR update package delivered to the ship at EOA-30 or by Fast Cruise, if applicable.

For Industrial Availabilities of all ship types the PY/NSA/RMC will verify the delivery status of the SSRs at the EOA milestone, and will also verify that the Coordinated Shipboard Allowance List (COSAL) has been updated, IAW the verification requirements of reference S3(e) and Section 6 of this manual.

3-13.6 External Interfaces for SSRs

TYCOMs maintain and provide to the cognizant PYs and SPMs, at A-60, a listing of all changes accomplished since the last availability. Changes made after A-60 are to be reported to the PY at the start of an availability for non-nuclear powered ships or to the cognizant NSA/RMC for nuclear powered surface ships.

Ship's Force SSR maintenance actions are as follows (TYCOMs determine mandatory actions and issue implementing instructions):

- Designate Ship's Master Copies of each SRD or Selected Record Data item. These copies should be maintained to reflect actual ship configuration at all times
- Designate one ship's coordinator responsible for all matters pertaining to SSR
- Forward master SSR copies to the ship class PY for reprinting when corrections and updates render the masters illegible with follow-up to ensure receipt of corrected masters
- For AIT efforts or non-industrial availabilities, assure that impacted Ship's Master Copies are marked-up (i.e. Intermediate Maintenance Activity (IMA), Ships Force) by the IAs
- For overhauls and dry-docking availabilities, provide the NSA/RMC or PY representative, as applicable, with the Ship's Master Copies of SSR at SOA
- Maintain a listing of all ship's drawings that must be delivered to the NSA/RMC or PY upon

entering an availability. This listing may be a marked-up Ship Drawing Index (SDI)

- Forces afloat responsibilities and procedures for Reactor Plant and Tender Nuclear Support Facility SSRs are specified in reference S3(a)

3-13.7 SSR Transfer for PY Assignment Changes

When notified by NAVSEA of pending changes in the PY assignments (see reference S3(b)), the current PY will be responsible for establishing orderly SSR transfer procedures and carrying out the transfer in a timely manner. When the new PY is identified, it shall make a formal request to the "old" PY for documentation transfer. All documentation is to be forwarded within 30 days of receipt of a valid and authorized request. The cost of SSR transfer is not chargeable to Miscellaneous Documentation Services (MDS), but will be absorbed in PY overhead.

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S4(b) NAVSO P-1000, Series, Subj: Financial Management Policy Manual

S4(c) NAVSEAINST 4720.6, Series, Subj: Preliminary and Final Cost Estimates by Industrial Activities for Ship Alterations

S4(d) NAVSEAINST 7670.1, Series, Subj: NAVSEA Industrial Fund (NIF) Financial Management Systems and Procedures Manual

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SUBSECTION 4-1 INTRODUCTION

4-1.1 Scope

This section of the Navy Modernization Process (NMP) Management and Operations Manual discusses the financial management of the NMP including program formulation (Program Objectives Memorandum (POM)/Program Review (PR)), budget preparation and review, and financial execution. The policies and procedures described outline the financial structure and components of the NMP, rules governing the budgeting and execution of requirements, tools utilized, and participants and their roles. Financial management of the NMP emphasizes:

- Utilization of established policies and procedures for the budgeting and execution of requirements
- Development of cohesive, defensible budgets reflecting decisions made under the NMP Decision Board(s). These decisions are reflected in the "Modernization Plan (MP)" to be executed by the Deputy Chief of Naval Operations (CNO) for Resources, Warfare Requirements and Assessments (N8), Warfare Division Directors or CNO Platform Sponsors (N42, N85, N86, N87, and N88), the Director of Space and Information Warfare (N71) and the Director of Supportability, Maintenance, and Modernization Division (N43). For submarines, POM budgets will continue to be based on the Minimum Modernization Matrix (MMM) as approved in the Annual Prioritized Undersea Enterprise Requirements Letter (PURL) as discussed in Section 9. The submarine MMM is executed by the Deputy Chief of Naval Resources (CNO) for Resources, Warfare Requirements and Assessments (N8), CNO Platform Sponsor (N87), the Director of Space and Information Warfare (N71), the Director of Supportability, Maintenance, and Modernization Division (N43), and the Deputy CNO Communications Networks (N6).
- Management of tasking and funding to ensure proper execution as defined by CNO Resource Sponsors, timely obligation and expenditure of budgeted funds, and maintenance of "full funding" and "annualization" policies as currently defined by the Comptroller of the Navy, Financial Management of Budgets (FMB), and higher authority

Systems Commands (SYSCOMs) (as applicable), Program Executive Officers (PEOs), and Fleet Type Commanders (TYCOMs) are responsible for financial management of the NMP efforts executed from their Commands. The Navy Data Environment (NDE) Logistics Application under NMP Reports and NMP Program and Execution Applications in NDE were developed to assist in accomplishing this objective.

This section of the NMP Management and Operations Manual provides an overview of the NMP financial management from cost estimating, to include budget formulation, to execution and collection of actual costs. Because Naval Sea Systems Command (NAVSEA) is responsible for coordinating the NMP activities of both NAVSEA and the PEOs, all references to NAVSEA or the NAVSEA SYSCOM, if not otherwise stated, will include the activities of the PEOs. In paragraph 4-1.2 general financial management rules and considerations will be discussed as they pertain to the NMP. SUBSECTION 4-2 will discuss initiation of Cost Benefit Analysis (CBA) for Phase I, II, IIa, and III. SUBSECTION 4-3 will discuss the MP for Surface Ships and Carriers. Section 9 will discuss initiation of Return on Investment (ROI) for submarine ship changes and the MMM.

4-1.2 Background

4-1.2.1 General

The modernization NMP objective is to provide a disciplined process to deliver operational and technical modifications to the Fleet in the most operationally effective and cost efficient way. It defines a standard methodology to plan, budget, engineer, and install timely, effective, and affordable shipboard improvements while maintaining configuration management and supportability.

4-1.2.2 Full Funding

In accordance with reference S4(a), Volume 2A, Chapter 1, DoD policy for Full Funding dictates that funds must be budgeted to cover the total life cycle estimated cost of a given procurement requirement in a fiscal year. A requirement budgeted in one fiscal year cannot depend upon a future year's funding to be completed. For the NMP, hardware costs must be fully budgeted in the fiscal year required and associated installation costs must also be fully budgeted in the fiscal year required. The required fiscal year of hardware procurement and the fiscal year of installation may be different in some cases.

The CBA should address all associated costs with a Ship Change (SC). This would include, but not be limited to, Engineering, Procurement, Installation, Integrated Logistics Support (ILS), and future Life Cycle Operation and Support costs.

4-1.2.3 Design Services Allocation (DSA) Funding Transition

During the Fiscal Year (FY) 1996 Summer Reviews FMB determined that budgeting for DSA costs related to procurement installations within the Operation and Maintenance, Navy (O&MN) appropriation weakened the relationship between procurement, design, and installation. Failure to fund DSA costs ultimately jeopardizes the installation of equipment. Therefore, FMB Issue 61494 (Fleet Modernization Program-Realignment) transferred DSA costs supporting procurement installations from the O&MN appropriation to the appropriate procurement appropriation beginning in FY 1998. This ensured full funding of all Hardware Systems Command (HSC) installation requirements within the procurement appropriations Other Procurement, Navy/ Aircraft Procurement, Navy/ Weapons Procurement, Navy (OPN/APN/WPN). All non-equipment installation DSA requirements remain funded in the O&MN appropriation.

The NMP will budget and execute DSA funds in accordance with the above.

4-1.2.4 Proration (Surface Ship only)

This paragraph provides the prorate process including:

- Defining common prorates, those prorates to be assigned to specific ship changes, and those TYCOM operational prorates (see paragraph 4-1.2.4.5)
- Providing a simple consistent method to divide those prorates between Program SCs and Fleet SCs, maintenance and repair items

- Providing a coast specific "Prorate Factor" used in NMP planning as part of the CBA of the Ship Change Document (SCD) to estimate installation cost of the SC. Paragraph 4-1.2.4.6 lists the Prorate Factors

4-1.2.4.1 Purpose

Prorate costs are the sum of all factors that support the ship and execution of ship maintenance and modernization. Examples include temporary services such as fresh water and electric power, rigging and crane services, scheduling and progressing, and guards/security water barriers. This section promulgates process guidelines for prorate item cost identification and distribution among the various SYSCOMs, Participating Acquisition Resource Managers (PARMs) and TYCOMs who own a share of the Ship CNO Availability work package. The process will ensure that prorate costs distribution rules are uniform, applied in a consistent manner and result in an equitable distribution of the costs. This will improve the work package definition, the Maintenance and Modernization Business Plan (MMBP) development and the depot level maintenance budget submissions to Congress.

4-1.2.4.2 Background

Prior to establishment of these business rules determining of what constituted a prorated item, what organization(s) would pay for the prorated item costs and what would be used as weighting factors to determine distribution shares was inconsistent and varied significantly between home port Regional Maintenance Centers (RMCs) and Multi Ship/Multi Option (MSMO) contractors within the home port RMC jurisdictions. As a result, prorate costs were rarely distributed equitably.

In addition to the inequitable cost distribution at the time of availability execution, the modernization planning process had no provision for specifically accounting for proration costs when computing alteration installation costs. Although a few experienced Ship Class Managers artificially increased the SC installation man-days to account for the proration costs, the more common result was failure to plan for the costs, with the end result being cancellation of installations due to inadequate funding.

4-1.2.4.3 Prorates in NMP Planning

As noted in the background discussion above, the inclusion of prorate cost estimates in maintenance and modernization planning has been inconsistent. In establishing prorate process rules, the Prorate Distribution Navy Modernization Cross Functional Team (CFT) 4 Barrier Removal Team (BRT) gathered availability return cost data from all the RMCs. The total costs of the availabilities were compared to the costs of the prorates to establish the historical average prorate percentage prorates represented in the total availability costs. This "Prorate Factor" is incorporated into the NMP.

Upon completion of each availability, the availability completion report to update NDE cost estimates and the next fiscal year business plan. A disciplined prorate distribution process, coupled with updates to the NDE database and the business plan will help financial planning and reduce cost surprises both before and during availability execution.

4-1.2.4.4 Milestones

Figure S4-1 summarizes the steps in arriving at an equitable distribution of prorate costs.

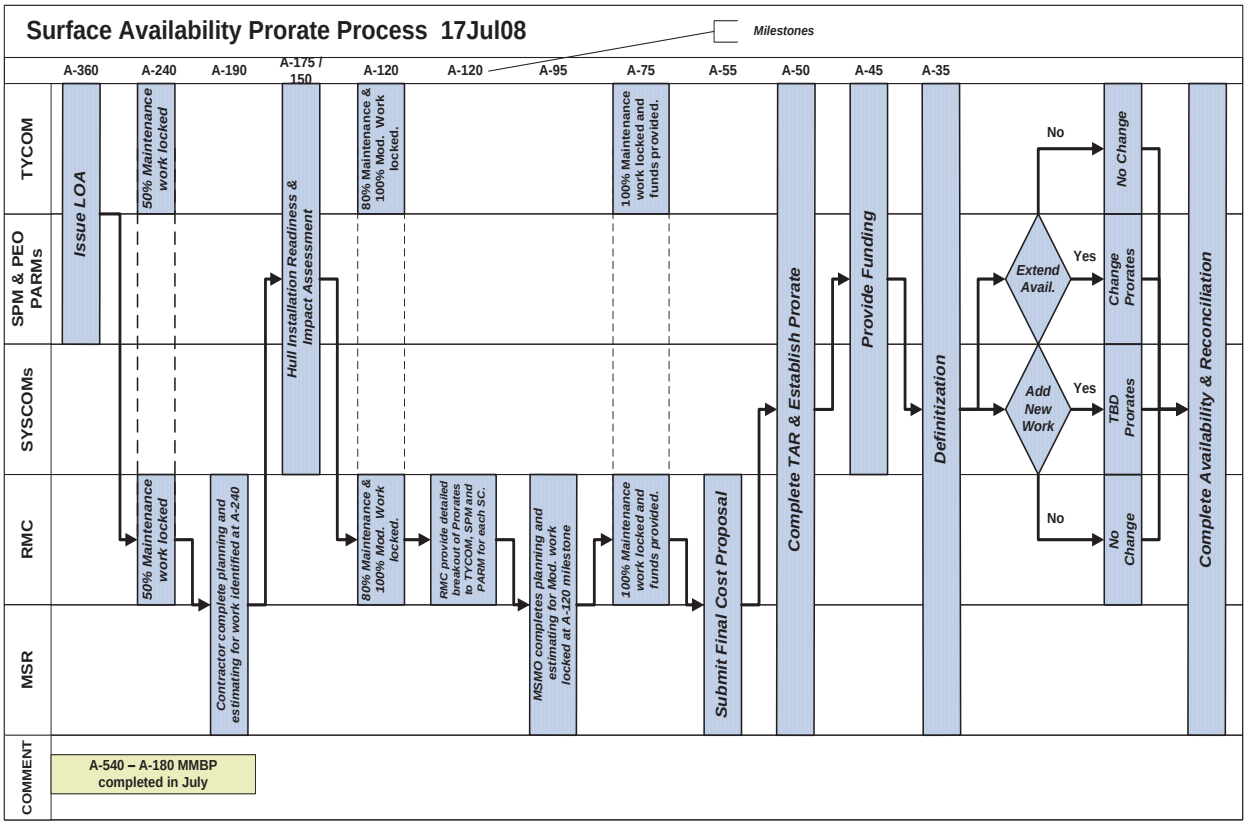


Figure S4-1 Prorate Distribution Process

a. <u>July prior to execution fiscal year:</u>
RMC issues the MMBP for the next fiscal year. This is the baseline for prorate distribution. The TYCOM input to the MMBP provides the total dollars budgeted for the Fleet modernization, maintenance and repair for each availability. The Program modernization input to the MMBP is the Extended Planning Hull Maintenance Plan (EHMP) which provides man days and material costs for each scheduled SC. The RMC multiplies the current port man-day rate by the total number of program man days, by appropriation, to provide total shipyard "installation dollars" for Program modernization. The proportion of TYCOM dollars and Program dollars relative to the total dollars provides the percentage of the common proratable costs assigned to TYCOM and Program, respectively. Note: The total dollars used to determine the prorate percentages do not include item specific services, growth or award fees. For SCs executed by an Alteration Installation Team (AIT), resource requirements will include anticipated cost of temporary services, cost of material and direct services requested to support the SC.

b. <u>In accordance with NMP milestones, Appendix G of this manual, at:</u>
<u>A-360:</u> TYCOM/PEO SHIPS issues Letters of Authorization (LOA) for all modernization.

A-240: The work package that began definition at A-360 is further refined with a 50% lock on maintenance and repair items. The RMC provides a list of expected prorated items, with work item numbers assigned, using paragraph 4-1.2.4.7 for guidance, for all authorized Program and Fleet modernization and TYCOM maintenance and repair items.
A-120: All SCs listed in the LOA, except ST1 and ST2 SCs, are mature, impact approved, or removed from the LOA (Programmed but not Authorized SCs will be removed at this time). This locks the prorate distribution percentages. Note: This lock requires that there has been no change to the original budget of the MMBP and the budgeted TYCOM maintenance and repair dollars. This milestone obligates the cost of prorates based on the locked LOAs and MMBP budget inclusive of the Fleet modernization, maintenance and repair package. A detailed cost breakdown of prorate charges will be provided by the RMC to the cognizant TYCOM, Ship Program Manager (SPM), or PM/PARM for each SC.
After A-120:
If Fleet or Program modernization work is removed from the availability work package, the SC owner is still responsible for payment of the actual reasonable costs incurred, as of the date of the withdrawal, on execution planning for their alteration. If, in the event a SC owner declines to comply with paying these charges, payment of the delinquent charges may be a prerequisite for adding the SC to the LOA for the next availability for which the SC is programmed. If new modernization work is added after A-120 the activity requesting the SC will incur all additional prorate costs generated as a result of the additional work.
A-75:
Funding is requested from the participating activities. The Naval Supervising Activity (NSA) must receive funding no later than A-45 to support definitization.
A-35:
The modernization, maintenance and repair package is definitized.

c. Availability is Extended. The additional prorate requirements are paid for by the party(ies) causing the extension.

d. Large Increases due to Growth. Once the originally planned growth pool is expended, increases that exceed 2% of the total work package costs will result in reallocation of prorates.

As the NMP milestone process matures with empirical experience, there may be revisions to the timelines listed above. The goal will be to complete critical steps earlier with the objective of locking the prorate distribution percentages earlier in the process.

4-1.2.4.5 Responsibilities

The Life Cycle Manager (LCM)/ SPM is responsible for the planning, budgeting, and execution of the NMP approved Program SCs.

The TYCOM is responsible for the planning, budgeting, and execution of NMP approved Fleet SCs.

The RMC is responsible for the MMBP and the division of the prorate percentages between Fleet and Program based on the business rules herein.

4-1.2.4.6 Prorate Factors

The prorate factor is used in the budget process for modernization, repair and maintenance in order to ensure adequate funding for planned work.

The following Prorate factors may be applied to total estimated ship repair cost to forecast the portion of total cost for the "Prorate" effort if the actual industrial support services costs are unknown. These factors are based on data from selected Departure Reports for ship repairs completed in 2003 – 2005 and are subject to periodic updates.

	Prorate Factor		
	East coast	West coast	Navy-wide Average
All Prorate work	33%	33%	33%

4-1.2.4.7 Prorate Items with Explanations

The following items may be shared by all parties participating in the availability. The share will be based upon installation man-days. The man-days will be the sum of Prime MSMO, Prime Subcontractor and AIT man-days for each maintenance or modernization work item. These are then sub-totaled to arrive at the equitable distribution weight for each participating organization. If the total man-days for an AIT work item is less then 2% of the total work package, then the AIT will not be assigned a share of the prorates. Each service cost item to be shared is listed below followed by a brief description.

- **Production Planning (813-10-XXX):** The MSMO contractors are required to develop and maintain an integrated production plan for the availability. The plan integrates all repair and modernization work, including AIT work items. All parties gain benefit from the plan which assists in man-hour and material planning for the MSMO contractor as well as the repair and PARM managers. AITs will not be included in the share of prorates for this item
- **Temporary Services (863-50-XXX):** These include ventilation air, compressed air, fire main, cooling water, potable water, shore power, sewer connections and welding leads as examples. These items benefit all and are appropriate for equitable sharing
- **Housekeeping (864-90-XXX):** Housekeeping includes trash disposal, deck coverings, post workday tidying and final cleaning during the compartment closeout process. Every participant benefits from this service
- **Integrated Test Plan (894-90-XXX):** The Integrated Test Plan (ITP) is closely associated with the Production Plan. The ITP benefits every participating repair and modernization manager by showing when they can expect various equipments and services to be ready for use and when their own equipment must be ready for testing. Examples include ship's power which must be available to complete combat systems testing

- **Program Management (897-00-XXX):** Every MSMO contractor has a small staff which manages the overall availability. These include the availability manager and principal assistants. Every participant benefits from this team

The costs of the following will be charged to the individual work items.

- **Provisioning Technical Documentation (PTD) (830-21-XXX):** PTD is the source document notifying the Supply System that new equipment is being installed on the ship. PTD typically arises from a modernization installation or in repair cases where original equipment is beyond repair, or repair parts are not available, and a substitute must be installed. In all cases the PTD is generated for an individual work item and will be charged accordingly
- **Waterfront Liaison Engineering Services (WLES) (838-10-XXX):** WLES is typically required when the Ship Change Installation Drawings (SIDs) for a modernization installation have an error or there are interferences not accounted for in the SIDs. It is also possible to need WLES if there are deteriorated structural members/sections which must be analyzed to see if replacement is mandatory or advisable. In all cases the work is tied to an individual work item
- **Test Memorandum Development (841-10-XXX):** This item is for individual work item testing as compared to the total ship Integrated Test Plan which is shared by all. The individual Test Memoranda are charged to the respective work items
- **Technical Support (861-00-XXX):** This is technical support such as OEM on-site assistance provided for individual work items. In all cases the support is charged to the individual work item
- **Condition Report Estimating (862-30-XXX):** Condition reports are typically required for "open and inspect" repair items and for emergent requirements during a modernization installation. In all cases the cost will be assigned to the individual work item
- **Dry docking (863-40-XXX):** Dry docking may be required for maintenance of the hull or underwater appendages or there may be needs for access cuts low on the hull to install modernization items. Unlike most of the items in this section, the costs will typically not be charged to a single work item. It is much more likely that the costs will be distributed between parties that require use of the dock. The equitable distribution weight factor will be man-days
- **Hazardous Waste Disposal (863-50-XXX):** This item is tied to specific work items. Examples include asbestos from propulsion space piping replacements. Lead abatement when sand or water blasting or doing preparations for welding. In all these cases charging the cost to an individual work item is appropriate
- **Temporary Access Cuts (863-60-XXX):** In many cases the cuts are for general access to reduce time to get both people and equipment in and out of high intensity work areas such as main machinery spaces. These cases will probably be charged to the Type Commander. In other cases, cuts must be made for a specific repair or modernization work item and they will be charged accordingly
- **Gas Free and Maintenance of Gas Free (864-42-XXX):** The requirement to gain access to a tank or void is usually job specific and will be charged to the individual work item. Exceptions will be evaluated on a case-by-case basis

- **Crane Services (865-20-XXX):** The crane services requirement will be estimated and assigned to individual work items that require the service
- **Rigging Services (865-30-XXX):** This is for rigging for the cranes and is assigned to individual work items
- **Material Handling (865-20-XXX):** This charge is for the "yellow gear" forklifts that support material handing on the pier, dock or main deck of the ship. The cost is assigned to individual work items that require the service
- **Fire watch Services (865-70-XXX):** The fire watch personnel are estimated and assigned to individual work items
- **QA Support (866-20-XXX):** In keeping with ISO 9000, each MSMO contractor maintains its own QA. The cost of QA will be assigned to individual work items
- **Production Supervision (897-00-XXX):** Every MSMO contractor has a small staff which manages the accomplishment of repairs and the installation of the alterations. The costs will be assigned to the appropriate work items

The Type Commander will pay for the following items:

- **Armed Security Guards and Waterway Security Barrier (042-27-XXX):** The security guards and the water barrier are designed to stop terrorist attacks similar to the events at the Marine Barracks in Beirut and the small craft attack upon USS Cole. The security guards are supported by land and water obstacles which are designed to stop unauthorized vehicles and boats from approaching the ship
- **Compartment Closeout Schedule (813-00-XXX):** The Compartment Closeout Schedule (CCOS) is developed in conjunction with the Production Plan. The CCOS shows when each of the ship compartments will be completed in every respect. This includes all work as well as painting, labeling and final cleaning. The closeouts are usually done by a team of MSMO and Navy (civilian and/or military) personnel who sign the closeout form
- **Weight and Moment Change Data (843-10-XXX):** Every significant availability requires compilation of weight and moment (W&M) changes to ensure long term damaged stability of the ship is maintained. Though many repair items, and some modernization alterations, have negligible impact upon weight and moment, it is impractical to try to fractionalize the W&M costs to individual jobs
- **Ship's Force Parking (863-70-XXX):** Self explanatory
- **RMC Office Space (863-70-XXX):** When the Type Commanders assumed responsibility for the repair RMCs, the cost of personnel and spaces became a Type Commander responsibility
- **Cleaning and pumping bilges and maintenance of the oil boom (864-42-XXX):** This is a ship housekeeping item that is properly charged to the ship/Type Commander
- **Light Off Assessment (868-30-XXX):** This funding is for correction of items or assistance to ships force in preparation for the LOA
- **Dock Trial/Fast Cruise (868-40-XXX) and Sea Trials (868-50-XXX) :** Self explanatory
- **Work Authorization Forms (WAFs) (897-00-XXX):** The WAF formally documents the work scope to be performed, establishes a schedule, provides a cost estimate, identifies a responsible person for accomplishing the work, and provides time phased cost & manpower profiles
- **Temporary Staging For Ship's Force Use (991-12-XXX):** Self explanatory

SUBSECTION 4-2 SCD Cost Benefit Analysis (CBA)

4-2.1 Background

The CBA process ensures all appropriate cost data is collected in a single, authoritative database (NDE) in order to support the decision making process and correctly quantify the return on investment and payback period as well to establish requirements for budgets to support development and installation of changes. Submarine Force modernization is exempt from this Subsection. The Submarine Force modernization program will use Return On Investment (ROI) methodology in accordance with Section 9 for all changes projected to provide a reduction in cost and will continue to utilize historical returns in the process of developing and submitting POM proposals.

4-2.2 Overview of the CBA Process

Cost data, which may be readily available from existing DODI 5000.2 acquisition process resources such as the Independent Cost Estimate and Life-Cycle Cost Estimate, is provided by the Initiator (the Submitter may also provide cost data, if known, in the Cost Structure Worksheet (CSW)). Viewing of this business-sensitive cost data is restricted to the Initiator/Submitter, CBA reviewers, and the Decision Board members. Other personnel may only be given access to this data on a case by case basis dependent on need.

The CSW addresses four key areas of cost: (1) investment costs, (2) funding line/appropriation identification, (3) projected savings and cost avoidance, and (4) the installation fielding plan. An embedded algorithm within the CSW calculates the Net Present Value (what the SC is worth in today's inflation-adjusted dollars), the Return on Investment (expressed as a ratio of how much is projected to be returned for every dollar invested), and the Payback Period (expressed as the number of years it will take to recover the investment or "break even"). As the SC progresses through each Decision Point (DP), more refined cost data is entered commensurate with the maturity of the change. A separate CSW is completed for each Phase of the process. Each CSW is further sub-divided into five sub-sections: Concept Development, Preliminary Engineering, Detailed Design, Procurement, and Installation. Finally, actual costs are captured during the development and execution phases of the SC to further refine estimating practices.

The PARM is responsible for all aspects of the contract vehicle with AITs who install ship changes on their behalf. Therefore, in accordance with Business Rule 310 (“Feedback: Cost, CM, Performance, Schedule, ILS from Initial or Follow-On Install”) of Appendix D, the PARM is responsible for providing AIT Return Cost information. As data is entered/updated in the SCD CSW for each phase, the PARM shall ensure that actual costs for each completed phase are entered in the corresponding column of the CSW. This will provide a means of comparison between the estimated and actual (expended) cost of each item across phases. Additionally, in accordance with the Contract Data Requirements List (CDRL) requirements of the MSMO contracts for each availability, an “actual” return cost will be provided, identifying the cost of installing each SC, at the end of each availability. The PARM shall be responsible for seeing this cost is entered by the Submitter into the CBA CSW in the “actual” cost cell provided for that purpose. Also, the return costs (labor and material) will be provided via the Completion Report. The execution return costs will be used to adjust the MP, if required.

4-2.3 Initiate SCD CBA

These paragraphs provide the Initiator/Submitter with a step-by-step process for preparing the CBA CSW portion of the SCD. There is one CSW for each of the three phases of the NMP with each subsequent phase requiring increasingly detailed cost estimates for a SC.

4-2.3.1 Phase I

4-2.3.1.1 General Guidance

In Phase 1 preliminary design costs are captured in the CBA CSW.

This guidance refers to the CBA CSW for the NMP SCD for Phase I. In the first phase of the NMP, these cost estimates are broad, high-level cost estimates that may become summary level categories comprised of sub-categories later in the NMP.

The total cost contained in the CBA Phase I is expected to have an accuracy margin of +/- (plus or minus) 40% total SCD value.

For more detailed information on Phase I, see Appendix A of this manual.

4-2.3.2 Phase II

4-2.3.2.1 General Guidance

This guidance refers to the CBA CSW for the NMP SCD for Phase II. The Initiator/Submitter (herein referred to as “user”) will use Phase I high-level cost estimates as a basis for completing the second phase of the NMP. The Phase I values will not all automatically carry over to the next phase because some Phase I cost estimates have changed to summary level categories comprised of sub-categories. For Phase II, estimates are now required for the sub-categories. The user will be required to enter more detailed information into the Phase II CSW. The Submitter should record actual costs incurred during Phase I prior to submission into Phase II.

The total cost contained in the CBA Phase II is expected to have an accuracy margin of +/- (plus or minus) 25% total SCD value.

For more detailed information on Phase II, see Appendix A of this manual.

4-2.3.3 Phase IIa/III

4-2.3.3.1 General Guidance

This guidance refers to the CBA CSW for the NMP SCD for Phase IIa/III. The user will use Phase II cost estimates as a basis for completing the third phase of the NMP (for Phase III only). The Phase II values will not all automatically carry over to the next phase because some Phase II cost estimates have changed to summary level categories comprised of sub-categories. For Phase IIa/III, more detailed estimates are now required for the sub-categories. The user will be required to enter more detailed information into the Phase IIa/III CSW. The Submitter should record actual costs incurred during Phase I/II prior to submission into Phase II(a)/III.

The total cost contained in the CBA is expected to be within an estimated margin of +/- (plus or minus) 10% total program value.

For more detailed information on Phase IIa/III, see Appendix A of this manual.

4-2.4 Special Circumstances

The following paragraph s detail information required in the CBA with respect to the below identified special circumstances.

4-2.4.1 SCD Moved to Inactive Status

When a SCD is in a status of post DP 2 through Phase V and a Decision Board determines that the SCD is to be permanently removed from the MP, the SCD will be returned to the Submitter via the Rework process (as defined in Section 3 of this manual) for CBA updates to reflect any and all required closeout costs. The following are examples to depict the type of information that will be required based on what phase the SCD is in at the time of recommended removal from the MP:

- Phase II
  - Costs to close out the SCD could include:
    - Total costs incurred to date (sunk costs)
- Phase II(a)/III
  - Costs to close out the SCD could include:
    - Total costs incurred to date (sunk costs)
    - Any contingent liabilities (i.e. Leases, outstanding contract obligations/expenditures, etc…)
    - Any costs required to return the ship's configuration to its approved baseline
- Phase IV
  - Costs to close out the SCD could include:
    - Total costs incurred to date (sunk costs)
    - Any contingent liabilities (i.e. Leases, outstanding contract obligations/expenditures, etc…)
    - Life cycle costs to support any installations that were not removed from a ship as part of the SC development or estimate to remove the installation to return the ship's configuration to its approved baseline. Note: The Decision Board that is returning the SCD may ask for one or both of the above stated options at their discretion
- Phase V (Currently not supported in EP software)
  - Costs to close out the SCD could include:
    - Total costs incurred to date (sunk costs)
    - Any contingent liabilities (i.e. Leases, outstanding contract obligations/expenditures, etc…)
    - Life cycle costs to support any installations that were not removed from a ship as part of the SC development or estimate to remove the installation to return the ship's configuration to its approved baseline. Note: The Decision Board that is returning the SCD may ask for one or both of the above stated options at their discretion.

4-2.4.2 SCD Moved from Inactive to Active Status

When an SCD is going to be presented to the Decision Boards for reactivation, the Submitter will update the information contained in the CBA to reflect current estimated cost to complete based on whatever DP had placed the SCD into an inactive status. The request for reactivation must come from the TYCOM or Office of the Chief of Naval Operations (OPNAV) Resource Sponsor to the process administrator (SEA 04RP) to be brought before the Board for a vote.

The SCD will then follow the normal processes as identified in Section 3 of this manual.

SUBSECTION 4-3 Modernization Plan (MP)

4-3.1 General

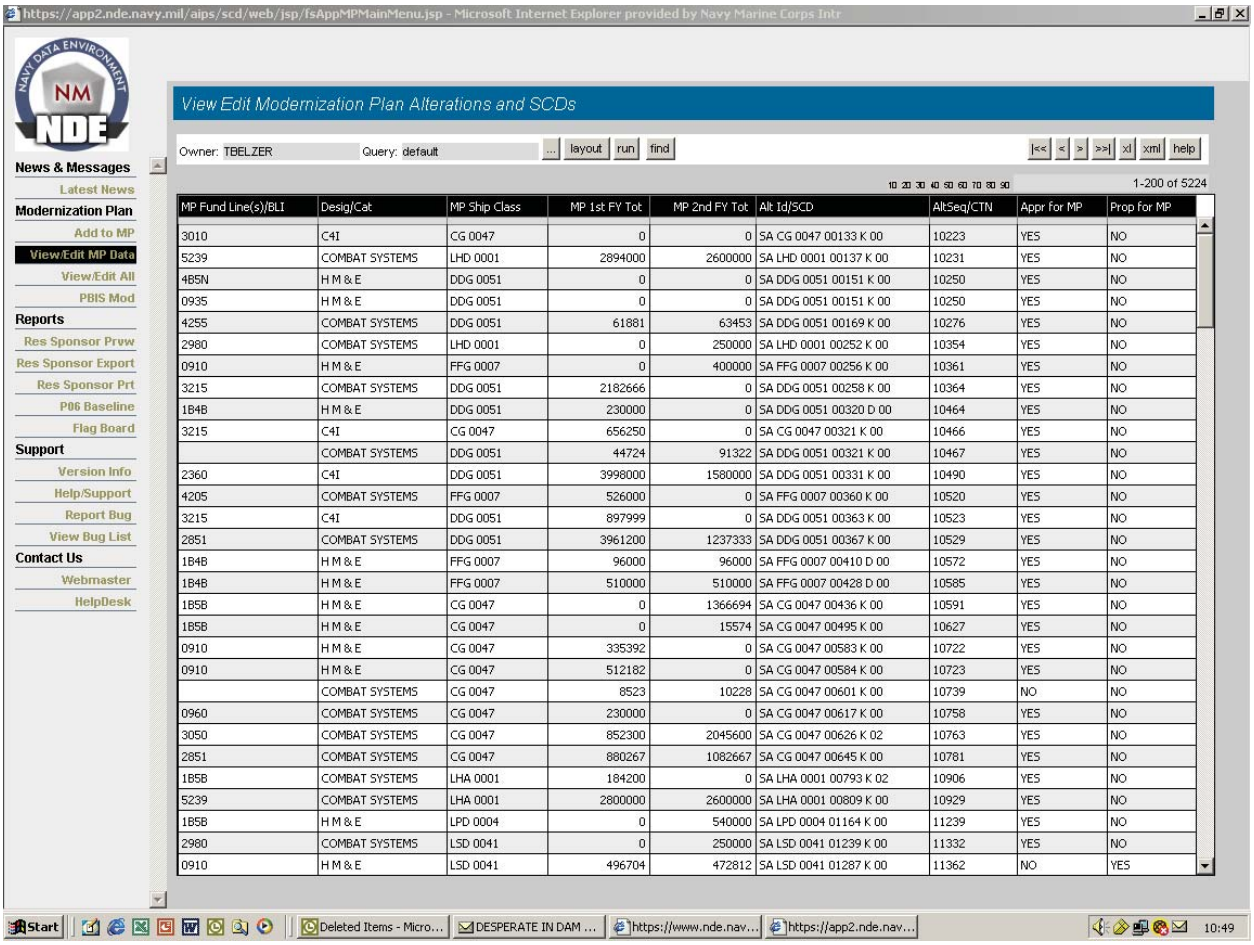
Submarine Force modernization is exempt from this Subsection. For the Submarine modernization program, the Minimum Modernization Matrix (MMM) as forwarded annually by the Prioritized Undersea Enterprise (USE) Requirements Letter (PURL), fulfils the function of the Modernization Plan. All submarine program planning, budgeting, and execution is accomplished within the context of the MMM/PURL (See Section 9).

The Surface Ships and Carriers MP resides within NDE. SCDs will be processed in the MP in the following manner:

- All SCDs that have completed their first DP will be added to the MP. (Note: The 3 Star Decision Board has final approval for the MP)
  - SCs approved would then have the MP flag changed to 'Yes', the Proposed Modernization Plan (PMP) flag changed to 'No', the STATUS DATE changed to the date of the Decision Board approval and the REVIEW BOARD field would be changed to the appropriate Decision Board
- The system will update the SCDs MP information in the following manner:
  - Any SCDs that are inactivated will be removed from the MP. Any SC(s) conjunctive to the one removed should be re-evaluated by the Board prior to making it inactive due to loss of conjunctivity. The Submitter(s), as well as the Resource Sponsor(s) of the previously conjunctive SC(s), will be notified that the previously approved SCD(s) will be presented to the Board for reconsideration
  - Any approved updates to the SCD CBA data will be incorporated into the MP

4-3.2 Adjustments to the MP

Modifications to the MP can only be made with the appropriate Decision Board approval.



MP Fund Line(s)/BLI	Desig/Cat	MP Ship Class	MP 1st FY Tot	MP 2nd FY Tot	Alt Id/SCD	AltSeq/CTN	Appr for MP	Prop for MP
3010	C4I	CG 0047	0	0	SA CG 0047 00133 K 00	10223	YES	NO
5239	COMBAT SYSTEMS	LHD 0001	2894000	2600000	SA LHD 0001 00137 K 00	10231	YES	NO
4B5N	H M & E	DDG 0051	0	0	SA DDG 0051 00151 K 00	10250	YES	NO
0935	H M & E	DDG 0051	0	0	SA DDG 0051 00151 K 00	10250	YES	NO
4255	COMBAT SYSTEMS	DDG 0051	61881	63453	SA DDG 0051 00169 K 00	10276	YES	NO
2980	COMBAT SYSTEMS	LHD 0001	0	250000	SA LHD 0001 00252 K 00	10354	YES	NO
0910	H M & E	FFG 0007	0	400000	SA FFG 0007 00256 K 00	10361	YES	NO
3215	COMBAT SYSTEMS	DDG 0051	2182666	0	SA DDG 0051 00258 K 00	10364	YES	NO
1B4B	H M & E	DDG 0051	230000	0	SA DDG 0051 00320 D 00	10464	YES	NO
3215	C4I	CG 0047	656250	0	SA CG 0047 00321 K 00	10466	YES	NO
	COMBAT SYSTEMS	DDG 0051	44724	91322	SA DDG 0051 00321 K 00	10467	YES	NO
2360	C4I	DDG 0051	3998000	1580000	SA DDG 0051 00331 K 00	10490	YES	NO
4205	COMBAT SYSTEMS	FFG 0007	526000	0	SA FFG 0007 00360 K 00	10520	YES	NO
3215	C4I	DDG 0051	897999	0	SA DDG 0051 00363 K 00	10523	YES	NO
2851	COMBAT SYSTEMS	DDG 0051	3961200	1237333	SA DDG 0051 00367 K 00	10529	YES	NO
1B4B	H M & E	FFG 0007	96000	96000	SA FFG 0007 00410 D 00	10572	YES	NO
1B4B	H M & E	FFG 0007	510000	510000	SA FFG 0007 00428 D 00	10585	YES	NO
1B5B	H M & E	CG 0047	0	1366694	SA CG 0047 00436 K 00	10591	YES	NO
1B5B	H M & E	CG 0047	0	15574	SA CG 0047 00495 K 00	10627	YES	NO
0910	H M & E	CG 0047	335392	0	SA CG 0047 00583 K 00	10722	YES	NO
0910	H M & E	CG 0047	512182	0	SA CG 0047 00584 K 00	10723	YES	NO
	COMBAT SYSTEMS	CG 0047	8523	10228	SA CG 0047 00601 K 00	10739	NO	NO
0960	COMBAT SYSTEMS	CG 0047	230000	0	SA CG 0047 00617 K 00	10758	YES	NO
3050	COMBAT SYSTEMS	CG 0047	852300	2045600	SA CG 0047 00626 K 02	10763	YES	NO
2851	COMBAT SYSTEMS	CG 0047	880267	1082667	SA CG 0047 00645 K 00	10781	YES	NO
1B5B	COMBAT SYSTEMS	LHA 0001	184200	0	SA LHA 0001 00793 K 02	10906	YES	NO
5239	COMBAT SYSTEMS	LHA 0001	2800000	2600000	SA LHA 0001 00809 K 00	10929	YES	NO
1B5B	H M & E	LPD 0004	0	540000	SA LPD 0004 01164 K 00	11239	YES	NO
2980	COMBAT SYSTEMS	LSD 0041	0	250000	SA LSD 0041 01239 K 00	11332	YES	NO
0910	H M & E	LSD 0041	496704	472812	SA LSD 0041 01287 K 00	11362	NO	YES

Figure S4- 2 Modernization Plan (MP)

SUBSECTION 4-4 GENERAL FINANCIAL MANAGEMENT CONSIDERATIONS

4-4.1 Scope

These paragraphs review the major financial management policies and procedures which affect administration of the NMP. While these factors relate to Navy financial management in general, the discussion will be from the perspective of the NMP. Those financial management policies and procedures will be discussed in SUBSECTION 4-5.

4-4.2 NMP Appropriations

The NMP is currently funded by the OPN, WPN, APN, RDT&E, SCN, MDA, and O&MN appropriations. Details of NMP component funding by these appropriations, as well as unique NMP appropriation circumstances and rulings, are defined in SUBSECTION 4-5 of this manual. References S4(a) and S4(b) describe these appropriations in detail, and are the principal financial management references for all SYSCOM accounting.

4-4.3 Legal Constraints

The controlling factors in the management of all appropriated funds, including the NMP, are 31 U.S.C. 1301(a) (formerly R.S.3678) and 31 U.S.C. 1517 (formerly R.S. 3679). These laws require adherence to two very basic principles: funds may only be obligated and/or expended for purposes for which they were specifically appropriated; and, secondly, they may not be obligated and/or expended in excess of the amounts appropriated. References S4(a) and S4(b) apply.

- To ensure adherence to the first principle (31 U.S.C. 1301 (a)), once a budget has been approved by Congress and the President, efforts must be funded as budgeted within the respective appropriation, be in compliance with the unique requirements of that appropriation, must meet the expense/investment criteria, and must be issued under the most appropriate document for the job. Changes to the budget must be approved, at a minimum, by the CNO sponsor or their designated agent (i.e. LCM/PARM and/or SPM), and must remain within the context of the approved budget. Congress recognizes the need to adjust the program for fact-of-life changes or revised priorities. CNO is, therefore, permitted to revise the scope of work provided that an audit trail of all additions and deletions is maintained for subsequent review
- To ensure adherence to the second principle (31 U.S.C. 1517), obligations and expenditures must be limited to the amount of money authorized in the budget and/or in funding documentation issued for execution. The SYSCOM Comptroller offices, using the Standard Accounting and Reporting System (STARS)/Headquarters Claimant Module (HCM) and, in the case of NAVSEA, also utilizes the NDE Execution Module, review all funding documentation to ensure that obligations do not exceed approved, budgeted amounts prior to signature and release of funds outside their Commands. Where cost estimates exceed these amounts, reprogramming actions may be issued to increase obligation authority, within reprogramming thresholds. Control of potential cost increases is discussed further in paragraph 4-4.5, Limitations of Liability

4-4.4 Bona Fide Need Rule

This rule applies to all one-year and multiple-year appropriations, and requires that obligations be made only to meet a legitimate need arising in the FY obligation period for which the appropriation was made. References S4(a) and S4(b) discuss this further.

4-4.5 Limitation of Liability

Navy policy states that neither the Planning Estimate shown on the official funding documentation can be exceeded nor work that will eventually exceed the Planning Estimate be undertaken, without prior approval by the SYSCOMs. Planning Estimates allow the accomplishing activity to make an informed decision on whether to begin or continue work, balancing the benefits with the latest projected cost of the work and the potential for non-completion within authorized limits. In any cases, SYSCOMs will not be liable for work undertaken which results in overruns unless advised of increased anticipated cost as soon as the possibility for such increase is apparent. It is recognized that unusual circumstances beyond direct control of the performing activity may cause the costs to exceed the planning estimate. The unusual circumstances include, but are not limited to:

- Acts of God
- Strikes
- Incorrect design products or technical guidance received from external sources
- Non-receipt or substitution of material for that listed on official NDE-NM TP-05 Report, or NDE-NM 4720 Report, which causes a disruption in design and/or production schedules

In such cases, the SYSCOM and/or CNO are to be advised immediately of the potential for additional expense, including an assessment of the increased cost to complete assigned tasks and alternatives, if additional funds cannot be made available.

4-4.6 FY 1991 National Defense Authorization Act (Public Law 101-510)

This act (previously known as "M" account funding) significantly changes the financial management of appropriations after expiration of their period of availability for obligation. In summary, upon expiration of obligation authority of an appropriation, the appropriation will maintain its FY identity for five more years during which time un-obligated balances will be available for legitimate “within scope” obligation adjustments (i.e. cost overruns) as well as disbursement. “New Scope” obligations and expenditures may not be incurred. On September 30th of the fifth FY after obligation authority expiration, the expired account is closed and all unobligated and unexpended balances cancelled. Disbursement of legitimate obligations after this date must come from current appropriated FY funds which would require a reduction or cancellation of current-year program. Within the context of the NMP, there exists potential for these circumstances when Requests for Equitable Adjustments and other NMP financial obligations incurred in shipyard availabilities are not resolved/adjudicated within the five-year period. Reference S4(a) describes this policy in more detail.

4-4.7 Prohibition of Modernization of Ships to be Inactivated (Public Law 105-56)

The FY 1998 DOD Appropriations Act (Public Law 105-56 Title VIII, Sec 8053) prohibits Navy ship modernization within five years of ship inactivation, with the exception of certain safety modifications. Details on the SECNAV Waiver process can be found in Section 1-7 of this manual.

SUBSECTION 4-5 SPECIAL NMP FINANCIAL MANAGEMENT CONSIDERATIONS

4-5.1 Scope

These paragraphs describe the major financial management considerations that are peculiar to the financial structure and execution of the NMP.

4-5.2 Current NMP Financial Structure

- Hardware Systems Command (HSC) procurement and installation requirements, including advance planning and design, are budgeted and executed within the OPN, WPN, or APN appropriations. These funds are controlled at the Budget Line Item (BLI) level and have a three-year availability for new obligations. Availability of funds beyond the three years are discussed in paragraph 4-4.6 in accordance with reference S4(a)
- Non-equipment installation requirements, including advance planning and design, are budgeted and executed within the NMP O&MN appropriation. These funds are controlled at the Activity Group (AG)/Sub-activity Group (SAG) and subhead level, and have a one-year availability for new obligations. Availability of funds beyond the one-year are discussed in paragraph 4-4.6 in accordance with reference S4(a).

4-5.3 Major NMP Cost Components Requiring Funding

There are five separate components into which all NMP costs can be categorized. These NMP financial management components are:

- Procurement of HSC material to be installed in ships as part of NMP modernization efforts.
- Installation of Program SCs in scheduled depot level availabilities. These costs include but are not limited to:
  - Labor and overhead
  - Procurement of incidental material at public shipyards
  - Common availability costs shared with the TYCOMs (Prorated Costs)
  - Combat systems hardware and computer system testing and integration
  - In the private sector, the cost of change orders issued by Supervisors of Shipbuilding, Conversion and Repair (SUPSHIPs) to modify basic contracts for within-scope changes or for work added to an ongoing availability; and, other availability support costs as determined by the SPM
- Advance Planning Funding. This is the portion of the Program SC installation funding that must be provided to the installation activity (and other activities) in FYs preceding the induction of the ship in the installation availability. These costs include but are not limited to:
  - Prefabrication of Program SCs
  - Issuance of plans and job orders
  - Identification of required incidental material
  - Procurement of incidental material

- DSA Funding. The NMP funds SC design products and certain configuration control document changes and efforts required prior to, during, and/or after SC installations. Although each CNO Platform Sponsor may include different sub-elements/tasks within this component, the most common, major items are listed below.
  - SID
  - Ship-check
  - Liaison Action Records (LAR)
  - Ship Selected Record (SSR)
  - Configuration Overhaul Planning (COP)
  - Miscellaneous Documentation Services (MDS)
- AIT and Program Support: Funding for AIT programs is comprised of advance planning, design and installation requirements. Program Support includes all non-installation execution support of the NMP and is typically in support of ship "class" requirements (i.e. NDE databases and Cost and Feasibility Studies).

4-5.4 Matching NMP Financial Requirements in the Budget to the NMP Financial Structure

4-5.4.1 Procurement of Hardware Systems Command (HSC)

Requirements for HSC procurements are a direct result of approved Program SC installation plans in the NDE Program Module. The LCM/PARM is responsible for estimating and budgeting procurement costs, coordinating timing of procurement buys with the SPM to match installation schedules, negotiating the award of the actual procurement, and ensuring delivery of the equipment to the shipyard. LCMs/PARMs must budget HSC procurements in the proper BLI of the OPN, WPN, or APN appropriation and provide budget displays that show matches of HSC procurements with specific installations.

4-5.4.2 Installation of Program SCs in Depot Level Availabilities

The SPM is responsible for estimating the installation man-days required for all SCs applicable to ship classes under that SPM's purview. Conversely, budgeting and execution of installation requirements in availabilities is accomplished by the SPM or LCM/PARM, depending on who owns acquisition responsibilities of the SC. LCM/PARM funding, for issuance under a NAVSEA contract, is forwarded to NAVSEA for execution. All other funding within their budgets is executed from their organizations. There are two types of SCs installed during Depot Level availabilities; those requiring HSC and those that do not.

4-5.4.2.1 Ship Changes (SCs) Requiring HSC

These installation requirements must be budgeted in the same OPN, WPN, or APN BLI as the parent HSC procurement in accordance with annualization policy currently defined by the Comptroller of the Navy, FMB and higher authority. The installation, advance planning, and design requirements are to be budgeted in the FY in which the efforts commence.

4-5.4.2.2 SCs Requiring No HSC

These installation requirements are funded within the O&MN appropriation under NAVSEA's "Mod Support" NMP AG/SAG and must be budgeted in accordance with annualization policy currently defined by the Comptroller of the Navy, FMB and higher authority. The installation, advance planning, and design requirements are to be budgeted in the FY in which the efforts commence.

4-5.4.3 Advance Planning of Program SCs in Depot Level Availabilities

The SPM is responsible for estimating the advance planning man-days required for all Program SCs for ship classes under their cognizance. Conversely, budgeting and execution of advance planning is accomplished by either the SPM or LCM/PARM depending on who owns acquisition responsibilities of the SC. Advance planning may be budgeted two years prior and/or one year prior to a SC's installation. Advance planning supporting the installation of HSC must be budgeted in the same OPN/WPN/APN BLI as the parent HSC buy and in the year the advance planning effort is to commence. Advance planning supporting non-equipment installations must be budgeted in the O&MN appropriation for the year the effort is to commence.

4-5.4.3.1 Advance Planning Algorithm

The Advance Planning algorithm is utilized for budget purposes in the NDE Program Module. Advance planning requirements for Program SCs are defined in total man-days, by the SPM in the NDE Program Module, based upon the generic requirements of the SC in the class. Once a SC is programmed against a shipyard availability in the NDE Program Module, the algorithm spreads the advance planning man-days at A-720 (two years prior to the availability start) and/or A-360 (one year prior to the availability start) based on an agreed upon percentage determined by the SPM and approved by the Sponsor. Funding required is then calculated based on the number of man-days times the man-day rate. The algorithm may differ between SPM programs and can be changed with Sponsor approval. The advance planning algorithm for AIT installations is described in paragraph 4-5.4.5.

4-5.4.4 Design Services Allocation (DSA)

The submitter is responsible for estimating DSA man-day requirements for all SCs as a part of the CBA. Conversely the data for Program Changes from the MP will be rolled into the NDE Program Module for budgeting by the SPM. Execution of DSA is the responsibility of the SPM, PARM/LCM or Fleet depending on who owns acquisition responsibilities of the SC. DSA may be budgeted two years prior, one year prior, and/or in the year an availability commences. DSA supporting the installation of HSC must be budgeted in the same OPN/WPN/APN BLI as the parent HSC buy and in the year the DSA effort is to commence. DSA supporting non-equipment installations must be budgeted in the NAVSEA O&MN NMP line (AG/SAG).

4-5.4.4.1 DSA Algorithm

The DSA algorithm is utilized for budget purposes in the NDE Program Module for both shipyard and AIT Program SC installations. In accordance with the algorithm, the DSA requirement for a shipyard install is defined in man-days as a percentage of the total Advance planning and installation man-days programmed to install the SC. The algorithm then spreads

the DSA man-days over A-720, A-360, and A-0 (year of availability start) based upon an agreed upon percentage determined by the SPM and approved by the OPNAV Program Sponsor. Funding is calculated based upon the number of man-days times the man-day rate. DSA requirements are based upon a number of factors including the generic requirements of the class and DSA milestones. The algorithm may differ among PEOs and can be changed with OPNAV Program Sponsor approval. The DSA algorithm for AIT installations is described in paragraph 4-5.4.5.

4-5.4.5 Alteration Installation Team (AIT) for Program SCs Programs and Program Support

- Installation costs for all elements in this NMP component requiring procurement of HSC must follow the same rules as defined in paragraphs 4-5.4.1 and 4-5.4.2.1
- Installation costs for all elements in this NMP component that do not require HSC procurement must follow the same rules as defined in paragraph 4-5.4.2.2
- Advance planning is budgeted as defined in paragraph 4-5.4.3. No algorithm exists for generating advance planning for AIT installs in the prior years and must be estimated and budgeted within the annualized program lines in the budget FYs in which the effort will commence
- DSA in this component is budgeted and funded as defined in paragraph 4-5.4.4. DSA funding requirement for an AIT install can be budgeted two years prior, one year prior, or in the year of install. The Program Module algorithm generates an AIT DSA dollar requirement, as a percentage of the total AIT cost, in the same fiscal year as the install. The resulting dollar value may be manually increased or decreased based on actual estimates, or more accurate data. No algorithm exists for generating prior year DSA for AIT installs. Prior year design requirements must be budgeted within the DSA program lines in the budget FYs in which the effort will commence.
- Costs for Program Support, as described in paragraph 4-5.3, must be budgeted in the FY the effort is to commence and within the appropriate OPN BLI or NMP O&MN AG/SAG

4-5.5 NMP Man-day Rates

Public and Private Sector shipyard man-day rates are required for the development of NMP SC installation funding requirements for POM, budget submissions (Department of the Navy (DoN), Office of the Secretary of Defense (OSD), Congressional), and other budget purposes. The estimated cost of a SC installation is the sum of the incidental material costs and the product of the man-day estimates times the man-day rate for the applicable installation FY, location and hull. Advance planning and DSA are priced based on the man-day estimate times the man-day rate. NAVSEA 013 OPN/WPN/RDT&E Comptroller receives rates from NAVSEA 04, NAVSEA 05, shipyard activities, the Fleet, and FMB, as required, and determines the final man-day rates for entry into the NDE database. Since man-day rates drive the pricing and re-pricing of installation requirements for budgetary purposes, accuracy of the rates is critical. Factors considered when determining rates include consistency of man-day rates used by NAVSEA and the Fleet in pricing their budgets, specific direction from FMB or NAVSEA 04, approved escalation factors, and the budget submission being prepared at a point in time. Man-day rates are updated at each budget submission as necessary. Private sector rates typically remain unchanged for a year, however, public sector rates are updated at each submit based on Navy

Working Capital Fund (NWCF) budget adjustments made by FMB, OSD, or Congressional action. As a result, the NDE Program Module budget files do not reflect the same man-day rates. The process for establishment, approval, and entry of man-day rates follows.

4-5.5.1 Private Sector Man-day Rates

Private Sector rates are developed by the individual private sector shipyards, reviewed by the Defense Contract Audit Agency, and forwarded to NAVSEA 04 for final approval. Based on these individual rates, NAVSEA 04 develops the weighted average port and east/west coast weighted rates, applies escalation factors to develop out-year rates, and issues the final approved rates to the Fleet, NAVSEA 013, and other NMP customers for budget development.

4-5.5.2 Public Sector Man-day Rates

Public Sector rates are developed by the Naval Shipyards (NSYs), reviewed and modified by NAVSEA 04 to include FMB directed surcharge costs, and forwarded to NAVSEA 015 (the budget submitting office for the Naval Shipyards) for incorporation into the shipyards' budgets and for issuance to the Fleet, NAVSEA 013, and other NMP customers for their budget development. NAVSEA 013 applies escalation factors to calculate out-year rates, as required. The rates are then submitted to FMB for final approval via the shipyard budgets. Public sector rates change based on FMB's review of shipyard work loading as well as decisions made by OSD and Congress relative to shipyard work loading.

4-5.5.3 NDE-NM Man-day Rate Entry

NAVSEA 04 provides approved man-day rates to NAVSEA 013 for NDE Program Module update. OPNAV Platform Sponsors and SPMs use the approved rates for budget development and "gaming" efforts to price and match availability costs to budget controls.

SUBSECTION 4-6 TOOLS FOR THE BUDGETING AND FINANCIAL MANAGEMENT OF THE NMP

4-6.1 Scope

This subsection discusses the major tools available to the SYSCOMs and CNO to structure budgeting, programming and financial management of the NMP.

- Navy Modernization Databases
- NDE Logistics Application
- NDE Program Module
- NDE Execution Module
- STARS

4-6.2 Navy Modernization Database

There is one primary database, NDE, which supports financial management of the NMP. NDE was developed and established as an enterprise data model to integrate and merge existing modernization, maintenance and logistics data structures into a single design. Only the data and functions originally performed in the Fleet Modernization Program Management Information System (FMPMIS) Logistics Module are accomplished in the NDE Logistics Application today. NDE is the official automated system supporting NMP information/decision making requirements Navy-wide. All elements of the NMP must be resident in the NDE Logistics Application in order to provide input to OPNAV for development of the DoN budget within Program Budget Information System (PBIS). The Program and Execution Modules of NDE are key to installation budgeting and execution tracking for work governed by the NMP process.

4-6.2.1 NDE Logistics Application

The NDE Logistics Application is a PC-based system managed by NAVSEA 04 and replaces the FMPMIS Logistics Module. NDE users are all NMP participants within the NMP community (includes the SYSCOMs, OPNAV, Fleet, field activities, shipyards, planning yards). The NDE Logistics Application contains basic SC data (including SC numbers, descriptions, and man-day estimates), SC prioritization decisions of the CNO Sponsors, the official depot level availability schedule, SC material requirements, and the "approved" results of the OPNAV Program Sponsor/SPM programming of SCs into specific availability packages as a result of the budget development process.

4-6.2.2 NDE Program Module

The Program Module is a PC-based system managed by NAVSEA 04 and replaces the FMPMIS Program Module. Users are OPNAV Program Sponsors (N42, N6, N85, N86, N87, and N88), SPMs, LCMs/PARMs, and SYSCOM Comptroller Offices, as applicable. Its primary purpose is for the programming and budgeting of NMP installation requirements across the Future Year Defense Plan (FYDP) in accordance with CNO priorities and funding levels. It also serves to facilitate the execution of the NMP. Files within the module allow OPNAV Program Sponsors and SPMs to manipulate SC data exchanged with the NDE Logistics Application, into fully-

priced, discrete SC availability packages in order to finalize their respective modernization budgets; matching the available dollars to the highest priority CNO requirements. It allows this "gaming" to proceed independently without disturbance to the other budget files or modules within the NDE database. The Program Module creates the NC50 and OP5a budget exhibits necessary for each budget submission as well as a variety of useful program related reports. The Program Module is also utilized to create and approve funding realignments, or escrow changes, within the approved modernization program accounts.

4-6.2.2.1 Escrow Change (EC)

The EC is the vehicle utilized in the execution year to realign funds within the approved program between SC availabilities, AIT, and Program Support lines. ECs are prepared in the Program Module by the SPMs. Prior to approval, the financial changes are checked electronically against the BLI or AG/ SAG budget controls in the Execution Module to ensure obligation authority is not exceeded. Funding provided to NAVSEA via Project Directive (PD) require ECs which are processed in the Execution Module. ECs are routinely created as a result of the following:

- Addition or deletion of SCs
- Revised man-day estimates
- Revised incidental material estimates
- Establishment of a new availability
- Change of FY of an availability (which may also change the man-day rate)
- Change in location of an availability
- Emergent requirement
- Reprioritized SCs
- Budget reductions

4-6.2.3 NDE Execution Module

The Execution Module is a PC-based system managed by NAVSEA 04. Current users are the SPMs and the NAVSEA 01 Comptroller. While the Logistics Application is a data repository and the Program Module is a program development and budget submission system, the Execution Module is a financial execution and tracking system. Budget data is transferred to this module from the Program Module for execution. Installation funding provided to NAVSEA for execution via PD (i.e. from NAVAIR and SPAWAR) require ECs which are processed in the Execution Module. This module is designed to provide five areas of financial execution support which are summarized below. These Execution Module support areas are:

- Creation and validation, on-line, of Funding Documents (FDs) and Financial Accounting Documents (FADs) forwarded electronically to the NAVSEA 01 Comptroller for approval. Once FDs and FADs are approved, they are transferred to the Navy’s Automated Document Processing System (AUTODOC) for Comptroller signature and posting to STARS/ERP
- Recording of ECs; maintains EC audit trail to track program changes
- Obligation Phasing Plans for the O&MN appropriation may be formalized in the Execution Module for planning future cash allocations
- Allocation of financial controls and cash to SPMs and tracking of execution progress against available cash balances

- Creation of reports including, Execution Reports, Cash Management Reports and Accounting Reports

4-6.3 Standard Accounting and Reporting System (STARS)

STARS is the Navy's official accounting and financial management system for all funds allocated or passed to Navy claimants. STARS provides detailed financial information for financial managers to monitor, track, and validate actual execution data (i.e. funding documents/contracts and their commitments, obligations and expenditures; funding allocations by account; funds on deferral; etc.) against approved budget line items. No funds may be released from a SYSCOM without being entered into the HCM of STARS. STARS/HCM is the SYSCOMs' module for STARS access; STARS/Field Level is a series of modules used for STARS access by various field activities. The SYSCOM Comptroller is responsible for all NMP STARS/HCM entries, for conducting validations to ensure accuracy of funding document and contract lines of accounting, and ensuring sufficiency of funds within budget controls for a given BLI and/or AG/SAG.

SUBSECTION 4-7 PLANNING, PROGRAMMING, BUDGETING AND EXECUTION (PPBE) PROCESS

4-7.1 Scope

The PPBE process defines the Navy's mission to support National security plans and defense strategies, identifies needs to accomplish the mission, and allocates resources to meet the needs. It is the means for centralized planning and programming of requirements for budget development and execution to produce a realistic Navy-wide plan for the future. Specific milestones and major events in the PPBE process require intensive effort and the success of NMP long range management depends upon consistent attention, throughout the budget process, to the prioritization, programming and refinement of HSC procurement and installation requirements for Program SCs and other modernization support requirements. If a modernization effort does not appear in the POM, it is unlikely that it will appear in an approved budget.

4-7.2 Overview

The Integrated Warfare Architecture Reviews (IWARs)/CNO Program Analysis Memorandum (CPAM) process represents the "Planning" portion of PPBE and provides the guidance for development and preparation of the POM. The POM is CNO's out-year budget plan and represents the "Programming" portion of PPBE. Because the IWARs/CPAM process is conducted at a high level, it is not until the POM guidance is received that NMP participants become involved. Once the POM is submitted to OSD and approved, the requirements are then included as part of the official budget. The "Budget" portion of PPBE includes formulation, presentation, review, justification and execution of DoN programs and represents the fiscal plan for accomplishing those program objectives. Emphasis is placed on executability and pricing of the first two budget years extracted from the POM for a series of reviews over a sixteen-month period. This process ends in Congressional and Presidential agreement on budget enactment on 1 October.

4-7.3 Program Objectives Memorandum (POM)/Program Review (PR)

"POM" refers to both a process and a product. The POM process, for NMP participants, begins every other October (even numbered FYs) and proceeds for eight months, culminating in the Navy's submission of the SECNAV-approved POM, or Six-Year FYDP (the POM product) to OSD in May. The PR process occurs every other October, in the odd numbered FYs, and is a review of the POM submission from the previous FY.

Knowledge of the POM/PR process is necessary to ensure concentration of effort on the accuracy of the NMP at those critical points when accurate products must be expeditiously produced. Specific guidelines will be issued each cycle by the Navy Comptroller, FMB, defining the following milestones more precisely and identifying the specific efforts required of all participants to support POM development and submission.

4-7.4 Budget

When the Navy POM is submitted to OSD, the closest two FYs of the six-year POM program become the focus of the budget review process. Budget quality estimates and execution details are required. Estimates are refined, budget exhibits prepared and submitted, and the budget review process continues for another sixteen months, culminating in enactment of the budget on 1 October. If Congress has not passed the Defense Appropriation Act by 1 October, Navy begins operating under a Continuing Resolution Authority (CRA). During a CRA funding is authorized and issued at a reduced level until the Appropriation Act is passed.

The first FY program of the two-year budget goes through the entire sixteen-month process only once, and then begins execution. Just before that occurs, the second FY program of the two-year budget begins a second round of reviews, leading to commencement of execution a year later. Thus, although it is described as one, two-year budget review process, the second (odd numbered) FY receives a second full set of reviews before enactment.

The most important areas of support and participation by NMP participants after submission of the budget to FMB, are rapid, accurate and complete responses to requests from higher authority in the clarification/justification of budget issues; complete preparation for, and participation in budget reviews held by FMB, OSD and Congress; and, continual update of the NDE Program Module to reflect the decisions made at each step in the process. SYSCOM Comptrollers are responsible for coordination of these efforts and issuance of budget guidance each year to clarify the milestone dates and required actions.

SUBSECTION 4-8 NMP FINANCIAL EXECUTION

4-8.1 Scope

This subsection provides the details of the financial execution of the NMP, from the time a budget has been approved and enacted. It describes the development of sub-accounts and financial controls; documentation of the approved program; development and management of a financial obligation plan; and, details appropriate to the financial execution of each of the five principal financial components of the NMP (paragraphs 4-5.3 and 4-5.4 of this manual).

4-8.2 Process Overview

The execution process begins with enactment of an approved budget and several management planning steps must be taken using the best planning baseline available prior to a fully approved budget. This baseline is the last approved Congressional budget submission, or "President's Budget". Preliminary execution planning is done from this baseline which can later be modified to reflect the budget finally approved by Congress and signed by the President. The enactment of the budget should occur annually on 1 October. It is sometimes delayed, and the NMP may begin execution under a CRA. CRA grants limited funding authorization during specific periods of time until the budget is enacted.

4-8.2.1 Establishment of Accounts

Reference S4(b) establishes the requirement to manage and execute the NMP in separate P-1 accounts, also referred to as BLIs for programs funded within the procurement (OPN/WPN/APN) appropriation and AG/SAGs for programs funded within the O&MN appropriation. Within those accounts, the NMP is then executed in sub-accounts (i.e. separate equipment and install accounts) in order to protect the integrity of funds in execution. A Chart of Accounts is established to represent these accounts in STARS.

4-8.2.1.1 Chart of Accounts

At the beginning of each FY, the SYCOM Comptrollers establish Charts of Accounts in STARS/HCM for all appropriations based upon the approved budget. The purpose of a chart of accounts is to identify “sub accounts” within a Procurement BLI or O&MN AG/SAG for execution of approved funding levels. Typically these accounts are set up based upon the Resource Financial Manager (RFM) who executes the funds. Obligation authority/funding controls are assigned accordingly. Since NMP installation efforts are managed to the SPM level for installation accounts, the installation Chart of Accounts is established to include a separate sub-account for each SPM program. For NAVAIR and SPAWAR executed installation programs, one account, each, is established for equipment and installation.

4-8.2.2 Establishment of Financial Execution Controls

Budget controls are the financial limits within each account/sub-account beyond which obligations may not be incurred. They reflect the values approved and enacted in the budget. They are not to be confused with "requirements" which are values requested in the budget process, but not necessarily approved. SYSCOM Comptrollers issue FMB established controls

at the BLI and AG/SAG levels, and then to lower levels, “sub” controls, for execution as required. These “sub” control assignments parallel the establishment of the Chart of Accounts as discussed in paragraph 4-8.2.1.1.

4-8.2.3 Changes to Financial Execution Controls

Once controls are established, the only way in which they may be modified is by FMB issued adjustments or Above/Below Threshold Reprogramming (ATR/BTR), as necessary. Paragraph 4-8.2.6 discusses the ATR/BTR process further. The adjudication of excess or insufficient control value in any NMP account or sub-account, once identified, is the responsibility of the OPNAV Program Sponsor, SPM (on behalf of the Sponsor), or SYSCOM Comptroller depending on the circumstances. Results of approved ATR/BTR actions are entered in STARS/HCM and, for NAVSEA installation programs, are also carried out by escrow change in the NDE Execution Module (see paragraph 4-6.2.2.1).

4-8.2.4 Financial Obligation Planning

4-8.2.4.1 Obligation Plan

SPMs, AIT/Program Support Managers, and LCMs/PARMs must develop obligation plans for all NMP equipment and install efforts for which they hold execution responsibility. The control values assigned must be phased by month and/or quarter (as defined annually by the respective Comptroller) to reflect the points in time when funds are required and must be obligated to support specific tasks.

4-8.2.4.2 Obligation Tracking

Obligations can be tracked to the BLI for OPN/APN/WPN funded programs, AG/SAG for O&MN funded programs, or funding document levels to ensure timely obligation of funds and adherence to the obligation plan.

4-8.2.4.3 Obligations in STARS

The SYSCOM Comptroller and/or Receiving Activity is responsible for entering all official NMP obligations in STARS/HCM. Since budget reductions are assessed due to poor obligations, it is to the benefit of the NMP participants to track the status of their obligations and expenditures in STARS/HCM.

4-8.2.5 Funds Recapture and Realignment

In order to ensure timely obligation and expenditure of funds, and to preclude de-obligation and/or return of funds after funds expiration, FMB and the SYSCOM Comptrollers conduct execution status reviews six months into the fiscal year (Midyear Review) and at each DoN submission. STARS/HCM is used as the basis for these reviews. Informal reviews of STARS data take place periodically by the Comptrollers for other budgetary actions. Funds identified as available for recapture are returned via amendment to the basic document or contract mod. All funds returned remain available, against the BLI or AG/SAG, for realignment or reprogramming to cover overruns or shortfalls elsewhere. Reprogramming and reprogramming threshold limitations are discussed in the following paragraph.

4-8.2.6 Funding Reprogramming and Reprogramming Thresholds

Reprogramming actions are changes in the application of financial resources during execution which deviate from how these resources were originally budgeted for, testified to, and described in justification material submitted to Congress supporting funding authorization. The SYSCOM Comptroller is required to maintain a record of the cumulative increases and decreases to individual BLIs and AG/SAGs to ensure appropriation reprogramming thresholds are not broken. There are certain conditions under which a reprogramming action is required which requires either written Congressional approval of the four Congressional Defense Committees (The House and Senate Armed Services and House and Senate Appropriations Committees) or letter notification. In accordance with reference S4(a) (Vol. 3, Ch 6 dated August 2000), these conditions are as follows:

4-8.2.6.1 Written Congressional Approval

- Increase the procurement quantities of a major end item above Congressionally authorized levels
- Affects a special interest item of one or more Congressional committees
- Involves use of general appropriation transfer authority (i.e. movement of funds between appropriations)
- Exceed agreed upon thresholds
  - O&MN Appropriation
    - Cumulative increase of $15M or more in a budget activity.
  - Procurement Appropriations
    - Cumulative increases of $10M or more in a procurement line item
    - Cumulative decreases of $10M or more, or 20 percent of the appropriated amount, whichever is greater
- New Start Program. A program, subprogram, modification, project, or subproject not previously justified and funded by Congress through the normal budget process
  - Establishment of a new procurement line item, procurement program, procurement subprogram, and/or modification with first-year costs of $2M or more during any program year
  - New starts within a procurement program, procurement subprogram, and/or modification with estimated total costs (all appropriations) of $10M or more within the first three years
- Termination of a Program
  - Elimination of a procurement program
  - Elimination of a subprogram within a procurement program which is equal to the total amount of the procurement program
  - Elimination of a subprogram of $10M or more within a procurement program

4-8.2.6.2 Congressional Notification Letter

- New programs or new Line Items not otherwise requiring prior Congressional approval
- A new program, subprogram, and/or modification whose total cost is less than $2M
- Safety modifications whose total costs (all appropriations) are less than $10M

- Termination of programs falling within the below-threshold reprogramming amounts for procurement programs or subprograms costing less than $10M as long as the procurement line is not eliminated.

4-8.2.7 Basic NMP Execution Process

Execution controls are established in STARS/HCM for equipment and installation requirements. The installation controls are also entered into the NDE Execution Module for SPM installation programs. The LCMs/PARMs and SPMs are responsible for preparing and submitting official funding documents. For NAVSEA equipment procurements, funding documents are accomplished on line through the Program Requirements Interface System Module (PRISM). For NAVSEA installation efforts this is first accomplished on line through the Execution Module and then signed and completed through PRISM. NAVSEA AIT Program Managers, who do not have on-line access to the Execution Module, must submit hard-copy AIT installation funding requests to the appropriate SPM for processing through the Execution Module. For SPAWAR this is achieved through their official Financial Management Information Systems for NMP efforts under their cognizance. Documents are reviewed, approved and signed by the designated Comptroller authority, forwarded to the receiving activity for acceptance and signature, and obligations entered into STARS/HCM by the SYSCOM or the receiving activity.

4-8.2.8 Execution Module Capabilities

In addition to previously noted capabilities some of the other important ones follow:

- Provision for installation cash controls for AG/SAGs and SPM accounts within a BLI
- Provision to track the status of funding documents. (The funding request process line is updated automatically on a predetermined schedule, to enhance timely request/document processing)
- Validation of fiscal and program data on funding documents as well as automatic population of certain document fields
- Provision to record current accumulated balances established by Escrow Change as well as a record all program changes

4-8.3 NMP Tasking for Execution

There are two ways of authorizing and funding NMP installation work; first by execution of a contract with a private firm in accordance with applicable procurement policies; and second by issuance of a valid financial document (Project Order, Work Request, etc.) to a Navy activity.

4-8.3.1 Tasking Under Contracts

Installation tasking under contracts can be either severable (product, completion type tasks) or non-severable (level of effort type tasks). Proposed tasking prepared by the PR originator will be provided by BLI or AG/SAG with the originating PR for negotiation and inclusion by NAVSEA 02.

4-8.3.1.1 Non-Severable Tasking

This type of tasking specifies in detail, by BLI or AG/SAG, the work to be accomplished and the product to be delivered (in the case of SC execution the product is the modernized ship). Under non-severable tasking, funds required to complete the task are obligated at the time the contract is signed and entered into STARS/HCM although they may not be expended until later.

4-8.3.1.2 Severable Tasking

These taskings are normally issued for goods or services which cannot be specified at the time of contracting. In these cases an amount (hours) of services can be estimated by BLI or AG/SAG but the specific tasks are identified during the period of performance. Severable tasks will normally specify an expected number of man-hours, and establish a target amount or maximum level for tasking. Under the "bona fide need" concept, severable tasks will normally be issued and controlled in order to ensure that all funds are obligated (i.e. all services are completed) prior to 30 September of the FY of obligation authority expiration for the appropriation in question.

4-8.3.2 Tasking Under Funding Documents

Due to the length and complexity of tasking for NMP install work and in order to provide planning data for both accomplishing and supporting activities, the tasking and funding for NMP work will normally consist of one or more tasking and funding documents. These will detail the work to be done and provide an estimate of the cost to accomplish it, to the BLI or AG/SAG. The funding document will reference the tasking document as a statement of work and will establish an official Planning Estimate which matches the estimated cost in the tasking document. Two important considerations apply:

- Both the tasking and the funding are required before work can begin
- When the Planning Estimates in the tasking and funding documents do not agree, the estimate on the funding document takes precedence. (The SYSCOM Comptroller will adjudicate issues of this nature.)

4-8.4 Financial Execution of the Five Principal NMP Components

4-8.4.1 Procurement of HSC Material

HSC, required for installation as part of a Program SC or being installed on a ship, is procured with OPN, WPN or APN funding through the normal financial management process within the SYSCOMs. LCMs/PARMs are responsible for execution oversight of these hardware procurement funds, which are segregated from NMP installation funding, in the same BLI. Responsible LCMs/PARMs must time their procurement actions to ensure delivery of material to installation sites by the availability start as scheduled in NDE or for AIT accomplishment. Funding authority for execution of hardware procurements is provided to the LCM/PARM. Paragraph 4-5.4.1 also discusses procurement of HSC material.

4-8.4.2 Installation of Program SCs in Scheduled Availabilities

Program SCs installed in scheduled availabilities are accomplished by a NSA or other Installing Activity (IA) under the supervision of a NSA. The NSA is the overhauling NSY or

SUPSHIP/RMC. An IA is a public or private entity, other than a shipyard, performing the installation (i.e. Alteration Installation Team from a field activity). Funds for execution of this NMP component may be used for the efforts listed in paragraph 4-5.3 of this manual. The correct appropriation and FY funding is determined by applying the rules in paragraph 4-5.4.2. These funds are budgeted by specific ship and availability at the SC level, and are controlled and issued from the BLI or AG/SAG during execution.

4-8.4.2.1 Tasking Program SC Accomplishment

The SPM provides initial tasking to Public and Private Sector Shipyard NSAs for installation of authorized SCs through the SC Advance Planning Letter. The Advance Planning Letter is issued IAW Navy Modernization milestone charts in Appendix G and includes the list of SCs planned for installation and requests planning estimates for the cost of accomplishing the SCs. It is the LOA issued by the SPM, that provides the final authorization for accomplishment of SC installations in scheduled shipyard availabilities. The LOA is issued IAW Navy Modernization milestone charts in Appendix G, and typically contains the list of SCs to be accomplished, funding estimates, material procurement/ requisitioning instructions and other required reporting information. The tasking provides the reference for formally establishing a Planning Estimate via the funding document issued by the SYSCOM. Tasking for AIT accomplishment of SCs is provided by funding document to the AIT activity. In accordance with DoN policy, tasking will not be issued unless sufficient obligation authority exists to fully fund the requirement.

4-8.4.2.2 Shipyard Planning Estimates

In accordance with the tasking identified in the LOA, the NSA prepares a Preliminary Review Estimate (PRE) to provide to the SPM as discussed in reference S4(c). At a later point in time, but prior to Start of Availability (SOA), the NSA must provide a Final Review Estimate (FRE) to the SPM. If a fixed price is accepted at a later date, the Planning Estimate will again be modified to reflect this fixed price (See paragraph 4-8.4.2.3).

4-8.4.2.2.1 Naval Shipyard (NSY) PREs and FREs

In NSYs the PRE forms the basis of the contract between NAVSEA and the shipyard. It indicates that the shipyard has reviewed the work to be done and offered a price at which the work can be accomplished. PREs provide time for the SPM to determine whether work and estimates are within program scope, and to resolve serious deficiencies prior to execution. FREs are furnished no later than A-120 days and provide the NSY's best estimate of cost to complete each SC, and establish the baseline upon which any adjustment to the requested funding must be based. See reference S4(c) for details.

4-8.4.2.2.2 NSA PREs and FREs

Because the NSA does not actually accomplish the work, but acts as an agent for the customer, PREs and FREs for NSA administered availabilities must follow a different pattern. As discussed in reference S4(c), PREs based on NSA assessment of the total cost, including change orders, must be submitted prior to the expected award of the contract. NAVSEA will use these estimates to determine whether funds are available to cover the total expected cost of the work package. FREs represent the NSA contract proposal to the Navy and are the basis for negotiations for contract award. The NSA FRE will identify the following information

- Pro-rated costs for each SC
- Government labor and material obligations
- SCs not included in original PRE
- Estimated cost of adding each new Program SC by contract modification
- The required reserve for change orders for the entire overhaul period. (Reserves in excess of 10% of the award value require justification)

4-8.4.2.3 Fixed Pricing

Navy policy is for performing activities to enter into fixed pricing agreements with customers to the maximum extent possible. Basic policies and procedures for fixed pricing are contained in reference S4(a). Agreements with the public sector shipyards will follow the below process:

- Fixed Pricing occurs via a Project Order prior to incurring either 50% of the total cost of the work or prior to reaching the 50% point of the period of performance of the scheduled availability, whichever comes first. For all other work subject to fixed pricing, the 50% completion point is the time when one-half of the funds provided have been expended or projected to be expended, based on work in progress. The public shipyards issue official correspondence to forward their Fixed Price Offer (FPO) at approximately this point in the availability. Fixed Price Project Orders are discussed further in reference S4(a), Volume 11A, Chapter 2
- SPMs, and/or LCMs/PARMs (as applicable) shall be responsible for acceptance of all fixed price offers
- Where offers exceed the planning estimates, the SPM and/or LCM/PARM must find a funding asset within their program or work with their Comptrollers to cover the shortfall. An ATR or BTR may be required in order to accomplish this
- When work outside the tasking has already been accomplished, SYSCOMs will not be responsible for funding increased costs incurred as a result of this work
- When funds cannot be made available to cover additional anticipated costs, reduction of the work package may be necessary

4-8.4.3 Advance Planning Funding for Installation of Program SCs in Scheduled Availabilities

The efforts and types of funds to be utilized are defined in paragraph 4-5.3 and paragraph 4-5.4.3 of this manual.

4-8.4.3.1 Advance Planning Tasking

Formal tasking is initiated by the SPM. Advance Planning Letters are prepared and distributed. When preparing the Advance Planning Letters the SPM must consider the following:

- All SCs are approved in the MP and scheduled in NDE
- SC planning is consistent with POM/planning data and ensures availability of funds for advance planning efforts
- Ensure all required HSC, if applicable, will be available to support the installations

4-8.4.3.2 NSA Provided Material Procurement

NSA Provided Material that must be procured in advance of the induction of a ship into an availability by a SUPSHIP/RMC or public shipyard may be funded from AP Funds. If the procurement is required and funded in the same fiscal year as the installation, installation funds may be used. In either case, all funding must be provided up front to cover the procurement.

4-8.4.3.3 AP Funding Documentation

Advance planning funding is provided to Public Sector Shipyards on Work Requests. Project Orders may be issued only if the advance planning is to be accomplished in the same year as the installation and is "specific, definite, and certain both as to work encompassed by the order and the terms of the order itself" as defined in reference S4(a), Volume 11A, Chapter 2. SUPSHIPs are issued PDs. The value for obligation for SUPSHIPs is accrued costs plus material commitments as of the end of the FY. The NSY obligation limit is defined in reference S4(b) as the labor cost of advance planning and the cost of material specifically required for prefabrication.

4-8.4.3.4 Advance Planning Execution

Funding requests for individual availabilities must be consistent with the approved BLI and/or AG/SAG restrictions in each of the FYs. Advance Planning is budgeted and executed at the SC/availability level.

4-8.4.4 DSA Funding

The principal efforts to be included in DSA funding are listed in paragraph 4-5.3 of this manual and discussed in the paragraph below. The types of funds to be utilized are described in paragraph 4-5.4.4 of this manual. For Submarines, DSA funding for the development of JCFs/SARs and supporting installation design documentation is obtained from respective installation line items established under paragraph 4-8.2.1.1.

4-8.4.4.1 DSA Funding Documentation

DSA funding is provided to Public Sector Shipyards and other Navy activities on Work Requests. SUPSHIPs or other private sector activities are issued PDs.

4-8.4.4.2 DSA Execution

Funding requests for DSA must be consistent with the approved, SYSCOM BLI and/or AG/SAG restrictions in each of the FYs. DSA is budgeted at the SC/availability level but may be executed at the class, SC, or ship type level.

4-8.4.4.3 SC Installation Drawing (SID)

SID funding includes the cost of ship-checks and proofing when required. PY tasking for SID development, final approval, and signature is responsibility of SPM, PARM and Fleet. Tasking must be done sufficiently early to ensure completion prior to the ship's induction into the installation availability. PY SIDs must be tasked and delivered IAW milestone charts in Appendix G. Although SID tasking for Program SCs is the responsibility of the SPM/PARM,

the PARM may delegate tasking authority to the LCM. SID tasking for Fleet SCs is the responsibility of the Fleet. SID Budgeting is covered via the DSA budget. Execution of funding for SIDs is accomplished by the SPM/LCM/PARM/Fleet, depending on the SC being installed. The SPM/appropriate PARM/SYSCOM funds Program SCs and the Fleet Commanders (FLTCDRs)/TYCOMs funds Fleet SC. Funding documents/amendments are issued for each ship class or ship accordingly. The NMP (DSA) funds all SIDs for all SCs. For Surface Ships and Carriers, the SPM/appropriate PARM/SYSCOM funds Program SCs and Fleet Commanders (FLTCDRs)/TYCOMs fund Fleet SCs. For Submarines, the SPM/appropriate PARM/SYSCOM funds both Program and Fleet SC SIDs.

4-8.4.4.4 Liaison Action Record (LAR)

Tasking for adjudication by class or type is the responsibility of the SPM or TYCOM. SPMs and LCMs/PARMs budget and execute annual requirements for each Planning Yards Program SC LAR requirements.

4-8.4.4.5 Miscellaneous Documentation Support (MDS)

MDS tasking, by class or type, is the responsibility of the SPM. SPMs and LCMs/PARMs budget and execute annual MDS requirements for each Planning Yards MDS requirements.

4-8.4.4.6 Ship Selected Record (SSR) Update

SPMs task SSR requirements at the ship/availability level, in LOAs and Technical Instructions (TIs). Funding requests must be issued early to have funds in place at the PY IAW Navy Modernization milestone charts in Appendix G. Funding documents are issued for each class or type. SPMs and LCMs/PARMs budget and execute SSRs.

4-8.4.4.7 Configuration Overhaul Planning (COP)

For Program SCs, SPMs task COP requirements at the ship/availability level as part of SSR requirements in LOAs and TIs. Funding requests must be issued early to have funds in place at the PY IAW Navy Modernization milestone charts in Appendix G. SPMs and LCMs/PARMs budget and execute COP requirements.

For Fleet SCs, funding requests must be issued early to have funds in place at the PY IAW Navy Modernization milestone charts in Appendix G. TYCOMs budget and execute COP requirements.

4-8.4.5 Alteration Installation Team (AIT) and Program Support Management

This component of the NMP is described in paragraph 4-5.3 and paragraph 4-5.4.5. As discussed therein, the correct funding to apply to this component depends upon whether or not HSC is required.

4-8.4.5.1 AIT Funding for Installation of Program SCs

The cognizant AIT Manager, in coordination with the SPM, is responsible for developing AIT installation costs, ensuring AIT HSC and installation funding requirements are budgeted in the correct BLI, are in the proper appropriation (OPN, APN or WPN) and appropriation FY, and

ensuring install funds are budgeted to meet HSC deliveries for installation. The AIT Manager is typically the LCM/PARM or a designated field activity.

4-8.4.5.2 Program Support Line (PSL)

The PSL management component of the NMP is described in paragraph 4-5.3 and contains all non-installation NMP support programs including support of the modernization databases, C&F Studies, Warfighting Improvement Plan (WIP) Development and WIP Engineering (WIPE). The Program Manager of the PSLs/Programs is typically the SPM who is responsible for determining the funding requirements, properly pricing those requirements, and ensuring their inclusion in the budget.

SUBSECTION 4-9 FINANCIAL MANAGEMENT RESPONSIBILITIES OF MAJOR NMP PARTICIPANTS

4-9.1 Scope

This subsection complements SUBSECTION 4-2 of this manual by describing in detail the NMP financial management responsibilities and those other responsibilities of the major NMP participants that may have a direct impact upon NMP cost and financial management.

4-9.2 Chief of Naval Operations (CNO)

4-9.2.1 Deputy CNO, Resources, Warfare Requirements, & Assessments (N8)

4-9.2.1.1 Programming Division (N80)

- Coordinate development of Navy POM/budget among OPNAV Resource Sponsors
- Balance fiscal and resource constraints during the POM process
- Submits POM to OSD

4-9.2.1.2 Assessments Division (N81)

- Conduct assessments and analysis for overall Military strategy and National Security decisions with CNO (N51)
- Develop IWARs and CPAMs in response to CNO (N51) force planning strategy and policy
- Provide POM guidance based on IWAR/CPAM process

4-9.2.1.3 Fiscal Division (N82)/ASN (FM&C) Director, Office of Budget (FMB)

- Provide Budget guidance to SYSCOMs
- Conduct DoN budget reviews for development of OSD/Office of Management and Budget (OMB) and Presidents budget submissions
- Balance fiscal and resource constraints during the budget review process
- Incorporate changes into the budgets driven by Congressional, OSD, and OMB adjustments and guidance
- Approve public sector man-day rates
- Conduct Mid Year Reviews
- Allocate NMP HSC and installation funds to the SYSCOMs

4-9.2.2 Warfare Division Directors (N42, N85, N86, N87, and N88), and Deputy Chief of Naval Operations (DCNO) (Communications Networks) (N6)

- Prepare a coordinated MP and approve all modernization efforts to be performed for surface, service craft, aircraft carriers, and submarine platforms
- Coordinate development of the POM, with the SYSCOMs, in accordance with priorities established by the IWARs/CPAM process and forward to N80 for submission to OSD
- Assign prioritization of NMP SCs for installation based upon recommendations and in coordination with the FLTCDRs, TYCOMs, and the SYSCOMs/PEOs.

- Provide Resource Sponsorship and funding resources for NMP HSC and SC installation, design and support efforts
- Coordinate within OPNAV the matching and programming of HSC procurement and installation funds
- Authorize changes in SC programming and budgeting as required
- Assist with budget development and justification with the SYSCOM NMP participants
- Adjudicate issues of insufficient/excess control value in assigned accounts, when advised by the SPM, LCM/PARM, AIT or Program Support Manager, or SYSCOM Comptroller

4-9.2.3 Director, Supportability, Maintenance and Modernization Division (N43)

- Develop overall ship modernization policy for the U.S. Navy
- Maintain current the official CNO/FLTCDR depot maintenance availability schedule in the NDE-NM database
- Provide Resource Sponsorship for selected PSLs in the NMP (i.e. the modernization databases)
- Co-sponsor, with NAVSEA 04, the NMP Policy Implementation Conferences to identify customer requirements, improve NMP processes and practices, and standardize NMP Policy implementation

4-9.3 Life Cycle Manager (LCM)/PARM

- Plan, program, budget, and procure all HSC and all HSC related requirements
- Coordinate with SPMs and AIT/Program Support Managers to ensure matching of HSC procurements with installations
- Develop HSC POM requirements, ensuring ship availability with the SPMs, for submission to OPNAV Program Sponsors
- Develop and prepare all budget exhibits, except for NC50 installation exhibits, for each submission. Coordinate and consolidate SPM NC50 input with HSC input
- Represent program requirements at budget hearings
- Lead for coordinating responses to HSC and installation budget questions and justifications requested from OPNAV, OSD, or Comptrollers
- Provide necessary HSC tasking correspondence to performing activities
- Develop obligation plans for HSC requirements in response to budget and Midyear Review drills; coordinating and consolidating installation input with SPMs, as required
- Originate HSC funding requests, in accordance with the approved obligation plans, and forward to the Comptroller organization for approval and signature
- Monitor expenditures of obligated funds, respond to SYSCOM requests for expenditure status, and assist in recovery (rollback) of unexpended funds
- Maintain NDE Material Identification (MTLID) Dictionary current, allowing for lead P-1 calculation for the budget
- Keep current the Procurement Lead Time (PLT) and material cost in the Material Dictionary of the NDE Logistics Application
- Monitor material delivery and maintain current in the NDE Logistics Application the delivery status (Best Estimated Delivery Date (BEDD), Military Standard Requisitioning and Issue Procedures (MILSTRIPs), etc.)

- Notify the SPM whenever substitution of NMP material is being considered/accomplished

4-9.4 AIT and PSL Manager

- Coordinate matching of planned HSC procurements with planned AIT installations for budget submission
- Provide AIT installation and design cost requirements, including required ILS, for POM and budget submissions
- Respond to budgetary questions, as applicable, from higher authority
- Coordinate scheduled installations with FLTCDRs/TYCOMs
- Provide necessary tasking correspondence to performing activities
- Develop obligation plans for NMP install requirements in response to budget drills
- Originate installation funding requests, in accordance with the approved obligation plans, and forward to the appropriate SPM for processing in the NDE Execution Module
- Monitor expenditures of obligated funds, respond to SYSCOM requests for expenditure status, and assist in recovery (rollback) of unexpended funds
- Review cost estimates and fixed price offers from Installing Activities

4-9.5 NAVSEA/PEO

4-9.5.1 SPM

- Central technical authority on NMP installation matters for all ship platforms
- Plan, program, and budget all Program SC installation requirements into the NDE Program Module; including required ILS
- Approve TYCOM funded Fleet SCs
- Coordinate with LCMs/PARMs and AIT Managers for budget development, preparation and execution for shipyard and AIT installations for assigned ships
- Issue Advance Planning Letter and LOAs and TIs providing tasking for DSA, Advance Planning, and installation requirements
- Review and approve Advance Planning and Installation man-day estimates and Incidental Material estimates provided by the Planning Yards, based on tasking from the SPM, for Program SCs and enter in the NDE Logistics Application.
- Prepare Escrow Changes in the Program Module and the Execution Module
- Develop and keep current the Advance Planning and DSA algorithms for assigned ships/classes in the NDE Program Module as approved by the OPNAV sponsor. Submit requests to NAVSEA 013 for changes to algorithms
- Enter and update installation budget requirements in the NDE Program Module
- Designate, in writing, individuals authorized to create and approve Escrow Changes, enter and update budget file data, or read only access in the NDE Program Module
- Designate, in writing, individuals authorized to create NMP funding documents or read only access in the NDE Execution Module
- Submit funding documents to NAVSEA Comptroller(s) for review, approval, and signature
- Accept or reject cost estimates (PREs and FREs) and FPOs

- Make recommendations concerning feasibility costs and identify BLI and/or AG/SAG affected prior to authorization of emergent work during execution
- Ensure the Installation Bill of Material (IBOM) indicator estimates are accurate in the NDE Logistics Application
- Participate in NMP scheduling conferences to review status of modernization efforts and participate in the NMP Policy Implementation Conferences held by NAVSEA 04

4-9.5.2 NAVSEA 04 Logistics, Maintenance & Industrial Operations Directorate

- Policy and procedures for the NMP as approved by CNO (N43)
- Chair NMP Policy Implementation Conferences to identify customer requirements, improve NMP processes and practices, and standardize NMP Policy implementation
- Coordinate with the shipyards to develop public and private sector NMP man-day rates. Forward rates to the Fleet, FMB, NAVSEA 013, NAVSEA 015, and other NMP Customers for budget development
- Prepare, submit, and justify budget for the NDE Logistics Application and NDE database

4-9.5.3 NAVSEA 01 COMPTROLLER DIRECTORATE

- Final approval authority on all Command budget and execution issues
- Provide NAVSEA Comptrollers authority to sign funding documents

4-9.5.4 NAVSEA 013 OPN/WPN/RDT&E COMPTROLLER

- Publish official guidance on all NMP OPN and WPN budget and execution actions/issues. Coordinate with NAVSEA 014 for impact to the O&MN appropriation as required.
- Serve as primary point of contact with OPNAV for NMP budget policy, financial and reprogramming matters. Coordinate with NAVSEA 014 for impact to the O&MN appropriation as required.
- Perform duties of financial management oversight of the NMP equipment and installation requirements within the OPN and WPN appropriations.
- Establish and publish Standard Operating Procedures (SOP) for NMP financial management
- Issue budget controls for NMP OPN and WPN BLIs.
- Coordinate and review budget exhibits, with LCMs/PARMs and SPMs, for the NMP OPN and WPN budgets prior to submission. Ensure exhibit information is accurate and consistent. Submit official budgets to FMB.
- Provide DoN, OSD and Congressional OPN and WPN budget adjustments/questions to LCMs/PARMs and SPMs for response/reclama coordination. Review, approve and submit final responses
- Establish and update the Chart of Accounts in STARS for execution
- Establish NMP OPN and WPN allocations in STARS and process changes to allocation values
- Enter controls and funding allocations, by RFM, in the NDE Execution Module for OPN and WPN installation accounts ensuring their alignment with STARS
- Review, approve, and sign SPM NMP equipment and installation OPN and WPN funding documents, utilizing the Command's official Financial Management Information System for

the equipment funds as well as the NDE Execution Module for installation funds, and issue to performing activities
- Review, approve, and process funding reprogramming actions
- Review and approve all LCM/PARM, SPM and AIT/Program Support Manager OPN and WPN obligation plans
- Monitor obligations and expenditures to ensure optimum utilization of funds and to allow reprogramming of unobligated and unexpended funds prior to appropriation expiration
- Coordinate FMB Midyear Execution Reviews
- Coordinate with NAVSEA 04 in the management of the NDE Program and Execution Modules
- Serve as primary Point of Contact (POC) for duties and decisions related to the Program and Execution Modules. This includes accesses, library updates, control updates, and data file reconciliation
- Review and approve SPM requests for changes to the Advance Planning and DSA algorithms to ensure financial validity and approval by OPNAV sponsor
- Coordinate with NAVSEA 04, the Fleet, Shipyard Activities, and FMB to maintain and update the NMP man-day rates in the NDE Program Module
- Participate in the NMP Policy Implementation Conferences held by NAVSEA 04

4-9.5.5 NAVSEA 014 O&MN COMPTROLLER

- Publish official guidance on all O&MN NMP budget and execution actions/issues in coordination with NAVSEA 013, as required
- Provide input to NAVSEA 013, as required, in the establishment and publication of Standard Operating Procedures for NMP financial management
- Issue budget controls for NMP OMN requirements
- Perform duties of financial management oversight of NMP installation requirements within the O&MN appropriation
- Coordinate and review budget exhibits, with the SPM, for the NMP O&MN Modernization Support budget prior to submission. Ensure exhibit information is accurate and consistent. Submit the NMP O&MN budget to FMB
- Forward DoN, OSD and Congressional O&MN budget adjustments/questions to NAVSEA SPMs for response/reclama. Review, approve, and consolidate final responses and submit
- Establish and update the Chart of Accounts in STARS for execution
- Establish NMP O&MN allocations in STARS and process changes to allocation values
- Enter controls and funding allocations into STARS
- Review, approve, and sign NAVSEA NMP O&MN installation funding documents, utilizing the NDE Execution Module
- Review, approve, and process funding reprogramming requested by the SPMs to finance funding adjustments including cost increases, cost growth, emergent work, and proper alignment of controls for budget submission
- Review and approve all SPM obligation plans
- Monitor obligations and expenditures to ensure optimum utilization of funds and to allow reprogramming of un-obligated and unexpended funds prior to appropriation expiration.
- Coordinate SPM input to the FMB Midyear Execution Reviews

4-9.5.6 NAVSEA 015 NWCF Comptroller

- Review and approve NAVSEA 04-developed public sector NMP man-day rates and provide to FMB via the Naval Shipyard budgets

4-9.6 Space and Naval Warfare Systems Command (SPAWAR) and Naval Air Systems Command (NAVAIR)

- Perform duties as financial manager oversight of the NMP equipment and installation requirements, under their cognizance, within the OPN or APN appropriation
- Publish guidance on NMP OPN or APN budget and execution actions/issues in coordination with NAVSEA, as required
- Coordinate and review budget exhibits, with the LCMs/PARMs, prior to submission. Ensure exhibit information is accurate and consistent. Submit official budgets to FMB
- Provide DoN, OSD and Congressional OPN and APN budget adjustments/questions to LCMs/PARMs for response/reclama coordination. Review, approve, and submit final responses
- Transfer (by PD) NMP OPN and APN P-1 line installation funding to NAVSEA, for efforts being funded under NAVSEA contract
- Issue NMP budget controls
- Establish all NMP STARS allocations in accordance with the Chart of Accounts, document commitments and obligations, and prepare requests for revisions to STARS as required
- Review, approve, and sign NAVSEA NMP equipment and installation funding documents, utilizing the official System Command Financial Management Information System, for issuance to performing activities
- Review/validate compensation recommended by LCM/PARMs to finance large cost increases and emergent work.
- Process reprogramming actions
- Review and approve LCM/PARM obligation plans
- Monitor obligations and expenditures to ensure optimum utilization of funds and to allow reprogramming of unobligated and unexpended funds prior to appropriation expiration
- Coordinate FMB Midyear Execution Reviews
- Participate in NMP scheduling conferences to review status of modernization efforts and participate in the NMP Policy Implementation Conferences held by NAVSEA 04

4-9.7 Naval Supervising Activity (NSA)

- Accomplish NMP install efforts tasked and funded by the SYSCOMs
- Accept, control and expend NMP install funds in accordance with SYSCOM tasking and reference S4(a)
- Monitor expenditures of obligated funds; respond to SYSCOM requests for expenditure status; and, assist in recovery of unexpended funds
- Provide PREs and FREs in accordance with reference S4(c)
- Advise SPM at the first indication that funds in any line of NMP accounting may be insufficient to accomplish tasks assigned. Provide recommended alternative plans of action
- Provide FPOs, when appropriate, in accordance with reference S4(d)

4-9.8 Planning Yards (PYs) (Designated NSYs, SUPSHIPs and Private Contractors)

- Develop Advance Planning (including NSA Provided Material) and Installation man-day estimates as tasked/funded by SPMs/PARMs/TYCOMs
- Execute DSA efforts in accordance with SPM/PARM/TYCOM tasking and DSA product/effort milestones
- Advise SPM/PARM/TYCOM at the first indication that funding may be insufficient to accomplish assigned tasking. Provide recommended plans of action

4-9.9 FLTCDRs/TYCOMs

- Participate in the depot level maintenance availability scheduling conferences and provide formal schedule changes to CNO (N43) for approval and entry into the NDE Logistics Application
- Submit recommendations to OPNAV for prioritization of Program SCs. Prioritize Fleet SCs
- Coordinate scheduling and integration of maintenance and modernization through participation in Work Package Integration Conferences (WPICs) for the Surface ship NMP, and in Project Review Conference (PRC) for the Carrier NMP. Also develop the SC and Repair Package (SARP) to facilitate this integration
- Coordinate with AIT Managers the scheduling of NMP installations by AIT and make platforms available in accordance with agreed upon schedules
- Fund installation of Fleet SCs, and all other maintenance efforts for assigned ships.
- Provide tasking and funding to the Planning Yards for development of Fleet "follow-on" SIDs. Provide the same for initial SID development for Program SCS with SPM concurrence. When desired, provide SCD tasking and funding direct to PYs for Fleet SC development (Surface and Carrier TYCOMs only).
- Fund the FLTCDR share of depot level availability "pro-rated" costs
- Participate in NMP Policy Implementation Conferences held by NAVSEA 04.

SUBSECTION 4-10 SCD SUBMISSION CHECKLIST

This subsection does not apply to Submarine modernization (see Section 9). To avoid the need for rework and potential administrative delays during the Technical Assessment, Alteration Figure of Merit (AFOM), or CBA portions of the Navy Modernization NMP, it is important to ensure that all portions of the SCD and CSW are completed correctly and accurately. BEFORE selecting the "SUBMIT" button, has the Initiator/Submitter:

- All Phases:
  - Provided a description of the proposed SC. If known provide referenced to supporting documentation (including Initial Capability or Capability Design) documents, Fleet programs (such as the Cumbersome Work Practices (CWP), Capital Investment for Labor (CIL), Engineering for Reduced Maintenance (ERM) or the Troubled Systems Process (TSP), etc.)
    Note: The description should allow the SC to stand on its own. In Phase I it is not expected that all the details are available. Only include items that you know or anticipate to be available
  - Clearly defined the impact to the Fleet if the SCD is not recommended for inclusion in the MP
  - Provided sufficient information, including references such as test reports, etc. for the level of improvement that the SC will provide in order to allow the TYCOM(s) to correctly assign the correct AFOM Rating Scale values to the SCD
    Note: Do not attempt to create this information if you do not have it. Phase I only requires information that is known
  - Provided/selected names for PARM, TYCOM and Technical POCs. These can be marked TBD for submittal. However, it is better to fill them in if known
  - Correctly selected the appropriate Naval Capabilities in the AFOM section of the SCD
    - For SCs that are envisioned to provide a sustainment of current capability, have the associated capabilities been selected and has sufficient reliability, maintainability, operational availability, logistics supportability benefit etc. been provided in the description and/or have references or links been articulated
    - For SCs that provide training capability, have the associated capabilities or capability been annotated (e.g. the training system provides a capability to "train like we fight")
    - If the SC is an HM&E alteration, is a capability under SEA BASE selected as a default
  - CBA CSW:
    - Are the entries provided in thousands of dollars
    - Do the dollar totals for each fiscal year in Section I (Investment Section) match the dollar totals in each fiscal year for Section II (Appropriation Section)
    - Do Sections I and II Cumulative Totals match
    - Does Section II contain ALL mandatory Appropriations, BLI, Program Element (PE) and Budget Submitting Office (BSO) information
    - Does the sum total number of units installed on ship and shore match the Total Production Units (TPU) in Section 4 (Fielding Plan)
    - Did error messages appear during the completion of the CSW that were ignored or deleted? If so, recheck the entries

- Phase II:
  - Provide the information that you have and that has been developed during the preliminary engineering. If you don't know an item or it's not applicable, do not "make it up".
  - If there is a non-permanent change required, has all the information been provided
  - Are all known conjunctive and other related SCs identified
  - Are there any differences in installation applicability from Phase I
  - Was an ESWBS number included rather than "unknown"
- Phase IIa/III:
  - Were all Phase II checklist issues above addressed
  - Are all Certifications (ILS, Computer Program, etc.) at system and integrated levels, ILS, HSI and safety considerations identified/quantified
  - Were all-unique specifications identified
  - Are distributed systems impacts quantified in detail to support installation and checkout
  - See general CBA CSW questions. Are all procurement/installation cost requirements; including any installing activity support costs identified
  - Have all sustainment/life cycle costs and funding been identified e.g. is "total cost" visible to the Decision Board

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SUBSECTION 5-1 MATERIAL INTRODUCTION

5-1.1 Scope

This section of the Navy Modernization Process (NMP) Management and Operations Manual defines the policies, responsibilities, and procedures associated with the identification, acquisition, procurement, and installation of Ship Change (SC) material.

The definition of material is any item that is tangible (to include hardware, software, and firmware) used to change a ship's configuration.

The Ship Change Document (SCD) Submitter shall ensure that all material is identified, procured and available for installation of the SC. Additionally, the Submitter shall ensure that material is entered in the Navy Data Environment (NDE) Material List so the Hardware System Command (HSC), Inventory Control Point (ICP) (Navy or Defense Logistics Agency (DLA)), installation activity or designated procuring activity can procure material for installation of the SC. All material costs estimates shall be available no later than Decision Point (DP) 3 as part of the SCD Cost Benefit Analysis (CBA). Submarines are exempt from the Entitled Process; however the Submarine Force material processes are addressed in this subsection.

Material codes utilized throughout section 5 are explained and defined in Exhibit S5-2 through Exhibit S5-5, Exhibit S5-9 and Exhibit S5-10.

Notes specific to Submarine Force modernization:

- The Submarine Force does not identify software and firmware in NDE-NM for the purposes of authorizing work

5-1.2 Background

The NMP mission is to provide a disciplined process to deliver operational and technical modifications to the fleet in the most operationally effective and cost efficient way. It defines a standard methodology to plan, budget, engineer, and install timely, effective, and affordable shipboard improvements while maintaining configuration management and supportability.

- This subsection presents material management procedures and responsibilities that span the entire NMP

Some material may be centrally managed and procured by a HSC designated activity on an as-required basis ranging from multi-hull to multi-year procurement. Other SC material, referred to as Naval Supervisory Activity (NSA) provided material, shall be requisitioned from the Federal Supply System or locally procured or fabricated by the NSA/Installing Activity (IA).

5-1.3 Policies and Guidance

Key material management policies to be used with this manual are as follows:

- **No** Logistically Significant Material (LSM) **shall** be procured without required support. Specific logistics support requirements and milestones are contained in this manual, Section

6

- All actions taken to identify and procure material for SCs shall be designed to promote interoperability as a first priority and to promote standardization as a second priority
- Standard stock material shall be used on the SCD Material List where possible. Screening of the Federal Logistic Information Service (FLIS) will be conducted in development of the Material List to allow for maximum utilization of standard stock material
- HSC and ICP Centrally Provided Material shall be used to the maximum extent practical to facilitate standardization and timely delivery of material
- Procurement of material through commercial vendors is authorized when it has been determined that the Federal Supply System (FSS) is unable to support the required delivery dates for a specific installation as defined by the Navy Modernization Milestones (Appendix G)
- Material shall be procured in compliance with all Department of Defense (DoD) procurement and contracting regulations
- NDE has been designated by the Chief of Naval Operations (CNO) as the central repository for all SC material information
- Material requirements shall be identified accurately and in detail as early as possible in the NMP as the SCD proceeds through the various phases. These requirements shall be formally documented in accordance with Appendix A and reference S5(a)
- FLIS, Hull Equipment Data Research System (HEDRS), and commercial information sources shall be utilized in the selection of standard components

Note: This policy is not intended to preclude awarding of multi-year contracts or contract options for out-year quantities.

- If the material is not available by the Industrial Availability Start Date, a later material availability milestone or workaround must be specifically negotiated by the Ship Program Manager (SPM), Type Commanders (TYCOMs), SCD Submitter and the Ship's Maintenance Team (as part of the Regional Maintenance Center (RMC))
- Maximum effort to standardize material shall be achieved at the SCD and Ship's Installation Drawing level. When feasible, standardization shall be across ship classes
- Material identified on the SCD by a Technical Design Agent (TDA) (i.e. Planning Yard (PY), In Service Engineering Agent (ISEA), Warrant Holder, etc.) as a non-deviation, or sole source, item shall not be substituted. The TDA shall provide justification for the non-deviation and or sole source requirement(s) as an attachment to the SCD
- The NDE Material Dictionary/Procurement Manager shall be kept current and up-to-date at all times by the authoritative source i.e. Participating Acquisition Resource Manager (PARM), SPM, Naval Inventory Control Point – Mechanicsburg (NAVICP-M), or other designated personnel

5-1.4 Responsibilities

The NMP material management process involves specific functions as defined in the following sections.

5-1.4.1 SCD Submitter

The SCD Submitter or designated representative shall:

- Identify known SC material – Hardware, Software, and Firmware (as applicable) in accordance with (IAW) Exhibit S5-1 "Criteria for Entry in NDE". Material must be entered into the NDE Material List when any ONE of the Exhibit S5-1 criteria is met
- Provide updated information, as SCD progresses through the various NMP phases
- Plan, budget, and monitor procurement of SC material
- Verify accuracy of CBA for material procurement costs
- Provide actual material identification, as it is known during each of the SCD Phases
- Update material lists with actual material installed for individual installations
- Enter accurate known material requirements in NDE during SCD Phases II through III
- Material managers shall provide accurate and timely material status information in NDE

5-1.4.2 SPM

The SPM or designated representative shall:

- Verify accuracy of SC material – Hardware (HW), Software (SW), and Firmware (FW) (as applicable) in accordance with Appendix D Business Rules
- Provide and verify updated information, as SCD progresses through the various NMP phases
- Monitor and coordinate procurement of SC material in such a manner as to promote standardization
- Monitor actual material identification as it is known during each of the SC Phases
- Monitor the requisitioning and draw down of Navy and DLA ICP material for the SC (usually provided by the NSA/RMC/IA)
- Verify that material lists are updated with actual material installed for individual installations
- Enter accurate material requirements in NDE as a result of drawing development in Phase IV
- Ensures that accurate and timely material status information is in NDE

5-1.4.3 Other

Other agents, as identified below, shall:

- NSA/IA will notify the SPM of the material availability status of SC material not received by Start Of Availability (SOA) for Program SCs
- NSA/IA will notify the Type Commander (TYCOM) of the material availability status of SC material not received by SOA for Fleet SCs
- NAVICP-M is responsible for accepting a NDE Material download of National Stock Numbered (NSN) requirements from NDE, at two week intervals, validating the information, assigning document numbers to each requirement and forwarding those forecasted requirements documents to the appropriate ICPs. DLA Special Program Requirements (SPRs) and Navy Planned Program Requirements (PPRs) are used as the Military Standard Transaction Reporting and Accounting Procedures (MILSTRAP) documents for this forecasting. The requirements must be at least 3 months in the future and will be accepted

for processing up to 6 years in the future

Navy ICPs/DLA Defense Supply Centers (DSCs) are responsible for procurement to support Post DP 3 approved, forecasted and accepted NDE requirements.

- NAVICP-M begins the NAVICP-M draw down reporting process IAW Navy Modernization milestone charts in Appendix G, by reviewing hull NDE reports. A requisition is identified by the NSA/IA Unit Identification Code (UIC) and the 500/600 Project Code. A review of the NAVICP-M file is conducted for requisitions submitted for NDE items. If no requisition is identified, correspondence is submitted requesting draw down information. Final draw down reports are completed at A+30. Copies of these reports are submitted to the appropriate SPMs and the installing and or material requisitioning activities

SUBSECTION 5-2 MATERIAL IDENTIFICATION

5-2.1 Scope

This subsection addresses the identification of material for a given SC beginning with Phase I of the SCD. Each successive Phase of the SCD may add to the material identification information.

The procedures for material identification are based on a succession of Phases that provide progressively greater detail. This includes:

- SCD
- SC Installation Drawings (SIDs)
- Advance Planning Letter, including NDE 4720/3 Report
- Letter of Authorization, including NDE 4720/3 Report

Individuals and organizations associated with the design, planning, acquisition and installation of a SC should be dedicated to achieving standardization.

5-2.2 Criteria for identification

Every SCD submitter or designated representative is required to identify material utilizing the Material Module of NDE. This will include Hardware, Software, and Firmware as required. For specific details concerning the subject, see Appendix D, Business Rule 265.1. In addition, this subsection provides amplification with respect to specific data fields cited in the SCD Technical Specification.

The SCD submitter or designated representative shall ensure that material (including planned and actual) is entered, including Best Estimated Delivery Dates (BEDD), into NDE beginning with SCD Phase I through SCD Phase III, as it becomes available thru design maturity to facilitate accurate configuration identification, cost estimating and accounting. NAVICP-M via the NDE/ NAVICP-M Program Requirements Interface System Module (PRISM) interface will transmit the BEDDs to NDE after SCD Phase III approval.

5-2.3 Material Identification Categories

The process of identifying material requirements includes determining the material's category. Material identification categories are based at the level which material is procured and the relative material availability. These attributes are explained in the following paragraphs.

5-2.3.1 Procurement Level

The following paragraphs describe the various levels of procurement authority.

5-2.3.1.1 Hardware Systems Command (HSC) Centrally Provided Material

HSC Centrally Provided Material is all material procured by a material command and funded separately from the installation cost. This material is budgeted, funded and managed by the designated material manager and availability/procurement information is reported via NDE.

5-2.3.1.2 Naval Supervising Activity (NSA) Provided Material

NSA Provided Material consists of all material procured or requisitioned using SC installation funds. This includes all ICP material requisitioned via government supply (NAVICP-M /DLA/NAVICP-P, etc.) and any locally procured material not listed on the SCD Allowance Material List (AML) but listed on the installation drawing bill of material. The NSA is responsible for logistics support, including Provisioning Technical Documentation (PTD), for all locally procured standard and non-standard material where it may be required. Material control and management are the responsibility of the NSA.

5-2.3.1.3 Centrally Provided Material (CPM)

CPM is obtained by the NSA/IA from HSC, NAVICP-M, NAVICP-P, DLA, ISEA, or PY. Factors considered in designating CPM are technical and quality constraints; logistics support requirements, and criticality of the material. Activities designated to procure CPM will be responsible for the material control and management functions including logistics support as delineated in paragraph 5-2.4.

5-2.3.1.4 Installing Activity Furnished Material (IAF)

IAF Material that is identified in the SID generally does not require logistics support and is normally provided by the installing activity. Examples: Shop Stores/Shipyard Stock/Raw Material for Fabrication.

5-2.3.1.5 General

All HSC and logistically significant ICP requirements should be identified in the SCD Material List and as the design matures additional material updates shall be added.

5-2.3.1.6 Top-Down-Break-Down

Material shall be identified at a level sufficient to identify the configuration of the SC. Identify each item in the SCD Material List by Nomenclature, Mark and Mod (or AN/ nomenclature), SW/FW Version number (to the Patch level), Functional description, Cognizance (COG) code (if available), National Stock Number (NSN) and/or part/model number/symbol and Contractor And Government Entity (CAGE)/manufacturer, Manufacturers/NAVY Drawing /piece number, quantity, unit of issue, estimated unit cost, Procuring Authority and SC Negotiated Procuring Agent, Military Specification (MILSPEC) and Allowance Equipage List/Allowance Parts List (AEL) number, if available).

Top line system and its consisting-of items (footprint modules) – Example:

1. Gun Computing System, MK 160 Mod 10:
   Enter all available info quoted in paragraph above.

Consisting of:

1a. Display Console (GFCS) OJ-719(V)11/UYQ-70(V)2
Enter all available info quoted in paragraph above.

1b. Display Console (GEC 1) OJ-719(V) X/UYQ-70(V)3
Enter all available info quoted in paragraph above.
1c. IFF Control Indicator C-10064/UPX-24(V)
Enter all available info quoted in paragraph above. **(Other Critical Parts being funded/provided by the PARM**), Example:
2. Velocimeter MK 5 Mod 0
Enter all available info quoted in paragraph above.
3. Switch, Lever Operated Sym 2638.1
Enter all available info quoted in paragraph above.
4. Comm Panel LS-653
Enter all available info quoted in paragraph above.

5-2.3.2 Item Number

This field represents a sequential numbering of items in the SCD material list (for reference purposes only).

5-2.3.3 Description

Provide a description of the material being identified on the particular Item Number line. Identification shall include Nomenclature, Mark and Mod (or AN/ Nomenclature), SW/FW Version number (to the Patch level), functional description, COG code, NSN and/or part number/symbol or model number and CAGE/manufacturer, estimated cost per unit and Allowance Parts List (APL) (if available). This is the minimum level of information that is acceptable at DP 2.

5-2.3.4 Unit of Issue

Provide the standard Unit of Issue (i.e. each (ea), package (pg), foot (ft), etc.) for the material being identified on the particular Item Number line.

5-2.3.5 Quantity

Provide the highest quantity required per ship. After approval to procure and install, DP 3, the specific quantities required by ship class and hull will be inputted.

5-2.3.6 Procuring Authority

The Procuring Authority identifies the designated cognizant procurement activity (i.e. Hardware Systems Command, Inventory Control Point (HSC, ICP, etc.) as assigned.

5-2.3.7 Procuring Agent

The Procuring Agent is the activity that has been delegated the procurement authority for this SCD, to include requisitioning and receiving of material (i.e. PY, IA, ISEA, NSA, etc.).

5-2.4 Material Acquisition Responsibilities

Appropriate acquisition strategies shall be employed by all acquisition activities to achieve intra-class and intra-Navy standardization.

5-2.4.1 Hardware Systems Commands (HSCs)

HSCs will plan, program, budget for and procure all HSC managed material and associated logistics support when the items are research and development related, of unstable design, or technically complex, and provide delivery status of hardware to support installation planning.

5-2.4.2 Naval Inventory Control Point-Mechanicsburg (NAVICP-M)

NAVICP-M will procure material and associated logistics support when the item is centrally managed by NAVICP-M. If an item requires logistics support other than Supply Support, Technical Manuals (TMs) and Planned Maintenance System (PMS), procurement will be referred back to the HSC.

5-2.4.3 Defense Logistics Agency (DLA)

DLA will procure consumable material assigned to their cognizance. Any material requiring logistics support, other than Supply Support, TMs and PMS, will be referred back to the HSC.

5-2.4.4 Planning Yards (PYs) and In-Service Engineering Agents (ISEAs)

These activities will procure material and associated logistics support when directed by the HSC. Items requiring logistics support other than Supply Support, TMs and PMS will be procured by the HSC and not by these activities. Exceptions to this guidance may occur when action is deemed necessary by the SPM and the NSA/IA is separately tasked and funded.

5-2.4.5 Naval Supervising Activity/Installing Activity (NSA/IA)

NSA/IAs will requisition from the Federal Supply System or procure incidental material. Material requiring logistics support normally will not be procured by the NSA/IA. However, if such material is locally procured, the NSA/IA should procure/provide/submit appropriate PTD, PMS and TMs to cover ILS requirements.

5-2.4.6 Director, Communications Security Material System (DCMS)

DCMS equipment is delivered to Ship's Communications Material Security (SCMS) custodian 120 days prior to the End Of Availability (EOA) or earlier for availabilities of shorter duration.

5-2.5 Advance Planning Letter

The Advance Planning Letter issued by the cognizant SPM will list all SCs planned for installation during a scheduled availability. The latest material projections to support the planned SC package can be obtained from the NDE TP-05 or Automated NDE 4720 Report. The supporting submitters and ICPs will confirm, via NDE update, within 30 days upon

notification of DP 3 approval, the expected availability of the material under their cognizance to support the availability schedule and to identify any items that will not be available by SOA. For all material not available at SOA, a BEDD will be provided. The NSA and SPM should evaluate the RDD, assess the impact of the late delivery, and determine what alternatives are available to effectively proceed.

5-2.6 Alteration/SC Drawings

Alteration drawings are addressed in Section 3 of this manual. The following subparagraph addresses the material aspects of these drawings.

5-2.6.1 Ship Change Installation Drawings (SIDs)

- SIDs reflect the SC Bill of Material (BOM) contained in the SCD and tailored to a specific ship within a ship class
- During preparation of the SIDs and preferably within 30 days after completion of design ship check, the PY performs the following in accordance with Appendix I of this manual:
  - Review existing documentation pertaining to the SC
  - Recommend and identify material additions, deletions and/or changes to the SCD Material List utilizing the NDE Material Module
- In addition, the SPM or their designated representative must review all new material information. This review should ensure that:
  - All necessary information to identify equipment required is provided (SID may not identify procurement source code)
  - To help reduce costs to the Navy, every effort shall be made to utilize existing standard stock material. Utilization of Navy supported equipment or components should be considered first. Some tools available are HEDRS, General Distribution Allowance Parts List (GDAPL), FLIS, HAYSTACK and Configuration Data Managers Database- Open Architecture (CDMD-OA)
  - SC material is not duplicated
  - SC material listed in the SID BOM are listed in NDE
- New material requirements meeting the NDE criteria, as established in paragraph 5-2.8 and Exhibit S5-1, are entered in NDE and any material additions or deletions are made to NDE as appropriate

5-2.7 Letter of Authorization (LOA)

The LOA provides procurement and requisitioning instructions or shipping data for material required to accomplish SCs. The letter includes the NDE 4720/3 Report or a statement that the NDE 4720/3 Report is complete and the NSA/IA is authorized to extract it from NDE.

- NSA/IAs, at this point, have authorization information with which to proceed with material procurement/requisitioning

The NDE 4720/3 Report is structured by SC number to show:

- The material identification and quantity of each significant item to be provided,

requisitioned, or purchased

- The activity to which the requisition shall be submitted. If material is to be provided without requisitioning action (i.e., pushed by the submitter to the NSA/IA, rather than being pulled), the NDE 4720/3 Report will be annotated as such
- The use of project codes IAW SUBSECTION 5-6, pre-assigned requisition number, where provided, and BEDD provided by the Submitter/ICP
- Changes to the LOA shall include material availability information. If a SC is deferred, cognizant material managers must be advised and disposition instructions for received SC material must be provided to the NSA/IA. If there are no changes in material status, LOA changes shall include a statement to that effect
- For more information about Letters of Authorization see Section 7 of this manual

5-2.8 Navy Data Environment (NDE) Material Information

As a SCD develops, each successive Phase produces more definitive material requirement information, which will be reflected in NDE. It is Navy Modernization policy that the NDE SCD Material List will be maintained up-to-date during the life of the SC. The SPM or their designated representative has total responsibility for maintenance of this data and all changes will be approved by the cognizant SPM. A NDE SCD Material List is to be entered/updated when:

- The SPM approves data (additions, changes, and deletions) that have been submitted by PYs with a Liaison Action Request (LAR) or a marked-up NDE 4720/3 Report
- SIDs are issued
- The SPM determines at any time (during the life of the SC) that significant material changes warrant SCD Material List update

The following may be listed, but no material forecast is generated: Clothing/Textiles/Medical and Communication Security Material and General Services Administration (GSA) managed material.

Exhibit S5-1 shows the criteria for material entry into NDE. To enter standard/stock numbered SC material in NDE, the following data elements are mandatory:

- Material Identification (MTLID) (comprised of NSN, Temporary Navy Item Control Number (TNICN) or nomenclature which uniquely identifies an item of material)
- Quantity required per ship (if quantities vary on applicable ships, these differences should be listed)

Mandatory data elements for non-standard/ non-stock numbered material requirements are listed in paragraph 5-3.10 and Exhibit S5-1.

5-2.9 Procurement Lead Time (PLT)

PLT is the time, in months, to procure an item of material, beginning with initiation of procurement action and ending with date of delivery. “PLT” includes administrative processing time, production time and delivery times. The “P” means 'procurement' because it not only includes “production time”, but also the other facets of equipment procurement. If

manufacturers production lead-time is entered as “PLT” in NDE, it is highly probable that sufficient time will not be reserved for equipment procurement when SCs are budgeted and, therefore, SC installations would not be supported.

SUBSECTION 5-3 MATERIAL REQUIREMENTS PROCESSING

5-3.1 Background

This subsection details and addresses identification, acquisition and management of material. Once material required for a Class or Hull SC is identified and the SC is approved for procurement and installation, acquisition and delivery of material begins. Each SC Submitter/PARM or their designated representative must, in conjunction with the SPM, implement the following actions:

- Identify SC material requirements, enter data in the NDE Procurement Manager/Material Dictionary and update the SCD Material List in NDE (Submitter/PARM)
- Verify SC material requirements (SPM)
- Assure timely development of the fielding plan (Not Later Than (NLT) DP 3)) (Submitter/PARM)
- Monitor material delivery and maintain current status (BEDDs) in NDE (Submitter/PARM)
- Evaluate material status (BEDDs) to ensure material availability for SC installation (SPM/TYCOM)
- Provide, in writing, to all concerned, the shipping address via the LOA, of the designated NSA/IA (SPM)
- Control and issue material assets (Submitter/PARM)
- Provide guidance for the disposition of any excess HSC material (Submitter/PARM)
- Provide guidance for the disposition of any excess NSA provided material (SPM/TYCOM)

5-3.2 Hardware Systems Command (HSC) Processing of Equipment

HSC submitters or their designated representative will review the status of SC material requirements in NDE for accuracy and validity and will update accordingly. Submitters will accept SC material requirements for SC in NDE as firm requirements against planned delivery dates. Determination of whether the material requirements will be satisfied from current assets (on hand, under procurement, due from repair) or special procurement will be made by the submitter, subject to budget constraints.

If there is a problem in allocating assets for a hull in a given Fiscal Year (FY), the submitter will enter the last two digits of the 9999 codes (see Exhibit S5-2) in the Best Estimated Delivery Date Remarks (BEDDRMKS) field of NDE. In order for the submitter to provide accurate availability status, resolution of these problems, by the SPM and the submitter should be accomplished as soon as possible. Upon completion of appropriate action by the SPM and/or submitter, these codes should be removed from NDE by the submitter. The 9999-09, 10, 13, 16, 18, 19 and 20 codes will remain in NDE until the SC is reported complete. For Alteration Installation Team (AIT) installations, the material manager enters a "10" to identify "Material provided by AIT" and "18" for "Material installed by AIT".

5-3.3 Material Requirements Planning

This section details Naval Sea Systems Command (NAVSEA) Managed 2F, 2J, 2S, Naval Air

Systems Command (NAVAIR) managed 2Q, 2V, 2W, 8M and Space and Naval Warfare Systems Command (SPAWAR) managed 2Z and 4M COG material, and DCMS managed cryptographic material.

5-3.3.1 Material Management

Based on programmed SCs, the PARM/LCM will plan, budget, procure, control, and distribute material under their cognizance to meet material requirements. PARMs/LCMs responsible for HSC material will provide, enter and maintain availability data in NDE for DP 3 approved SCs. It is necessary PARMs/LCMs work closely with the SPM to ensure that NDE accurately indicates the ability or inability to fill approved SC requirements by the required delivery date.

All field activities shall require mandatory use of NDE and draw down procedures for material. NSAs/IAs are directed to ensure the requisitioning/draw down of NDE identified ICP material, which has positive Supply Support status, NLT A-150. When the IA elects not to draw down material reflected in NDE, the SPM must be notified of items not being drawn down along with reasons for non-draw down (i.e. rolled over, shop stores, locally procuring, etc.).

5-3.3.2 Space and Naval Warfare Systems Command (SPAWAR)

SPAWAR will ship and control 2Z COG material in support of SPAWAR SC installations. No requisitioning action is required by the NSA/IA and/or end item user for approved SC requirements.

5-3.3.3 NDE 4720 Report

When the NDE 4720/3 Report or TP-05 Report displays a contract number and a Military Standard Requisitioning and Issue Procedures (MILSTRIP) document number, material will be shipped direct (pushed) from the contractor, and no requisitioning action is required by the NSA/IA. The Material Inspection and Receiving Report (DD-250) and the shipping containers will include the MILSTRIP document number.

5-3.3.4 Non-Designated Availability Site

When the availability site has not been determined, the submitter will inform the manufacturer or supply depot to hold shipment in abeyance until a destination has been determined by the SPM.

5-3.3.5 Change in Availability Site

When the designated availability site is changed, the original availability site will:

- Ship all material received for that availability to the new availability site along with copies of all DD-250's
- Advise the new availability site, the submitter, and the cognizant SPM of the shipping data for the above material (i.e. Government Bill of Lading (GBL), Transportation Account Code (TAC) number, requisition number, mode of shipment used, point of contact, telephone number, etc.)
- Provide the new availability site with a listing of all material required by SC number,

annotated to indicate shipping data for items shipped by the old availability site, and the latest requisition status of material not yet received by the old availability site

- Advise cognizant submitter of requisitions for material not yet received and request shipment to the new availability site with a listing of all material required by SC number annotated to indicate shipping data or latest requisition status

5-3.4 Material Requisitions: Naval Air Systems Command (NAVAIR) Managed 2Q, 2V, 2W, and 8M COG Material

NAVAIR will review material requirements in NDE and enter BEDDs for equipment under their cognizance. Non-funded requisitions should be submitted to NAVAIR IAW the instructions on the NDE 4720/3 Report.

5-3.5 Material Requisitions: Director, Communications Security Material System (DCMS) (T63) Managed 2L COG Material

No material will be requisitioned directly from DCMS (T63). Requisitions should be forwarded to NAVICP-M (N35) for manual material directive initiation to DCMS. All DCMS (T63) SC material to be installed will be shipped directly to the ships Communications Security Material custodian to arrive 120 days prior to EOA or at a suitable date to support availabilities of shorter durations.

5-3.6 Material Requisitions: Defense Supply Center Philadelphia (DSCP) Managed 9D and 9L COG Material

9D COG clothing and textiles items and 9L COG medical and non-medical items under DSCP management cannot be processed for forecasting through the PRISM. NSA/IAs should submit requisitions as early as possible for these requirements. Supply Support will be based on requisition status.

5-3.7 Material Requirements for 9E, 9F, 9I, 9J, 9Q, 9W, and 9Y COG Material

- Army Troop Support and Aviation (9E)
- Warner Robins Air Logistics Center (9F)
- Ogden Air Logistics Center (9I)
- Oklahoma Air Logistics Center (9J)
- General Services Administration (9Q)
- Army Troop Support and Aviation Material Readiness Command (9W)
- Army Electronics Command (9Y) managed material

Requisitions should be submitted to these activities in accordance with instructions on the NDE 4720 Report. Material requirements managed by the above Material Managers cannot be processed for forecasting through the PRISM. NSA/IAs should submit requisitions as early as possible for these requirements. Supply Support will be based on requisition status.

5-3.8 Material Requisitions: Naval Inventory Control Point-Mechanicsburg (NAVICP-M) and Planned Program Requirements (PPRs)

5-3.8.1 Identification of PPRs

- Material requirements are passed electronically from NDE via Naval Sea Logistics Center (NSLC) to NAVICP-M approximately every two weeks through the use of an NDE/PRISM interface. This process takes material requirements from NDE Material Lists for Post DP 3 approved SCs, and passes them to NAVICP-M/DLA for material support analysis and forecasting
- For DLA material, SPRs are forwarded by NAVICP-M to the appropriate DLA DSC ICP. (See SUBSECTION 5-3.8.2.7.3)
- The NDE material requirements for NAVICP-M-COG material are evaluated on an individual basis against on-hand and due-in system assets of TNICNs/NSNs. PRISM establishes reservation documents i.e. PPRs for NAVICP-M-COG material based on requirements forwarded from NDE. A NDE approved requirement will be accepted for support at NAVICP-M if the overhaul/availability start date falls beyond the PLT period. If the overhaul/availability start date falls within the PLT period, the requirement will not be accepted for support unless there is sufficient on-hand or due-in assets to support the requirement in addition to normal fleet demand and other previously established programmed requirements. For rejected requirements (indicated by a "Reject PLT" in the PPR RESPONSE field), a funded requisition should be immediately submitted by the NSA/IA to NAVICP-M to initiate Supply Support. (For PPR Rejects, see Exhibit S5-3)
- For requirements, which are accepted, and PPRs established, material is acquired using the Navy Working Capital Fund (NWCF). This material is then provided to NSA/IA upon submission of a funded requisition

NSA/IAs should closely monitor requisition status and initiate work around procedures or alternate material sources as necessary to ensure support.

5-3.8.2 NAVICP-M Processing Requirements

- NAVICP-M is the Program Support ICP for the Submitters/SPMs and is responsible for the following procedures:
  - The first time a programmed requirement is accepted at NAVICP-M, "PPR LOADED" will appear in the PPR RESPONSE field of NDE. If the requirement was rejected, an explanation is provided in NDE in the PPR RESPONSE field for NAVICP-M items and in the SPR RESPONSE field for DLA items
  - For DLA-managed items, NAVICP-M forwards requirements to the cognizant DSC in the form of SPRs
  - Provide material availability information to NAVSEA via NDE. For all valid requirements, the BEDD will be computed by NAVICP-M for each NDE system maintenance interface cycle. PPR protection - reserves material for SC requisition issue. PPR protection is established to coincide with average requisitioning time frames. PPR protection will move with an accelerated start date unless inside A-90 at which time a requisition should have been dropped to draw down material. PPR protection does not

guarantee reservation of material at the ship level but reserves for general SC requisition issue. SPRS do not protect DLA stock on hand

- The following BEDD coding system is provided in the RSVN CODE field in NDE to provide an in-depth analysis of what the BEDD is based on:
  - "T" - Sufficient assets are on hand in Purpose Code "T" to cover the requirement. The BEDD quantity is computed to be available by the availability start date
  - "A" - Sufficient non-Purpose Code "T" assets are on hand to cover the requirement. The BEDD quantity is computed to be available by the availability start date
  - "C" - Insufficient assets are on hand to cover the requirement. The requirement is covered by a firm procurement with the procurement delivery date, equal to or earlier than the PPR availability start date. The BEDD quantity is computed to be available and is shown as the contract delivery date
  - "D" - Insufficient assets are on hand to cover the requirement. The requirement is covered by a firm procurement, but the delivery date is past the availability start date. The BEDD quantity is computed as not available and is shown as the delivery date
  - "P" - Insufficient assets are on-hand, but the requirement's availability start date exceeds the PLT. The BEDD quantity is computed to be available by the availability start date
  - "R" - Insufficient assets are on hand to cover the requirements. The requirement is in the Procurement Request (PR) stage
  - "Blank" - Insufficient assets on-hand or under firm contract to cover the requirement and PLT exceeds the availability start date. The BEDD quantity is computed to be not available by the availability start date
- Ensure protection of material for requirements by use of PPR until A-90 days
- Update lead-time, unit cost, unit of issue, and Allowance Parts List number for NAVICP-M material

5-3.8.2.1 500/600 Series Project Codes

The 500/600 Series Project Codes are assigned by the requisitioning activity and monitored by NAVICP-M, Code 8341. This series is used for requisitioning material required for industrial ship availabilities including ship overhauls. This project code is used to improve management of material assets. It further relates an industrial requisition to a hull, yard, start date and type of material. The following shows the correct use of the 500/600 Series Project Code when requisitioning NDE/SC material from NAVICP-M ICPs and DLA DSCs.

- First Digit: “5” or “6” - Identifies requirement as being from an industrial customer. Both numbers can be assigned as required by the ordering activity
- Second Digit: Alpha/numeric - Assigned by the ordering activity (at about A-720), or when known, to specify an industrial hull for a specific timeframe
- Third Digit: "S" for approved SC requirements in NDE

[First and second digit assignments and updates should be sent to NAVICP-M (Code 8341) by message, letter or email, annotated by hull number, fiscal year, overhaul start date and overhaul end date by each activity ordering SC material.]

These procedures should be utilized when ordering material for NDE SC requirements. Proper use of project codes when requisitioning will result in expedited issue of material and

identification of SC requirements for draw down tracking purposes.

5-3.8.2.2 Demand Code

The use of Non-recurring Demand Code "P" enables the ICP to identify a requisition for NDE forecast material, known to have been acquired by the ICP in anticipation of such demand.

Use of Non-recurring Demand Code "P" prevents a requisition from creating a separate recurring demand, which would result in stock being procured twice for the same requirement, once for the forecast and once for the requisition.

5-3.8.2.3 NAVICP-M PPR Non-Drawdown

NAVICP-M expects draw down of forecasted material between A-360 and A-30. To ensure the requisition buy-out coincides with the PPR RDD, it is recommended that requisitions be submitted IAW Navy Modernization milestone charts in Appendix G. In order to fully utilize the resources available through the Navy Supply System and to ensure proper Configuration Management (CM) and control of installed equipment, all material requirements will be forwarded to the designated source of supply (stock point or ICP) unless emergency or local purchase is authorized. Failure to utilize material identified in NDE and specifically bought to support scheduled SCs leads to long supply/excess material and will negatively impact NAVICP-M's ability to acquire budget authorization to support future SC requirements. NSA/IAs will advise SPMs or TYCOMs of material that will not be drawn down upon receipt of the planning Letters of Authorization so that NDE forecasting can be corrected. NAVICP-M will develop non-draw down statistics at the A-0 SOA time-frame. Any material not drawn down from the supply system for authorized SCs will be reported. Requisitioning activities will respond to NAVICP-M's inquiries regarding non-drawdown of material.

5-3.8.2.4 Standard Stock Numbers

Standard stock numbered items, which are under NAVICP-M/DLA cognizance and not found in the NDE Dictionary, can be entered in NDE by the Submitter/SPMs. This MTLID will exist only on the Material List when the SC is approved; the requirement will be sent to NAVICP-M via the PRISM interface file. If the NSN/TNICN is not valid, the requirement will be rejected and "REJECT NSN" will appear in the MILSTRIP field of NDE. This will inform the Submitter/SPMs that the MTLID is not valid and a new MTLID must be entered. If NAVICP-M accepts the entry as valid, a record will be created for the MTLID in the NDE Procurement Manager/Material Dictionary.

5-3.8.2.5 Forecasting Validations

This subsection addresses the requirement for ICPs to validate requirements forwarded by the NDE interface. The DoD Supply Chain Material Management Regulation (DoD 4140.1-R) establishes the responsibility for the DoD component receiving PPRs/SPRs to ensure that investment in inventory to support PPRs/SPRs is kept to a minimum. All ICPs, recognizing how volatile the defense budget and modernization priorities are, require validations of the PPRs and SPRs (forecast reservation documents) at various times. Submitter/SPM and TYCOM

cooperation and timeliness of response are of critical importance. Responses to requests for validation should be made as soon as possible (optimum response - within 10 days of receipt of the request) and in the same format as received. The NAVICP-M Maritime Industrial Support Office is the coordinator between the Submitters/SPMs, TYCOMs and DLA DSCs for all forecast validations. The following paragraphs discuss the most common validations.

5-3.8.2.6 Validation Requests from NAVICP-M for NAVICP-M Managed Material PPRs

This subsection describes those validations that are unique to NAVICP-M management material.

5-3.8.2.6.1 Add/Delete Validations:

- Adds:
  - Driven by additions to the NDE programming, resulting in additional PPRs in NAVICP-Ms files
  - Requirements were not previously known, but will affect Supply Support calculations and NAVICP-M budget submissions in the future
- Deletes:
  - Driven by deletions from the previous forecast
  - NAVICP-M budgetary considerations for projected sales that will not occur. After re-calculating the ICPs requirements, Item Managers will need to recommend procurement cancellations or revisions to delivery schedules

5-3.8.2.6.2 NAVICP-M Supply Demand Review (SDR) High Dollar Validations:

- Existing or new PPRs have moved into the procurement window
- Item Manager requests validation prior to initiating the procurement and/or prior to contract award
- Required for those procurements of $100K and over
- Non-response to the validation will result in the elimination of the PPR quantity from the projected or final procurement

5-3.8.2.7 Validation Requests from DLA to NAVSEA for DLA Managed Material

This subsection describes those validations that are unique to DLA managed material.

5-3.8.2.7.1 SPR "PB" Response Code Validations - DLA Point of Entry:

- Requirements that are greater than 10 times the total DLA quarterly forecast demand (worldwide) shall be validated and the DLA DSC notified
- These SPRs are NOT accepted prior to validation
- Non-response to the validation request will result in the rejection of the proposed SPR

5-3.8.2.7.2 High-Dollar Procurement Validations:

- Any one SPR document that will cost a DLA DSC more than $10,000 to support must be validated. DLA requires its DSCs to contact the forecaster to confirm, or validate high-cost SPRs
- When a Submitter or Designated Manager is contacted to validate a high-cost SPR, it is expected that the SPR quantity and support date will be verified. In the event the SPR quantity needs to be increased, decreased, or canceled, or if there are changes in the support date, the manager is expected to coordinate the response with the NAVICP-M Maritime Industrial Support Division
- Processing of the proposed procurement will be suspended until the Submitter or Designated Manager responds to the validation request

5-3.8.2.7.3 Material Requisitions: Defense Logistics Agency (DLA) and Special Program Requirements (SPRs)

5-3.8.3 DLA Processing Procedures (9B/3B, 9C/3C, 9G/3G, 9E/3E and 9I/3I Cogs)

- Material requirements for items under the cognizance of the DLA are transmitted to the DLA center via the SPR process. DLA maintains an automated procedure for supporting the NMP in which requested material is screened to give reasonable assurance that it will be available when needed
- DLA Policy for managing SPRs requires the following:
  - Submission of forecast for SPRs to DSCs shall be made as far in advance of the support date as possible but not in excess of 3 years. SPRs will be rejected if the support date is within 90 days or greater than 3 years from the submission date
  - Material on hand will not be identified, reserved, or protected by DLA for SPRs in anticipation of requisitions from the NSA/IA. However, accepted SPR quantities will be included in item requirement's computations and procurements, thereby providing a reasonable assurance of supply availability by the support date indicated in the SPR forecast
  - DSCs will accept SPRs and initiate procurement in support of forecasts without requiring supporting requisitions in advance, provided the SPR does not exceed specific limitations prescribed by DLA. When an SPR submission exceeds the limits established, the forecasting activity will be advised that an advanced-funded requisition is required to be submitted no later than a specified lead time in advance of the support date
- DSCs will retain SPR requests until one of the following conditions occurs:
  - One procurement lead time/assembly time prior to the support date (availability start date) (in those instances when DLA has advised that procurement and/or assembly is required) has been reached in support of those requirements for which SPR Status Code "PB" was furnished
  - The support date for SPR has elapsed
- For DSC requisitioning procedures, refer to paragraph 5-6.1.5, reference S5(a), and Exhibit S5-8

- The NAVICP-M Maritime Industrial Support Department is responsible for the currency and accuracy of assigned material data fields in NDE

5-3.8.4 SPR Processing Procedures

5-3.8.4.1 DSC Response to SPR Forecasts

The applicable DSC evaluates the SPR being forecasted to determine its acceptability. In accomplishing this evaluation, the size of the forecast quantity relative to the normal demand, the dollar value, the supply status of the item, funding capability of the DSC, accuracy of past forecasts, and the degree of assurance that requisitions will follow are considered.

After receipt of the SPR forecast, the applicable DSC transmits a SPR response with status code, Document Identifier "DYK", or an administrative SPR rejection “DZG” to NAVICP-M. The SPR response is then transmitted by NAVICP-M to the appropriate SPM indicating acceptance or rejection of the SPR. (Response codes applicable to acceptance/rejection are listed in Exhibit S5-4.) Where appropriate, the number of days representing procurement lead-time and/or time required for assembly is provided in the SPR response. NAVICP-M converts the number of days to months and NDE displays this information in the Acquisition Number “ACQ NUM” field. The appropriate response code is inputted into the “SPR RESPONSE” field.

5-3.8.4.2 Rejection of SPR Transactions

DSC edits each SPR transactions for valid entries before processing the inventory records. Errors, which cannot be corrected by the DSC, are transmitted, via the “DZG” document to the Submitter for correction and resubmission. Exhibit S5-5 contains the Reject Advice Codes. NAVICP-M will validate data in the rejected transaction, make necessary corrections, and resubmit the SPR. NAVICP-M will initiate required corrections to the NDE database.

5-3.8.4.3 Follow-up on SPR Forecasts

NAVICP-M will automatically originate required SPR follow-up documents should DSCs fail to provide status of response (DYK) or rejection (DZG) to a new or follow-up SPR request.

5-3.8.4.4 Changing SPRs

Changes in the SPR quantity, supplementary address, project code, cost designator, and/or support date received by NAVICP-M from the appropriate SPM in NDE will be forwarded by NAVICP-M to the cognizant DSC. Changes to other data elements will require cancellation of the original SPR and submission of a new SPR by NAVICP-M.

5-3.8.4.5 Cancellation of SPR Requests

NAVICP-M will submit an SPR cancellation for a previously submitted SPR request if the requirement is deleted in NDE. The applicable DSC will respond to a request for cancellation with response Code "PD".

5-3.8.4.6 SPR Confirmation Procedures

Confirmation is required whenever the value of an SPR is greater than $10,000 per line item or, for high demand value items, where the SPR quantity exceeds the DLA Quarterly Forecast Demand (QFD). The cognizant DSC may request confirmation of the requirement from the forecasting activity (the appropriate SPM) via NAVICP-M. Requests for confirmation to forecasting activities normally are made by correspondence or telephone 90 days prior to initiating procurement. The appropriate SPM must respond to confirmation requests within 75 days or the SPR will be canceled.

5-3.8.4.7 Advance Requisitioning of SPR Material

When the response to an SPR forecast is coded PB, PC, PG, PM, PQ, or PX, a requisition must be forwarded by the designated installing activity to the cognizant DSC earlier than normally required. In the case of response code PB the number of days in advance of the normal submission date will be specified in record positions 62-64 of the SPR response forwarded to NAVICP-M. NAVICP-M will convert the number of days to months and provide the information via NDE. This information will appear in NDE in the “ACQ NUM” field (e.g. PB13).

When the SPR response code indicates that advance requisitioning is necessary the SPM will review the requirement. When verified, the SPM will direct the NSA/IA to submit a funded requisition. The SPM must advise the procuring activity to use 500/600 Series Project Codes applicable to the requirement, the SPR response code, and (when specified in the SPR response) the number of months by which submission should be advanced. If submission will be required prior to issuance of the SC Letter of Authorization, the SPM also will provide the NSA/IA with funding [normally advance planning for Supervisors of Shipbuilding, Conversion and Repair (SUPSHIP)/Ship Repair Facilities (SRFs) and Naval Shipyards (NSYs)].

- NSA/IAs will prepare and submit requisitions IAW the special instructions cited below (depending on the SPR response code applicable):
  - SPR Response Code PB
    - Enter Media and Status Code “S” in record position 7 to indicate whether status should be provided by electronic methods
    - Enter Demand Code "P" in record position 44
    - Enter the UIC of the NSA/IA in record positions 45-50 and the Signal Code in accordance with local procedures for record position 51
    - Enter the letter "S" in record position 62 and the number of months after the requisition date when delivery is desired in record positions 63 and 64
    - Enter Advice Code 2L in record positions 65 and 66

5-3.9 Material Requisitions: Naval Inventory Control Point-Philadelphia (NAVICP-P) Managed Items

Material requirements for NAVICP-P are passed to NAVICP-M via the NDE/PRISM Interface. NAVICP-M will update the data with current costs, and pass the requirements to NAVICP-P.

5-3.10 Temporary Tracking Material Identification (TTMID) Numbers

- When NDE requirements for non-NSN material exist (material not supported by the Federal Supply System), TTMID numbers are assigned by NDE for the SPM to permit entry for potential NAVICP-M/DLA COG items. This number consists of "HH" in the cognizance field, specific user identification, date entered, and a unique, NDE sequentially assigned number. NDE will prompt the user for the following amplifying information:
- Unit of Issue
- Material Description
- Material Characteristics Description
- Manufacturers Drawing Number
- Manufacturer Model Number
- MILSPEC Number

Unit of issue, material description and material characteristics description are mandatory entries, however, all available information, including the submitters name and phone number will promote the optimum response and enable two-way dialog for the cataloger in communicating with the submitter. The SPM Comments field can be used to provide additional information if available.

5-3.11 Non-Standard Programmed Requirements

If a non-standard requirement is entered in the SCD Material List a safe rule of thumb is to provide for an alternate source of supply when a required item will be needed in less than 24 months from the time of entry, due to the cataloging/procurement processes.

5-3.12 Excess Material, Disposition and Defense Logistics Agency's (DLA) Supply Discrepancy Reports (SDRs)

This subparagraph describes procedures to be followed for disposition of material removed during SC installation, guidance on excess material and processing of SDRs to DLA.

5-3.12.1 Disposition Instructions for Removed Equipment and Material

When equipment or material is to be removed as a result of completing a SC, the Submitter should identify SC removal equipment on the SCD. (This information should be provided by the cognizant PARM/Submitter in their development of the SCDs and provided to the applicable SPM in the form of disposition instructions).

5-3.12.2 Excess Material

In some situations, material may have been provided either centrally or locally, but not used in SC accomplishment. For material that is not designated for turn-in/disposition, local supply system Excess Material procedures govern its disposal. For any significant dollar value or quantity of unused material (either locally or centrally provided), consult the material manager for advice before proceeding with material excessing. Refer to DoD Directive 4100.37D for further guidance. For excess Surface Ship non-standard material, contact Ready Resource

Material Program (RRMP) managed by SUPSHIP Newport News, Code 1831. East Coast Point of Contact: (757) 688-8181. West Coast Point of Contact (253) 931-7660.

5-3.12.3 DLA Supply Discrepancy Reports (SDRs)

SDRs are prepared by the activity receiving DLA managed material. SDRs provide notification to the DSC and/or Defense Distribution Depot that the material received varies in the quantity or condition from that shown on the shipping document. In addition, SDRs document deficiencies in packaging/markings that caused material to be vulnerable to loss or damage.

DLA accepts SDRs regardless of dollar value or shipper for DLA managed items. SDRs may be submitted by mail, telephone, electronic mail or message for DLA managed material shipped from Defense Distribution Depots and DLA contractors/vendors.

SDR responses can provide for reshipment of material, versus a financial credit. The submitter must request reshipment on the SDR. Defense Distribution Depots will reship material consistent with the original mode of shipment and availability of the material.

To expedite processing and avoid rejection, SDR submissions must contain all required data. In addition, a point of contact, telephone number, fax number (including Commercial and DSN) and email address should be provided to assist in timely resolution. If the submitter is requesting reshipment, provide the appropriate shipping activity via fax with your request on the cover sheet to reship and include a good shipping address (i.e., building number, street name, etc.).

SDRs involving shortages, overages, wrong items, misdirected shipments and packaging deficiencies will be forwarded to the shipping depot. All other Discrepancy Reports will be forwarded to the responsible DSC.

Additional information and instructions for processing SDRs are outlined in the Defense Logistics Support Command (Defense Logistics Agency) Customer Assistance Handbook. The handbook is available on the DLA web at
http://www.supply.dla.mil/CustomerHandbook/index.htm.

SUBSECTION 5-4 PLANNING

5-4.1 Scope

This subsection addresses the identification of material for a given SC. During each successive SC Phase, the material identification information may be added, deleted, or modified.

Note: The Submarine Force does not use the Ship Decision Point process described in this subsection, but will ensure that material information remains current throughout the material planning process.

NDE Material List Development

- After the initial entry of SCD material, the NDE SC Material List is updated during each successive phase of SC development
- SCD Submitters or their designated representative must work closely with the SPMs and PARMs in order to keep accurate, up-to-date material information in NDE
- NDE SC Material/Software List updates provide needed information for budgeting and procuring the required material

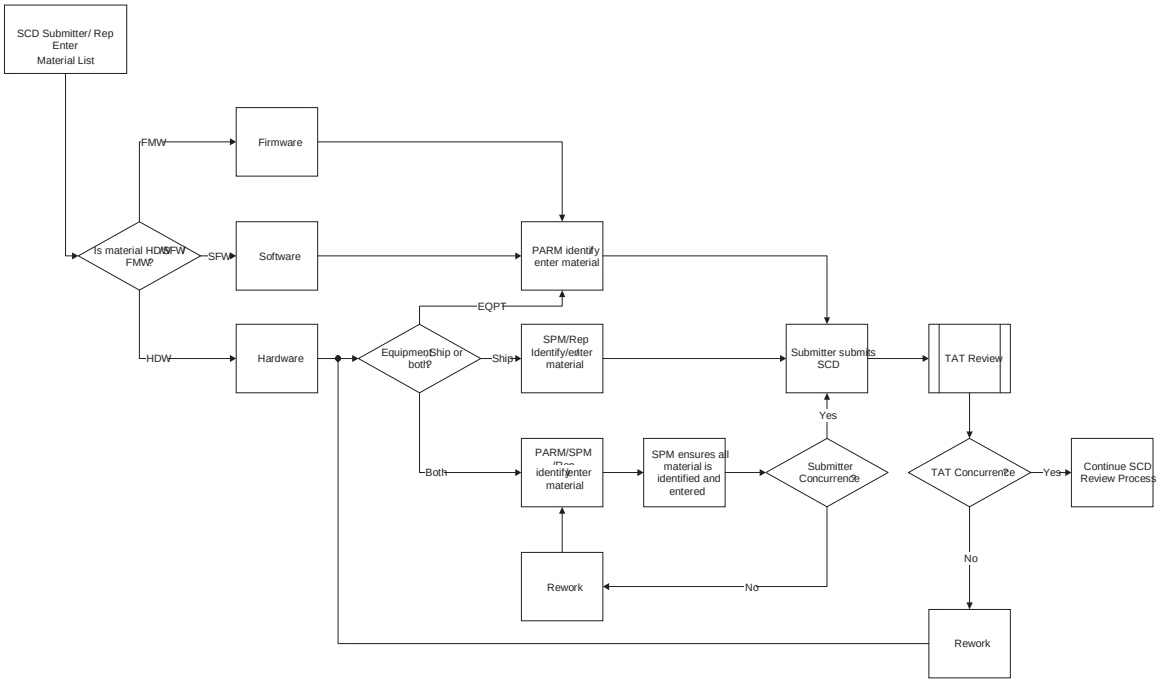

Figure S5- 1 Material Identification/Entry Flow Chart

5-4.2 Phase I

There is no requirement to identify material in NDE in Phase I.

5-4.3 Phase II

The SCD Submitter or their designated representative shall ensure that planned Class or Hull SC material is entered into NDE-NM and downloaded as an attachment to the SCD as it becomes available to facilitate accurate configuration identification, cost estimating and accounting. The Planning Yard as directed by the SPM will ensure the Class or Hull Ship Change material from the drawing package is updated in NDE-NM. The SPM or their designated representative, in coordination with the Life Cycle Manager LCM, will validate the SCD Material List prior to Phase II approval.

If the SCD is being initiated at Phase II, initial material data will be provided in the SCD material list. NDE-NM will be updated once the SCD has been approved at Phase II.

5-4.4 Phase IIa/III

The SCD Submitter or their designated representative shall ensure that planned Class or Hull Ship Change material is entered into NDE-NM and downloaded as an attachment to the SCD as it becomes available to facilitate accurate configuration identification, cost estimating and accounting. The Planning Yard as directed by the SPM will ensure the Class or Hull Ship Change material from the drawing package is updated in NDE-NM. The SPM or their designated representative, in coordination with the LCM, will validate the SCD Material List prior to Phase IIa/III approval.

If the SCD is being initiated at Phase IIa/III, initial material data will be provided in the SCD material list. NDE-NM will be updated once the SCD has been approved at Phase III.

The PARM/LCM is responsible for the development of the Repairable Identification Code (RIC)/Allowance Parts List/AEL prior to initial installation via Interactive Computer-Aided Provisioning System (ICAPS). The Procuring Activity is responsible for procuring and submitting Provisioning Technical Documentation for NSN/RIC/Allowance Parts List/AEL assignment, when applicable via ICAPS for initial buy. If there is a requirement for follow-on Supply Support, the SPM shall ensure that all associated ILS products are funded and procured.

5-4.5 Phase IV

At Phase IV, the SPM or their designated representative will ensure material is entered into the NDE Material List as a result of class/hull drawing development. To the maximum extent possible the Submitter or their designated representative shall update the NDE Material List for those equipment or system based SCs that are engineering or field change upgrades that do not impact form, fit or function.

5-4.6 Material Identification Categories

The process of identifying material requirements includes determining the material's category. Material identification categories are based on the level at which material is procured and the relative material availability. These attributes are explained in paragraph 5-2.3.

5-4.7 Advance Planning Letter

The Advance Planning Letter shall list all SCs planned for installation during a scheduled availability. For more information on Advanced Planning Letters, see Section 7 of this manual.

For all material that will not be available IAW Navy Modernization milestone charts in Appendix G, a revised BEDD will be provided. The Submitter/PARM, SPM, and Ship's Maintenance Team (as part of the RMC) should evaluate the RDD, assess the impact of the late delivery, and determine what alternatives are available to effectively proceed.

5-4.8 Ship Change Authorization Letter

The SC Letter of Authorization issued by the cognizant authority will list all SCs planned for installation during a scheduled availability, as input to the Ship's Maintenance and Modernization Business Plan. Guidance for where to obtain the latest material projections to support the planned SC package will be a part of the SC Letter of Authorization.

For all material that will not be available IAW Navy Modernization milestone charts in Appendix G, a revised BEDD will be provided. The Submitter/PARM, SPM, and Ship's Maintenance Team (as part of the RMC) and TYCOM (as required) shall evaluate the RDD, assess the impact of the late delivery, and determine what alternatives are available to effectively proceed.

5-4.9 Navy Data Environment (NDE) Material Information

As a SC matures, more definitive material requirement information shall be reflected in NDE. It is Navy Modernization policy that the NDE Material List be maintained up-to-date during the life of the SC. A NDE Material List is to be entered or updated when:

- The SPM/SCD Submitter/PARM approves data (additions, changes, and deletions) that has been submitted by PYs with a Liaison Action Request (LAR) or a marked-up NDE 4720/3 Report
- SIDs/Installation Control Drawings are issued
- The SPM/SCD Submitter/PARM determines at any time (during the life of the SC) that material changes warrant SCD Material List update

5-4.10 Modifying Material List from SCD level to Hull Level

Once the SCD has completed DP 3, the SCD Submitter/PARM shall create a hull specific material list in NDE-NM for each applicable hull. This allows the SCD Submitter/SPM/PARM to customize and manage the Material List for each hull.

SUBSECTION 5-5 NDE MATERIAL MANAGEMENT REPORTS IN SUPPORT OF MATERIAL MANAGEMENT

5-5.1 Background

This subsection details the use of the various material related NDE files and queries used in material management. Users of NDE have the capability to call out material-related information found in NDE files in a variety of ways, including material data by SC for all ships, for a single ship, for a single year, or for the material required for a particular SC.

NDE information may be acquired by accessing the NDE Logistics Module Teleprocessed Reports (TPs) and by use of the NDE AD HOC report generation capability.

5-5.2 NDE TP NMP Reports

The following TPs are available to those with NDE access:

TP-01 AVAILABILITIES REPORT - Schedule of availabilities for any one ship, class of ships or type of ships, during the time period of one availability or all availabilities

TP-02 HULL CONSTANT REPORT - Selected hull associated data for a specific ship.

TP-03 SHIP ALT MASTER BY ALTERATION - Status of any selected SC on the hull or all ships for which the selected alteration is applicable.

TP-04 MINI-FMP REPORT FOR A SHIP - Current mini-Amalgamated Military/Technical (AMT), a specified hull in a specified FY programmed, or range of FYs, or list of un-programmed or completed SCs on a specific hull.

TP-05 MINI-MATERIAL SUPPLEMENT - Material status including MILSTRIP or Acquisition Numbers, for each item of required material for a particular SC approved or un-approved on a specific hull, in a specified FY or a range of FYs.

TP-06 EQUIPMENT MASTER BY HULL - Displays the status of a selected material item of material for all ships or specific type and class; type and fleet; type, class and fleet; or a specific fleet.

TP-06A BILL OF MATERIALS LISTING - Displays material requirements listed in the SCD for accomplishment of a particular SC or to display the specific material requirements for one or all ships.

TP-06C GENERIC ALT BILL OF MATERIAL - Displays the overall material requirements for an alteration for a class of ships.

TP-10 ALTERATION PRIORITY REPORT - Displays the priority of each SC and its cost and status for a Class.

TP-10A DETAIL MIP/TIP PRI REP-AMT -Amalgamated Military Improvement Plan/Technical Improvement Plan (AMT) - This report is available in detail and summary

forms. The detail report displays the status of AMT alterations for all of the ships in the Class. The summary report totals the number of SCs for the Class.

TP-11 FMP WORKSHEETS - Displays all or specific types of programmed SCs for a class of ships or a specific ship sorted by SC number or priority for a specified fiscal year of overhaul.

TP-14 INACTIVE AVAIL W/PROG ALTS - Displays the SCs that are programmed against Inactive or Dead Availabilities

TP -15 AIT INSTALLATION - Provides a list of AIT SCs scheduled for a ship or a fiscal year.

Numerous other special-purpose, material related reports are being developed on a continuing basis as the need for such reports is identified. A complete list of available reports may be found in the NDE Master Menu and its sub-menus. NAVSEA 04RP, the NDE Program Office, may be contacted to address any questions regarding NDE programs, and "special reports" not found on the NDE Menu screens.

SUBSECTION 5-6 NAVAL SUPERVISING ACTIVITY (NSA)/INSTALLING ACTIVITY (IA) REQUISITIONING

5-6.1 Requisitioning

This subsection addresses the requisitioning of material by NSAs and IAs in support of Fleet Modernization (FLTMOD).

5-6.1.1 General Requisitioning Information

The NSA/IA will requisition material in accordance with instructions contained in the SC Letter of Authorization for individual availabilities. The NDE 4720 Report will specify:

- The identification of and quantity of items to be requisitioned
- The activity to whom the requisition should be submitted
- The use of 500/600 Series Project Codes, if this manual is not referenced in letter
- For Aircraft Carriers, the NSA/IA/SPM Designated Agent will requisition material in accordance with instructions contained in the Advance Planning Task Letter or Aircraft Carrier Material Procurement Task Letter

5-6.1.2 Requisitioning NAVSEA Managed Material

The NSA/IA will:

- Prepare requisitions using Exhibit S5-6 format
- Submit requisitions to NAVSEA via Defense Automated Addressing Service Center (DAASC) between A-150 and A-120 days

If material is identified on the NDE 4720/3 Report to be shipped directly to the NSA/IA, no action is required by the NSA/IA. Follow-up status may be directed to the cognizant NAVSEA Submitter/SPM

5-6.1.3 Requisitioning SPAWAR Managed Material

No requisitioning action is required by the NSA/IA for 2Z COG material. Follow-up status may be directed to the SPM/SPAWAR Submitter.

5-6.1.4 Requisitioning NAVICP-M Managed Material

The NSA/IA will:

- Prepare requisitions using the Exhibit S5-7 format
- Submit requisitions to NAVICP-M via DAASC between A-360 and A-0. PPRs will be deleted from the NAVICP-M records after the RDD has passed. (See paragraph 5-3.8.2.3.)
- Make follow-up contact with NAVICP-M/SPM in the event that material or material status is not received

- Advise NAVICP-M of 500/600 Project Code assignments via message, letter, or electronic mail

5-6.1.5 Requisitioning DLA - Managed Material

The NSA/IA/SPM Designated Agent will:

- Prepare requisitions using the Exhibit S5-8 format
- Submit requisitions directly to the appropriate DSC via DAASC. DLA material is not reserved. SPRs will be purged by the appropriate DSC after the RDD has passed
- Follow-up on requisitions and contact the cognizant DSC/TYCOM/SPM in the event material or status is not received

For a list of Acquisition Advice Codes (AACs) refer to Exhibit S5-9.

Exhibit S5-1 Criteria for Entry in NDE

To help reduce cost to the Navy, every effort should be made to utilize existing standard stock material. Material must be entered into the NDE Material List when any ONE of the following criteria is met:

1. For Surface ships and Carriers, material considered having a probability of not being attainable within 90 days; for the Submarine Force, material considered to have a probability of not being attainable within 180 days
2. Items with a line item price equal to or greater than $5,000
3. Navy and DLA managed material, standard material with NSN or Navy Item Control Number (NICN) including COG code, (the exception is shop store items)
4. Acquisition Advice Codes of J and Z
5. Non-Standard Material:
    a. MILSPEC/MILSTD
    b. Manufacturer's name and CAGE number
    c. Manufacturer's model or part number
    d. Manufacturer's drawing or piece number
    e. Standard Drawing or piece number
    f. Standard ordering data per paragraph 6.1 or 6.2 of the applicable MILSPEC
    g. Physical characteristics

    Note: This excludes Shop Store items
6. All HSC material (Government Furnished Material)
7. LSM, which requires development of new/revised logistics [(PTD, Allowance Parts List, AEL, Training, PMS, TMs, Test Equipment]
8. Items requiring visibility for configuration tracking
9. Material of unusual quantity (i.e., quantities required greater than the supply systems quarterly demand) Example: raw material for fabrication
10. Material with design unique to the Ship Class (i.e., non-magnetic material for Mine Warfare platforms, etc.)
11. Material with a history of procurement problems
12. Shock and/or vibration qualified items – equipment requiring shock and/or vibration testing
13. SUBSAFE/Level 1 material for the Submarine Force, Submarine Tenders, and Carriers
14. Deep Submergence System Scope of Certification (DSS-SOC) material for the Submarine Force
15. Software – Including version number at established baseline: Note the Submarine Force does not identify software in NDE-NM
16. Firmware – Including version number at established baseline: Note the Submarine Force does not identify firmware in NDE-NM

Note: The following may be listed, however, identified so that a material forecast is not generated: Strategic Systems Program SCs, Nuclear Propulsion or associated nuclear support material (any material identified with an X SMIC Clothing/Textiles/Medical and Communication Security Material and GSA managed material.

Exhibit S5-2 NDE "9999" Best Estimated Delivery Date (BEDD) CODES

9999-01	Requirement not budgeted
9999-02	Item suspected of having been already installed and/or applicable Ship Change indicated as complete in previous availability
9999-03	Material required cannot be identified
9999-04	Quantity required is questionable
9999-05	Item is part of larger assembly/system and should not be listed separately
9999-06	Item listed as complete system and should be listed as components
9999-07	Item to be supplied different than specified
9999-08	Item required not managed by code assigned
9999-09	Item required should be locally procured
9999-10	Material requested is being provided by AIT
9999-11	Requirement, which is an addition or change, indicates a start date which has passed
9999-12	Other. Explanation forwarded by separate correspondence.
9999-13	Material requested is Shipbuilding and Conversion, Navy (SCN) funded and will not be included in Other Procurement, Navy (OPN) budget process
9999-14	Material requested is not required for SC indicated
9999-15	Material superseded
9999-16	NSA/IA requisition at A-90
9999-17	Schedule if not installed previously
9999-18	Installed by AIT
9999-19	Installed at depot
9999-20	Installed at manufacturer
9999-21	Not available
9999-22	Material receipt acknowledged by IA
9999-23	Budgeted but not funded

Exhibit S5-3 PLANNED PROGRAM REQUIREMENTS (PPRs) REJECTS

REJECT	EXPLANATION
000 DAY	Overhaul/Availability start date is less than the current date (Run date of file).
AAC	AAC is V, Y, Terminal Item.
ALTID	Alteration Identification is BLANK or zero.
COG	COG for which managing ICP is not N35 (NAVICP-M), N32 (NAVICP-P), or S9_ or SMS ().
OH START	Overhaul/Availability start date is non-numeric, zero or invalid year, month or day.
DUPLICATE RECORD	Requirement match at NAVICP-M against Navy Integrated Information Network (NIIN), ship UIC and Alteration Identification (ALTID). If record is found on second and other hits, this will appear.
IMC	Item Management Code is Z (Integrated Management).
NSN	NSN contains one of the following: BLANKS, all zeros, is not 9 alphanumeric characters long, last 3 digits are non-numeric, or no record/deleted from file.
QTY	Quantity required is non-numeric or zero. If zero, the item is installed.
SHP UIC	Ship UIC is BLANK or zero.
U/I	NIIN found on Program Support Interest file but unit of issue was not EA, SE, KT or AY.
YARD	Yard UIC is BLANK, zero filled or not on yard UIC to stock point ARI table.
SMIC	Material Control Code is A or Special Material Identification Code (SMIC) is X2, X3 or X4

Exhibit S5-4 SPECIAL PROGRAM REQUIREMENT (SPR) STATUS CODES

NUMBER OF CHARACTERS: 2
TYPE OF CODE: Alphabetic
EXPLANATION: Used to inform forecasting activities submitting SPR documents of action taken
RECORD POSITION: 65-66 (SPR Status Document)

CODE	EXPLANATION
PA	Request or modifier accepted. Submit requisition in time to allow for delivery within the appropriate Uniform Material Movement and Issue Priority System (UMMIPS) time standard.
PB	Request rejected. SPR is not within IMM acceptance criteria. The SPR quantity significantly exceeds the recorded Quarterly Forecast of Demand on this item. The SPR will not be processed until the submitter sends the Integrated Material Manager (IMM) written confirmation that the quantity and support dates are valid and accurate. Upon completion of verification, the IMM will reprocess the SPR without further edits.
PC	Request or modifier accepted. Extra time is required to assemble after receipt of requisition. The required assembly time in number of days is included in record positions 62-64.
PD	Cancellation accepted.
PE	Rejected. The request is a duplicate of a previously submitted request.
PF	Rejected. The request listed herein or separate correspondence referring to this document number explains reasons for this action.
PG	Request rejected (unnecessary). SPR quantity is so low that the IMM can support the requirement from its current stockage level without a SPR document.
PH	Modifier rejected. A significant quantity increase was requested within the item's lead-time. The submitter is required to provide the IMM written verification that the quantity and support date are valid and accurate. Upon completion of verification, the IMM will reprocess the SPR. The original quantity is still being supported by the IMM.
PJ	Rejected. Item coded (or being coded) obsolete in latest stock lists catalogs.
PM	Rejected. Request received less than 90 days in advance of the support date. Submit requisition.
PN	Rejected. Source of supply is local manufacturer or fabrication.
PP	Rejected. Source of supply is local procurement.

PQ	Rejected. Stocks not available to meet support date. Procurement/assembly required. Request received less than procurement lead time/assembly time in advance of support date. Procurement lead time/assembly time in number of days is record positions 62-64. Submit funded requisition.
PT	Substitute item available. If substitute stock number shown in stock number field is acceptable, resubmit using document identifier DYG and submit requisition in time to allow for delivery within the appropriate UMMIPS time standard. In the event substitute item is not acceptable, resubmit, using document identifier DYH.
PV	Cancelled. Item has been logistically reassigned by the activity indicated in record positions 77-79. Submit new SPR to gaining activity.
PW	This is interim reply request. Manual review being made and additional response will be furnished.
PX	Rejected. The item is an Acquisition Advice Code “J” item (centrally procured for shipment directly to user or another service, not stocked by procuring activity). Submit funded requisition in time to permit procurement. Procurement lead-time in days is shown in record positions 62-64.
PY	Cancelled. Item has been changed from stocked to non-stocked by the IMM. If still required, submit requisition for quantity required, so that procurement action can be initiated for direct shipment.
NOTE:	In addition to the above, the following NAVICP-M response codes will appear in NDE in the contract number field after SPR.
IS	In Screening. The requirement has been forwarded to the cognizant DSC. If a response has not been received before the interface file is returned to NAVSEA, NAVICP-M will indicate, "IS".
NR	No Reply. On items for which the cognizant DSC has not responded by the next program cycle, the IS will be changed to NR. Replies from the DSC beyond these cycles from the date of NAVICP-M submittal will be accepted.
The document numbers assigned to these response codes will have no BEDD and are not valid until response is received and entered into NDE.	

Exhibit S5-5 REJECT ADVICE CODES

NUMBER OF CHARACTERS: 2
TYPE OF CODE: Alphabetic
EXPLANATION: Identifies to the originators of MILSTRAP transactions the reason for rejection and indicates return of the transaction for correction and re-submission.
RECORD POSITIONS: 79-80 (Transaction Reject Document)

CODE	DEFINITION
AA	Rejected. Document Identifier invalid
AB	Rejected. Submitted to incorrect material manager; Routing Identifier Code of manager indicated in record positions 67-69, if known.
AC	Rejected. Type of inventory code invalid or blank.
AD	Rejected. Stock or part number unidentifiable.
AE	Rejected. Quantity field invalid.
AF	Rejected. Document Number invalid.
AG	Rejected. Ship To address unidentifiable.
AH	Rejected. Required Signal Code invalid or blank.
AJ	Rejected. Required Fund Code invalid or blank.
AK	Rejected. Ownership/Purpose Code invalid or blank.
AM	Rejected. Condition Code invalid or blank.
AP	Rejected. Required Management Code invalid or blank.
AQ	Rejected. Processing/Count Date invalid or blank.
AR	Rejected. Unit of Issue incorrect.
AS	Rejected. Support Date invalid.
AT	Rejected. Asset Support Request Code invalid or blank.
AU	Rejected. Asset Support Request is for an item not centrally managed and stocked (Acquisition Advice Codes F, L, P, or W)
AV	Rejected. Activity identified in cc 30-35 Department of Defense Activity Address Code (DoDAAC) and/or 27-29 Routing Identifier Code (RIC) is not authorized to submit Logistic Asset Support Estimate (LASE) Requests
AW	Logistic Reassignment Transaction (DEE, DEF, or DDX) received more than one year after the Effective Transfer Date (ETD). D4X will be rejected if no memorandum due in is on record at the Gaining Inventory Manager (GIM) to indicate it is a valid procurement receipt.
AX	Rejected. GSA is source of supply for requested LASE or SPR procedures. If required, submit funded MILSTRIP requisition citing applicable RDD to GSA.
NOTE: Codes in the A-series not listed above are reserved for future use and are not to be used unless authorized and disseminated by the MILSTRAP System Administrator. Codes in the B through Z-series- are reserved for intra-Service/Agency use.	

Exhibit S5-6 NAVSEA-MANAGED REQUISITIONING

RECORD POSITION*	INFORMATION	SOURCE
1-3	Document Identifier	Enter A series.
4-6	Routing Identifier	Enter N23.
7	Media and Status Code	Enter S for requisitioner to receive exception and shipping status by electronic methods.
8-22	Stock Number	NSN/NIIN in NDE.
23-24	Unit of Issue	U/I in Management List - Navy (ML-N).
25-29	Quantity	Quantity in the OUT (Outstanding) field in NDE.
30-43	Document Number	Use pre-assigned MILSTRIP number in NDE when applicable.
44	Demand Code	P, indicating a planned requirement, when applicable, N if SPR not accepted.
45-50	Supplementary Address	Enter the UIC of the installing activity.
51	Signal Code	Enter K (bill to activity designated in CCs 45-50).
52-53	Fund Code	Enter Y6. (Free Issue)
54	Distribution Code	Use appropriate code.
55-56	Cognizant Symbol	Use COG Symbol.
57-59	Project Code	Enter ZF6 for all SC material.
60-61	Priority	Priority supplied by requisitioner.
62-64	Required Delivery Date	Start of Availability.
65-66	Advice Code	In accordance with local procedures.
67-80	LEAVE BLANK	LEAVE BLANK

* Refer to NAVSUP PUB 485 Volume III for more requisitioning details.

Exhibit S5-7 NAVICP-M -MANAGED MATERIAL REQUISITIONING

RECORD POSITION*	INFORMATION	SOURCE
1-3	Document Identifier	Enter A Series.
4-6	Routing Identifier	Enter N35.
7	Media and Status Code	Enter S for requisitioner to receive exception and shipping status by electronic methods.
8-22	Stock Number	NSN/NIIN in NDE.
23-24	Unit of Issue	U/I in ML-N.
25-29	Quantity	Quantity in the OUT (Outstanding) field in NDE
30-43	Document Number	Submit shipyard/NSA/IA requisition (yard UIC and serial number).
44	Demand Code	Enter P, indicating a planned requirement.
45-50	Supplementary Address	Enter IAW local requisitioning procedures.
51	Signal Code	Assign signal code per local procedures.
52-53	Fund Code	Fund Code supplied by requisitioner.
54	Distribution	Enter appropriate code.
55-56	Cognizance Symbol	Use COG symbol.
57-59	Project Code	Enter the 500/600 Series Industrial Project Code for SC material.
60-61	Priority	Priority supplied by the requisitioner.
62-64	Required Delivery Date	120 days prior to availability start date or 1 October of the FY programmed.
65-66**	Advice Code	Enter 5E or 5R whichever is applicable.
67-69	LEAVE BLANK	LEAVE BLANK
70	Purpose Code	Enter T.
71	Condition Code	Enter A.
72-80	LEAVE BLANK	LEAVE BLANK

* Refer to NAVSUP PUB 485 Volume III for more information.
** Advice Code 5E to be used for the draw down of a planned requirements as reservation without a directly related turn-in. Billing will be a standard (full) price.

Exhibit S5-8 DLA-MANAGED MATERIAL REQUISITIONING

RECORD POSITION*	INFORMATION	SOURCE
1-3	Document Identifier	Enter A Series.
4-6	Routing Identifier	Enter Routing Identifier of cognizant Defense Supply Center or SMS for 3B and 9B COG.
7	Media and Status Code	Enter S for requisitioner to receive exception and shipping status by electronic methods.
8-22	Stock Number	NSN/NIIN in NDE.
23-24	Unit of Issue	U/I from ML-N.
25-29	Quantity	Quantity from OUT (Outstanding) field of NDE.
30--43	Document Number	Submit shipyard/NSA requisition using local UIC and serial number.
44	Demand Code	Enter “P”, for planned requirement if PA or PB appears in the SPR Response field on the NDETP-05 report. Enter “N” if other than PA or PB appears in the NDE report.
45-50	Supplementary Address	Enter in accordance with local requisitioning procedures.
51	Signal Code	Assign signal code per local procedures.
52-53	Fund Code	Fund Code supplied by requisitioner.
54	Distribution	Enter appropriate code.
55-56	Cognizance Symbol	Enter COG symbol from NDE.
57-59**	Project Code	Enter 500/600 Series Industrial project code for SC material.
60-61	Priority	Priority supplied by requisitioner.
62-64	Required Delivery Date	Enter Julian date material is required.
65-66	Advice Code	Enter 2L.
67-69	LEAVE BLANK	LEAVE BLANK
70	Purpose Code	Enter A.
71	Condition Code	Enter A.
72-80	LEAVE BLANK	LEAVE BLANK

* Refer to NAVSUP PUB 485 Volume III for more requisitioning details.
** Use 5/600 Series Industrial Project Codes

Exhibit S5-9 ACQUISITION ADVICE CODES (AACs)

NUMBER OF CHARACTERS: ONE
TYPE OF CODE: ALPHA
EXPLANATION: These codes indicate how (as distinguished from where), and under what restrictions, an item will be acquired. The AAC will reflect applications of the basic methods, i.e., by requisition, by Federal Supply Schedule, by fabrication or assembly, or by local purchase. The AAC is used for customer level, not system level, acquisitions.
REFERENCE: DoD 4100.39M, Volume 10, Table 58
RECORD POSITIONS: Change Notice Document Column 7 (Retail Management items only), Position 50 (Changes to or addition of AAC for Navy ICP items and for changes to AAC for retail items).

CODE	DEFINITIONS
A	SERVICE/AGENCY REGULATED Issue, Transfer or Shipment is controlled by authorities above the ICP level to assure proper and equitable distribution 1. The use or stockage of the item requires release authority based on prior or concurrent justification. 2. Requisitions will be submitted in accordance with Service/Agency requisitioning procedures.
B	ICP REGULATED Issue, Transfer or Shipment is controlled by the ICP. 1. The use or stockage of the item requires release authority based on prior or concurrent justification. 2. Requisitions will be submitted in accordance with service/agency requisitioning procedures.
C	SERVICE/AGENCY REGULATED Issue, Transfer or Shipment is not subject to specialized controls other than those imposed by individual services supply policy. 1. The item is centrally managed, stocked and issued. 2. Requisitions will be submitted IAW service/agency requisitioning procedures.
D	DoD INTEGRATED MATERIAL MANAGER (IMM), STOCKED AND ISSUED Issue, transfer or shipment is not subject to specialized controls other than those imposed by the Integrated Material Manager/Military Service (IMM/MS) supply policy. 1. The item is centrally managed, stocked and issued. 2. Requisitions must contain the fund citation required to acquire the item. Requisitions will be submitted in accordance with the IMM/MS requisitioning procedures.

E	OTHER SERVICE- MANAGED, STOCKED AND ISSUED Issue, Transfer or Shipment is not subject to specialized controls other than those imposed by the services requisitioning policy. 1. The item is centrally managed, stocked and issued. 2. Requisitions may require a fund citation and will be submitted in accordance with the service requisitioning procedures.
F	FABRICATE OR ASSEMBLE (NON-STOCKED ITEMS) NSN items fabricated or assembled from raw materials and finished products as the normal method of support. Procurement and stockage of the items are not justified because of low usage or peculiar installation factors. Distinctions between local or centralized fabricate/assemble capability are identified by the Source of Supply Modifier in the "Source of Supply" column of the Service Management Data Lists.
G	GSA OR VETERANS ADMINISTRATION (VA) INTEGRATED MATERIAL MANAGED, STOCKED AND ISSUED. Identifies GSA or VA managed items available from GSA distribution facilities. Requisitions and fund citations will be submitted in accordance with GSA/VA/Service requisitioning procedures.
H	DIRECT DELIVERY UNDER A CENTRAL CONTRACT (VENDOR STOCKED) Issue, Transfer or Shipment is not subject to specialized controls other than those imposed by Integrated Material Manager/Service/Agency supply policy. 1. The item is centrally managed and procured. 2. Normal issue is by direct shipment from the vendor to the user at the order of the ICP or IMM distribution facilities when the vendor's minimum order quantity is not met, or when stocks are being drawn down. Requisitions and fund citations will be submitted in accordance with IMM/Service/Agency requisitioning procedures. 3. Generally delivery will be made within applicable Service/Agency guidelines addressing customer-required timeframe.
I	DIRECT ORDERING FROM A CENTRAL CONTRACT/SCHEDULE (NON-STOCKED ITEMS) Issue, Transfer or Shipment is not subject to specialized controls other than those imposed by IMM/Service/Agency supply policy. The item is covered by a centrally issued contractual document or by multiple award Federal Supply Schedule, which permits any using activity to place orders directly on vendors for direct delivery to the user.
J	NOT STOCKED, CENTRALLY PROCURED (NON-STOCKED ITEMS) IMM/Service centrally managed but not stocked items. Procurement will be initiated only after receipt of a requisition.

K	CENTRALLY STOCKED FOR OVERSEAS ONLY (NON-STOCKED ITEMS) Main means of supply is local purchase or direct ordering from a central contract/schedule when the Federal Supply Schedule Number is shown in the Centrally Managed Data record. Item is stocked in domestic supply system for those overseas activities unable to procure locally due to non-availability of procurement sources or where local purchase is prohibited (e.g. ASPR; Flow of Gold or by internal military service restraints). Requisitions will be submitted by overseas activities in accordance with agency/service requisitioning procedures. NOTE: Continental U.S. (CONUS) activities will obtain Supply Support through local procurement procedures.
L	LOCAL PURCHASE (NON-STOCKED ITEMS) DLA/GSA/Service/Agency managed items authorized for local purchase as a normal means of support, at base, post, camp or station level. Item is not stocked in wholesale distribution system of IMM/Service Agency ICP.
M	RESTRICTED REQUISITIONS-MAJOR OVERHAUL (SERVICE/AGENCY USE ONLY) Items (assemblies and/or component parts), which for lack of specialized tools, test equipment, etc. can be used only by major overhaul activities. Base, post, camp or station activities will not requisition unless authorized to perform major overhaul function.
N	RESTRICTED REQUISITIONING – DISPOSAL. (Service/agency use only.) Discontinued items no longer authorized for issue except on the specific approval of the service inventory manager. Requisitions may be submitted in accordance with service requisitioning procedures in instances where valid requirements exist and replacement item data has not been furnished.
O	PACKAGED FUELS (NON-STOCKED ITEMS) DLA managed and service regulated. 1. Items will be centrally procured IAW DoD 4140.25-M, Procedures for the Management of Petroleum Products, but not stocked by IMM. Long lead time required. 2. Requirements will be satisfied by direct shipment to the user either from a vendor or from service assets at the order of the ICP or IMM. 3. Requirements and/or requisitions will be submitted in accordance with Service procedures.
P	RESTRICTED REQUISITION - SECURITY ASSISTANCE PROGRAM (SAP) 1. Indicates item is stocked or acquired only for SAP (replaces Mitigation Action Plan (MAP) requirements, or 2. Indicates item is not stocked and material is ordered from the contractor for shipment directly to the foreign government. 3. Base, post, cap or station will not requisition.

Q	BULK PETROLEUM PRODUCTS DLA-Managed 1. Item may be either centrally stocked or available by direct delivery under a central contract. 2. Requirements will be submitted by military services IAW IMM procedures. 3. Item will be supplied IAW DoD 4140.25-M.
R	RESTRICTED REQUISITION - GOVERNMENT FURNISHED MATERIAL (GFM) Indicates item is centrally procured and stocked as GFM in connection with manufacture of military item. Base, post, camp or station will not requisition.
S	RESTRICTED REQUISITIONING - OTHER SERVICE FUNDED For service managed items whereby the issue, transfer or shipment is subject to specialized controls of the funding military service. 1. Item is procured by a military service for the funding military service and is centrally managed by the funding military service. 2. The procuring military service has no requirement in its logistic system for the item.
T	CONDEMNED (NON-STOCKED ITEMS) Item is no longer authorized for procurement, issue, and use or requisitioning.
U	LEAD SERVICE MANAGED As a minimum, provides procurement, disposal and single submitter functions. Wholesale logistics responsibilities, which are to be performed by the Primary Inventory Control Activity (PICA) in support of the Secondary Inventory Control Activity (SICA) are defined by the SICA NIMSC codes.
V	TERMINAL ITEM (STOCKED ITEMS) Identifies items in stock, but future procurement is not authorized. Requisitions may continue to be submitted until stocks are exhausted. Preferred item NSN is normally provided by the application of the phrase: "When Exhausted Use NSN". Requisitions will be submitted IAW IMM/Service requisitioning procedures as applicable.
W	RESTRICTED REQUISITIONING - SPECIAL INSTRUCTIONS APPLY (NON-STOCKED ITEMS) Indicates stock number has been assigned to a generic item for use in bid invitations, allowance lists, etc. against which no stocks are ever recorded. Requisitions will be submitted only IAW IMM/Service requisitioning procedures. [This code will be used, when applicable, in conjunction with Phrase Code S “stock as NSN(s)”]. It is considered applicable for use when a procurement source(s) becomes available. The Phrase Code S and the applicable "stock as NSN(s)” will then be applied for use in stock, store and issue actions.

X	SEMIACTIVE ITEM- NO REPLACEMENT NONSTOCKED ITEM. A potentially inactive NSN which must be retained in the supply system as an item of supply because (1) stocks of the item are on hand or in use below the wholesale level and (2) the NSN is cited in equipment authorization documents Table of Organization and Equipment (TO&E), TA, TM, etc., or in-use assets are being reported. 1. Items are authorized for central procurement but not authorized for stockage at wholesale level. 2. Requisitions for in-use replacement will be authorized in accordance with individual military service directives. 3. Requisitions may be submitted as requirements generate. Repetitive demands may dictate an AAC change to permit wholesale stockage.
Y	TERMINAL – ITEM NON STOCKED ITEMS Further identifies Code V items on which wholesale stocks have been exhausted. Future procurement is not authorized. 1. Requisitions will not be processed to the wholesale suppliers. 2. Internal Service/Agency requisitioning may be continued in accordance with Service/Agency requisitioning policies.
Z	INSURANCE/NUMERIC STOCKAGE OBJECTIVE ITEM Items which may be required occasionally or intermittently and prudence requires that a nominal quantity of material be stocked due to the essentially or the lead-time of the item. 1. The items are centrally managed, stocked and issued. 2. Requisitions will be submitted in accordance with IMM/Service requisitioning procedures.

Exhibit S5-10 Cognizance Codes

COG (Cognizance) CODES/Routing Identifier

0A Q11 Field Command, Defense Threat Reduction Agency

0E N23 Naval Sea Systems Command (NAVSEA)

0H N35 Naval Inventory Control Point - Mechanicsburg (NAVICP-M)

0I R92 Naval Inventory Control Point - Philadelphia (NAVICP-P)

0J N35 Naval Inventory Control Point - Mechanicsburg (NAVICP-M)

0K N36 Chief, Naval Education and Training Support

0M N35 Naval Inventory Control Point - Mechanicsburg (NAVICP-M)

0O N35 Naval Inventory Control Point - Mechanicsburg (NAVICP-M)

0Q N32 Naval Inventory Control Point - Philadelphia (NAVICP-P)

0R N32 Naval Inventory Control Point - Philadelphia (NAVICP-P)

0S N35 Naval Inventory Control Point - Mechanicsburg (NAVICP-M)

0T MHQ Commandant of the Marine Corps

0U N35 Naval Inventory Control Point – Mechanicsburg (NAVICP-M)

0V PPZ Naval Air Systems Command (NAVAIR)

0X Q6D Military Sealift Command (MSC)

1B N22 Naval Supply Systems Command (NAVSUP)

1H N35 Naval Inventory Control Point - Mechanicsburg (NAVICP-M)

1I N32 Naval Inventory Control Point - Philadelphia (NAVICP-P)

1R N32 Naval Inventory Control Point - Philadelphia (NAVICP-P)

2B N35 Naval Inventory Control Point - Mechanicsburg (NAVICP-M)

2C R41 Civil Engineer Support Office

2D NCB Naval Operational Logistics Support Center (NOLSC)

2E NCB Naval Operational Logistics Support Center (NOLSC)

2F N23	Naval Sea Systems Command (NAVSEA)
2J N23	Naval Sea Systems Command (NAVSEA)
2L Q6D	Director Communication Security Material System
2M N21	Naval Air Systems Command (NAVAIR)
2P RCZ	Strategic Systems Project Office (SSPO) - Naval Plant Rep Pittsfield, MA
2Q N35	Naval Air Systems Command (NAVAIR)
2S N23	Naval Sea Systems Command (NAVSEA)
2T NCB	Naval Operational Logistics Support Center (NOLSC)
2V N21	Naval Air Systems Command (NAVAIR)
2W N21	Naval Air Systems Command (NAVAIR)
2X RAZ	Strategic Systems Project Office (SSPO) - Naval Plant Rep Sunnyvale, CA
2Z N77	Space & Naval Warfare Systems Command (SPAWAR)

3B SMS	Defense Logistics Agency (DLA)
3H N35	Naval Inventory Control Point - Mechanicsburg (NAVICP-M)

4E NCB	Naval Operational Logistics Support Center - Mechanicsburg (NOLSC)
4K N21	Naval Air Systems Command (NAVAIR)
4M N77	Space & Naval Warfare Systems Command (SPAWAR)
4P R31	Strategic Systems Project Office (SSPO) - Naval Plant Rep, Sunnyvale, CA
4R N32	Naval Inventory Control Point - Philadelphia (NAVICP-P)
4T NCB	Naval Operational Logistics Support Center - Mechanicsburg (NOLSC)
4V N21	Naval Air Systems Command (NAVAIR)
4X RKZ	Strategic Systems Project Office (SSPO) - Naval Plant Rep Anaheim, CA
4Y N35	Naval Inventory Control Point - Mechanicsburg (NAVICP-M)
4Z N32	Naval Inventory Control Point - Philadelphia (NAVICP-P)

5L B56	Army Strategic Communications Command
5M B46	Army Security Agency
5N FPD	San Antonio Air Logistics Center, Kelly AFB, TX
5P FPZ	San Antonio Air Logistics Center, Kelly AFB, TX
5R N32	Naval Inventory Control Point - Philadelphia (NAVICP-P)

6A N35	Naval Inventory Control Point - Mechanicsburg (NAVICP-M)
6B N35	Naval Inventory Control Point - Mechanicsburg (NAVICP-M)
6C N35	Naval Inventory Control Point - Mechanicsburg (NAVICP-M)
6D N35	Naval Inventory Control Point - Mechanicsburg (NAVICP-M)
6H N35	Naval Inventory Control Point - Mechanicsburg (NAVICP-M)
6K N32	Naval Inventory Control Point - Philadelphia (NAVICP-P)
6L N35	Naval Inventory Control Point - Mechanicsburg (NAVICP-M)
6M N35	Naval Inventory Control Point - Mechanicsburg (NAVICP-M)
6N N35	Naval Inventory Control Point - Mechanicsburg (NAVICP-M)
6P RAZ	Strategic Systems Project Office (SSPO) - Naval Plant Rep, Sunnyvale CA
6R N32	Naval Inventory Control Point - Philadelphia (NAVICP-P)
6T NCB	Naval Operational Logistics Support Center - Mechanicsburg (NOLSC)
6V N52	Naval Aviation Depot Operations Center (NADOC)
6X N35	Naval Inventory Control Point - Mechanicsburg (NAVICP-M)
6Y N35	Naval Inventory Control Point - Mechanicsburg (NAVICP-M)
6Z NCB	Naval Operational Logistics Support Center - Mechanicsburg (NOLSC)

7E N35	Naval Inventory Control Point - Mechanicsburg (NAVICP-M)
7G N35	Naval Inventory Control Point - Mechanicsburg (NAVICP-M)
7H N35	Naval Inventory Control Point - Mechanicsburg (NAVICP-M)
7N N35	Naval Inventory Control Point - Mechanicsburg (NAVICP-M)

7R N32 Naval Inventory Control Point - Philadelphia (NAVICP-P)

7Z N35 Naval Inventory Control Point - Mechanicsburg (NAVICP-M)

8A N35 Naval Inventory Control Point - Mechanicsburg (NAVICP-M)

8E NCB Naval Operational Logistics Support Center - Mechanicsburg (NOLSC)

8M N21 Naval Air Systems Command (NAVAIR)

8N N32 Naval Inventory Control Point - Philadelphia (NAVICP-P)

8P R29 Strategic Systems Project Office (SSPO) - Technical Rep, Great Neck, NY

8S NCB Naval Operational Logistics Support Center - Mechanicsburg (NOLSC)

8T NCB Naval Operational Logistics Support Center - Mechanicsburg (NOLSC)

8U NCB Naval Operational Logistics Support Center - Mechanicsburg (NOLSC)

8X R33 Strategic Systems Project Office (SSPO) - Naval Plant Technical Rep, Anaheim, CA

9A AKZ USA Tank-Automotive and Armaments Command (TACOM) Warren, MI

9B SMS Defense Logistics Agency (DLA), Enterprise Business System Item

9E A12 USA Soldiers System Command, Kansas St. Natick, MA

9F FLZ Warner-Robins Air Logistics Center, Robins AFB, GA (WR-ALC)

9G S9G Defense Supply Center Richmond (DSCR)

9H B14 USA Armament and Chemical Acquisition and Logistics Activity (ACALA) Rock Island, IL

9I FGZ Ogden Air Logistics Center, Hill AFB, UT (OG-ALC)

9J FHZ Oklahoma City Air Logistics Center, Tinker AFB, OK (OC-ALC)

9M S9S Defense Supply Center Philadelphia (DSCP)

9O MPB Marine Corps, Albany, GA

9Q GSA General Services Administration (GSA)

9S B64 USA Aviation and Missile Material Command (AMCOM) (Missile)

9W B17 USA Aviation and Missile Material Command (AMCON)(Aviation)

9X S9F Defense Energy Support Center Fort Belvoir, VA

9Y B16/B46 USA Communications-Electronics Command Fort Monmouth, NJ

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S6(a) DOD Directive 5000 (Series) The Defense Acquisition System

S6(b) DOD Instruction 5000 (Series) Operation of the Defense Acquisition System

S6(c) SECNAVINST 5000 (Series) Implementation and Operation of the Defense Acquisition System and the Joint Capabilities Integration and Development System

S6(d) NAVSEA Tech Spec 9090-310(Series) Ship Alteration Accomplishment by

Alteration Installation Teams

S6(e) NAVSEA Tech Spec 9090-700(Series) Ship Configuration and Logistic Support Information System (SCLSIS) Process

S6(f) NAVSEA Tech Spec 9090-1500(Series) Provisioning, Allowance and Fitting Out Support (PAFOS) Policy and Procedures Manual

S6(g) OPNAVINST 4790.14 (Series) Joint Depot Maintenance Program

S6(h) NAVSEAINST 4160.3 Series, Technical Manual Management Program.

S6(i) S0005-AA-PRO-010 TM Operations and Lifecycle Support Procedures

S6(j) S1700-AM-PRO-010/TAMS Test and Monitoring System (TAMS) Program Operations and Procedures Manual

S6(k) NAVSEAINST 4790.17(Series) Fleet Test and Repair of Shipboard Electronic Equipment

S6(l) OPNAVINST 4700.7(Series) Maintenance Policy for Naval Ships

S6(m) OPNAVINST 1500.76(Series) Navy Training System Requirements, Acquisition, And Management

S6(n) NAVSEAINST 4734.1 (Series) Test, Measurement and Diagnostics Equipment and Calibration Programs

S6(o) OPNAVINST 3960.16 (Series) Navy Test, Monitoring and Diagnostic Equipment (TMDE), Automatic Test Systems (ATS) and Metrology and Calibration (METCAL) Systems

S6(p) MIL-HDBK-1839 (Series) Calibration and Measurement Requirements

S6(q) MIL-STD-1839 (Series) Standard Practice for Calibration and Measurement Requirements

S6(r) OPNAVINST 4790.16 Condition Based Maintenance Policy

S6(s) U.S. Marine Corps Acquisition Logistics Support For the Software Portion of Systems March 2001

S6(t) OPNAVINST 3502 (Series) Policy for Managing the Life Cycle Support for Submarine Training Systems Program

S6(u) TF8501-AF-PLN-010 Submarine Training Materials Management Plan

S6(v) S8200-BG-PLN-010/LCSP Life Cycle Support Plan for Submarine Learning Facilities

S6(w) CNO ltr N871B/7U179721 of 17 April 2007, “Guidance for Conducting Submarine Front End Analysis (FEA)”)

S6(x) NAVSEA Submarine On-Board Training Program Management Plan

S6(y) NAVSEA Instruction 4720.14 (Series), Temporary Alterations to Active Fleet Submarines.

S6(z) NAVSEA S9070-AA-MME-010/SSN/SSBN Technical Requirements Manual for Temporary Submarine Alterations

S6(aa) Assistant Secretary of the Navy Research, Development and Acquisition (ASN RDA) DMSMS Guidance Memo 27 Jan 2005

S6(bb) OPNAVINST 11102.2 Training System Installation and Transfer

S6(cc) OPNAVINST 4000.57 (Series) Logistic Support of the TRIDENT Systems.

S6(dd) NAVSEA TL130-AB-PLN-010 (Series) TRIDENT System Change Management Plan

S6(ee) T9410-GB-PLN-010 (Series) Configuration Management Plan for the OHIO Class (SSBN/SSGN) Command Control System (CCS/Non-Propulsion Electronics Systems (NPES)

S6(ff) NAVSEA T8501-AF-PLN-101 (Series) OHIO Class Submarine Engineering and Operations Training (EOT) Materials Management Plan

S6(gg) OPNAVINST 3502.5 (Series) Policy for Managing the Life Cycle Support of the TRIDENT Engineering and Operations Training (EOT) Program

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SUBSECTION 6-1 OVERVIEW TO CONFIGURATION AND LOGISTICS MANAGEMENT

6-1.1 Background

This Section of the Navy Modernization Process (NMP) Management and Operations Manual addresses Configuration and Logistics Management. The NMP (including logistics) is not a stand-alone program. In accordance with references S6(a) through S6(b), the NMP is an integral part of the Department of Defense (DoD)/Department of the Navy (DoN) systems acquisition process. The Submarine Force (SUBFOR) follows the logistics and configuration management requirements identified in this section. However, the SUBFOR is exempt from the Entitled Process (EP) procedures. The Submarine SC/SHIPALT design and development, approval, and execution process is documented in Section 9. Deficiencies in Integrated Logistics Support (ILS) planning during the acquisition process will result in the installation of unsupported alterations and adversely impact the Fleet's ability to properly operate and maintain the system during deployment.

Accordingly, under the NMP, all Ship Changes (SCs) shall have ILS Certifications, developed by the SC Participating Acquisition Resource Manager (PARM)/Life Cycle Manager (LCM) or designee, and approved by the appropriate Ship Program Manager (SPM) in accordance with (IAW) the milestone chart in Appendix G. Submarine SPM may designate ILS CERT approval authority to the PARM for FCs, ECs, ORDALTs, software, and firmware alterations. If the SC does not affect any ILS, a No ILS Impact ILS Certification must be submitted IAW paragraph 6-2.2.2.

The NMP relies on proper planning, development, procurement, and production of ILS products occurring in concert with system development early in the acquisition process for new systems or equipment (Program of Record (POR)) as well as for lesser configuration changes made to existing systems and equipment. Under the NMP, all SCs, both at the system/equipment level as well modifications to systems/equipment, shall have ILS.

6-1.1.1 Purpose

During a ship's operational lifecycle, planned SCs are made to the configuration of a ship's systems and equipment, which typically impact the logistics supportability of that platform. The purpose of Section 6 is to outline the processes and procedures necessary to ensure that all ship's/sites systems, equipment, software, and firmware SCs are logistically supported. In accordance with reference S6(c), the primary end goals of the NMP logistics process are as follows:

- ILS products must be available to support the installation and checkout of systems and equipment; and
- Ship is fully logistically supportable with ILS product deliveries in accordance with the milestones in Appendix G

The applicable system or equipment PARM/LCM is solely responsible for coordinating with the Ship Change Document (SCD) Submitter and Resource Sponsor to identify, plan and fund the development of applicable parts to support the initial Cost Benefit Analysis (CBA) and for the acquisition of all ILS Products required to ensure timely delivery of a complete ILS package to the Fleet in sufficient time to support the change. The CBA portion of the SCD must include funding requirements for all applicable ILS products required to support a given SC. In lieu of the CBA, the submarine program will use the Return on Investment (ROI) calculation required by Section 9-4. The PARM/LCM or designated In-Service Engineering Agent (ISEA) is responsible for ensuring that a complete ILS package is provided to the Fleet to support the SC. These requirements apply any time a configuration change is made to a ship (i.e. either inside or outside of a Chief of Naval Operations (CNO) availability).

6-1.1.2 ILS Element Impacts for Ship Changes

The unique support considerations associated with developing, acquiring and supporting SCs must be understood within the context of the logistics support elements, and the associated Configuration Management (CM), listed below.

- Maintenance Planning
- Support and Test Equipment (S&TE)
- Supply Support
- Packaging, Handling, Storage and Transportation (PHS&T)
- Computer Resources Support
- Technical Data
- Facilities
- Manpower and Personnel
- Training and Training Support
- Design Interface

Each ILS element is impacted to differing degrees by each SC installed onboard a given platform. The development of logistics lifecycle support considerations must take into account each SCs impact on these ILS elements.

It should be noted that the NMP ILS process is geared toward supporting SCs. Although CM is not an ILS element, it is a key element of Systems Engineering and the foundation for the ILS process. Early involvement of logisticians in the review and approval of proposed SCs and in the determination of ILS impacts is crucial to the success of the ILS process. It ensures the correct allocation of limited funding resources and provides the means for the correct identification, development, and delivery of all required ILS products to the ship by End of Availability/End of Installation/Production Cutoff Date ((EOA)/(EOI)/(PCD)). For CV/CVN availabilities, ILS product delivery is due to the ship by PCD/EOI, which ever comes first.

6-1.1.3 ILS For Commercial Off-The-Shelf (COTS)/Non-Developmental Item (NDI)

COTS/NDI acquisitions create a unique challenge for the logistician in planning for and acquiring requisite ILS products for SCs. Properly defined COTS/NDI is an acquisition strategy (rather than a logistic support methodology) which can be applied to the procurement of hardware, software, and firmware which is intended to reduce the cost of equipment development, accelerate procurement timelines and reduce the Navy logistics support infrastructure. The use of COTS/NDI strategies does not modify or alleviate the responsibilities of the equipment PARM/LCM from meeting the ILS requirements of the NMP. The challenge of COTS/NDI acquisitions is to ensure that the level of logistics support available with COTS/NDI equipment is sufficient to meet the Navy's requirements.

6-1.1.4 Diminishing Manufacturing Sources-Material Shortages (DMSMS)

In accordance with reference S6(aa) all DoN Acquisition Category (ACAT) programs (including Joint Programs) which have cognizance over microelectronics are to develop a formal DMSMS plan which covers all phases of a program's lifecycle from initiation through deployment, maintenance and disposal. Key elements of DMSMS planning include: integration of DMSMS strategies with technology roadmaps to mitigate technology obsolescence impacts; identification of configuration at the piece part level; identification and forecasting of piece part obsolescence impacts and impact mitigations for all associated equipment configurations, use of predicate cost-effective industry solutions, use of metrics that track DMSMS cases, trends, associated solutions and cost; consideration of DMSMS incentive clauses in support contracts, use of Business Case Analyses (BCA) to support DMSMS decisions, ensuring Performance Based Logistics (PBL) agreements address mitigation of DMSMS impacts and identify commodity management and preferred material processes to standardize use of like materials across programs. Further information on DMSMS can be found at the DoN Obsolescence Management Website:

(\\nawemugufs10vb\NAVSEA1$\CRNA\QAD\QA20\DMSMS_metrics\default.htm)

6-1.1.5 Performance Based Logistics (PBL)

PBL is the purchase of support as an integrated, affordable, performance package designed to optimize system readiness and meet performance goals for a weapon system through long-term support arrangements with clear lines of authority and responsibility. Application of PBL may be at the system, subsystem, or major assembly level depending on program unique circumstances and appropriate business case analysis. It is important to note that each PBL arrangement is unique and will vary from other PBL arrangements. There is no one-size-fits-all approach to PBL.

PBL is DoD's preferred approach for product support implementation. The essence of PBL is buying performance outcomes, not the individual parts and repair actions. This is accomplished through a business relationship that is structured to meet the war fighter's requirements. As stated in reference S6(c), PMs shall develop and implement

performance-based logistics strategies that optimize total system availability while minimizing cost and logistics footprint. Maintenance strategies shall include the best use of public and private sector capabilities through government/industry partnering initiatives, in accordance with statutory requirements. PBL does not favor either organic or commercial providers. The decision is based upon a best-value determination, evidenced through a BCA, of the provider's product support capability to meet set performance objectives. This major shift from the traditional approach to product support emphasizes what level of support program manager teams buy, not whom they buy from. Instead of buying set levels of spares, repairs, tools, and data, the new focus is on buying a predetermined level of availability to meet the war fighter's objectives. Developing the PBL strategy, formalizing the war fighter performance agreement, and establishing the product support integrator are key components of the product support strategy.

6-1.1.6 Joint Depot Maintenance (JDM) Program

Compliant with the mandatory JDM Program, as part of the provisioning process for new Depot Level Repairables (DLRs), is a key factor in determining Naval Inventory Control Point (NAVICP) supply support channels. Embedded within the ILS responsibilities of the Participating Acquisition Resource Managers (PARMs)/Life Cycle Managers (LCMs), are the planning and establishment of the capability, and the capacity for required Depot Level Maintenance.

JDM policies regarding the assignment of DLRs to specific Designated Overhaul Points (DOPs), organic or commercial, are:

- Interservice competition in the assignment of DOPs for newly provisioned repairables or for the reassignment of repairables previously provisioned shall be utilized to the maximum extent possible providing effective support to operational forces and efficient utilization of the Services' depot maintenance resources. The Depot Maintenance Interservice (DMI) process, as delineated in Office of the Chief of Naval Operations Instruction (OPNAVINST) 4790.14(series), is the mechanism used to obtain competition in DOP assignments
- All weapon systems, end items, and their components which require depot level maintenance or are planned for assignment to a depot maintenance activity, whether government-owned or in the private sector, shall be reviewed in accordance with JDM regulations
- Funds shall not normally be committed to facilitate a specific site for depot maintenance prior to assignment of the DOP upon conclusion of the DMI process
- With the exception of Hull, Mechanical, and Electrical (HM&E) programs, the JDM Program is applicable to all weapons, weapon systems, equipment, and their non-consumable components which are under the cognizance of the Navy whether or not there is similarity to another Service's item. While new equipment and systems entering the Navy inventory are the particular emphasis of JDM, also applicable are those items already in inventory, as well as all modifications and Military Construction (MILCON) programs involving depot maintenance support

6-1.1.7 Alteration Installation Teams (AITs)

Alteration Installation Teams (AITs) are required to conform to the basic guidance, policies and procedures covered within this document. However, AITs shall refer to reference S6(d) for the detailed procedures of AIT installations occurring inside or outside CNO availabilities. The NMP milestones shall take precedence in the event of any discrepancy with reference S6(d).

SUBSECTION 6-2 INTRODUCTION TO CONFIGURATION AND LOGISTICS MANAGEMENT

6-2.1 Scope

This subsection provides policy and procedures and assigns responsibilities for accomplishing ILS actions in support of SCs. The objective is to have complete and accurate logistics support available and delivered for each SC when it is accomplished. Effective fleet readiness depends on maintaining complete, accurate and up-to-date ship configuration records, and logistics products. The NMP goal is to ensure that every SC is properly reported and completely supported logistically.

Section 6 applies to all SCs, legacy alterations, and/or other configuration changes accomplished as a result of repairs or replacements in the approved Modernization Plan (MP) or Submarine Prioritized Undersea Enterprise Requirements Letter (PURL) and associated Minimum Modernization Matrix (MMM), or accomplished either during planned industrial availabilities or authorized by cognizant authority that are accomplished outside of planned availabilities. The procedures and policies established in this section apply to all systems, equipment, software, and firmware. ILS policy for Non Permanent Changes (NPCs) is defined in SUBSECTION 6-5. Reference S6(d) Submarine policy for Temporary Alterations (TEMPALTs) is defined in References S6(z) and S6(aa). Reference S6(d) covers the installation of SCs by AITs wherever the SC is accomplished, both inside and outside CNO availabilities.

One of the initiatives of the NMP has been to reduce the various legacy alteration types into two basic categories of ship configuration changes (i.e., alterations), Fleet and Program SCs. See Section 9 for Submarine Force SC Types. The primary difference between Fleet and Program SCs concerns the source of funding tied to the change. From a Configuration Status Accounting (CSA) standpoint, careful attention should be paid to the scope of a SC in that they may range in scope and complexity from the installation of new system/equipment to smaller equipment modification. A single SCD number will be generated to support a specific configuration change (whether the scope of that configuration change represents the installation of new equipment or a SC to existing equipment) installed onboard a particular hull, including all ILS products.

For details on Exceptions to the NMP, see Section 1 of this manual.

6-2.2 Integrated Logistics Support (ILS) Status Reviews and Monitoring Procedures

The ILS status review and monitoring procedures for ensuring complete logistics support for SCs are described below. The following paragraphs identify notional timeframes for the ILS Status Reviews. The SPM in coordination with the PARM/LCM may tailor the frequency and duration of status reviews. The complexity of the SC (and the number of affected ILS products), the number of first-time installations, the length of the installation period, and Fleet recommendations, will normally determine the ILS Status Review requirements.

6-2.2.1 Ship Program Manager (SPM) Start of Availability (SOA)-360 Days/A-12 ILS Status Review

Note: For the Submarine Force, all ILS/CM milestone dates listed in Section 6 should be converted to months equivalent to that number of days.

The CNO policy states that all SCs will be logistically supported. In compliance with this policy, the SPM conducts an ILS Status Review of SCs and certifies this review through the ILS Certification process. Milestones associated with ILS Certification approval are provided in Appendix G. The current version of the ILS Certification process and its preparation guide can be obtained from the Navy Data Environment (NDE)–ILS/Master List (NDE-ILS/ML) Module and can be accessed on the NDE website, https://www.nde.navy.mil/. A Government issued Public Key Infrastructure (PKI) certificate and NDE user's account is required to access the NDE website and applications. Information concerning NDE user access requirements or applications is available at the NDE HELPDESK at COMM (301) 744-6490 or DSN 354-6490 or e-mail at navsea_nde_helpdesk@navy.mil.

Note: as part of the interim process, the PARM/LCM or designated representative must leave the SCD module and enter the NDE-ILS/ML module in order to complete the ILS Certification information. A link between the SCD and the NDE-ILS/ML Module is planned for the first upgrade to the EP baseline software. This will allow the individual filling out the ILS information to remain within NDE-Navy Modernization (NDE-NM) while entering/updating ILS Certification information.

At Start of Availability (A)-360 days/A-12 months, the PARM will begin the ILS Certification process. The PARM/LCM or designated ISEA shall coordinate with the SPM for timely submission of the ILS Certification IAW Appendix G. For Submarines ILS Certification should be submitted NLT A-6 months so that the SPM has sufficient time to evaluate ILS readiness, identify deficiencies, and respond to the PARM/LCM/ISEA. The information contained in the ILS Certification should be used by the Planning Yard (PY)/Configuration Data Manager (CDM) for verification in Configuration Overhaul Planning (COP) production. The PARM/LCM/ISEA will identify and continuously advise the SPM and SCD Submitter of any changes to planned ILS configuration baseline and update the status of any ILS products that will not be available by SOA or delivered by EOA/EOI/ Production Cutoff Date (PCD). For CV/CVN availabilities, ILS product delivery is due to the ship by PCD/EOI, whichever comes first. PCD is utilized by Carriers only.

Once a first time SC is scheduled and has ILS Certification, it is paramount that the information on the ILS Certification be kept current to ensure that the ILS data matches changes to all associated supporting follow-on SC documentation (such as the AIT checklist, SCD, Liaison Action Record (LAR), etc.). This will allow verification that the correct ILS products will be delivered per the milestones.

6-2.2.2 ILS Certification Process

An ILS Certification shall be completed in accordance with the ILS Certification Preparation Guide for all SC installations. SCs and legacy alterations approved by the SPM and documented in previously approved NMP formats will not require re-certification, so long as the data on the existing ILS Certification (ILS Information Sheet) is accurate and current. SCs must be ILS Certified IAW milestone charts in Appendix G.

Paragraph 6-3.4.1 of this manual identifies the Ship Program Managers (SPMs) responsibilities to oversee all of the logistics aspects of NMP for their assigned ship classes. Delivering supportable SCs starts with the correct identification of logistics requirements with a Plan of Action and Milestones (POA&M) to obtain those requirements prior to installation.

For POR, ILS products should have been under development prior to the start of the technical design process (e.g., Phase II of the NMP). The applicable equipment/system PARM/LCM will provide enough information pertaining to the configuration, equipment level Technical Manuals (TMs), Supply Support, Maintenance support, special S&TE (shipboard), and training with the planned time of delivery so that the SPM can evaluate the ILS readiness and resolve ILS product(s) issues prior to approving any SC. The ILS Certification process is used to identify the requisite ILS products. The ILS Certification process represents the most expedient means for a SPM to fulfill its responsibilities to oversee all of the logistics aspects of NMP for their assigned ship classes. Following SPM ILS approval of a given SC, any changes to the configuration of a SC for follow-on installations will be documented as a revision to the existing ILS Certification process. An updated ILS Certification process shall clearly document the ship/shore platforms impacted by the change as well as documenting ILS products impacted as a result of the changes to the configuration of the SC. Changes to the configuration of a SC once approved by the SPM should be reflected in all related SC technical documentation (SCD), ship specific Bill Of Material (BOM), Ship Change Installation Drawings (SIDs), Interface Control Drawings (ICDs), Technical Variance Documentation (TVD) etc.) as required to ensure the continuity of data between technical and ILS design requirements. In the event ILS is not required to support the installation of a SC, an ILS Certification shall be submitted for SPM approval indicating “No ILS Required” in order to properly document that fact.

Note: A separate ILS Certification for the same SC must be submitted for each ship class impacted. For purposes of ILS Certification, each Aircraft Carrier is treated as its own class.

6-2.2.2.1 ILS Certification Types

There are two types of ILS Certifications for SCs, Final ILS Certification and Interim ILS Certification as defined below.

A <u>Final ILS Certification</u> (formerly known as a Class ILS Certification) is SPM granted when all required ILS products will be in final form at SOA/Start of Installation (SOI) and delivered by EOA/EOI/PCD. Final ILS products are defined as, but not limited to:

- Supply Support – All new/modified Allowance Parts Lists, Allowance Equipage Lists/Allowance Components Lists (AELs/ACLs) are populated with parts data and available in the Weapon Systems File (WSF). All On-Board Repair Parts (OBRPs) have achieved Material Support Date (MSD) and are available through the Federal Supply System (FSS), or are on a PBL contract. All Maintenance Assistance Modules (MAMs) are available for initial outfitting, and available in the FSS for on-board stock replenishment
- TMs – All new or revised/changed TMs have been verified and validated and are designated as Final Issue in the Technical Data Management Information System (TDMIS) or the Technical Manual Application System (TMAPS) managed by Naval Air Technical Data and Engineering Service Command (NATEC)
- Maintenance – All new or modified Class Maintenance Plan (CMP)/Integrated Class Maintenance Plan (ICMP) Tasks, Maintenance Index Pages (MIPs) and Maintenance Requirements Cards (MRCs) including 9802 MIP's/MRC's for Shipboard Installed Instrumentation and System Calibration Procedures for Machinery Control Systems are available in either the Planned Maintenance System (PMS) Force Revision and included in the List of Effective Pages (LOEP), or CMP/ICMP for the respective enterprise
- Test Equipment – All new test equipment, installed instrumentation, and machinery control systems have Calibration Procedures in place and all installed instrumentation has been added to the ship's Calibration Requirements List (CRL). General Purpose Test Electronic Test Equipment (GPETE) must also appear in the Ship's Ship Portable Electric/Electronic Test Equipment Requirements List (SPETERL)
- Training – All required Initial/Differences Training must be available. All required Follow-On Training must be available and have achieved Ready for Training (RFT)
- Software/Firmware – The PARM shall report what version of software or firmware is being delivered with the SC to the patch level in Section B Configuration of the ILS certification document. Changes to software or firmware under spiral development may be requested via ILS revision IAW the milestones in Appendix G, as long as the software change is not providing new capability
    - For software/firmware being delivered under the authority of a SC approved for a system/equipment, the generic version shall be documented on the SCD, and the version to the patch level on Section B (Configuration) of the ILS certification for each platform listed. There is no requirement to submit a separate SCD for software/firmware being delivered under the authority of an already approved system/equipment SC. For software/firmware under spiral development only, PARMs may submit ILS revisions IAW the milestones in Appendix G. The upgrade must not impact form, fit, function or capability otherwise a new SCD is required. The revision must be approved by SOI-60 (see Appendix G). Additionally, for Strike Force Interoperability (SFI) Categories 1 and 2, an electronic impact form (electronic Configuration Control Board (eCCB)) shall be submitted via the Afloat Master Planning Systems Program (AMPS) module of NDE
    - For software/firmware upgrades being delivered to platforms for installation on systems or equipment already previously installed by a SC and the change will be installed and tested by AIT

- A new SCD shall be submitted at the appropriate phase entry
- After SOA-120, PARMs must use Subsection 3-10, Emergent Change Process for any software/firmware configuration changes that are mission critical or safety items requiring to be installed in the availability. If the change is not mission critical or a safety item, it shall be scheduled for a later availability in order to allow the new SCD to be approved

An Interim ILS Certification (formerly known as a Hull ILS Certification) can be approved by the SPM in situations when all required ILS products will not be available in final form by EOA/EOI/PCD for a specific hull, but will be available in preliminary form; (e.g., red-lined TMs, preliminary CMP/ICMP tasks, facsimile MIP/MRC, initial training, Preliminary Allowance Lists (PAL), etc.,) sufficient to support SC installation and ship operations. An Interim ILS Certification can be granted for multiple hulls, but only those hulls with planned install dates prior to all ILS products achieving final form as specified on the ILS Certification Process Estimated Completion Dates for the ILS products. For a SC with a SPM approved Interim ILS Certification, after all ILS products have achieved final form designation, the PARM/LCM shall update and resubmit the ILS Certification to the SPM for Final ILS Certification. The SPM granting Interim ILS Certification does not relieve the PARM/LCM of their responsibility to provide fully logistically supported SCs with all ILS products in final form.

Until such time as the SPM grants Final ILS Certification, the PARM/LCM shall provide a monthly POA&M/SITREP status for the ILS products in preliminary form. The monthly status report shall be a consolidated report for all SC Interim ILS Certifications under the specific PARM/LCM's cognizance. It shall go via Naval message to all applicable Ships and Type Commanders (TYCOMs) with info to the SPM(s), SCD Submitter, Commander Fleet Forces Command (CFFC), and NAVSEA 04. The message shall contain the status of each ILS product by ILS element that is not in final form with an estimated date for achieving final form. Upon achievement of Final ILS Certification the PARM/LCM will issue a final message documenting the close out of all actions and notifying all stakeholders of the achievement of Final ILS Certification.

The terms "Final" and "Interim" refer specifically to the maturity level of logistics support provided for a given SC. A Final ILS Certification simply means that a specific equipment configuration is fully supported within the Navy support infrastructure (including PBL agreements) and that all ILS products are fully developed and mature (e.g. in final format). An Interim ILS Certification denotes that one or more ILS products are interim supported (i.e., supported outside of the regular Navy support infrastructure) and that all processes have been initiated to transition to full Navy support and finalize ILS deliverables. Interim support methodologies are an acceptable alternative when sufficient time is not available to transition to full Navy support prior to installation. In either situation, the issue is not the lack of sufficient ILS, it is a question of where the support is coming from and what the timeline for transition is to finalize those ILS products and make them available through the Navy support infrastructure.

The transition from Interim to Final ILS Certification is an evolutionary process. Interim ILS Certifications are typically granted on a hull-to-hull basis (or grouping of hulls) until ILS is finalized and the SC is fully supported. Once a SC becomes fully mature and achieves Final ILS Certification status, that Final ILS Certification status applies to all hulls having that same configuration of equipment. Once again Final ILS Certification is typically applied at the ship class level provided the documented configuration does not change. The exception to this rule applies to aircraft carrier platforms which require separate ILS Certifications to support each individual platform.

6-2.2.2.2 Impact Assessment Process

As previously stated, all SCs scheduled for accomplishment on a specific hull shall have a SPM approved Final or Interim ILS Certification IAW milestone charts in Appendix G. If neither Final nor Interim ILS Certification can be obtained IAW the milestone charts in Appendix G and the PARM/LCM believes that it is in the best interests of the fleet to proceed with the installation without the requisite ILS products, the PARM/LCM may release a Impact Assessment Form to the appropriate authorities requesting the installation proceed on impact. The Impact Assessment Form installation approval informs all that the TYCOM/Naval Network Warfare Command (NETWARCOM) understands and accepts the impact of accomplishing the SC without the complete ILS package being provided to the hull by EOA/EOI/PCD.

NOTE: The Submarine Force designated SC PARM/LCM will submit an ILS Risk Assessment Message NLT A-90. A supporting ILS Certification Form must be under development. The TYCOM will release an ILS Risk Assessment Approval NLT A-60 via naval message.

In addition to the information required in the Impact Assessment Form, the PARM/LCM shall provide the following:

- SC PARM/LCM Logistics point of contact
- Detailed status of all required ILS products development with estimated availability dates for each ILS product not available in final form. Identify any non-available OBRPs, MAMs, etc., and whether they are single point of failure. This shall be for each of the ILS elements as contained in the ILS Certification Process
- For each ILS element, provide an impact assessment (low, medium, high) relative to non-available products

Note: An ILS Certification shall be under development for the SC in NDE-ILS/ML for the TYCOM/NETWARCOM review to assist in their approval decision.

TYCOM/NETWARCOM approval to install a SC on a specific ship platform through the Impact Assessment process does not alleviate the PARM/LCMs responsibility to provide fully logistically supported SCs and provide all required ILS products in final form as defined above. The PARM/LCM shall provide monthly POA&M/SITREP status (with Estimated Completion Dates) highlighting deficient ILS products via Naval message to TYCOM/NETWARCOM for all TYCOM approved Impact Assessment installations until all required ILS products are available in final form and the SC achieves SPM approved Final ILS Certification. The message shall contain the POA&M of the

development and delivery status for all required ILS products until they are in final form and the SPM approves Final ILS Certification for the SC.

For further details on the impact assessment process see Section 3 of this manual.

6-2.2.2.3 Impact Assessment Installation Approval

The Impact Assessment installation approval/disapproval notification is provided by the Impact Assessment Form to the SCD Submitter IAW milestone charts in Appendix G with information copy to the PARM/LCM, SPM, Ship, COMUSFLTFORCOM and NAVSEA 04 at a minimum. The approval/disapproval Impact Assessment Form will reference the PARM's/LCM's ILS Certification and any subsequent clarifying e-mail correspondence. The TYCOM's Impact Assessment Form should also contain the name, rank, and code of the individual approving/disapproving the install based on the ILS Certification Process. The TYCOM is the approving/disapproving authority.

6-2.2.3 Ship Integrated Logistics Support Management Team (ILSMT) Meetings

The SPMs issue, through their Integrated Logistics Support Plans (ILSPs), the requirement for ship Integrated Logistics Support Management Team (ILSMT) meetings to support scheduled industrial availabilities. They determine the frequency of these meetings and approve an agenda for each meeting. ILSMT meetings provide an opportunity to identify deficiencies and take corrective action prior to EOA. The responsibilities of the ILSMT participants, as directed by the SPM, are as follows:

- SPM
  - Schedule and chair ILSMT meetings
  - Develop agenda for ILSMT meetings
  - Provide minutes, action items and status to all participants
  - Monitor ILSMT action item milestone accomplishment
- CDM
  - Identify and track applicable configuration changes. Provide input to Naval Supervising Activity (NSA)/Regional Maintenance Center (RMC)/SPM
  - Report on CM and process issues
  - Provide status of availability related work file processing/COP status
  - Prepare status for ILSMT showing all COP items not resolved and, as required, pass to the Engineering Configuration Manager (ECM) for post availability tracking (CV/CVN hulls only)
- RMC/NSA
  - Report receipt and non-receipt of each ILS product due per the NMP milestones
  - Report SC completion status to the SPM/CDM
  - Coordinate and complete ILS Availability Status Reports as required by this manual and the direction of the SPM (Exhibit S6-1-2 through Exhibit S6-24)
  - Act as recorder and meeting coordinator, when directed
  - Chair the ILSMT meeting as directed by the SPM
- PARM/ISEA
  - Participate in ILSMTs as requested by the SPM
  - Provide ILS/Installation status updates of all planned SCs under their cognizance

- All Others
  - Provide ILS status and/or metrics as required two weeks prior to the ILSMT meeting
  - EOA deadline on areas of responsibilities designated in the ILSP and ILS Status Reports

6-2.2.4 End of Availability (EOA)/End of Installation (EOI)/Production Cutoff Date (PCD) ILS Verification

At EOA/EOI/PCD, the NSA/RMC, using the ILS Certification as the baseline, will verify the status of ILS products resulting from SCs, including those installed by AITs, via ILS Verification Report and the ILS Status Reports (Exhibit S6-2 through S6-4) to the SPM with a copy to the ship, RMC, TYCOM, CDM, and PY no later than EOA/EOI/PCD + 30 days. The SPM or SPM's designated agent and TYCOM will follow-up on deficient ILS products. (Note: For Aircraft Carriers the designated agent is the ECM to follow-up on deficient ILS products.) It should be noted that some SPMs task the CDM/PY to perform the EOA ILS verification. Such deviation is permissible providing there is an activity designated to provide this verification to the SPM. EOA/EOI/PCD verification reporting data is required for the Maintenance and Material Management (3-M) System Current Ship Maintenance Project (CSMP) closeout in the Maintenance Data System (MDS).

This verification is required for all SCs. All deficient ILS products will be reported as required by the ILSMT procedures (see paragraph 6-2.2.3). Repair-related items, not part of the availability work package or emergent work, are the responsibility of the TYCOMs. Although this is the final verification, the SPMs may require further reports on outstanding deficiencies.

SUBSECTION 6-3 POLICY AND MAJOR RESPONSIBILITIES FOR INTEGRATED LOGISTICS SUPPORT (ILS) PROCESSES

6-3.1 Scope

This subsection addresses ILS policy, the responsibilities of each activity involved with ensuring complete logistics support, and the ILS audits and controls involved in managing and reporting SCs occurring as a result of the NMP.

6-3.2 Policy

Any activity responsible for procuring new systems, equipment or components intended for shipboard use, or for SCs to existing equipment, is responsible for funding initiating the development, procurement, delivery, and lifecycle support of all required ILS products. Contracting another activity (e.g., AIT) to install SCs does not absolve the SC sponsor from ensuring ILS products are provided. This policy applies to Headquarters or Hardware Systems Command (HSC) Centrally Provided Material (HCPM) and Installing Activity Provided Material (IAPM), including both Centrally Provided Material (CPM) and Locally Provided Material (LPM). All ILS products will be complete, accurate and available by SOA, scheduled for delivery in time to support the installation and testing of the hardware, and provided to the ship by EOA/EOI/PCD and/or NMP milestones. All SCs will be reported in accordance with SUBSECTION 6-4 and reference S6(e). All nameplate and technical data will be updated to reflect SC installations. For CV/CVN availabilities, ILS product delivery is due to the ship by PCD/ EOI, which ever comes first.

6-3.3 Funding for Configuration and Logistics

The ILS responsibilities in this section are the mission responsibilities of the following activities, except as noted below:

- Tracking and verification efforts included in contracts issued to private shipyards for execution by the contractor will be funded by the customer funding the applicable SC
- The Naval Shipyards (NSYs) will include customer-funded logistics tracking and verification costs in the Preliminary and Final Review Estimates (PREs/FREs), to include only costs of tracking and verifying logistics support. All tracking and verification efforts at the NSYs that can be identified to a specific SC should be charged to the customer funding the SC

6-3.4 Major Responsibilities

In concert with Section 2 of this manual, the succeeding subparagraphs provide the major logistics management responsibilities for activities involved with ensuring complete ILS for SCs. SUBSECTION 6-4 specifies the pertinent milestones.

6-3.4.1 Ship Program Manager (SPM)

SPMs are responsible for overseeing all of the ILS aspects of the NMP for their assigned ship classes, commencing with the early planning stages and continuing until the SC has been installed and completely supported. SPMs have comprehensive responsibility for maintaining complete and accurate configuration records. This responsibility is discharged through the exercise of CM control during the NMP and oversight of the CDMs. Of particular importance are the following responsibilities:

- Manage/Execute the ILS Certification Process for assigned ship classes in accordance with the requirements delineated in this manual
- Issue the SPM Letter of Authorization (LOA) to all participating activities. In coordination with the equipment PARM/LCM, budget, task and fund the PY or designated activity to provide electronic COP data via Configuration Data Managers Database-Open Architecture (CDMD-OA) work files to the CDM and the NSA/RMC as determined by the SPM to provide Coordinated Shipboard Allowance List (COSAL) Ship's Non-Tactical Automated Data Processing (SNAP)/Naval Tactical Command Support System (NTCSS) updating information during an availability
- Develop and distribute an overarching ship availability/overhaul logistic support plan to establish an ILSMT framework defining the roles and responsibilities of the major ILS stakeholders needed in support of successful availability execution. ILSMT members should include (but is not limited to) the ship, NAVICP, Defense Logistics Agency (DLA), Naval Surface Warfare Center, Carderock Division-Ship Systems Engineering Station (NSWCCD-SSES), Naval Surface Warfare Centers (NSWCs), Space and Naval Warfare Systems Command (SPAWAR), Naval Air Systems Command (NAVAIR), NSA/RMC, Fleet and Industrial Supply Center (FISC), CDM, etc
- Schedule and chair ship availability ILSMT meetings
- In coordination with NAVSEA 04L, conduct post-availability database audits as required by reference S6(e), to determine the effectiveness of the Ship Configuration and Logistics Support Information (SCLSI) process and to identify areas which may require improvement. An analysis of audit results may identify common problems or a specific problem with a ship class, shipyard or CDM
- Ensure that requirements of this manual are accomplished by all participating activities. The SPM will tailor these requirements to fit specific availabilities and SCs accomplished by AITs. Requirements will be delineated in the appropriate tasking, contracts, ILSP/ILSMP, and SCD
- Ensure the Fleet receives fully supported and mature SCs, including required ILS products

6-3.4.2 Participating Acquisition Resource Manager (PARM)/Life Cycle Manager (LCM)

The PARM/LCM or their designated representative is solely responsible for coordination with the Resource Sponsor to identify and develop funding requirements for all applicable ILS products required to support the SCs and for ensuring that a complete ILS package is provided to the Fleet to support the SC (this includes both equipment level

ILS products as well as platform level ILS products such as Ship's Selected Records (SSRs), Ship's Drawings, Operational Sequencing System Manuals, Damage Control drawings, etc.). These requirements apply any time a SC is accomplished on a ship.

The PARM/LCM is the activity identified as having technical and logistics responsibility for a system, equipment and/or providing guidance, tasking and/or funding to an installing activity. An ISEA may also be designated as a PARM/LCM. The PARM/LCM is responsible to:

- Identify and manage the technical and logistics requirements for assigned equipment through all of the life cycle phases
- Plan and prepare SCs. This planning responsibility emphasizes the budgeting for ILS products specified in SUBSECTION 6-4 and includes funds required for the acquisition of: hardware; software; training support package; coordination with the CDM, PY and ISEA for preparation and submission of COP data; new or modified PMS documentation and TMs, including system manuals; Installation and Checkout (I&C) spares; Interim Supply Support (ISS) when required; MAMs; S&TE including Calibration Requirements, Calibration Standards, Calibration Documentation, and Calibration procedures for installed instrumentation, machinery control systems, and support equipment. Budgeting for this is the responsibility of the SC sponsor
- Ensure the technical and logistics adequacy of all assigned systems and equipment throughout its life cycle and will oversee the approval of all ILS products
- Assist NAVICP during the provisioning process for new repairables including complying with DMI requirements of OPNAVINST 4790.14(series)
- Prepare an ILS Certification identifying the estimated delivery date for those items required to support the end product. The PARM/LCM should begin preparing the ILS Certification upon approval of the CBA. Problem areas typically require careful monitoring to ensure that the first installation date stays on track. ILS element products shall be available by SOA and delivered by EOA/EOI/PCD or as required to support installation and testing. For CV/CVN availabilities, ILS product delivery is due to the ship by PCD/ EOI, which ever comes first. These dates must be factored into the POA&M. The PARM/LCM should monitor and update the ILS Certification as individual elements are completed to maintain an accurate data point. The PARM/LCM or designated agent shall be prepared to discuss with the SPM the overall ILS status from CBA approval to SPM ILS Certification
- Provide a primary point of contact for coordinating ILS information and support and for the implementation of the requirements of this section
- Review the ILS Certification to ensure that the proper level of ILS is being provided for cases where Naval Inventory Control Point-Mechanicsburg (NAVICP-M) or DLA procures non-standard material or completes the re-procurement of an existing National Stock Number (NSN) item
- Be the engineering design agent for each system/equipment under their cognizance

6-3.4.3 Planning Yard (PY)

The PY is responsible to the SPM for engineering in support of SC development and for support to the NSA/RMC during SC installation. The assigned PY for each ship class is

typically the engineering Design Agent (DA) for SCs. As tasked by the SPM, the PY will update the SSRs, as discussed in SUBSECTION 6-7. In addition, designated PYs have life-cycle responsibilities as CDMs for assigned ship classes. Specifically, the designated PY provides electronic COP data (via CDMD-OA) to the designated CDM and NSA/RMC as determined by the SPM to provide COSAL updating information during an availability.

6-3.4.4 Configuration Data Manager (CDM)

The CDM, under the direction of the SPM and NAVSEA 04L, has total responsibility to maintain the integrity of the WSF/CDMD-OA and by extension, the integrity of the ship's Shipboard Non-Tactical Automated Data Processing (ADP) Program/ SNAP/NTCSS database. The CDM is responsible for configuration identification, configuration verification and the CSA data elements linked to the WSF as well as maintaining and providing updated information for input to the ship's SNAP/NTCSS database. During the NMP, the CDM will be responsible for processing planning data prior to the availability, SC installation data from the NSA/RMC and corrective data generated during the RMC Configuration Review process. For a further description of the CDM responsibilities, see paragraph 6-4.2 and reference S6(e).

Accuracy of the software configuration data being delivered to the CDM is the responsibility of the PARM/LCM or designated Software Support Activity (SSA)/ISEA submitting the data. The CDM will treat the data being submitted from the designated software Configuration Managers as trusted data.

6-3.4.5 Naval Supervising Activity (NSA)/Regional Maintenance Center (RMC)

The RMCs have assumed the NSA's ILS functions. Although the SPM has the authority to designate the NSA ILS function to another activity (i.e., Naval Shipyard), typically the NSA function will be performed by the applicable RMC depending on geographic area. Accordingly, the RMC (as the NSA) is responsible for verifying that all ILS products have been delivered to support the installation of a SC; and ensuring that all ILS products are available as needed for SC installation and checkout of systems and equipment. At the completion of SC installation and checkout, the NSA/RMC is responsible for ensuring that all ILS products required by the ship to support newly installed or modified systems/equipments are onboard at EOI. For CV/CVN availabilities, ILS product delivery is due to the ship by PCD/ EOI, which ever comes first. The NSA/RMC will provide the results of the Work Definition/Work Package Integration Conference/Project Review Conference (PRC) to the CDM.

Note: It is highly recommended that all ILS products to be turned over at the end of equipment installation and no later than EOI. It is critical to record the receipt of all ILS products in the Ships database as soon as possible so that the NSA/RMCs will have an accurate accounting of all ILS deliverables by EOI. Since System Operational Verification Testing (SOVT) typically occurs after EOA, delivery of ILS products at SOVT is not acceptable.

In those cases when the Installing Activity is a Shipyard, the NSA/RMC acquires material and is responsible for procuring all required ILS products, as defined in SUBSECTION 6-4, as well as the preparation of associated Allowance Appendix Pages (AAPs). This responsibility emphasizes tracking and verifying the logistics status of all SCs and informing appropriate authorities of emergent ILS problems.

As directed by the SPM, the NSA/RMC will support ILSMT meetings for availabilities. This support may include providing ILS Status Reports prior to each ILSMT, providing minutes, action items and status to all participants, and scheduling and chairing ILSMT meetings when directed by the SPM.

The NSA/RMC will physically sight validate all SCs accomplished and report them to the CDM or designated agent, unless the SPM tasks this requirement to another activity. Sight validation must include all equipment as it is installed and all permanently removed equipment. These changes will be reported to the CDM electronically using CDMD-OA work files. Any activity tasked to perform ship validation/verification functions shall pass the results of those efforts to the NSA/RMC, CDM, RMMCO (to enable check-out from the ship) and SPM to ensure all configuration changes are correctly documented.

The NSA/RMC, in coordination with the CDM or SPM designated agent remains responsible for validation of data provided by other activities, but is not expected to duplicate the efforts of those activities. Such data may be validated using statistical sampling techniques. If validation of data provided by other activities indicates a low degree of confidence, the NSA/RMC will report the details to the SPM for appropriate action. The NSA/RMC will complete and submit the EOA Report, Exhibit S6-2 through S6-4. The NSA/RMC will act as Fleet/TYCOM agent and single point of contact between ship, AIT, SC sponsors and Fleet/TYCOM representatives in facilitation, resolution and reporting of Fleet AIT/modernization issues.

6-3.4.5.1 Regional Maintenance and Modernization Coordination Office (RMMCO)

The RMMCO is the department within the RMC responsible for providing coordination and integration of SPM/Fleet approved SCs into non-CNO availabilities for platforms under its regional cognizance. The RMMCO is responsible to:

- Act as AIT gatekeeper to the ships
- Verify TYCOM/ CFFC approval of scheduled SCs
- Provide RMMCO check in and out procedures in accordance with Appendix H to all AIT government sponsors and their AIT
- Provide each ship Commanding Officer (CO) in the region a single point of contact for all modernization issues
- Integrate installation teams with ship’s maintenance schedules

Note: Local arrangements between RMC and RMMCO may require AITs to check-in with the applicable RMMCO both inside and outside availabilities.

6-3.4.6 Fleet and Industrial Supply Center (FISC)

The Fleet and Industrial Supply Centers (FISCs) will provide the facilities, support, training, and technical direction to accomplish a variety of configuration and logistics support services on ships during and after industrial availabilities and throughout the operational cycle. The level of support provided to the ship by the FISC is dependent upon various conditions such as length of availability, COSAL effectiveness, and ship specific requirements.

An Integrated Logistics Overhaul (ILO) is the process by which a ship's readiness is improved through training, and the audit analysis and correction of four ILO elements, i.e. the ship's configuration records, on-board TM library, PMS documentation and OBRPs inventory. ILO is traditionally conducted during extended availabilities, such as a Regular or Complex Overhaul (ROH/COH) and is specifically tasked and funded by the TYCOM. For shorter availability cycles, an Integrated Logistics Repair (ILR) may be conducted. An ILR is a phased approach that includes a review of one or more of the four ILO elements.

Note: For Aircraft Carriers, these functions are conducted by the ships force, by Maintenance Support Center (MSC) and 3M personnel.

Primary responsibilities of the FISCs include review, analysis and correction of the ship's existing configuration records and updating those records with accomplished SC information. While the NSA/RMC is responsible for ensuring delivery of technical documentation, such as new TMs and PMS for newly installed equipment, the ship, with the assistance of the FISC, is responsible for requisitioning all new OBRPs requirements when conducting an ILO with OBRPs offload, as well as for identifying and requisitioning OBRP deficiencies of the ship's existing supply inventory. During an ILR, it is ship's force responsibility to requisition new OBRPs requirements. Further, the FISC identifies and acquires TMs and PMS documentation deficient for non-SC related equipment.

When an ILO/ILR is conducted the FISC will provide a report to the ship, SPM, TYCOM and the NSA/RMC of all ILS products that are on order but not received by EOA. This report will contain all information required to track status of back ordered items.

Since the NSA/RMC is the pivotal activity and must provide the ship with a complete ILS package at EOA, it is vital that close coordination and cooperation be maintained between the NSA/RMC, FISC, CDM, SPM and the ship. This cooperative interface will assist the NSA/RMC with its verification responsibilities, provide the CDM with accurate information for updating the configuration database and enable NSA/RMC/FISC to provide the ship with the most accurate and complete logistics support package possible.

The FISC will support ILSMT meetings by providing ILS Status information to the NSA/RMC IAW the SPM's ILSP/ILSMP.

Note: Specific organizational and administrative policies with respect to the performance of ILO functions are the responsibility of the Fleet and TYCOMs. When organizational

and administrative guidelines contained in this manual conflict with Fleet and/or TYCOM instructions, the Fleet and/or TYCOM instructions will take precedence.

6-3.4.7 NAVSEA Logistics Center (NAVSEALOGCEN) Detachments (DET) Norfolk/San Diego

NAVSEA Logistics Center (NAVSEALOGCEN) DET Norfolk/San Diego, in conjunction with the designated ISEA, shall maintain (i.e., revise, print, stock, and distribute) PMS documentation, including MIPs and MRCs; and notify the applicable ISEA for items received lacking existing maintenance support. When tasked and funded by the PARM/LCM or other activities, NAVSEALOGCEN DET Norfolk/San Diego also develops equipment maintenance. They are also responsible for updating the LOEP based on configuration update information provided during the availability, which identifies all changes, and for providing these to the ship via Advance Change Notices (ACNs) or their quarterly PMS force revision.

6-3.4.8 Ship Platform CMP/ICMP Planning Activities-- Surface Ship Life Cycle Maintenance Activity (SSLCM), Carrier Planning Activity (CPA) and Submarine Maintenance Engineering Planning and Procurement Activity (SUBMEPP))

Whereas NAVSEALOGCEN) DET Norfolk/San Diego develops, maintains and distributes PMS MIPs and MRCs to all ships and submarines in the Fleet, the applicable Ship Platform CMP/ICMP Planning Activity (SSCLM, SUBMEPP, or CPA) are tasked to maintain their respective surface, subsurface, and carrier CMP/ICMP. The CMP/ICMP defines the maintenance actions to be accomplished throughout the life-cycle of a ship. They play a key role in ensuring requisite attention is paid to the operational safety and reliability of all Navy platforms. From the time the Fleet takes delivery of a new ship, to the time it is de-commissioned, ship CMP/ICMP are constantly updated through a continual cycle of both incremental and large-scale improvements. The Ship Platform CMP/ICMP Planning Activity acts as the TYCOMs' agent for management of Availability Work Packages (AWPs). Accordingly, AWPs identify planned maintenance, repairs, modernization work, production support requirements and services authorized for accomplishment during scheduled depot availabilities. AWPs serve as the contract specification for all ship repair and modernization work performed by private and public industrial facilities. CMP/ICMP task not only define the work to be done as part of an AWP, they also spell out the level of experience and industrial infrastructure required. Depending on complexity, those tasks are then assigned as appropriate to ship's force (O-level), intermediate maintenance facilities (I-level), or shipyards (D-level). Upon completion of an availability, job close-out feedback is channeled back to the applicable Ship Platform CMP/ICMP Planning Activity. This feedback includes job completion verification, material condition information and final cost data which are used to further refine the CMP/ICMP planning process.

6-3.4.9 NAVSEA 04 Logistics, Maintenance and Industrial Operations Directorate

NAVSEA 04 develops and integrates the Fleet Modernization Program (FMP)/ NMP, CM, supportability, and associated information technology to ensure the logistics adequacy of ships, systems and equipment. In this capacity NAVSEA 04 will ensure compliance with the policy and procedures set forth in this section. The intended enforcement will be via the Hull Readiness Assessment. All SCDs are reviewed for compliance and if certification has not been accomplished, an Impact Assessment must be presented to the Fleet for approval to install with the knowledge of document shortfalls and an estimated completion of all outstanding issues associated with the impact.

6-3.4.10 Naval Inventory Control Point–Mechanicsburg (NAVICP-M)

NAVICP-M works with the PARM/LCM/ISEA/Technical Support Activity (TSA) to ensure that all NMP material managed under their cognizance is fully supported logistically to include TMs, drawings, OBRPs and Allowance Parts Lists. NAVICP-M provides logistics support for non-standard SC material programmed in the NDE-NM, formerly the FMP Management Information System (FMPMIS), and cataloged for NAVICP-M cognizance when competitively reprocuring standard material. The NAVICP-M SC Program Manager is the NAVICP-M central point of contact for the purposes of identifying and monitoring SC logistics support. NAVICP-M, working with the PARM/LCM/ISEA/TSA, will ensure that each element is being accomplished on schedule, or that appropriate action is being taken to rectify deficiencies.

When NAVICP-M cannot provide material support for a SC's first-time installation a non-support letter will be forwarded to the SPM, PARM and the PY. Such non-supported equipment will be the focus of the SPM SOA-360 ILS Review during subsequent SC installations.

NAVICP-M performs the following ILS and CM functions:

- Provisions and builds Allowance Parts Lists using provisioning received from the TSA as an integral part of its Supply Support Logistics Element Manager (LEM) functions.
- Ensures that procedures used to determine DOPs during the provisioning process comply with the JDM Program as outlined in OPNAVINST 4790.14(series)
- Assigns repairable components to DOPs based upon the DMI process within the JDM program in accordance with OPNAVINST 4790.14(series)
- Accepts configuration updates from CDMs
- Uses the Allowance Control Panel (ACP) as the authoritative source for all allowance products requirements
- Forwards allowance products as directed by the TYCOM

6-3.4.11 Technical Operating Budget (TOB) Other Procurement, Navy (OPN) Resource Manager

NAVICP-M is NAVSEA 04L's COSAL allotment outfitting Technical Operating Budget (TOB) (Other Procurement, Navy Budget) holder and serves as the point of entry where initial outfitting requisitions are submitted. NAVICP-M advises the appropriate SPM, TYCOM, NAVSEA 04RM and NAVSEA 04L when funding is not available to process NAVSEA outfitting requisitions into the FSS. Unfunded outfitting requisitions will be held in file under status code "NM" and processed based on Fleet-determined priorities.

6-3.4.12 Type Commanders (TYCOMs)

The TYCOM is responsible to:

- Coordinate actions in support of all SCs authorized and funded by the TYCOM. The planning responsibility emphasizes budgeting for the ILS products specified in paragraph 6-2.2.3 and includes funds required for the acquisition of: hardware; software; new or modified PMS documentation; TMs, including system manuals; I&C spares; ISS; MAMs; S&TE; Calibration Standards; Calibration Documentation; Technical Training Equipment (TTE); and ensure Manpower, Personnel and Training (MP&T) is available to the ship, as required. The TYCOM is responsible for ensuring that complete logistics support, as described in SUBSECTION 6-4, is provided for all TYCOM funded SCs. For Submarine SCs the SPM/PARM/LCM fund ILS product development/update for both Fleet and Program alterations. The SPM will execute ILS Certification for both Fleet and Program SCs.
- Ensure SCs are identified and reported by the NSA/RMC and that all appropriate ILS products are obtained for any SCs resulting from maintenance actions. This requirement includes all changes resulting from SCs performed by Fleet Maintenance Activities (FMAs)
- Use the EOA Report to follow-up on deficient ILS products
- Direct NAVICP-M when and where to forward ship allowance products
- Participate in the ILSMT
- Review and approve ILS Impact Assessments IAW the Impact Assessment process, paragraph 6-2.2.2.2

6-3.4.13 In-Service Engineering Agents (ISEAs)

The ISEAs, as tasked and funded by the PARM who is ultimately responsible for ILS development and delivery, are responsible for:

- Combat System/Weapon System/Hull/Mechanical and Electrical (HM&E)/Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4IRS) technical, engineering and logistics support for assigned systems
- Providing a POA&M for delivery of required ILS products to the PARM/LCM
- Submit planning data to the CDM for SCs planned during an availability via the SCLSI process in accordance with reference S6(e)

- Maintenance Requirements- PMS/ CMP/ ICMP
  - Identify maintenance requirements to the PARM/LCM during SC development and determine if new maintenance task development or revision to existing tasks will be the most cost effective means to provide appropriate PMS/CMP/ICMP products to the ship
  - Provide Cost and Development/Revision Time estimates to the PARM/LCM
  - Develop/revise existing maintenance tasks and provide them to NAVSEALOGCEN DET Norfolk / San Diego for distribution
  - Technically validate/approve maintenance tasks procured by NAVICP-M for non-standard SC material or competitive reprocurement of standard material
- Technical Manuals (TMs)
  - Identify TMs to the PARM/LCM during SC development and as a result of other changes to ship's configuration
  - Determine if new TM development or revision to existing TMs will be the most cost effective means to provide appropriate TM coverage
  - Provide Cost and Development/Revision Time estimates to the PARM/LCM
  - Develop/revise existing TMs and provide them for distribution
  - Technically validate, verify and approve TMs procured by NAVICP-M for non-standard SC material or competitive reprocurement of standard material
- Operational Sequencing System (OSS)
  - Identify OSS requirements to the PARM/LCM during SC development and as a result of any other changes to ship's configuration
  - Provide Cost and Development/Revision Time estimates to the PARM/LCM
  - Provide assessments of ability to deliver to the PARM/LCM
  - Develop/revise existing OSS and distribute to the affected ships
- Provisioning and Supply Support
  - See TSA, paragraph 6-3.4.14
- Calibration Support
  - Provide an outline of relevant parameters, range, accuracy, and intervals for a weapons system/platform or major subsystem requiring calibration support to update Calibration Measurement Requirements Summary (CMRS)
  - Provide updates to Metrology and Calibration (METCAL) Documentation – Metrology Requirements List (METRL) and Navy Calibration Equipment (NCE) List for Support Equipment (SE) requiring METCAL support
  - Identify all changes to installed instrumentation (e.g., instrument additions, deletions, instrument and system configuration modifications, etc.) that will impact the ship's CRL

6-3.4.14 Technical Support Activity (TSA)

The TSA is the NAVSEA engineering activity that validates and generates the technical and engineering data and decisions of the provisioning process. The TSA is usually, but not always, the ISEA. The TSA is responsible for:

- Identifying Supply Support requirements during SC development and, as a result of any other changes to the ship's configuration, determining if new Allowance Parts List development or revision to existing Allowance Parts List will be the most cost

effective means to provide appropriate OBRP support for any other change to the ship's configuration
- Providing Cost and Development/Revision Time estimates
- Receiving Provisioning Technical Documentation (PTD) from the system or equipment manufacturer, system integrator, Navy Industrial Facility, or NSA/RMC for review and acceptance or rejection. Acceptance or rejection will be based on the adequacy of the PTD to complete provisioning
- Verifying or completing technical coding of PTD in accordance with the maintenance plan
- Determining Supply Support configuration/Allowance Parts List worthiness
- Forwarding approved PTD to NAVICP-M for further processing
- Providing provisioning status as required
- Reviewing Allowance Parts Lists developed as a result of provisioning and coordinating corrections/updates with NAVICP-M
- Reflecting the Supply Support methodology through the assignment of the Logistic Support Status Codes (LSSCs)

6-3.4.15 Ships Responsibility

While the NSA/RMC is responsible for ensuring delivery of technical documentation, such as new TMs and PMS for newly installed equipment, the ship, with the assistance of the FISC, is responsible for requisitioning all new OBRPs requirements when conducting an ILO with OBRPs offload, as well as for identifying and requisitioning OBRP deficiencies of the ship's existing supply inventory. During an ILR, it is ship's force responsibility to receipt and stow new OBRPs requirements.

SUBSECTION 6-4 LOGISTICS SUPPORT ELEMENTS AND MILESTONES

6-4.1 Scope

This subsection contains the critical milestones required for accomplishment of each ILS element. Milestone charts for Configuration Data Management, Supply Support, Technical Manuals, Support Equipment, Maintenance Requirements, and Training Support are presented as well as a narrative step-by-step description of the process. The milestones are applicable to all SCs.

6-4.2 Configuration Data Management (CDM)

6-4.2.1 Scope

This subsection details the procedures for ensuring that all SCs occurring as a result of the NMP are properly and completely recorded and logistically supported.

6-4.2.2 Background

SCLSIS Process Technical Specification reference S6(e) is the official U.S. Navy policy for CSA for U.S. Navy ships. The concept is a closed-loop process that utilizes the 3-M reporting system, periodic ship equipment validations, a CDM that is responsible for the accuracy and integrity of the ship's configuration database, and refreshment of the SNAP/NTCSS database.

Configuration Data Management is an ongoing effort performed by an assigned CDM. CDMs work under the direction of the SPM and NAVSEA 04L. They are assigned by ship class and are responsible for the integrity and accuracy of the SCLSI contained in the CDMD-OA database. For detailed responsibilities of the CDMs see reference S6(e).

The following paragraphs describe the timeline from SOA-360 through EOA+120. This timeline includes the initial database validation and reconciliation efforts.

6-4.2.3 SPM Letter of Authorization (LOA) and Configuration Overhaul Planning (COP) Funding

IAW Navy Modernization milestone charts in Appendix G, the SPM will issue the initial SPM LOA to the PY or designated activity, and the CDM. Updated LOAs and final LOAs will be issued IAW Navy Modernization milestone charts in Appendix G. Depending upon availability of funds and the complexity of the availability, COP data submission shall encompass full data elements including the required research to provide Allowance Parts List numbers and all applicable logistics Type 3 data elements as specified in reference S6(e). However, COP must provide the minimum data elements necessary for the CDM to produce credible data for CDMD-OA and Preliminary Installation Reports (PIRs) for the NSA/RMC.

6-4.2.4 In-Service Engineering Agent (ISEA) Planning Data

At SOA-360, the ISEA will begin COP data submission to the CDM for SCs planned during the availability, to include any AIT installations, with final submission no later than SOA-60 for work accomplished inside an availability or I-60 for work accomplished outside of an availability. The ISEA is the technical expert responsible for specific systems and, as such, is in the best position to provide the PY with the information needed to assure accurate and complete planning data.

For AIT installations occurring during an availability, but not part of the availability work package, or outside of an availability, the PARM/LCM/ISEA or the designated representative shall submit configuration planning data to the CDM no later than 60 days prior to installation.

6-4.2.5 PY Begins COP Data Preparation and Submission

At SOA-300, the PY or designated activity will prepare the COP Milestone Plan and begin the review of the drawing schedule for the availability. For all SCs in the Work Package, the PY or designated activity shall begin submission of digitized COP data (in Standard Data Interface File (SDIF) format) by SOA-180 with final submission no later than SOA-60 for work accomplished inside an availability or I-60 for work accomplished outside of an availability.

6-4.2.6 CDM Evaluates Milestone Plan

At SOA-300, the CDM evaluates the COP Milestone Plan and recommends a Configuration Quality Review (CQR), when required, to the SPM/TYCOM.

6-4.2.7 CDM Preloads COP Data

At SOA-180, the CDM shall pre-load the ship’s configuration and/or SC records in the CDMD-OA. Before SOA-60, the CDM will ensure the ship configuration records for unconfirmed planned SCs are loaded in the CDMD-OA with Installation/Alteration Status Codes (ISC/ASC) of “J”, including those submitted by the ISEAs. After the receipt of final COP data in the Work Package, but no later than SOA-60, the CDM will change the ISC/ASC “J” ship’s configuration records with ISC/ASC to “P” for confirmed planned SCs.

Note: For CVN availabilities less than 6 months long, the CDM will change ISC/ASC "J" ship's configuration records with ISC/ASC to "P" at SOA. For CVN availabilities greater than 6 months long, the CDM will change ISC/ASC "J" ship's configuration records with ISC/ASC to "P" at SOA +60 days.

For planned deletes, the CDM will ensure that the ship’s configuration records contain ISC/ASC “E” or ”N.” It is critical to note that changes to COP after SOA-60, including ISC change from J to P, creates a high impact that the updated configuration and spares will not be available to the ship by EOA. Therefore, alterations that cause changes to COP after SOA-60 are discouraged.

Note: All alterations occurring within a scheduled availability must be scheduled and programmed in NDE-NM and documented on the LOA before the CDM can take any action with respect to maintaining configuration overhaul data submitted by the PARM/LCM or their designated ISEA.

6-4.2.8 Reconciliation of Databases

At SOA-120 the CDM will coordinate with the TYCOM to request a copy of the SNAP/NTCSS configuration database Equipment (EQU) file from the ship. The EQU file is provided to the CDM via Revised Alternative Dataflow (RAD) for automatic loading into the Database Reconciliation (DBR) module within CDMD-OA. This file is compared/reconciled with CDMD-OA. The CDM will produce Validation Aids (VALAIDs) to validate differences between configuration items in the EQU file and CDMD-OA database.

Validations must be performed at the discretion of the SPM/TYCOM at the ship's convenience. Activities designated by the SPM or TYCOM will conduct validations and shall report their findings to the CDM, who will update CDMD-OA with the results of this validation by SOA-15.

6-4.2.9 Final COP and Planning Data Submission

At SOA-60, the PY and the PARM/LCM/ISEA will submit final COP and planning data for all SCs scheduled during the availability to the CDM. The SOA-60 COP data cutoff date is designed to meet any COSAL production cycle date. The SPM has the option of extending this cutoff date until SOA-15.

6-4.2.10 Start of Availability (SOA)

At SOA-60, the NSA/RMC or other SPM designated activity will begin its review of the ship's configuration and ILS products. The purpose of this review is to identify and correct deficiencies in ILS products and correct configuration record errors. RMC or the SPM designated agent will take necessary action to resolve ILS products deficiencies. Corrections to the ship's configuration database will be forwarded to the CDM. In addition, the availability/review period will be used to accomplish validations on newly installed/inaccessible equipments that were not validated during the ship's operating cycle.

The CDM will prepare planned SC inputs and notify the NSA/RMC of completion. As installation/rip-out is completed, the NSA/RMC will submit updated records to the CDM via CDMD-OA, including location information. The NSA/RMC, or SPM designated activity will utilize CDMD-OA to notify the CDM of any emergent or unplanned work by submitting an electronic work file, via CDMD-OA, with the required data. Specific data elements are required in order to build a configuration and logistics record within CDMD-OA, and ultimately to properly support the ship. The NSA/RMC or the SPM designated agent validates all installed equipment and reports accomplished SCs via CDMD-OA, including any additional information (such as, serial numbers, locations, etc).

Standard data elements on these reports are critical for continuity and completeness in configuration data management. Reference S6(e) contains the requirements for the individual data elements.

Updates to the ship's SNAP/NTCSS COSAL will be accomplished using the Automated Shore Interface (ASI).

6-4.2.11 End of Availability (EOA)

At EOA, the NSA/RMC shall list the status of all SCs installed during availability in the EOA Completion Report outlined in paragraph 6-3.4.5. The NSA/RMC is also responsible for verification of delivery of all required ILS products. The NSA/RMC, or SPM designated agent, will validate/verify SC accomplishment and report the change of the ASC/ISC to the CDM electronically via CDMD-OA. The CDM will indicate completion in CDMD-OA with the use of ASC/ISC of "D"/"G."

Table S6- 1 ACTION STEPS AND MILESTONES FOR CONFIGURATION DATA MANAGEMENT

Para Ref	Time Frame	Action Required	Who is Responsible ?	What is Produced?	To Whom Does It Go?
6-4.2.3	SOA-360	Issue SPM LOA	SPM	SPM LOA Funding Letter	PY/NSA/ RMC/ CDM
6-4.2.4	SOA-360	Commence Planning Data Submission (Note 1)	PARM/LCM/ ISEAs	Systems Planning Data	CDM
6-4.2.5	SOA-300	Prepare COP Milestone Plan/ Begin COP Preparation	PY/ Designated Activity	Milestone Plan for COP Submission	SPM/CDM
6-4.2.5	SOA-300 to SOA-60	Begin submission of digitized COP data	PY	COP Data	SPM/CDM
6-4.2.6	SOA-300	Evaluate COP Milestone Plan	CDM	Recommend the Need to Conduct CQR	SPM/ TYCOM
6-4.2.6	SOA-180	Preload the ship's configuration and/or SC records in the CDMD-OA	CDM	Ships Configuration Database	CDMD-OA
6-4.2.8	SOA-120 to SOA-15	Request EQU	TYCOM	EQU File	CDM
6-4.2.8	SOA-120 to SOA-15	Database Reconciliation/CQR Process	CDM	Validated CDMD-OA/VALAIDs	CDMD-OA
6-4.2.9	SOA-90 to SOA-15	Release COP to CDMD-OA	CDM	CDMD-OA Update	CDMD-OA
6-4.2.9	SOA-60	Submit Final COP and Planning Data	PY/ISEA/ PARM/LCM	Final COP Data	CDM
6-4.2.11	SOA-15	Submit Final CDMD-OA Update	CDM	Updated CDMD-OA	CDMD-OA
6-4.2.10	SOA to EOA	Configuration and Logistics Review	RMC/NSA	Deficient ILS Requisitions/ Configuration Record Error Corrections	FISC/CDM
6-4.2.10	SOA	Forward PIR Package (can be electronic)	CDM	PIRs	NSA/RMC
6-4.2.10	SOA to EOA	Report completion of SCs	NSA/RMC	Updated CDMD-OA	CDM
6-4.2.10	EOA	Provide Updated EOA/EOI/PCD ILS Reports	NSA/RMC	RMC shall provide EOA/EOI/PCD Reports	CDM

Note 1. This applies to AIT installations not part of the Work Package.

6-4.3 Supply Support

6-4.3.1 Scope

This subsection addresses the ILS processes related to identifying, documenting, acquiring, and distributing the spare and repair parts required to operate and maintain newly installed or modified systems and equipment in accordance with the maintenance philosophy.

6-4.3.2 Background

The activity that procures a system or equipment that requires maintenance at any level (i.e., Organizational, Intermediate, or Depot (O, I, or D)) is responsible for establishing Supply Support. This includes funding the procurement of PTD and the review or development and technical coding of the provisioning data by the TSA. Provisioning involves the processing of PTD, which is used for determining, identifying, and documenting the range and depth of OBRPs. Planning and programming, by Systems Commands (SYSCOMs) and their field activities, include the negotiation of a MSD which establishes the time that the FSS will assume responsibility for Supply Support; and, the preparation of Program Support Data (PSD) sheets which establish requirements and funding schedules. Fitting Out is the process of obtaining and delivering spare and repair parts on board. For additional information regarding the following subjects refer to reference S6(f) at http://www.nslc.navsea.navy.mil/nslcprod/pafos.nsf.

6-4.3.3 Provisioning

Provisioning is accomplished, in accordance with the maintenance philosophy, for equipment/systems that will require support at the O, I or D levels of maintenance. The information required for provisioning is obtained from the PTD. PTD is the generic term used for various types of data which may include, but is not limited to, provisioning data files, provisioning lists, specifications and Engineering Data for Provisioning (EDFP) (drawings and supporting documentation) which is bought from an equipment manufacturer. Provisioning data describes each part within a system/equipment in sufficient detail to enable the Navy to: 1) make supportability and maintainability decisions; 2) catalog piece parts; and 3) procure OBRPs and maintain wholesale spares stock. DOP assignments for depot level repairables made during provisioning will be made through the DMI process as outlined in OPNAVINST 4790.14(series). With the exception of HM&E programs, the DMI process is mandatory for all weapons, weapon systems, equipment, and their non-consumable components.

Sponsoring/installing activities shall acquire PTD from hardware manufacturers and submit it to the TSA via Interactive Computer-Aided Provisioning System (ICAPS). TSAs are NAVSEA engineering activities that perform the technical and engineering functions associated with the provisioning of a system or equipment. The activity sponsoring the SC will task and fund the TSAs to receive and review/develop PTD. The designated NAVSEA TSA for Contractor Furnished Equipment (CFE) is Naval Surface Warfare Center, Carderock Division-Ship Systems Engineering Station (NSWCCD-SSES). For Government Furnished Equipment (GFE), the activity that performs the

ISEA function usually performs the TSA function for the same system/equipment. NSWCCD-SSES will provide assistance with identifying a GFE TSA if assistance is required. After completion of the technical review and coding, the TSA will submit PTD to NAVICP-M via the ICAPS for completion of provisioning, which includes loading of level "C" data to the WSF, developing APLs, and establishing the range and depth allowances based on Navy approved sparing models.

6-4.3.3.1 Provisioning Requirements

6-4.3.3.1.1 Repair Contracts

Use the Standard Item for Provisioning (SI 009-19) as available from http://www.supship.navy.mil using the link to the NAVSEA Standard Specification for Ship Repair and Alteration Committee (SSRAC) site to access copies of all standard items.

6-4.3.3.1.2 Overhaul/Availability Contracts

Use the requirements package available from http://www.dt.navy.mil/mac-res-eng/int-log-fle/supply/index.html.

6-4.3.3.1.3 Government Furnished Equipment (GFE) Contracts

For GFE, contact the TSA and NAVICP-M to establish a team to develop the requirements for each contract.

6-4.3.3.1.4 Fleet Procurements

For procurements made by the Fleet, a commercial manual with parts list, plus any other provisioning data and drawings available, must be obtained from the manufacturer/vendor and provided to the TSA for provisioning and Allowance Parts List development.

6-4.3.4 Planning and Programming

6-4.3.4.1 Material Support Date (MSD)

The MSD is the date when the FSS is responsible for providing material support for both retail outfitting and wholesale requirements. Retail outfitting requirements are the items procured and placed onboard ships as initial outfitting items. Wholesale spares requirements are those items stocked and managed by the FSS to be used to replace failed shipboard allowance items.

PARM/LCMs/SPMs will negotiate with NAVICP-M to establish MSDs for all systems and equipment being introduced into the Fleet. If MSD occurs after EOA, Fast Cruise or Preliminary Operational Capability (POC), which ever occurs first, ISS must be provided in accordance with paragraph 6-4.3.5.

6-4.3.4.2 Program Support Data (PSD)

PSD will be prepared and submitted only for GFE procured end items or SCs that require OBRP support, including Just-In-Time Support (JITS), PBL, etc. It will also be prepared and submitted for CFE specifically designated as Mission Critical or equipment, which requires spares costing more than $100K per year by joint determination of the PARM/LCM and NAVICP-M. PSD includes the number of end item installations, installation sites (including training facilities), SC schedules and annual cost projections for OBRPs. A new PSD must be created for equipment changes and any SCs that will result in changes to established Supply Support requirements. PSD provides the basis for: budgeting initial, interim, and follow-on spares; and is used as input into the Program Objectives Memorandum (POM) and the Future Year Defense Plan (FYDP) preparation. PSD is used by NAVICP-M to establish Planned Program Requirements (PPRs). Paragraph 6-3.4.10 contains an explanation of NAVICP-M's responsibilities as a procuring activity. PARM/LCMs will enter required data into the Program Support Data Automated Reporting and Tracking System (PARTS). NAVSEA 04L is the system manager for PARTS and will forward PARTS data to NAVICP-M. NAVSEA 04L will also provide training and assistance to PARM/LCMs in entering PARTS data. For more information about PARTS, refer to the PARTS website at http://www.partsweb.navsea.navy.mil.

6-4.3.5 Interim Supply Support (ISS)

ISS is required when a system or equipment cannot be supported by POC and OBRPs support must be provided outside of the FSS. It is also required when the FSS cannot provide OBRPs support for an equipment or system at POC. PARM/LCMs procure required OBRPs until MSD is achieved. Reference S6(f) Chapter 5 provides policy, procedures and responsibilities for providing ISS. PARM/LCMs shall include a Provisioned Item Order (PIO) option clause as a separate line item in hardware acquisition contracts to provide a contract vehicle for the Government to procure Wholesale stock level material from prime hardware manufacturers.

For systems or equipment requiring ISS, PARM/LCMs/procuring activities will require hardware manufacturers to provide an Interim Support Items List (ISIL) containing recommended OBRPs for the designated interim support period. No later than SOA-120, TSAs will process the ISIL into ICAPS for files loading into the WSF in accordance with the guidance for Preliminary Allowance List (PALs) in reference S6(f) Chapter 4. ISS material will be assigned a "0" (zero) cognizance symbol as a discrete identifier for interim support material. Sparing requirements for OBRPs will be determined by using the Navy approved sparing computation models. Items with existing NSNs will be supported by the FSS and only the new, non-standard items will be supported by ISS. In addition, the PARM/LCM will provide a list of MAMs procured directly from the hardware manufacturer, using the PIO option, to the SPM, TSA, RMC, ship, NSA and NAVICP-M.

Under ISS, the procuring activity will coordinate with NAVSEA 04L to provide information on whether OBRPs will be positioned in a bonded warehouse operated by the ISEA, commercial vendor, the hardware manufacturer, or in a central warehouse operated

by NAVSEA 04L. Each bonded warehouse will be assigned a Unit Identification Code (UIC) and a Routing Identifier Code for requisition and inventory purposes. Disposition of ISS remaining in inventory at MSD will be negotiated with NAVICP.

6-4.3.6 Advance Repairable Identification Codes (RICs)

The Advance RIC process shall be initiated for all equipment that will not have provisioning submitted to NAVICP-M prior to SC installation no later than SOA-120. While the Advance RIC process does not eliminate the need to develop AAPs, the procedure will allow the AAP and the equipment it represents to be identified with an actual RIC in the ship's CSA file as opposed to a pseudo RIC that has been used in the past. This will allow ships to receive identification of OBRPs requirements via ASI as the final provisioning process is completed and the Allowance Parts List is generated.

6-4.3.7 Procure Installation and Checkout (I&C) Material

PARM/LCMs are responsible for the acquisition of all required I&C material. PARM/LCMs will require hardware contractors to provide a listing of material, special tools and special TE required for I&C. Parts assigned a NSN will be requisitioned through the FSS. PARM/LCMs may include an optional line item in the hardware contract for I&C material not available through the FSS. I&C material will be packaged separately as a kit and clearly marked to ensure proper receipt and control, and will be shipped concurrently with the system/equipment to the NSA/RMC. The PARM/LCM, or designated representative, will ship Special Tools and TE, packaged separately and clearly marked for receipt, to the NSA/RMC on an as required basis. I&Cs will also be shipped to the ISEA, which will assemble complete kits from contractor and FSS shipments. Complete kits will be shipped to the NSA/RMC NLT SOA/SOI. Any residual I&C material will be returned to the ISEA for disposition using Material Turned Into Stores (MTIS) ashore procedures.

6-4.3.8 Fitting Out

6-4.3.8.1 Initiate Procurement of On Board Repair Parts (OBRPs)

For standard items identified by NSNs, NAVICP-M will assign an Inventory Manager and establish PPRs for system or equipment outfitting and system stock. NAVICP-M will initiate procurement of required OBRPs prior to the SOA. NAVICP-M will forward NMP requirements for items under the cognizance of other Inventory Control Points (ICPs) to request adequate stock availability of those items in the FSS.

For non-standard items supported through interim means, PARM/LCMs will invoke the PIO option in the hardware contract to procure OBRPs. These parts should be positioned, until requisitioned, in a centralized staging facility operated by NAVSEA in order to avoid the proliferation of multiple program stock points. However, if a Program Manager decides to establish a program-unique stock point, they will need to notify NAVSEA 04L to ensure that the facility has the capability to make assets visible and accessible for the purpose of processing Military Standard Requisitioning and Issue Procedures (MILSTRIP) requisitions.

6-4.3.8.2 Establish Supply Support Availability

At SOA-360, the PARM/LCM will verify the availability of OBRPs at the time of SC installation by completing the required portions of the ILS Certification. In the event of Supply Support deficiencies at SOA-360, the PARM/LCM will review the status of Supply Support development and provide a SOA-360 status review update to the SPM at SOA-120, although this is a continuous review and update process. The PARM/LCM will notify the SPM/CDM of any on-going deficiencies, including those resulting from design or equipment SCs.

6-4.3.8.3 Requisition On Board Repair Parts (OBRPs)

Ship's Force is responsible for requisitioning OBRPs during an availability. NSA/RMC will interface with the ship as needed to ensure all requisition shortages resulting from ASI processing during the availability are generated and submitted. For OBRPs supported by ISS, NAVICP-M will forward requisitions to the appropriate contractor/activity. For ISS staged under the Push-to-Pull Program, the requisitions will be forwarded via the Push Material Inventory Control System (PMICS) to the NAVSEA Staging Facility.

The NSA/RMC or designated activity will provide the ship with SC data, appropriate allowance lists, and supply aids to assist the ship's Supply Officer in requisitioning the required OBRPs.

6-4.3.8.4 Receive On Board Repair Parts (OBRPs)

The responsibility for receipt of stock replenishment OBRPs during an availability has shifted from RMC to the shipboard supply department for COMUSFLTFORCOM ships. This is due to repair part analysis functions no longer being accomplished during an availability. For Submarines going through DMP/ROH when all repair parts are offloaded, NSA will assure that the required OBRPs have been provided to the ship for all changes made during the availability.

For Aircraft Carriers - OBRPs are to be checked in to Maintenance Support Center (MSC).

6-4.3.8.5 Verify Supply Support

At EOA+30, the NSA/RMC will verify to the SPM/CDM that the installed configuration supporting the availability is resident in CDMD-OA and the shipboard SNAP/NTCSS system. Accurate configuration drives the allowed OBRPs onboard via the ASI process. For CFFC ships, the ship's Supply Department requisitions the allowed OBRPs resulting from the ASI process during an availability. Copies of the verification forms (Exhibit S6-2 through S6-4) will be provided to the SPM, PY, ship, TYCOM, and CDM.

Table S6- 2 ACTION STEPS AND MILESTONES FOR SUPPLY SUPPORT MANAGEMENT

Para Ref	Time Frame	Action Required	Who is Responsible?	What is Produced?	To Whom Does It Go?
6-4.3.3	*	Provide PTD	Procuring Activity/ PARM/LCM	Allowance Parts Lists and Supply Support	NAVICP via the TSA
6-4.3.4.1	**	Negotiate MSD	PARM/LCM/ ISEA/ NAVICP	MSD for System/ Equipment	NAVICP
6-4.3.4.2	** ***	Provide PSD	PARM/ ISEA	PSD Sheets**	NAVICP/ NAVSEA 04L
6-4.3.5	SOA-120	PAL Development	ISEA/TSA	PALs/Interim Support Allowances	NAVICP
6-4.3.5	POC until MSD	Provide Interim Supply Support	Procuring Activity /PARM	Interim OBRPs Requisitions/ Bonded Warehouse Positioning	Contractor/ NAVSEA 04L
6-4.3.5	SOA-120	List of MAMS from H/W manufacture	PARM	List of MAMS	SPM, TSA, RCM, SHIP NSA and NAVICP-M
6-4.3.6	SOA-120	Advance RIC Development	ISEA/TSA	Advance Allowance Parts List Numbers	NAVICP
6-4.3.7	SOA-EOA-60	Ship I&C Spares	PARM	I&C Spares	ISEA/NSA/RMC and/or Ship
6-4.3.8.1	SOA-PLT	Initiate Procurement of Spare and Repair Parts	NAVICP/PARM	PIO/PPR/SPR	Contractor/Navy and DLA Stock Points
6-4.3.8.2	SOA-360 to SOA-120	Establish Supply Support Availability	PARM	ILS Certification	SPM/CDM
6-4.3.8.3	SOA to EOA	Requisition Repair Parts	NSA/RMC/ Ship's Force	Repair Parts	Supply System/ Contractor/ NAVSEA Staging Facility
6-4.3.8.4	SOA to EOA	Receipt of Repair Parts	Ship's Force	Repair Parts	Supply System/ Contractor/ NAVSEA Staging Facility

6-4.3.8.5	EOA + 30	Verify Installed Configuration Data	NSA/RMC	CDMD-OA Updated	SPM/CDM

* = Hardware procurement plus 90 days
**= As soon as requirement is identified.
*** = PSD Sheets entered in PARTS. NAVSEA 04L transmit data to NAVICP
PLT = Procurement Lead Time (includes both production and administrative lead times)

6-4.4 Technical Manuals (TMs)

6-4.4.1 Scope

This subsection addresses the acquisition and management of TMs including those publications, revisions and changes necessary to conduct operations, repair and overhaul of systems and equipment as it applies to the NMP. For all SCs installed under the NMP, the PARM/LCM is responsible for the timely identification of TM deficiencies and the acquisition and delivery of accurate new or changed TMs to the Fleet. The NAVSEA TM Update Program establishes responsibility for the maintenance of the TM by designating a single Technical Manual Maintenance Activity (TMMA) for each ship set of TMs as follows:

- Ordnance and Electronic TMs
  - PARM/LCM/ISEA
- HM&E TMs
  - Selected TMs reserved by NAVSEA Directorate/PARM/LCM
  - PYs assigned selected TMs
  - All HM&E equipment TMs are assigned to NSWCCD-SSES or Propulsion Plant Engineering Activity (PPEA)

As specified in reference S6(i), activities are required to provide one copy of each TM or CD-ROM containing digitized TMs to the NSDSA, Port Hueneme, CA. In addition, TMMAs are required to maintain the accuracy of all related TM data in the TDMIS managed by the NSDSA.

For purposes of identifying responsibilities and procedures, Maintenance Standard (MS) TMs are to be developed, changed or revised using the same criteria as would apply to all other TMs.

6-4.4.2 TM Impact Identified

At SOA-360, in conjunction with the development of a SCD, the PARM/LCM/PY will identify TM impacts.

6-4.4.3 New TM Development, Changes or Revisions Tasked

At SOA-360, based on the contents of the SCD, Engineering Change Proposals (ECPs) or other supporting information, the PARM/LCM verifies the TM requirements and begins

acquisition. The task statements must include a specific completion date that will ensure delivery of the TMs to the NSA/RMC by the SOA. New TM developments, changes or revisions can be accomplished by the PARM/LCM, by the cognizant ISEA/TMMA or through contractor support. The TMMA shall be funded by the PARM/LCM to review, verify and approve all contractor developed or revised TMs. Reference S6(i) requires that a Technical Manual Contract Requirements (TMCR) or a Technical Manual Contract Seatask Requirement (TMSR) for in-house efforts) must be used for all TM acquisitions. TMCRs/TMSRs can be obtained from NSDSA. TMINs are requested and assigned by the TMMA via TDMIS (TMAPS for aviation systems) for all new, revised, and changed TMs. When requesting a TMIN for a revision or change package that is based on a SC, it is essential that equipment applicability and applicable alterations/modifications be identified and provided as part of the TMIN request.

TMINs shall be assigned for all TMs, including COTS TMs. Any COTS manuals that do not meet the requirements of reference S6(i) will require the development of supplementary information.

A Volume Identification (Vol ID) is also assigned via TDMIS for each CD-ROM containing digitized TMs. When assigning a Vol ID for a CD-ROM, it is essential that either ship or equipment applicability be identified and provided as part of the Vol ID assignment process. CD-ROMs containing TMs intended for Fleet use are to be certified as Advanced Technical Information Support (ATIS) system compatible.

6-4.4.4 TM Availability Established

At SOA-360, the PARM/LCM will identify the applicable TM numbers/revisions/changes that will support the planned SC installation and that will be available by SOA. The PARM/LCM provides the information to the SPM/CDM/ISEA on the ILS Certification as part of the Logistics Review Process (LRP) or SPM ILS Status Review.

6-4.4.5 TM Availability Status Review Follow-up

At SOA-150, the SPM will request a full status review of all TMs that were not identified as available during the SPM SOA-360 ILS Status Review. The PARM/LCM will forward this information to the SPM/CDM via the ILS Certification Process.

6-4.4.6 Request Index of Technical Publications (ITP)

At SOA-60, the NSA/RMC obtains TM data supporting the EOA from the TDMIS. There are several technical publications listings used to identify the TMs/Compact Disks-Read Only Memory (CD-ROMs) needed onboard ships that can be requested and produced from TDMIS, which is managed by the NSDSA. Specific instructions on how to request listings from within TDMIS is provided on the NSDSA website or in the training course offered by NSDSA. The three major groups of listings and their intended users are:

- Index of Technical Publications (ITP) – ITPs are used by ships and shore activities. The ITP is an automated listing of general, ship level, and equipment related

NAVSEA and SPAWAR TMs/CD-ROMs, and NAVAIR Air Traffic Control TMs applicable to an individual ship. The ITP is based on ship's configuration data as maintained in the CDMD-OA and relates to the TM data maintained in the TDMIS. An ITP can provide TM applicability information for a specific ship or by ship class. U.S. government employees with a TDMIS account may generate and retrieve an ITP from the Fleet Tailored Technical Data (FTTD) Module of TDMIS. Others may request an ITP from NSDSA via the NSDSA website at https://nsdsa2.phdnswc.navy.mil

- Technical Manual Analysis Report (TMAR) – The RMC via ILO/ILR uses these files to identify what is needed onboard a ship. The TMAR files are automated listings based upon configuration data obtained from CDMD-OA and TDMIS information. Two of the files are similar to ITPs and identify the TMs and CD-ROMs containing TMs required to support the ship. The remaining two files identify RICs-to-publication in RIC order and RICs without any associated publications identified. All of the files are in a text file format used for importing into other databases. TMAR listings may be requested by NSA/RMC personnel via the NSDSA website and retrieved from a File Transfer Protocol (FTP) site
- Technical Manual Outfitting (TMO) – These listings are used by U.S./Foreign Military Sales (FMS) Outfitting and New Construction Teams. They are similar to ITPs with some additional information included. TMO listings are requested from NSDSA on the NSDSA website

6-4.4.7 SOA Technical Manual Review

At SOA-30, the NSA/RMC can request from one to four types of Technical Manual Analysis Report (TMAR) files from NSDSA via the NSDSA website. The RMC uses these TMAR files to conduct their review of the ship's TM library. The FISC, via ILO/ILR, will review the ship's on-hand TMs to ensure applicability, current update, an electronic TM is loaded into the ATIS, a copy is in the ships library, and completeness.

6-4.4.8 Ship's TMs Delivered

The PARM/LCM will ensure that all TMs supporting the availability are delivered by the TMMA/ISEA to the NSA/RMC by SOA. At EOA+30, the NSA/RMC, with the assistance of the CDM, will verify that all TMs applicable to equipments installed during the availability have been provided to the ship for inclusion in the ship's library and loaded into the ATIS. This verification is required for all SCs accomplished during the availability.

NOTE- For CVNs, HM&E systems; required Tech Manuals should be delivered as one hard copy and two electronic copies, Electronic / Weapon systems; required Tech Manuals should be delivered as two electronic copies. Tech manuals must be delivered to the Maintenance Support Center (MSC).

If any equipment is modified in an unplanned manner by a repair action, or procured locally by the NSA/RMC, the NSA/RMC will task and fund the TMMA/ISEA to develop the necessary TM changes.

If a final TM cannot be delivered to the ship by EOA-60 days, the TMMA via NSA/RMC will provide a preliminary TM at a minimum to ensure that the ship leaves the availability with technical documentation. TMs shall be delivered IAW NAVSEAINST 4160.3 (series).

6-4.4.9 Request EOA ITP

At any time during the availability the NSA/RMC or the ship can obtain an ITP from TDMIS by either generating the ITP directly (government employee with TDMIS account) or by request from the NSDSA website (for all others). If requested by a contractor, the ITP will be provided by NSDSA to the contractor's government sponsor. The ITP provides a snap-shot of the data at the time the ITP was generated. ITPs can be generated and retrieved as often as needed. In order to support EOA reporting, the NSA/RMC should request the EOA ITP from NSDSA by EOA-30. It is important to note that if ITP is run prior to final COP or CSA update the ITP has a high impact of being incorrect.

6-4.4.10 EOA ITP Produced and Delivered

During the availability, the NSA/RMC provides configuration and logistic data updates to the CDM/NSA/RMC. At EOA, NSDSA provides the ship an ITP based on configuration data contained in CDMD-OA.

Table S6- 3 ACTION STEPS AND MILESTONES FOR TECHNICAL MANUALS

Para Ref	Time Frame	Action Required	Who is Responsible?	What is Produced?	To Whom Does It Go?
6-4.4.3	SOA-360	Identify New and Revised TM Requirements	PARM/PY	SCD	SPM/PARM
6-4.4.3	SOA-360	Task/Begin TM Acquisition/ Development	PARM	TMCR/TMSR	TMMA/ISEA
6-4.4.4	SOA-360	Applicability & Availability of Supporting TMs	PARM	ILS Certification	SPM/CDM/ISEA
6-4.4.5	SOA-360 to SOA - 150	TM Status Follow-up	PARM	Updated ILS Certification	SPM
6-4.4.6	SOA-60	Request ITPs/TMAR/ TMO Files	NSA/RMC	ITPs/TMAR/TMO Request	NSDSA
6-4.4.7	SOA-30	ITPs/TMAR generation	NSDSA	ITPs/TMAR Files	NSA/RMC
6-4.4.8	SOA-30	TMAR	NSDSA	SOA Work Package of TM Data	NSA/RMC
6-4.4.8	SOA	Deliver New/Revised TMs	TMMA/ISEA	Final or preliminary TMs (new or revised)	NSA/RMC

6-4.4.8	EOA + 30	Verify all TMs Applicable to Equipment Installed During Availability	NSA/RMC/	Verify all TMs Applicable to the Availability are in Ship's Library	Ship
6-4.4.9	EOA-30	Request EOA ITP	NSA/RMC	ITP Electronic File	NSDSA
6-4.4.10	SOA to EOA	Update CDMD-OA	CDM/NSA/RMC	Updates for ITP	NSDSA
6-4.4.10	EOA	Update ITP	NSDSA	Updated ITP	Ship

6-4.5 Support and Test Equipment (S&TE)

6-4.5.1 Scope

This subsection addresses the acquisition of S&TE and its associated ILS products, products including calibration support. This subsection only pertains to NAVSEA maritime systems. S&TE is any equipment (mobile or fixed) required to support the operation and maintenance of a system/equipment. This includes multi-use end items, ground handling and maintenance equipment, tools, calibration support equipment, permanently installed shipboard instrumentation, Test, Measurement and Diagnostic Equipment (TMDE), and Automatic Test Equipment (ATE). Section 21 of reference S6(j) provides detailed information on TMDE requirements determination, acquisition and support for new construction ships. SCs may also precipitate modifications to Printed Circuit Boards (PCBs) that have Test Program Sets (TPSs) and Gold Disks.

6-4.5.2 Background

The major categories of SE most generally affected by system or equipment SCs are:

- Mechanical Test Equipment (MTE)
- General Purpose Electronic Test Equipment (GPETE)
- Special Purpose Electronic Test Equipment (SPETE)
- Calibration Standards (CALSTDs)
- Tools and test accessories and maintenance aids
- Built-In Test Equipment (BITE)/instrumentation
- Test Program Sets and Gold Disk for circuit card testing
- Automatic Test Equipment (ATE)
- Permanently Installed Shipboard Instrumentation

S&TE are grouped as TMDE and SPETE. TMDE is divided into three categories, MTE, GPETE and CALSTDS. MTE is defined as any device that is used to test, inspect, or diagnose a range of parameters in the measurement areas of pressure, temperature, flow, linear, optical, torque, weight, mass, vibration, etc., and indicates the magnitude directly in the units of the parameter being measured. GPETE Electronic/Electrical test equipment contains the capability without modification to generate, modify, or measure a

range of parameters of electrical or electronic functions required to test two or more prime equipments or systems of basically different design. CALSTDS are systems and equipment used to verify operational capability of MTE, GPETE or SPETE. SPETE is designed to test/support only a single prime system/equipment and falls under the life cycle responsibility of the PARM/LCM.

It is the PARMs/LCMs responsibility to identify all measurement requirements and to ensure that SE will be available to both the operating forces and the supporting maintenance activities at SOA. The PARM/LCM must also identify SE impacted by system/equipment removals.

The NAVSEA Engineering Agent (EA) for TMDE is NSWC, Indian Head Division, Seal Beach California Detachment.

6-4.5.3 Support and Test Equipment Measurement Requirements Submitted

At approximately SOA-360, the PARM/LCM will submit all S&TE support and measurement requirements to NAVSEA 04RM. NAVSEA 04RM and supporting field activities will review the information and assist the PARM/LCM in executing for TMDE, METCAL, Shipboard Instrumentation and Systems Calibration (SISCAL), and associated documentation (Calibration Procedures, CRL, MTRL). The PARM/LCM must also provide equipment removal data to NAVSEA 04RM and NAVSEA 04RP.

The requirements for use of standard Navy ATE are included in references S6(j) and S6(k). The standard U.S. Navy ATE is the AN/USM-636(V) with Naval Air Systems Command (NAVAIR) PMA260 as the PM. When ATE is utilized, a TPS must be developed for each unique PCB. A TPS consists of an interface adapter, test program and the instructions for test program operation. The requirements for TPSs are generally determined by a Level of Repair Analysis (LORA) and identified in the Maintenance Plan. A less expensive alternative to ATE and TPS are Gold Disk test procedures, which are similar to a TPS in that it allows a PCB to be tested to a failed component. Gold Disks are utilized with the AN/USM-674 Test Set. NAVSEA 04RP is the PM for the AN/USM-674 and Gold Disks. At approximately SOA-360, the PARM/LCM will direct the development of TPSs or Gold Disks, if required. Gold Disks and TPSs must be developed for standard Navy ATE using standard Navy test software language. The PARM/LCM must inform NAVAIR PMA260 and NAVSEA 04RP of SCs that impact existing AN/USM-465 TPS or AN/USM-674 Gold Disks respectively. SCs may also cause modifications to PCBs that have TPS and Gold Disks. The impact of PCB modification will require actions taken to correct fault isolation procedures (MS, TPS, Gold Disks) at all maintenance levels.

6-4.5.4 Tools, Test Accessories, Maintenance Aids Identified

At approximately SOA-360, the PARM/LCM or designated agent will develop a preliminary AEL and submit it to NAVSEALOGCEN for approval.

6-4.5.5 Calibration Requirements Identified and Tasked

Metrology and Calibration (METCAL) are two independent yet inter-related entities whose purpose is accurate parametric measurement. Metrology is the science of measurement for determination of conformance to technical requirements, including the development of standards and systems for absolute and relative measurements. Calibration is the comparison of a measurement system or device of unverified accuracy with a measurement system of known and greater accuracy to detect any deviation from required performance specifications of the unverified measurement system or device.

METCAL documentation delineates the calibration logistic support requirements for support equipment associated to one or more platforms and their associated systems. METCAL documentation contained in the METRL includes general information, generic intervals, NCE List, Naval Calibration Activity (NCA), and calibration related documents (analytical metrology notes, calibration facility requirements, etc). See references S6(l) and S6(q) for additional details on the METCAL Program. NSWC Corona Division, Corona, California is the METCAL EA for calibration standards and the NAVSEA METCAL program.

SISCAL is a measurement-related process developed to address the uniqueness of shipboard operational requirements. SISCAL applies to all permanently installed shipboard instrumentation and machinery control systems. The SISCAL process establishes shipboard installed instrumentation calibration requirements and develops/applies required shipboard installed instrumentation calibration and related maintenance support procedures to ensure measurement accuracy and/or instrument functionality. Shipboard installed instrumentation requirements (e.g., calibrate/No Calibration Required (NCR)/comparison check/functional check determination, intervals, etc.) are not based solely on the reliability of the instrument type; rather they are based upon operational considerations including the impact of application, function and inherent component reliability.

SISCAL Documentation delineates the calibration logistic support requirements for permanently installed shipboard instrumentation. The principal SISCAL Document is the CRL tailored to the physical configuration of the equipment and systems in the applicable ship. For each permanently installed instrument, the CRL identifies the Reliability Centered Maintenance (RCM) based calibrate/NCR/comparison check/functional check determination, applicable calibration procedures, periodicity and if the calibration is performed by ship's force or shore activities. NSWCCD-SSES is the EA for the NAVSEA SISCAL program.

Calibration Documentation is a combination of METCAL, SISCAL and TMDE documentation. Calibration Requirements are the calibration engineering and logistics planning support required for emerging and deployed weapons systems, platforms, and associated TMDE. The aforementioned engineering processes are used to determine whether SE and installed instrumentation aboard a ship requires calibration and, if so, the calibration methodology to be used (i.e., Instrument Calibration Procedure (ICP), PMS and calibration MRCs or System Calibration Procedure(s) (SCPs)), calibration

standard(s), calibration interval(s), safety requirements and designated location for calibration accomplishment (i.e., in-place/onsite or at a calibration facility).

At SOA-360, for SCs to prime equipment hardware that may impact SE, TMDE and/or permanently installed shipboard instrumentation or machinery control systems, the PARM/LCM will task and fund the METCAL, TMDE, SISCAL, and any other EAs as needed for the identification of calibration requirements including training, development of new TMDE or installed instrumentation requirements including training, development or revision of calibration documentation for the affected items. The PARM/LCM in coordination with the designated SYSCOM SISCAL and METCAL Program Managers will accomplish this tasking. The METCAL and SISCAL EAs will distribute new, changed or modified calibration procedures and documentation to the NSA/RMC site, or ship outside of a scheduled availability.

6-4.5.5.1 METCAL Requirements Identified

At SOA-360, the PARM/LCM will determine the impact of SCs on prime systems measurements and submit a new Calibration Measurement Requirements Summary (CMRS) to the TMDE EA. The TMDE EA and METCAL EA will review the CMRS as delineated in reference S6(o) and S6(p) and identify any changes (if required) and work with the LCM for procurement delivery.

6-4.5.5.2 SISCAL Requirements Identified

At approximately SOA-360, the SISCAL EA will determine the impact of SCs to permanently installed shipboard instrumentation, machinery control systems, associated CRL, SISCAL maintenance and calibration procedures. SISCAL procedures include SCPs, PMS and calibration MIPs and MRCs.

6-4.5.5.3 Calibration Training

The installation of a system/equipment SC may have a major impact on MP&T requirements and on training system/equipment. New or revised calibration training courses may need to be developed and implemented prior to introducing the SC into the Fleet. Occasionally interim training will need to be implemented if Navy Training is not developed in time to meet the initial installation of the SC. A system/equipment SC may not only affect shipboard system/equipment, but may also impact system/equipment at training sites (i.e. Training Devices (TDs) and aids), and specific manning plans in terms of numbers and military skill classification.

Assessment of training impacts for all equipment/system SCs is performed in accordance with reference S6(m) the Training Planning Process Methodology (TRPPM). For requirements determination on submarine applications refer to references S6(n) and S6(o).

At SOA-360, the METCAL and SISCAL EAs will identify to the PARM/LCM/SPM/PY existing training that will be available or develop new interim training to support calibration of equipment installed or modified during the scheduled availability. In addition, the METCAL and SISCAL EAs will identify to the PARM/LCM/SPM/PY any

shore based training site, equipment, and training curricula that will be impacted. This information will be documented by the PARM/LCM on the SCD as part of the overall design process and logistics deliverables documented on the ILS Certification as part of the SPM ILS Certification Process.

The PARM/LCM/SPM are responsible for submitting the POM through their appropriate chain of command for funding material changes for training sites in addition to funding new Training or major upgrades. Due to the long lead-time nature of training requirements development and execution, these inputs are compiled in advance of specific program documentation such as the ILS Certification.

6-4.5.5.4 Calibration Procedures Developed

The succeeding paragraphs provide details of the action steps shown in Table S6- 4

Once the CMRS is received by the TMDE EA, the METCAL EA in conjunction with NAVSEA 04RM will initiate the development of updates to METRL, calibration procedures and initial intervals for new TMDE that were identified from the CMRS data.

At approximately SOA-360, for permanently installed shipboard instrumentation and machinery control systems, the SISCAL EA in conjunction with NAVSEA 04RM will initiate updates to the CRL, development of calibration procedures, identify calibration standards, GPETE, required to perform the procedures, establish initial intervals, identify the appropriate level to perform the calibrations and designate where the calibrations should be accomplished.

The SISCAL EA (NSWCCD-SSES Code 953) will:

- Perform RCM analyses to determine the need for calibration of shipboard installed instrumentation
- Develop and validate calibration procedures for new or modified shipboard installed instrumentation and machinery control systems
- Determine optimum shipboard installed instrumentation calibration intervals, and
- Provide updates to the existing CRL

6-4.5.6 Support Equipment Impacts Identified Including Stowage

At SOA-360, during the development of the SCD, the PY will identify changes required to SE at both the ship and the maintenance activities, including stowage capacity. The appropriate signatures of the PARM/LCM, SPM and PY will certify this information.

6-4.5.7 TMDE and SPETE Procured

At SOA-360, the PARM/LCM will interface with NAVSEA 04RM for all TMDE required for the system or equipment and provide to the procuring activity. SPETE must be available concurrent with the equipment/system delivery. Accordingly, it is the responsibility of the PARM/LCM to initiate procurement of SPETE to ensure timely delivery. The PARM/LCM must provide adequate ILS for all SPETE. NAVSEA 04RM shall provide adequate ILS for all TMDE. All TMDE and SPETE requiring calibration

shall have greater than two-thirds of its calibration life remaining when delivered to the ship.

6-4.5.8 Identify Documentation Requirements

At SOA-360, the PARM/LCM will identify the applicable TM Numbers/Revisions/Changes that will support the planned SC and ensure availability by SOA. This information will be identified on the ILS Certification as part of the SPM ILS Status Review. METCAL and SISCAL EAs will identify and initiate development of appropriate METCAL and SISCAL documentation, including CRLs, and procedures for permanently installed shipboard instrumentation, machinery control systems, procedures and intervals for CALSTDs, training programs, and calibration activity certification requirements.

6-4.5.9 Ship/Shore Portable Electrical/Electronic Test Equipment Requirements List (SPETERL) Developed/Updated

At SOA-180, NAVSEA 04RM will direct the Logistics Element Support Activity (LESA) at Naval Surface Warfare Center, Indian Head Division, Detachment Earle New Jersey (NSWC-IHD Det Earle NJ) to develop and/or update a SPETERL for the ship as required. The SPETERL identifies and provides specific information about the SE (i.e. onboard allowance quantities, equipment application). The LESA will forward a copy of the SPETERL to the responsible RMC and FISC and NSA to assist in the review of the ship's current inventory. SPETERL shall be updated again at SOA to ensure that all proposed SCs for the Availability are considered in determining SPETERL impact.

6-4.5.10 Documentation and Procedures Availability Status Review

NLT SOA-150, the PARM/LCM will submit the ILS Certification to permit SPM status review NLT SOA-120 of all new, modified or changed calibration procedures for permanently installed shipboard instrumentation, machinery control systems, SE, TE and METCAL documentation that was not identified as available at SOA during the SPM A-360 ILS Status Review.

6-4.5.11 TMDE and SPETE Delivered

NAVSEA 04RM will procure and deliver additional required TMDE based on the total ship requirement. At SOA, the PARM/LCM will ensure the appropriate TMDE and SPETE is delivered to the hardware receiving activity concurrent with the hardware delivery. All S&TE will be delivered to the ship by the hardware receiving activity NLT necessary to meet SOI.

6-4.5.12 Tools, Test Accessories, Maintenance Aids Delivered

The PARM/LCM is responsible to provide all Tools, Test Accessories and Maintenance Aids to the ship/NSA/RMC by EOA-60 and that appropriate AELs are revised to reflect the new requirements.

Note: ASIs will not contain the Operating Space Item (OSI) allowances and therefore will not build the associated SNAP/Organizational Maintenance Management System - Next Generation (OMMS-NG) stock record data.

6-4.5.13 ATE Test Program Sets (TPSs) and Gold Disks Delivered

Utilization of ATE/TPS at the O/I level must be coordinated with NAVSEA 04RP. The PARM/LCM will ensure that any O or I level ATE, TPSs and Gold Disks are delivered to the ship by EOA-60.

6-4.5.14 Calibration Documentation Delivered

At EOA, the PARM/LCM, in conjunction with the METCAL and SISCAL EAs, will ensure that approved Navy calibration procedures for permanently installed shipboard instrumentation, machinery control systems, TMDE, and updates to the CRL have been delivered to the ship, and the designated calibration facilities. The PARM/LCM or designated agent shall ensure that these deliveries are reported to the applicable NSA/RMC.

6-4.5.15 S&TE and Calibration ILS Verified

At EOA+30, the NSA/RMC will verify to the SPM that all S&TE, calibration documentation, and associated ILS have been provided to the ship for all equipment installed during the availability in accordance with reference S6(q) (see Exhibit S6-2 through S6-4). The NSA/RMC will submit the verification to the SPM and provide a copy to NAVSEA 04RM, the METCAL, TMDE and SISCAL EAs, PARM/LCM, PY, CDM, TYCOM, and ship. For Carriers, this is performed by COMNAVAIRFOR-W (N435TE).

Table S6- 4 ACTION STEPS AND MILESTONES FOR SUPPORT AND TEST EQUIPMENT

Para Ref	Time Frame	Action Required	Who is Responsible?	What is Produced?	To Whom Does It Go?
6-4.5.3	SOA-360	Submit S&TE Measurement Requirements/Initiate TPS Development	PARM	List of S&TE measurement requirements/ TPSs/Gold Disks Requirements	TMDE EA/NAVSEA 04RM
6-4.5.4	SOA-360	Develop Preliminary AEL	PARM or Designated Agent	Preliminary AEL	NAVSEALOGCEN
6-4.5.5	SOA-360	Task/Fund the Development of calibration requirements, new, modified or changed calibration procedures and documentation for installed instrumentation, SE, BITE, SPETE	PARM or Designated Agent	Tasking Document	METCAL and SISCAL EAs
6-4.5.5.1	SOA-360	Develop CMRS/ Identify METCAL calibration requirements/ coordinate procurement of GPETE	PARM	CMRS	SEA 04RM, TMDE EA
6-4.5.5.1	SOA-300	Determine TMDE requirements	TMDE EA	TMDE	SPM/PARM
6-4.5.5.2	SOA-360	Identify SC impact on installed instrumentation, CRL and SISCAL procedures	SISCAL EA	List of SISCAL Calibration Requirements	SEA 04RM, PARM
6-4.5.5.3	SOA-360	Identify SC impact on Calibration training requirements	METCAL and SISCAL EAs	List of Calibration training requirements.	PARM/SPM/ PY
6-4.5.5.4	SOA-360	Develop ICPs for BITE and SPETE. Develop SCPs/MRCs for installed instrumentation, updates to METRL and CRL	NAVSEA 04RM and SISCAL EAs	ICPs, SCPs, MRCs	PARM
6-4.5.6	SOA-360	Identify S&TE impacts in SCD	PY	Changes to S&TE Stowage	SPM/PARM

Para Ref	Time Frame	Action Required	Who is Responsible?	What is Produced?	To Whom Does It Go?
6-4.5.7	SOA-360	Initiate request for TMDE/SPETE	PARM	Procurements	PARM
6-4.5.8	SOA-360	Identify applicable TMs/revisions/ Changes. Identify METCAL/SISCAL documentation	PARM (TMs)/ METCAL and SISCAL EAs	Provide listing of TMs/revisions/ changes. Provide listing of METCAL/SISCAL documentation.	SPM/CDM/PY
6-4.5.9	SOA-180	Develop/Update SPETERL as required.	NSWC-IHD Det EARLE NJ	SPETERL	RMC/FISC /NSA
6-4.5.10	SOA-120	Updated status documentation and calibration procedures. Update S&TE, METCAL documentation	PARM	List of calibration procedures, documentation and required S&TE.	SPM/Ship
6-4.5.11	SOA	Deliver TMDE and SPETE	PARM, NAVSEA 04RM	All required SE	Hardware Receiving Activity
6-4.5.11	SOI	Deliver S&TE to the Ship	Hardware Receiving Activity	S&TE	Ship
6-4.5.12	EOA-60	Deliver Tools, Test Accessories, Maintenance Aids/Revised AELs	PARM	Tools, Test Accessories, Maintenance Aids/Revised AELs	NSA/RMC/Ship
6-4.5.13	EOA-60	Deliver/USM-465 ATE TPS and AN/USM-674 Gold Disks	PARM	ATE TPSs	Ship
6-4.5.14	EOA	Deliver Calibration Procedures, updates to the CRL and METRL	PARM, METCAL and SISCAL EAs	Calibration Documentation	Calibration Facilities, NSA/RMC, Ship
6-4.5.15	EOA+30	S&TE and Calibration ILS Verification	NSA/RMC	ILS Verification Form	SPM/PY/CDM/ TYCOM/Ship/ NAVSEA 04RM /PARM/METCAL and SISCAL EAs

6-4.6 Maintenance Requirements

6-4.6.1 Scope

This subsection addresses the identification and documentation of PMS and Class Maintenance Plan (CMP)/Integrated Class Maintenance Plan (ICMP) tasks to ensure maximum operational readiness for SCs installed under the NMP.

6-4.6.2 Background

Maintenance planning establishes the concepts and requirements for maintaining equipment at each level during its useful life. Maintenance planning is developed using the RCM process to identify potential modes of failure and develop applicable and effective maintenance tasks which preserve adequate equipment performance to ensure system function. This process results in a comprehensive maintenance plan containing the PMS and the CMP/ICMP.

PMS is developed to provide the sailor with the information necessary to plan, schedule, and accomplish preventive maintenance on equipment/systems at the organizational level. The documentation used to accomplish the preventive maintenance is a MIP and MRC. The MIP is a listing of all MRCs that apply to a particular equipment/system aboard ship. The MRC tells the sailor when to perform preventive maintenance, the technical expertise required to perform it, the length of time needed to perform it, applicable safety precautions, the tools, material, parts (common and Allowance Parts Lists supported) and TE needed to perform it, and the detailed procedures that must be followed in order to accomplish the requirement. The LOEP is a listing of all MIPs applicable to the ship. NAVSEALOGCEN DET Norfolk/San Diego develops, maintains and distributes PMS MIPs and MRCs to all ships and submarines in the Fleet.

The CMP/ICMP describes mandatory preventive maintenance, inspection, and corrective maintenance requirements above the organizational level and availability routines that can be applied to execute Condition-Based Maintenance (CBM) as described in references S6(l) and S6(q). The CMP/ICMP requirements are compiled and maintained in an electronic database by the applicable Ship Platform CMP/ICMP Planning Activity (SSCLM, SUBMEPP, or CPA). This information is used in planning continuous maintenance and maintenance availabilities. A feedback system has been established which allows for PMS/CMP/ICMP tasks to be reviewed and modified on a continual basis.

Changes to the ship’s configuration, including equipment SCs and other legacy equipment alteration types (Machinery Alterations (MACHALTs) Field Changes (FCs), Ordinance Alterations (ORDALTs), etc.,) may affect the existing PMS and CMP/ICMP tasks for that equipment. However, even subtle configuration changes such as changes to component materials (O-rings, lubricants) and component configuration (valve redesigns) can cause variation in system performance necessitating a review of PMS requirements. Follow-on SC installations that have already had the PMS and CMP/ICMP task impacts identified require only identification and reapplication to the newly affected hull. However, for those hardware SCs that change or add functions or represent new systems

or equipments, the early identification of PMS and CMP/ICMP task requirements for development or revision using the RCM will allow for timely update and distribution of PMS and CMP/ICMP task documentation which fully supports maintenance requirements and avoids surprises in the rollout of the SC.

6-4.6.3 Maintenance Requirements Identified and Tasked

At SOA-360, the PY will identify on the SCD if there are PMS/CMP/ICMP task impacts. For SCs to hardware that have no existing maintenance requirements developed, the PARM/LCM will task and fund for development of or revision to the existing PMS, including the use of Reliability Centered Maintenance (RCM) to determine potential failure modes and applicable and effective maintenance tasks. Tasking will be accomplished by the PARM/LCM in conjunction with the PMS and CMP/ICMP Program Managers in NAVSEA 04RM. It is equally important that the approved PMS and CMP/ICMP task documentation be forwarded to the appropriate NAVSEALOGCEN DET Norfolk / San Diego who acts as the maintenance LESA for PMS with distribution to the applicable Ship Platform CMP/ICMP Planning Activity (SSCLM, SUBMEPP, or CPA) who maintain the CMP/ICMP tasks. NAVSEALOGCEN DET Norfolk / San Diego will publish and distribute PMS and the applicable Ship Platform CMP/ICMP Planning Activity will distribute CMP/ICMP task documentation to the RMC site, or ship when no ILO is scheduled, for incorporation into the RMC PMS and CMP/ICMP task analysis. This analysis will result in updated LOEPs, MIPs and MRCs for the ship.

6-4.6.4 Verification of Maintenance Documentation Availability

At SOA-360, the PARM/LCM will identify all PMS and CMP/ICMP task documentation that will be available by the SOA. In the event of PMS and CMP/ICMP task deficiencies at SOA-360, PARM/LCM will review the status of PMS and CMP/ICMP task development and provide an ILS Certification status review update to the SPM at SOA-120.

6-4.6.5 Maintenance Documentation Availability Status Review

At SOA-120, the SPM will request the PARM/LCM to provide a full ILS status review of all PMS and CMP/ICMP task documentation that was not identified as available during the SPM SOA-360 ILS review. The information will be provided using the ILS Certification Process.

6-4.6.6 Maintenance Documentation Delivery

Between SOA and EOA, the assigned NSA/RMC will conduct a PMS analysis. At EOA, the LOEP will be generated or updated to reflect any new PMS requirements. The ship's 3-M database will also be reviewed for updates.

6-4.6.7 NSA/RMC Maintenance Documentation Verification

At EOA+30, using the ILS certification as a base line and information provided by NAVSEALOGCEN DET Norfolk / San Diego, the NSA/RMC will verify to the SPM that PMS and CMP/ICMP task support has been provided to the ship for all SCs installed

during the availability (see Exhibit S6-2 through S6-4). A copy of this verification will be provided to the PY, CDM, TYCOM and the ship. The NAVSEALOGCEN DET Norfolk / San Diego will provide the ship with a list of applicable PMS and CMP/ICMP tasks at EOA. In addition, the NSA/RMC will provide a copy of all reported PMS and CMP/ICMP task deficiency lists to NAVSEALOGCEN DET Norfolk / San Diego.

Table S6- 5 ACTION STEPS AND MILESTONES FOR MAINTENANCE REQUIREMENTS

Para Ref	Time Frame	Action Requirement	Who is Responsible?	What is Produced?	To Whom Does it Go?
6-4.6.3	SOA-360	Identify PMS and CMP/ICMP Impact	PY	SCD	SPM
6-4.6.3	SOA-360	Task/Fund Development/ Revision of PMS and CMP/ICMP	PARM	Tasking Document	Developing Activity
6-4.6.4	SOA-360	Verify Documentation Availability	PARM	ILS Certification Forms	SPM
6-4.6.5	SOA-360 to SOA-150	Provide Updated ILS Status	PARM	Updated ILS Certification Forms	SPM
6-4.6.6	SOA to EOA	Updated PMS Package Assembled	NAVSEA LOGCEN	LOEP with Updated PMS Documentation Package	Ship
6-4.6.7	EOA	Provide List of Applicable PMS & CMP/ ICMP	NAVSEALOG CEN	List of Applicable PMS & CMP/ ICMP	Ship
6-4.6.7	EOA+30	PMS and CMP/ICMP Verification	NSA/RMC	ILS Verification	SPM/PY/CDM/Ship/ TYCOM/ NAVSEALOGCEN DET Norfolk / San Diego

6-4.7 Training Support

6-4.7.1 Scope

This subsection addresses the logistics element of training. Its purpose is to ensure that training requirements for the operation and maintenance of the system/equipment are developed and in place in concert with Fleet introduction.

6-4.7.2 Background

The installation of a system/equipment SC may have a major impact on MP&T requirements and on training system/equipment. New or revised training courses may need to be developed and implemented prior to introducing the SC into the Fleet. Occasionally interim training will need to be implemented if Navy Training is not developed in time to meet the initial installation of the SC. A system/equipment SC may not only affect shipboard system/equipment, but may also impact system/equipment at training sites (i.e. Technical Training Equipment (TTE), Training Devices (TDs), simulators, and Training aids), and specific manning and qualifications plans in terms of numbers and military skill classification.

Assessment of training impacts for all equipment/system SCs is performed in accordance with reference S6(m) the Training Planning Process Methodology (TRPPM) TRPPM and CNO directed training front end analysis. For requirements determination on submarine applications refer to references S6(u), S6(v), S6(w), S6(x), and S6(y).

Configuration data management for shore based learning facilities is performed in CDMD-OA. NAVSEALOGCEN is the CDM for surface ship Training activities under the direction of NAVSEA 04L, and the requirements of Section 3 of this manual. The SSN 688 Class Planning Yard is the CDM for SSN learning facilities under SEA 07TR, the Submarine Training Systems Division (STSD). Copies of all Ship's Configuration Change Forms (OPNAV 4790/CK) must be provided to the assigned CDM for those sites via the learning facility 3-M coordinator for those sites.

The succeeding paragraphs provide details of the action steps shown in Table S6- 6. These actions apply to all SCs that affect the operation, employment or maintenance of a system or equipment.

6-4.7.3 Training Requirements Identified

Training requirements are identified through a variety of inputs including Training Systems Requirements Analysis (TSRA) and Navy Training System Plans (NTSPs). The SPM/STSD compiles known POM SC requirements for new and existing TTE, tactical and trainer unique COTS, and TD or simulators; and SCs to TTE, tactical and trainer unique COTS, and TD or simulators. The PARM/LCM/SPM/STSD is responsible for submitting the POM through the appropriate chain of command for funding material changes for Training sites in addition to funding new Training or major upgrades. Due to the long lead-time nature of Training requirements development and execution, these

inputs are compiled in advance of specific program documentation such as the ILS Certification.

6-4.7.4 Navy Training System Plans (NTSPs) Developed

In conjunction with the CNO, the PARM/LCM and NAVSEA 07L for Undersea Systems determines, the requirements for development or revision of a NTSP based on criteria contained in reference S6(m). The DA/SYSCOM/PARM/LCM/SPM initiates the actions necessary to develop or revise a NTSP to put in place the required Training on a continuing basis. For submarines, CNO N87 has tasked SEA 07TR with certain select responsibilities with regards to NTSPs. SEA 07TR is responsible for NTSP number assignments, review and approval of drafts for distribution, maintaining status reporting, and is the single point-of-contact for all submarine related NTSPs. Approval of proposed NTSPs remains with CNO N87. The NTSP is reviewed at a NTSP Conference and submitted to the CNO Sponsor for approval. The NTSP process is designed to deliver a complete, logistically supported package, including curricula and Training equipment, to the training activity and on-board training as determined through the front end analysis and NTSP process.

Updating existing NTSPs may also require the PARM/LCM/SPM/STSD to develop a new curriculum and/or training package(s) depending on the amount of change.

6-4.7.5 Crew and Shore Based Training Requirements Identified

At SOA-360, the PY or the SCD preparation activity will identify, as specifically as possible, the Training impacts of the SC to ship's force and shore based learning facilities, and afloat training requirements. If the SC is already addressed by a NTSP, the NTSP will be referenced in the ILS Certification. The ILS Certification is approved by the appropriate signatures.

6-4.7.6 Crew and Shore Based Training Assessment (Submarines Only)

Based on the information contained in the SC, the PARM/LCM/SPM/STSD conducts an assessment of training requirements For submarines TSRAs/FEAs are developed prior to and in conjunction with an NTSP. If an existing NTSP details the training requirements of the Ship Change, no further assessment is required. When an NTSP does not exist for a system and development is not judged warranted by the CNO sponsor/STSD, the PARM/LCM/SPM/STSD is responsible for assessing (e.g. TSRA and FEA) and resolving on-board and shore-based training equipment and facility issues. Curriculum development or update requirements for the Ship Change are identified through the TSRA/FEA, and approved by the STSD, NETC/Learning Center and CNO Sponsor. This assessment must identify actions to provide for interim training, NTSP requirements, and alteration installation at the appropriate shore-based learning facilities.

6-4.7.7 Availability Manpower, Personnel and Training (MP&T) Plan (Ships and Carriers Only)

At SOA-180 to150, the SPM with input from PARMs will develop an Availability MP&T Plan to identify the manpower and training impacts during the availability period. This provides the ship and fleet with a single source document that identifies all training available and manpower changes associated with planned SCs. The SPM will develop this report based on ship alteration information in the NDE TP11 worksheet at the time of report development and the SPM approved SOA-180 LOA. The training and manpower information in the report will be obtained using multiple source analysis and research. This report will reflect the initial, interim, and follow-on training plans for all scheduled SCs. This will also detail any changes to ship's billet requirements. This report will be distributed to TYCOM, Ship's Force, NAVMAC, NETC, CNE, and CSCS.

At SOA-90, the planned SCs and corresponding manpower and training information contained in this report will be reviewed and updated as necessary to reflect any changes in the scheduled availability. If the changes in the availability have manpower or training impacts, a SOA-90 MP&T Plan will be developed and distributed.

6-4.7.8 Arrange for Interim Training

Often the lead-time to fully implement a NTSP exceeds the time within which Training is required. Further, non-NTSP Training requirements identified in the assessment may also need time to be budgeted and executed. The PARM/LCM, in conjunction with the SPM/STSD, shall initiate the required tasks to arrange for interim Training requirements, ensuring that interim training requirements are fully documented in a subsequent NTSP revision. (For Surface Ships Only) These training requirements may also be identified in the MP&T Plan. At SOA-150, SEA 21F shall approve and distribute the appropriate MP&T Plan to the platform/Fleet scheduled for upcoming availability periods to ensure all training requirements are identified and developed in advance of the start to the availability period. The MP&T Plan is a training enhancement tool that will document any increased training requirements for operator and maintainers of the equipment and systems directly impacted by the SC.

6-4.7.9 Training Availability Established

At SOA-360, the PARM/LCM/SPM/STSD will identify an existing or develop a new NTSP or interim training that will be available to support operation and maintenance of equipment SCs planned during the scheduled availability. In addition, the PARM/LCM/SPM/STSD will identify any shore based training site, equipment, and Training curricula that will be impacted. This information will be provided to the SPM/CDM/STSD/PY using the ILS Certification Process as part of the LRP or ILS Status Review.

6-4.7.10 Trainer Initial Operational Capability (IOC)

At SOA-120, any trainers identified by the approved NTSP should be operational unless a delayed IOC was approved as part of the NTSP process. Installation of whole trainers must occur with an approved Training System Installation Plan (TSIP) Equipment

Facility Requirements (EFR) Plan prepared in accordance with S6(bb). Installation of smaller changes involving minimal facility impact can be accomplished with other CM documents, such as Ship's Configuration Change Forms (OPNAV 4790/CK) TSIP Short Form, or Trainer Change Instructions for the submarine learning facilities.

6-4.7.11 Training Availability Status Review

At SOA-120, the SPM will request a full status review of all training that was not identified as available during the SPM ILS SOA-360 review. A copy will be provided to STSD and the PY.

6-4.7.12 Ship Overhaul/Modernization Training Plan

At SOA-90, based on current availability data, the ship will publish the Overhaul Training Plan (OTP) including technical and operator training requirements as a result of SCs to be accomplished. The ship will submit the OTP to the SPM and TYCOM.

6-4.7.13 Formal Training

Dependent upon the type and duration of training required, the Director of Total Force Requirements (DCNO/N12) and the SPM will ensure that the necessary courses are developed/modified, address the appropriate level of personnel (i.e. shipboard and rotational Training), and start in sufficient time to meet their intended requirements.

6-4.7.14 Training in Progress/Completed

At EOA, dependent upon the training accomplished, the ship will certify in a completion letter the current status of SC required training and forward this data to the SPM, TYCOM, NSA, and RMC.

Table S6- 6 ACTION STEPS AND MILESTONES FOR CREW TRAINING SUPPORT

Para Ref	Time Frame	Action Required	Who is Responsible?	What is Produced?	To Whom Does It Go?
6-4.7.3	*	Training Requirements Identified	PARM/LCM/SPM/ STSD	Training Requirements	Appropriate Chain of Command
6-4.7.4	*	NTSP Developed	SYSCOM/PARM/ LCM/DA/SPM/STSD	NTSP	CNO
6-3.7.5	SOA-360/ A-12	Crew and Shore Based Training Requirements Identified	PY/SC Preparer	Input to SC	SPM/STSD/LCM/PY
6-3.7.6	*	Crew and Shore Based Training Assessment (Subs Only)	PARM/LCM/SPM/STS D	Training Decision	ALCON
6-4.7.7	SOA-180 to 150	Availability, Manpower, Personnel, and Training Plan	PARM/LCM and SPM	Avail MP&T Plan	TYCOM/ SHIP/CNE/ CSCS,/NAVMAC/ NETC
6-4.7.8	*	Arrange for Interim Training	PARM/LCM/SPM/ STSD	Tasking	Interim Training Provided
6-4.7.9	SOA-360 to SOA-120	Training Availability Established	PARM/LCM/SPM/ STSD	ILS Certificati on	SPM/CDM
6-4.7.10	SOA-120	Trainer Initial Operational Capability	PARM/LCM/SPM/ STSD Training Agency	Training Capability /EFR	Training Schools
6-4.7.11	SOA-120	Updated Training Status Reviewed	PARM/LCM	Updated ILS Certificati on	SPM/CDM/STSD/ PY
6-4.7.12	SOA-90	Update Shipboard Training	Ship	Overhaul Training Plan	SPM/TYCOM
6-4.7.13	EOA*	Training Courses Developed/ Modified	Naval Education and Training Command (NETC)/DA/SPM/P ARM/STS/Learning Center	Training Courses	Fleet Users
6-4.7.14	EOA	Training Completion Letter	Ship	Completion Letter	SPM/TYCOM

*When requirement is known and dates are established

SUBSECTION 6-5 ILS POLICY AND PROCEDURES FOR NON-PERMANENT (SHIP) CHANGES (NPC)

6-5.1 Scope

This subsection defines the different types of NPCs and the minimum ILS products that are required to support the system/equipment while temporarily installed on a ship. This subsection outlines the policy, process, and responsibilities for development and approval of ILS for NPCs proposed for accomplishment aboard operational Fleet platforms. The definition and business rules for NPCs are provided in Subsection 3-11 of this manual. The Submarine Force will continue to utilize TEMPALTS IAW NAVSEAINST 4720.14 (Series), references S6(z) and S6(aa). In addition, the Submarine Force will follow the CM policy for ILS processes; however, the Submarine Force is exempt from the EP process for SC development, approval and execution. (see Section 9 for Submarines).

NPC and removal tracking will be accomplished via assignment of a SCD number(s) in NDE and in accordance with the SCLSI data requirements described in reference S6(e).

6-5.2 Background

Existing U.S. Navy regulations and directives delegate responsibility to the SPM for the technical approval and configuration control of changes to ships. NPCs are accomplished onboard ships to provide short-term solutions to operational problems or resolve situations affecting safety, mission objectives, or for Test and Evaluation (T&E) of proposed designs.

6-5.3 NPC ILS Requirements

All additional ILS requirements for NPCs are in Appendix M.

SUBSECTION 6-6 ILS ELEMENTS IN REGARD TO SOFTWARE RELATED SHIP CHANGES

6-6.1 Scope

This subsection addresses the ILS areas that must be documented in the ILS Certification Process for all software SCs. Software can be installed as part of a conjunctive hardware SC or as a stand-alone software SC. In either case ILS impacts must be documented and addressed. If there is no impact, that should be stated. Do NOT leave any blanks on the certification. Additional guidance for the logistics planning of software SCs can be obtained from reference S6(s)) (U.S. Marine Corps Acquisition Logistics Support for the Software Portion of Systems March 2001). The Submarine SC/SHIPALT design and development, approval, and execution process is documented in Section 9. The policies, responsibilities and requirements contained in this Section also apply to Software installed as part of a Hardware SC.

6-6.2 Background

Software must be maintained throughout its expected life cycle. To accomplish this, software must be properly and completely documented as it is developed and installed. A software support concept identifies an appropriate software engineering capability with the personnel resources and skills, physical facilities and support systems to undertake software development, and to make changes to that software. A support channel (to include the hardware ISEA) must be defined for submission of user change requests and distribution of updated software versions.

Software does not deteriorate like hardware, so the term “software maintenance,” although widely used, is technically a misnomer. However, software must be maintained and the appropriate terminology for this effort is “software support.” Software maintenance (i.e., support) is the modification of a software product after delivery to correct faults (unmet requirements), to improve performance or other attributes, or to adapt the product to a changed environment (most software changes are due changes in the defined set of user requirements). Software modifications are also generated by changes in the requirement (functional enhancements) or by evolutionary “refresh” activities associated with improved computer hardware products and process changes in the user environment.

Commercial software should not be altered because doing so would void licensing or subscription services. If commercial software is not useable without alteration, then its suitability should be reexamined. Even with commercial software, a formal CM process must be established and maintained. CM is the key to managing any asset from cradle to grave and is just as important in managing software applications as it is in managing hardware installations. It is critical to establish and maintain a process that accommodates change while controlling the configuration. This allows for the establishment and maintenance of configuration baselines, which is critical. Every software support problem is a candidate for a configuration change request.

6-6.3 Software Configuration Management

CM planning for software must address a process for change control and change implementation via software revisions and new releases. Post Deployment Software Support (PDSS) planning must incorporate Software CM. Configuration Identification, Configuration Control, Configuration Audit and CSA are the major CM activities required to track and manage software changes made during PDSS. These are activities generally performed for the SPM by the SSA. The SSA normally acts as the repository for the configuration baseline documentation and maintains a library of software programming documentation, media, and records of serial number and issue/installation dates for user activities. Utilization of Configuration Control Boards (CCBs) to formally review and approve proposed changes is encouraged, and selected LEMs should also be included for CCB sessions where their particular specialty is relevant to the change being considered. Post-Production Support (PPS) ensures attainment of readiness objectives with economical logistics support after deployment and throughout the life cycle of the equipment.

In accordance with paragraph 3.6.3.8, the activity responsible for the software mail-out shall pre-load configuration change data in the ship's database using the CDMD-OA after alteration approval and No Later Than (NLT) 60 days prior to the scheduled/planned installation in accordance with the current Fleet Modernization Entitled Process Milestones. The software mail-out shall include LOAD PLAN (DIRECTIONS), COPY OF THE ILS CERT, and a COPY OF THE AIT VERIFICATION REPORT from CDMD-OA (vice hardcopy 4790CKs).

Coordination between the alteration sponsor and the designated ship Configuration Data Manager (CDM) is essential to ensure the data is loaded in CDMD-OA prior to the mail-out. Upon receipt of the CDMD-OA work file, the designated CDM will modify the ship's configuration records in CDMD-OA for the approved configuration change with an Installation Status Code (ISC) of "J" for an UNCONFIRMED PLANNED INSTALLATION. Upon installation accomplishment, Ship's Force will immediately report to the CDM the installation of the software change electronically via a OMMS/OMMS-NG configuration change report by changing ISC to "G" for a CONFIRMED INSTALLATION. The ISEA/program sponsor shall be responsible for ensuring that the completed installation is reflected in all appropriate databases (NDE, AMPS, CDMD-OA, etc). Note: AITs are not to be held responsible for database updates.

6-6.4 Software Support Planning (Maintenance Planning)

Software maintenance is a two level concept; accomplished either at the organizational or depot level. Organizational level maintenance consists of minimal functions that the user can perform such as installation or reinstallation of software and to remedy conflicts between software programs running on the same computer. As an example the operator may have the ability to modify alarm set points in the running software application. However, this would not constitute a change to the configured software baseline. All configuration changes to the software are made at the depot level (government/contractor PDSS).

6-6.4.1 Typical Software Maintenance Concept

If software fails to meet requirements, the problem exists in all the released and distributed copies, then the software must be redesigned and tested to correct the problem and Quality Assurance (QA) must be performed for the new application. Even if only a single software module requires recoding, the complete software program should be tested sufficiently prior to and at ship delivery to ensure that the process of correcting the failure at hand did not introduce other errors or potential failures into the system. The possibility of affecting the interfaces to external software applications must also be considered.

Because of software programmers' natural tendency to "fine tune" their systems at every stage and occasionally add more sophistication, a single error fix or repair occasionally becomes an opportunity for much more elaborate software engineering. This tendency must be carefully controlled.

An error found and corrected as early as possible in the software development and fielding process will save resources. If the error is found in the requirements phase, it cost less (hours, dollars, etc.) to fix than after the program has been coded, tested, and fielded. The cost to correct a deficiency in the operational phase of an application is 96 times greater than the cost of correcting in the requirements phase (keep in mind this is a standalone application). [Tom Gilb and Dorothy Graham "Principles of Software Engineering Management" 1988] "Finding that same error at the fielding phase increases costs 100 fold (hours, dollars, etc.) to fix." [Tom Gilb "Software Inspection" 1993] It is difficult to identify and run every possible test case on a software program during development, so errors are still probable in a fielded software application. However, every attempt must be made to test and identify the defect ratio so that an acceptable error rate number is reached. To minimize the impacts of software defects, it is recommended that the Software Support Activity (SSA) document software development processes and procedures in accordance with a proven model such as the Software Engineering Institute (SEI) Capability Maturity Model Integrated (CMMI). Although software will never be proven to be 100% error free, following established processes reduces the impact of software defects in a delivered application.

Tools and equipment required to develop and produce software are generally the same items required for maintaining the software. In fact, it is critical to ensure that the development/test environment configuration is accurately tracked and replicated for the support environment.

6-6.5 Technical Data

Technical data is acquired to manage the computer program through the use of status and progress reports, requirements, and specifications to define the design efforts, to aid in the decision making process and to ensure operational effectiveness of the software throughout its life cycle. The functional areas of technical data pertaining to software are technical data management, technical publications and software documentation. This element of software CM consists of all recorded scientific and technical data information,

regardless of form or characteristics. Version control is a significant configuration item of software technical data. Computer software documentation is technical data.

6-6.6 Training and Training Support

Software applications/programs are ideally suited for combining digital training guidance/user help information with the distribution media. Basic computer literacy may have to be addressed for the users of the System software being fielded even though it is being added to computer operations already in place, as well as any in-depth training that is directly dependent on the complexity of the software application. The prerequisite knowledge/skill level of the anticipated user must be established before any effective digital training program can be developed.

There may be training considerations for personnel staffing of the SSA and for providing (government or contractor) PDSS. The qualifications of the PDSS programming personnel are a significant element in assuring software re-development (maintenance) capability needed to maintain the System software.

Training concepts and plans must be identified prior to Milestone (MS) I and should be clearly documented in the Acquisition Plan (AP) and Software Support Plan (SSP). Training activities associated with fielding should be included in the User's Logistics Support Summary (ULSS).

Note: As part of the ILS support, the NTSP must be developed which defines the training to be provided for operators/maintenance personnel.

6-6.7 Computer Resources Support

Computer resources support encompasses the process of selecting computer hardware, software and firmware for automated systems and planning for the life cycle support of each. Its objective is to decrease the life cycle cost through standardization of hardware, software and firmware and must be focused on acquisition of computer resources that will optimize System performance. The resources should be visited as early as possible to keep the long-term logistics costs as low as possible.

Each software acquisition program must have a designated SSA. The SSA should be designated by MS-I. When another Service is designated as the SSA, a Memorandum of Agreement (MOA), which assigns specific responsibilities, should be developed between NAVSEA and the other Service. The relationship between the NAVSEA hardware ISEA and the SSA must also be identified in order to ensure accurate, timely and complete configuration identification and reporting.

6-6.8 Design Interface

The Integrated Process Team (IPT), with logistics and systems engineering representation, is the preferred method to ensure design interface requirements are met during all phases of the acquisition program. The Capability Development Document (CDD) or Operational Requirements Document (ORD) provides information on design

interface requirements that include data interfaces, communications interfaces, hardware interfaces and interfaces with other software programs.

Note: CDD/ORD defines requirements for system operation and what systems it must operate with – Either the System Requirements Specification (SRS), Software Requirements Specification (SRS) or Software Design Document (SDD) would define the interface requirements.

Software architecture must be maintained throughout the development and will identify all interfaces to the system. If there are interfaces with other systems, then coordination between their respective CCB must be established and maintained. Design interface information must be included in the CM Plan, Software Architecture, Acquisition Logistics Support Plan (ALSP) and SSP by MS-B and updated as changes occur. This information can be a listing. However, it is highly recommended that the program office maintain some form of planning document to define these interfaces as well as identify a point of contact.

SUBSECTION 6-7 Ship Platform Level Logistics Documentation

6-7.1 Scope

This section in concert with Appendix C addresses the platform level logistics documentation requirements associated with Ship Selected Records and Ship Selected drawings (including, OSS, DC plates/drawings, Ship's Information Books (SIBS), Ship's Systems Manuals (SSMs), Training Aid Booklets (TABs), Combat System Technical Documentation (CSTD), Combat System Operational Sequencing System (CSOSS), Propulsion Operating Guides (POGs), etc.,).

6-7.2 Background

Funding requirements for updates to platform level documentation are provided out of availability/modernization funds (Design Services Allocation) and fall under the purview of the SPM. Equipment PARM/LCM responsibilities with respect to development and funding of platform level ILS impacts are typically limited to the identification of impacted products as part of the SCD technical design process. PARM/LCM will provide a list of impacted platform level ILS products as part of SCD development and the SPM will provide availability funding to update those impacted products once the availability/installations are completed and impacts to ship's distributed systems can be adequately documented.

6-7.3 Operational Sequencing System Documentation

NSWCCD-SSES is responsible for maintaining all HM&E OSS documentation under the direction of NAVSEA 04L. Naval Surface Warfare Center, Port Hueneme Division (PHD NSWC), Code A34 updates CSOSS for aircraft carriers and surface combatant platforms. OSS documentation provides safe, technically correct, standard procedures to align, start up, operate and secure complex shipboard combat and HM&E systems and proper casualty control procedures for responding to casualties. The OSS systems are as follows:

- Engineering Operational Sequencing System (EOSS) consists of written procedures, charts and diagrams required for the operation of a ship's propulsion plant. It consists of two parts, Engineering Operational Procedures (EOP) and Engineering Operational Casualty Control (EOCC). EOSS is the accepted standard for propulsion plant operation and casualty control, and its use is mandatory in accordance with reference S6(l)
- Aviation Fuel Operational Sequencing System (AFOSS) consists of written procedures, charts and diagrams required for the complete cycle of fueling evolutions from receiving fuel to refueling aircraft and transferring fuel. Its use is recommended when installed. AFOSS does not contain casualty control procedures
- Fuel Operational Sequencing System (FOSS) consists of written procedures and diagrams required to on-load, off-load, and transfer bulk fuel oil. Its use is recommended when installed. FOSS does not contain casualty control procedures
- Cargo Fuel Operational Sequencing System (CFOSS) consists of written procedures, charts and diagrams required for the operation of a ship's automotive gasoline

system. This includes all evolutions from receiving fuel to fueling vehicles. Its use is also mandatory when installed. CFOSS does not contain casualty control procedures

- CSOSS is a comprehensive collection of procedures, diagrams and guidance for the operation of combat systems equipment, in both normal and casualty configurations. Joint instruction Commander, Naval Surface Force, US Atlantic Fleet Instruction (COMNAVSURFLANTINST) 4790.20/ Commander, Naval Surface Force, US Pacific Fleet Instruction (COMNAVSURFPACINST) 4790.9 provides TYCOM direction to Commanding Officers for use of CSOSS
- Combat System Technical Operations Manual (CSTOM) consists of written procedures and diagrams required for the assessment of the material condition readiness of the Combat System. CSTOM includes Operability Tests for ships sensors, Command and Control, Electronic Warfare, and Weapon System. Its use is required as part of pre-underway checks and operability assessments
- Sewage Disposal Operational Sequencing System (SDOSS) consists of written procedures, charts, and diagrams required for the operation of a ship's sewage disposal system. This includes cold iron, in-port, transit and at-sea conditions. Its use is recommended when installed. SDOSS does not contain casualty control procedures
- Ballasting Operational Sequencing System (BOSS) consists of written procedures and systems diagrams for operation of ballasting and de-ballasting system of amphibious ships. BOSS includes casualty response procedures
- Catapult Operational Sequencing System (CATOSS) consists of written procedures and diagrams required for the operation of Carrier steam catapults. CATOSS does not contain casualty control procedures
- Weapons Elevator Operational Sequencing System (WEOSS) consists of written procedures and diagrams required for operation of a ship's weapons elevators in-port and at-sea. Its use is recommended when installed. WEOSS does not contain casualty control procedures
- Auxiliary Operational Sequencing System (AUXOSS) consists of written procedures and diagrams required for the operation of the following systems: steering gear, aircraft elevators, chilled water and air conditioning, fire main, refrigeration, main drainage and special frequency motor generators

6-7.4 HM&E OSS Impact Identified

NSWCCD-SSES, as part of the Technical Assessment Team (TAT) Review process, will conduct a detailed review of each SCD to determine those that impact related OSS documentation. The results of this review are documented on the SCD SOA-360 for budget purposes.

6-7.5 HM&E OSS Development Tasked

The OSS LEM (NAVSEA O4L), at approximately SOA-360, prepares the task statements necessary to accomplish the required development or modification of affected HM&E OSS documentation. The task statement is forwarded to NSWCCD-SSES.

6-7.6 HM&E OSS Certification Letters Provided

At SOA-120, NSWCCD-SSES provides certification letters to the OSS LEM (NAVSEA O4L3)/CDM that the appropriate HM&E OSS documentation or modification has been scheduled or initiated and that an availability date has been established.

6-7.7 HM&E OSS Verification Checks

Based on the complexity of the configuration change and the availability of detailed configuration information, NSWCCD-SSES will determine the need to conduct a ship check (verification check) of the installation for purposes of updating the preliminary HM&E OSS Documentation. This verification check will be conducted after the installation and will occur during the period approximately EOA-60 and EOA-30. A hand annotated updated version of the HM&E OSS documentation is provided to the ship upon completion of the verification check.

6-7.8 Final HM&E OSS Documentation Reviewed

At EOA+60, NSWCCD-SSES will review the final HM&E OSS documentation for completeness and technical accuracy. A letter will be forwarded to the LEM (NAVSEA 04L3), with a copy to the SPM, CDM and TYCOM, certifying that all revised HM&E OSS documentation related to the applicable configuration changes has been reviewed and is complete and correct.

6-7.9 NSWCCD-SSES Certifies HM&E OSS

At EOA+90 the NSWCCD-SSES will certify that the revised HM&E OSS meets the standard guidelines for HM&E production. A certification letter will be forwarded with the final OSS package to the ship.

6-7.10 Final HM&E OSS Documentation Delivered

At EOA+120, NSWCCD-SSES delivers final HM&E OSS documentation to the ship.

6-7.11 CSOSS Updates

PHD NSWC, Code A34 updates CSOSS for surface ship and aircraft carrier platforms.

- CSOSS packages that have transitioned into PARM/LCM are normally updated in two phases
- Every CSOSS package is updated during regularly scheduled availabilities, if changes to the C5ISR configuration in AMPS/NDE warrant the change. The ship check occurs approximately three weeks prior to completion of a ship’s availability and it documents the changes that have occurred since the last scheduled update. Redlined copies of procedures and diagrams are provided to the ship for utilization until the finished product is delivered. For aircraft carriers undergoing new construction, RCOH or SCN funded service life extension, a complete CSOSS package is delivered to the ship. Additionally, a complete re-issue of all material is provided to all other surface ship platforms upon completion of an Extended Dry-docking Selected Restricted Availability (EDSRA)

- Ships that receive Command, Control, Communications, Computers and Intelligence (C5ISR) updates will have their AEGIS CSOSS updated approximately 60-180 days prior to deployment. This update is designed to document installations accomplished after completion of availability. As with the availability, redline copies are provided to ship for utilization until finished product is delivered

6-7.12 CSOSS Delivery

Scheduled delivery date of finished CSOSS product is 90 days from the end of availability update and 90 days from end of ship check for AIT update.

6-7.13 CSOSS CD-ROM

The CD ROM is delivered to the ship 2-3 weeks after the hard copy (paper) CSOSS changes/new package has been delivered. The purpose of the CD is to provide a backup for the ship in the event a procedure/diagram/book is lost or damaged. It is recommended that the CD be placed on the ships INTRANET to provide accessibility in the event the disk is misplaced or damaged. A copy of each CD is provided as reference documentation to Commands that have requested distribution (i.e. CNAF, CFFC, NAVSEA, SPAWAR, NAVAIR, and Training Centers (including Aegis Training and Readiness Center (ATRC) and ATRC Detachments)). Each CD is in Portable Document Format (PDF) format, which provides the capability of printing required information. This is not to say that at some point in the future, CSOSS will not be required to go paperless, but at present that is not the intent.

Exhibit S6-1 SUPPLEMENTAL CONFIGURATION AND LOGISTICS MANAGEMENT REFERENCE DOCUMENTS

CINCPAC/CINCLANT/4720.3(Series) Management of Afloat Combat Systems and C4I Installations and Improvements Final Report of the Navy Battle Force Alignment

MIL-HDBK-2165 Testability Program for Systems and Equipments

NAVICP-MINST 4441.170(Series) COSAL Use and Maintenance Manual

NAVSEAINST 4130.9 (Series) Naval Sea Systems Command Ordnance Alteration (ORDALT) Program

MIL-HDBK-61 (Series) Configuration Management Guidance

NAVSEAINST 4160.3(Series) Technical Manual Management Program (TMMP)

NAVSEAINST 4441.7(Series) Supply Readiness Objectives and Milestones; Implementing Procedures

NAVSEAINST 4720.11 (Series) Shipboard Installations and Modifications Performed by Alteration Teams; Centralized Control of

NAVSEAINST 4720.14 (Series) Temporary Alterations to Active Fleet Submarines

NAVSEAINST 4790.01(Series) Expanded Ship Work Breakdown Structure (ESWBS) for Ships, Ship Systems and Combat Systems

NAVSEAINST 4790.03(Series) Policy and Responsibilities for Processing Planned Maintenance System (PMS) Technical Feedback Reports

NAVSEAINST 4790.8(Series) Planned Maintenance System (PMS), Material Management (3-M) System; Policy and Assignment

NAVSEAINST 5000.39(Series) Ship’s Maintenance and Acquisition and Management of Integrated Logistics Support for Ships Systems and Equipment

NAVSEAINST 9082.01 Life Cycle Management of Portable Test, Measuring and Diagnostic Equipment; Policy and Responsibilities

NAVSEA OD 45845 Navy Calibration Procedures

NAVSUPINST 4420.36(Series) Program Support Data (PSD) for Interim, Initial and Follow-on Secondary Item Requirements

NAVSEA S0701-AA-GYD-010 Technical Manual Acquisition, Acquisition Manager’s Guide

NAVSEA S9040-AA-IDX-010/SWBS5D ESWBS For All Ships and Ship/Combat Systems

NAVSEA S081-AB-G1B-010/MAINT Reliability-Centered Maintenance Handbook

OPNAV P-751-2-9-97 Training Planning Process Methodology (TRPPM) Guide

OPNAV P-751-3-9-97 Training Planning Process Methodology (TRPPM) Manual

NAVSEA Guidebook for Submarine MP&T Acquisition and Life Cycle Support

OPNAVINST 11102.2 (Series) Training System Installation and Transfer

OPNAVINST 11010.20 (Series) Facilities Projects Instruction

OPNAVINST 4400.10(Series) Policies for Integrated Logistics Overhauls (ILOs) and Reviews (ILRs)

OPNAVINST 4790.4(Series) Ship's Maintenance and Material Management (3-M) Manual

OPNAVINST 4790.13(Series) Maintenance of Surface Ship Electronic Equipment

OPNAVINST 9200.3(Series) Engineering Operational Sequencing System (EOSS)

S9070-AA-MME-010/SSN/SSBN Technical Requirements Manual for Temporary Submarine Alterations

SL105-AA-PRO-010 ILO Policy and Procedures Manual

Exhibit S6-2 PEO SHIPS FL EOA ILS VERIFICATION FORM

From: **Commander Fleet and Industrial Supply Center (Logistics Dept)/Regional Maintenance Center RMC**
To: Program Executive Office SHIPS (PEO-Ships FL)

Subj: END OF AVAILABILITY (EOA) INTEGRATED LOGISTICS SUPPORT (ILS) VERIFICATION FOR USS (SHIP NAME) AVAILABILITY

Ref: (a) Navy Modernization Process Management and Operations Manual, SL720-AA-MAN-030 (Series)

Encl: (1) Alterations ILS Impact Table
(2) PEO SHIPS Program Manager Representative (PMR) On Site Logistics Representative (OSLR) Final Weekly Report for "SHIP In Availability" for (SHIPNAME)
(3) ILO Services Report for USS (SHIPNAME) Availability

1. Enclosures (1) through (3) are forwarded in accordance with the requirements of reference (a). This letter constitutes a summary of the ILS elements and the level of completion resulting from the recent (CNO Availability type) of the USS (SHIP NAME) at (location) from (date) through (date). The following table summarizes overall ILS completion status for all alterations, to include those requirements set forth in applicable ILS Certification Forms and those determined by the NSA/RMC and indicated as required in enclosure (1).

ITEM SPECIFIED IN ILS CERT	% ON BOARD AT EOA
Supply Support (Interim Repair Parts for non-standard equipment/MAMs/OSI)	% of pushed or installing activity responsible material (parts)
Technical Manuals (new or revised)	% of tech manuals(new manual or revision) provided
Planned Maintenance System Documentation	% of MIPs/MRCs
Support Equipment (General and Special Purpose Electronics Testing Equipment)	% of support equipment
Training (Interactive Courseware (ICW), Interactive Multimedia Instruction (IMI), etc.)	% of training products delivered
Interim Ship's Selected Records Updated and Delivered to Ship (drawings, SIBS)	% of interim SSRs provided
System software and recovery disks (if applicable)	

2. The following paragraphs provide a detailed report of **all ILS deficiencies** for those requirements set forth in applicable ILS Certification Forms and those determined by the

NSA/RMC and indicated as required in enclosure (1). The tables indicate status of each ILS deficiency and estimated completion dates as of EOA.

(a) Supply Support On board Support Items (i.e. SRIs, OBRPs and OSIs)

Alt ID	Alt Brief	Allowance Parts List/AEL/RIC	NSN or Cage PN	Alt Allowance	Alt Shortage	Est comp date

(b) MAMS

Alt ID	Alt Brief	Allowance Parts List/AEL/RIC	NSN or Cage PN	Alt Allowance	Alt Shortage	Est comp date

(c) Technical Manuals

Alt ID	Alt Brief	Tech Manual Identification Number (TMIN)/(IETM)	Title	Existing, Develop, Change or Revision	Est comp date

(d) Planned Maintenance System Documentation

Alt ID	Alt Brief	MIP / MRC	Identification Number	Existing, Develop, Change or Revision	Est comp date

(e) Support Equipment (General and Special Purpose Electronics Testing Equipment)

Alt ID	Alt Brief	Equip type	Nomenclature	Allowance Parts List/AEL	SCAT or NSN	Alt QTY	Alt Shortage	Est comp date

(f) Training products (Interactive Multimedia Instruction, etc). Indicate Alt ID, Alt Brief and any training requirements including type (formal classroom/interactive shipboard), course numbers and description and any PQS/JQR requirements and description.

Alt ID	Alt Brief	Training Courseware Description	Est date product del

(g) List of Ship Selected Records that have not been updated and estimated completion date.

Record Type and Number	Title	Est comp date

3. All Provisioning Technical Documentation (PTD) has been provided to the Technical Support Activity (TSA) for provisioning of non-standard equipments **with the exception** of the alterations listed below.

Alt ID	Alt Brief	PDCN	XRIC	Est comp date

Signature of Regional Maintenance Center/Naval Supervising Activity/FISC Logistics Activity authorized person.

Alterations in Availability ILS Impact Tables

Alt ID	Alt Brief	Alt in LOA	ILS Cert	Pushed Supply Support Parts & MAMS Required/Delivered	Tech Manual Updates Required/Delivered	PMS MIP/ MRC Updates Required/Delivered	Support Equipment Required/Delivered	Training Aids Required/Delivered
				/	/	/	/	/
				/	/	/	/	/
				/	/	/	/	/
				/	/	/	/	/
				/	/	/	/	/
				/	/	/	/	/
				/	/	/	/	/
				/	/	/	/	/
				/	/	/	/	/
				/	/	/	/	/
				/	/	/	/	/
				/	/	/	/	/
	Totals			**/**	**/**	**/**	**/**	**/**

Enclosure (1)

PEO SHIPS Program Manager Representative (PMR) On-Site
Logistics Representative (OSLR)
Final Weekly Report for Ship In Availability
USS (SHIPNAME) FY07 (Avail Type)

Insert final PMR/OSLR "Ship in Availability Report" for CNO availability.

Enclosure (2)

ILO Services for USS (SHIPNAME) Availability from

(begin date) to (end date)

1. The following Integrated Logistic Overhaul services were provided during the availability:

(a) **(***Description of any Integrated Logistic Overhaul services provided during CNO availability.)*

Enclosure (3)

Exhibit S6-3 PEO CARRIERS EOA ILS VERIFICATION FORM

From: Commander, (Shipyard)
To: Commander, Naval Sea Systems Command (PMS 312L)

Subj: USS (SHIPNAME) (CVN-XX) FYXX (Availability Type) INTEGRATED LOGISTICS SUPPORT (ILS) VERIFICATION

Ref: (a) Navy Modernization Process Management and Operations Manual, SL720-AA-MAN-030 (Series)l

Encl: (1) End of Availability (EOA) Verification Statement
(2) ILS Status Report
(3) Listing of Deficient ILS
(4) Listing of Verified Alterations
(5) Listing of Cancelled/Deferred/Previously Completed Alterations
(6) Listing of ILS Certification Changes during FYXX (Availability Type) Availability
(7) Receipts and Transmittals for Ship's Selected Records, Damage Control Diagrams and Text, Ship's Installation Drawings, Planned Maintenance Systems, and Technical Manuals delivered to the CVN XX.

1. Enclosures (1) through (7) are forwarded in accordance with the requirements of reference (a). This constitutes a summary of the ILS elements and the level of completion resulting from the recent (**CNO Availability Type**) of the USS (SHIPNAME) (CVN XX) at (location) from (date) through (date).

2. (Location) Shipyard points of contact are (Name), DSN (phone number), commercial (phone number).

(Authorized Signature)
By Direction

Copy to:
USS (Ship Name) (CVN **XX**)
COMNAVAIRFOR (N43)
COMNAVAIRFOR-W (N435TE)
NAVSEA (PMS312C)
NSWCCD CODE 9422 (CALICO)

FROM: (Location) SHIPYARD, CODE (XXX) **SHIP**: USS (SHIPNAME) (CVN XX)

TO: NAVSEA (PMS 312L)

SOA DATE: (Date) **EOA DATE:** (Date)

This verification applies to all logistics support for all alterations and changes accomplished during the availability. Attached is a specific list of all alterations being verified.

ITEM	% ON BOARD AT EOA +30
Supply Support (Repairable Identification Codes/Preliminary Allowance Lists/Interim Repair Parts for non-standard equipment/MAMs/OSI) See Listing of Outstanding ILS (Encl. 3)	% Pushed or installing activity responsible material
Technical Manuals (Equipment Level) See Listing of Outstanding ILS (Encl. 3)	% of tech manuals (new manual or revision) provided
Planned Maintenance System Documentation	% of MIP/MRCs
Equipment Support Allowance Parts Lists See Listing of Outstanding ILS (Encl. 3)	%
Support Equipment (General and Special Purpose Electronics Testing Equipment) TYCOM to track and verify	N/A
Ship's Selected Records Updated and Delivered to Ship	% of SSR updated and delivered
Operational Sequencing Systems	%
Training (Interactive Courseware (ICW), Interactive Multimedia Instruction (IMI), etc.)	%
ILS Certification Caveats Cleared	% of ILS CERTS cleared

It is further verified that:

- Equipment Verifications have been conducted in accordance with Section 6 of reference (a).
- All Provisioning Technical Documentation (PTD) has been provided to the Technical Support Activity (TSA) for provisioning of non-standard equipments.
- All Emergent Work has been reported to the CDM.

Signature of Naval Supervising Activity/Installing Activity	Date

Enclosure (1)

USS (SHIPNAME) (CVN XX) FYXX (Availability Type)

ILS STATUS REPORT

(PART A)

1. Ship Name/STHN: USS (**SHIPNAME**) (CVN **XX**)
2. Start of Availability Date: (**date**)
3. End of Availability Date: (**date**)
4. Sea Trials: (**date**)
5. Fast Cruise: (**date**)
6. Light Off (LO): PLT #1 (**date**) and PLT #2 (**date**)
7. Database Backload Date: (**date**)
8. OBRP Backload Date: (**date**)
9. Functional Areas:

    Training

    Configuration

    Technical Manuals

    PMS

    Test Equipment

Enclosure (2)

(PART B)

I. Training - Cumulative

Requirement – Training for newly installed equipment must be confirmed by Ship's Training Officer.

Status – (**Deficiencies Noted**)

II. Configuration - Cumulative

A. NSA Provide:

	ADDS	DELETE	CHANGES
Configuration changes validated	XXXX	XXXX	XXXX

B. Provisioning Technical Documentation (PTD) on Locally Procured Material:

1. NSA Required:

Number of Non-Standard/Modified Material Requiring PTD	**XX**
Number of PTD packages forwarded to TSA	**XX**
Number of APLs/PALs Assigned	**XX**

2. AIT Required:

Number of Non-Standard/Modified Material Requiring PTD	**XX**
Number of PTD packages forwarded to TSA	**XX**
Number of APLs/PALs Assigned	**XX**

III. Technical Manuals Analysis

A.

NSA Required	**XXX**	On-Hand	**XXX**	On-Order	**XXX**	%On-Hand	X**XX**%
AIT Required	**XXX**	On-Hand	**XXX**	On-Order	**XXX**	%On-Hand	**XXX**%
Total Required	**XXX**	On-Hand	**XXX**	On-Order	**XXX**	%On-Hand	**XXX**%

B. Required TMs not on hand by EOA (See Deficiency List; Enclosure 3)

IV. Planned Maintenance System (PMS) Analysis

A. MIPs/MRCs:

	MIP/MRCs
REQUIRED	**XX**
DELIVERED	**XX**
%DELIVERED	**XXX**%

V. Test Equipment - Current

Test equipment is tracked and verified by COMNAVAIRFOR-W (N435TE).
Point of contact: Brian Foster (619) 545-1497

Exhibit S6-4 EOA/EOI ALTERATION REPORT (Submarine Only)

From: (NSA)
To: Commanding Officer, USS _____ (SSN ____)

Subj: END OF AVAILABILTY (EOA)/END OF INSTALLATION (EOI) SUBMARINES
SUPPLEMENT FOR USS _____ (SSN ____)

Ref: (a) Navy Modernization Process Management and Operations Manual,
SL720-AA-MAN-030 (Series)
Encl: (1) Alterations Completed

1. In accordance with reference (a), by copy to Commanding Officer, USS _____, the list of verified alterations attached as enclosure (1*) is to be endorsed by you to the Immediate Superior-In- Command (ISIC/Submarine Squadron Support Unit (SSSU)/ Naval Submarine Support Center (NSSC) Maintenance Document Control Office (MDCO) maintaining your master Current Ship Maintenance Project (CSMP). This action eliminates the requirements for manual preparation and processing of OPNAV Form 4790/CK. The MDCO will use enclosure (10 for direct input to the 3-M program.
(*Note: Enclosure (1) is EXHIBIT 6-6 of Section 6)
2. NAVSHIPYD /IMF ____(LOCATION)_____ point of contact is __(NAME/CODE/PHONE NO.)_

_____
Signature/Chief Engineer/ By Direction

Copy to: COMNAVSEASYSCOM (SEA 07L3)
COMSUBLANT/COMSUBPAC (N4)
ISIC/NSSC/SSSU
Newport News Shipbuilding (Attn: SEAWOLF/688 Class Hull Planning Yard (Dept 094))

FIRST ENDORSEMENT

From: Commanding Officer, USS _____ (SSN ____)
To: ISIC/SSSU/NSSC

1. I acknowledge the status of each alteration listed herein and except as noted have received Integrated Logistics Support (ILS) as verified by the Naval Supervising Activity (NSA).

2. Request each listed alteration be reported into the Regional Management Automated Information System (RMAIS) Maintenance Data System (MDS) as Section I, OPNAV Form 4790/CK using the end of Availability date as the alteration completion date.

_____
Signature/Commanding Officer/ Date

Copy to: NAVSHIPYD/IMF (LOCATION /CODE)

SECOND ENDORSEMENT

From: ISIC/SSSU/NSSC
To: COMSUBPAC/COMSUBLANT (N4)

1. The alterations listed in the basic correspondence have been inputted into the RMAIS.

2. Request the status in the TYCOM Alteration Management System (TAMS) be changed accordingly.

_____
Signature/Title/Date

Copy to: CO USS _____ (SSN ____)
NAVSHIPYD/IMF (LOCATION/CODE)

ALTERATIONS COMPLETED

USS _____

UIC NO _____

Availability Type and Dates (Inside Avail):
Installation Date (Outside Avail):

ALTERATION NO.	TITLE	WORK CENTER	JSN
(From CSMP Date – Blocks #2 and #3)			

Enclosure (1)

ILS STATUS REPORT

(PART A)

1. Ship Name/STHN:_____

2. Start of Availability Date: _____

3. End of Availability Date: _____

4. ILO/ILR Modules Scheduled: _____

5. Sea Trials: _____

6. Fast Cruise: _____

7. Light Off Examination (LOE): _____

8. Database Backload Date: _____

9. OBRP Backload Date: _____

10. Functional Areas:

Training

Configuration

Technical Manuals

PMS

Repair Parts

Support and Test Equipment

Calibration Documentation

Maintenance Assistance Modules (MAMs)

Selected Record Data (SRD)

ILS STATUS REPORT

(PART B)

I. Training – Cumulative (RMC Provide)

Recommend a minimum of 10% of the crew be trained
Number Trained _____
Remarks: _____

II. Configuration - Cumulative

A. NSA Provide

	Add	Delete
Growth alterations accomplished	_____	_____
Growth alterations reported to CDM	_____	_____
Growth alterations accomplished but not reported to CDM	_____	_____
Growth alterations canceled	_____	_____
Change in Installation Status Code (ISC)(PIR to IR)	_____	_____

Provisioning Technical Documentation (PTD) on Locally Procured Material:

Number of Non-Standard/Modified Material Requiring PTD _____
Number of PTD Packages forwarded to TSA _____
Number of APLs/PALs Assigned _____

Remarks _____

B. CDM Provide

	Add	Delete
Planned Configuration Changes (COP)	_____	_____
Configuration Changes Reported by the NSA	_____	_____
Configuration Changes Initiated by Activity other than the NSA	_____	_____
Total Configuration Changes Reported to SCLSIS	_____	_____

Remarks _____

C. Ship/ILO Provide

	Add	Delete
Configuration Changes Reported to CDM	_____	_____
Configuration Changes Reported to CDM not found in CDM Transmittal	_____	_____
Configurations Changes Received from		

CDM and Processed _____ _____

D. COSAL Maintenance (Processed_ (Ship/ILO Provide)

Files	Date Received	Date Processed	Sequence #
ASI	_____	_____	_____
	_____	_____	_____
Auto MCMAR	_____	_____	_____

E. COSAL Maintenance (Unprocessed)(Ship/ILO Provide):

Files	Date Received	Sequence #
ASI	_____	_____
Auto MCMAR	_____	_____

F. Unsupported Equipment – Provisioning not complete (Ship/NAVICP-M Provide_
Current Number _____

III. Technical Manual Analysis

A. NSA Required _____ On-Hand _____ On-Order _____ % On-Hand_____
RMC/NSA Required _____ On-Hand _____ On –Order _____ % On-Hand _____

Total Required _____ On- Hand _____ On-Order _____ % On-Hand _____

B. Required TMs Not Expected to be On-Hand by EOA (Provide List and Status)

IV. Calibration Documentation

A. Required _____ On- Hand _____ On-Order _____
B. Required calibration procedures Not Expected to be On-Hand by EOA (Provide List and Status)
C. Updates to METRL and CRL

V. Calibration Standards - Current

	Allowed	On-Hand	On-Order	% On-Hand
A. NSA Provided Modernized	_____	_____	_____	_____
B. ILO Provided Replacements	_____	_____	_____	_____

Remarks: _____

VI, Planned Maintenance System (PMS) Analysis (ILO Provide)

A. MIPs/MRCs

	MIPs	MRCs
SOA Package from		

NAVSEALOGCEN DET Norfolk/ NAVSEALOGCEN DET San Diego	_____	_____
Deleted (N/A to ship)	_____	_____
Added (Identified adds)	_____	_____
TOTAL	_____	_____

B. Parts Bill of Material (BOM) per MRC:

Required _____ On-Hand _____ On- Order _____ % On-Hand _____

C. Latest LOEP Update Forwarded to NAVSEALOGCEN DET Norfolk/ NAVSEALOGCEN DET San Diego – Date: _____ Ser: _____

VII. Repair Parts (Current)

A. COSAL:
#ESD>Backload

Type	Allowed	On-Hand	On-Order	Date	% On-Hand
HM&E					
MAM					
Q					
OSI					

B. Inventory (RAG):

	Validity	Date
Last Full Inventory	_____	_____
Last Inventory QA	_____	_____

VIII. Test and Support Equipment - Current

	Allowed	On- Hand	On-Order	% On-Hand
A. NSA Provided Modernized	_____	_____	_____	_____
B. ILO Provided Replacements	_____	_____	_____	_____

Remarks: _____

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SUBSECTION 7-1 ADVANCE PLANNING, EXECUTION PLANNING, AND LETTERS OF AUTHORIZATION

7-1.1 Background

This section of the Navy Modernization Process (NMP) Management and Operations Manual addresses Advance Planning, and Execution Planning, Ship Program Managers (SPM) Letters of Authorization, and Fleet Type Commander (TYCOM) Quarterly Installation Message authorization management. Surface Ship and Carrier planning and authorization procedures are addressed in SUBSECTION 7-2 through SUBSECTION 7-6. Submarine planning and authorization is addressed in SUBSECTION 7-7.

7-1.2 Purpose

During the operational cycle of a ship, successful planning and installation of ship changes (SCs) once they have been approved in the Modernization plan requires the coordinated efforts of the Fleet Commanders, TYCOMs, Participating Acquisition Requirements Manager (PARM), Regional Maintenance Centers (RMC) and SPM. The Hull Modernization Plan (HMP) and associated time-phased Advanced Planning HMP (AHMP) and Execution Planning HMP (EHMP), SPM Advance Planning Letter, SPM Letter(s) of Authorization (LOA), and TYCOM Quarterly Installation Scheduling Messages (QISM) are the tools used to manage this process. The goals of the HMP are as follows:

- Provide the single, authoritative data source and status for ship modernization attributes to include maturity, certification and authorization, of all SCs in support of Advance Planning Letter, LOA, Maintenance and Modernization Business Plan (MMBP) and QISM development
- Facilitate coordination of all modernization stakeholders noted above by highlighting modernization attributes that require impact management

SUBSECTION 7-2 HULL MODERNIZATION PLAN

7-2.1 Scope

This subsection addresses the development of the Hull Modernization Plan from Navy Data Environment – Navy Modernization (NDE-NM). The HMP is the sole, time-phased planning document for hull-specific Modernization requirements; it is the authoritative input to the MMBP, SPM LOA and the TYCOM Quarterly Scheduling Message(s) for each affected hull.

The HMP is manually created from NDE-NM downloads and manual inputs from other NDE authoritative sources (including Afloat Master Planning System (AMPS)). The manual HMP is managed through the SPM Availability Planning process and TYCOM QISM for Surface Ships and the Modernization Readiness Assessment process for Aircraft Carriers. The eventual Navy Modernization Process (NMP) objective is to replace the Advance Planning Letter, SPM LOA, and TYCOM quarterly Scheduling Messages with a fully automated HMP that will integrate all modules of NDE.

7-2.2 Hull Modernization Plan Development

NDE-NM is the authoritative source for the creation of the HMP therefore should be maintained accurately to reflect the approved Modernization Plan. This is achieved by each responsible entity ensuring data input into NDE NM is in accordance with (IAW) NMP policy.

7-2.2.1 PARM Responsibilities

When a SCD has been approved at the first Decision Point (DP), the NDE-NM record is created by the SPM for ship modifications and any combinations, including ship modification type SCs. The PARM is responsible for creating the NDE-NM record for internal equipment modifications type SCs. Once the NDE NM record is created, the PARM is responsible for scheduling the Accomplishment Start and End dates for each hull IAW the approved Cost Benefit Analysis (CBA) Fielding Plan. In addition to the Navy Modernization milestones defined in Appendix G, the PARM is also responsible for the following:

- Inputting, validating and updating the cost estimation and SC certification fields identified in Table S7-1 Key PARM fields column
- After each subsequent DP, updating NDE-NM to match the approved CBA Fielding Plan
- Monitoring NDE-NM for Modernization Window and Availability schedule changes, assessing the impact and updating the SCD (IAW Section 3 of this manual), as required, when the CBA Fielding Plan changes

7-2.2.2 SPM Responsibilities

When a SCD has been approved at the first decision point, for ship modifications and any combinations including ship modification type SCs, the NDE-NM record is created by the SPM. Once the NDE NM record is created, the PARM is responsible for ensuring the Accomplishment Start and End Dates in NDE NM for each hull are IAW the approved CBA Fielding Plan. For ship modification SCs planned for CNO Availabilities, the SPM programs the SC to the availability in NDE NM after approval at DP 3.

Products derived from the HMP are created and maintained by the SPM and/or TYCOM IAW Table S7-1 using the SPM Overhaul Download query in NDE NM Reports. This query draws down all scheduled SCs for a specified time frame for each hull or ship class requested. Table S7-1 is the list of the fields in the SPM Overhaul Download query. Table S7- 2 is a list of the additional fields required for planning that are provided manually from other authoritative sources. The SPM then uses individual macros and Appendix D NMP Business Rules Block 250 to develop the individual reports for the AHMP, EHMP, Advance Planning Letters, and LOAs.

Table S7-1 SPM Overhaul Download Query Fields

NDE NM Fields	Description	Responsibility	AHMP	EHMP	HMP	Advance Planning Letter	SPM LOA	TYCOM QISM
SHIP	Ship class and hull number	SPM / PARM	X	X	X	X	X	X
SHIP_NAME	Ship Name	SPM / PARM	X	X	X	X	X	X
ALT_IDENTIFIER	Ship change identification number	SPM / PARM	X	X	X	X	X	X
CTN	Ship Change Document Change Tracking Number	SEA04R						
ALT_POM_FG	Modernization Plan Status for SA type changes only	SEA04R			X	X	X	X
APPL_POM_FG	Modernization Plan Status for other than SA type changes	SEA04R			X	X	X	X
BRIEF	Brief description of the ship change	SPM / PARM	X	X	X	X	X	X
CMD	PEO or System Command responsible for the ship change	SPM / PARM	X	X	X			
METHINST	Method of installation - industrial or AIT	SPM / PARM	X	X	X	X	X	X
JCFSPMAPP	JCF approval or SCD Decision Point 1 approval date	SPM			X	X	X	X
SAR (1)	SAR approval or SCD Decision Point 3 approval date	SPM			X	X	X	X
SID	Effective date of the SID status code	PY						
SID_ST	SID status code	PY			X	X	X	X

NDE NM Fields	Description	Responsibility	AHMP	EHMP	HMP	Advance Planning Letter	SPM LOA	TYCOM QISM
CERTSTATCD (2)	ILS certification status code	SPM			X	X	X	X
CERTSTATDT (2)	Effective date of the ILS certification status code	SPM						
CERT	Alteration status code	PARM			X	X	X	X
BFICAT	Battle Force Interoperability category	SEA05W			X	X	X	X
APPSTATUSCD	Applicability Status Code	PARM			X	X	X	X
ALTSTATUSCD	Alteration Status Code	SPM						
APPSTATUS	Applicability Status	PARM						
P1	P1 Funding line	SPM			X			
INST_MD_INDL	Installation Man-days - Industrial	SPM / PARM	X	X				
EST_MHRS	Estimated Man-hours	PARM	X	X				
DAYSONSITE	Days on Site	PARM	X	X				
DURATION	Durations of the installation in days	PARM	X	X				
MATLCOST	Material Cost estimate	SPM / PARM	X	X				
AVAILFY	Availability Fiscal Year	SPM						
AVLSTART	Availability Start Date	SPM						
AVLEND	Availability End Date	SPM						
AVLTYPE	Availability Type	SPM						
NSA	Naval Support Activity	SPM						
ACCOMPSTART	Accomplishment Start Date	PARM		X	X	X	X	X
ACCOMPEND	Accomplishment End Date	PARM		X	X	X	X	X
ACCOMPACTIVITY	Activity responsible for accomplishment	PARM						

NDE NM Fields	Description	Responsibility	AHMP	EHMP	HMP	Advance Planning Letter	SPM LOA	TYCOM QISM
NAVAPPCD	Navy Applicability Code							
CONJALTTYPECD	Conjunctive Alteration Type Code	SPM / PARM			X	X	X	X
CONJALT	Conjunctive alteration number	SPM / PARM			X	X	X	X
CONJINCR	Conjunctive increment	SPM / PARM			X	X	X	X
CONJINDCD	Conjunctivity relationship	SPM / PARM			X	X	X	X
CONJBRIEF	Conjunctive alteration brief	SPM / PARM			X	X	X	X
ALT_PR_FUND_FG	Prior year funded code for SA type legacy alterations (3)	SEA04R			X	X	X	X
APPL_PR_FUND_FG	Prior year funded code for non-SA type legacy alterations (3)	SEA04R			X	X	X	X

NOTES:
(1) SA type ship changes only

(2) ILS data does not show the accurate hull level ILS status so they are not used.
(3) Field no longer valid after 30 SEP 2006

Table S7- 2 HMP Fields Provided Manually

Manual Fields	Description / Source	Responsibility	AHMP	EHMP	HMP	Advance Planning Letter	SPM LOA	TYCOM QISM
ILS STATUS	ILS approval status / ILS Module	SPM			X	X	X	
C5IMP BASELINE	C5I Baseline authorization status / NDE AMPS	SEA05W				X	X	
COMMENTS	Informal action tracking and status not covered in an NDE NM field	SPM			X			
DP3 SAR / SCD (1)	SCD approval status for non-SA type SCDs / NDE SCD	SPM			X	X	X	
MATERIAL STATUS	Material Status Code	SPM			X	X	X	

Manual Fields	Description / Source	Responsibility	AHMP	EHMP	HMP	Advance Planning Letter	SPM LOA	TYCOM QISM
NOTES	Maturity status notes					X	X	
POC	Installation Point of Contact / NDE NM, NDE SCD					X	X	

7-2.3 Hull Modernization Plan (Working document)

The SPM and TYCOM will each produce and maintain HMPs as working documents. This document contains all modernization scheduled in NDE for each ship for a specified time period and is for hull specific availability planning and TYCOM QISM planning and assessments. The information maintained in this document is the basis of the Advance Planning Letter, SPM LOA, and TYCOM QISM.

SUBSECTION 7-3 ADVANCE PLANNING HULL MODERNIZATION PLAN

7-3.1 Scope

This subsection addresses the issuance of AHMP for the accomplishment of Fleet and Program SCs during ship availabilities planned in the year after the next fiscal year. The following guidance and procedures provide for the development and issuance of the AHMP for long range ship change installation planning.

Carriers are not included in the MMBP, therefore there is currently no requirement for an AHMP to support Carrier availabilities. These reports are still available and may be used as desired.

7-3.2 Purpose

An AHMP for all active ships shall be provided by the cognizant SPM to each RMC in July each year in support of the A-810 to A-450 rolling HMP NMP milestone and development of SPM Advance Planning Letters. The AHMP will contain all Program and Fleet SCs planned for the year after the next fiscal year (Example: JUL 2006 release is for FY 2008). The RMC is advised of the planned SCs for installation to facilitate necessary long lead-time planning efforts for ships under their cognizance.

7-3.3 Preparation of AHMP

The SPM will develop and issue the AHMP pursuant to the requirements established in the NMP Business Rules (See Appendix D Block 250). In preparing an AHMP:

The PARM shall make NDE-NM entries as follows:

- Schedule accomplishment start and end dates for SCs IAW with the most recently approved CBA fielding plan
- Verify and update the installation method, estimated man-hours, and material cost fields identified in Table S7-1

The SPM shall:

- Generate a SPM Overhaul Download Report Excel format from NDE listing all SCs, including AIT Installations that have been scheduled in NDE-NM for installation.
- Apply the macros and NMP Business Rules Appendix D Block 250 to create a report with the fields defined in Table S7-1 and Table S7- 2.

7-3.4 Funding

The following statement shall be included in all AHMP cover letters: “This letter does not authorize the use of funds or commencement of related tasks nor is it to include any effort that will potentially obligate funds. Only the valid funding document in support of this letter releases funds and authorizes commencement of effort.”

SUBSECTION 7-4 EXECUTION PLANNING HULL MODERNIZATION PLAN

7-4.1 Scope

This subsection addresses the issuance of EHMP for the accomplishment of Fleet and Program SCs during ship availabilities planned in the next fiscal year and the first quarter of the following fiscal year. The following guidance and procedures provide for the development and issuance of the EHMP for SC installation planning.

Carriers are not included in the MMBP, therefore there is currently no requirement for an EHMP to support Carrier availabilities. These reports are still available and may be used as desired.

7-4.2 Purpose

COMNAVSURFORNOTE 4703 requires that each RMC maintenance team develop the MMBP for each ship under its cognizance annually in April defining expected maintenance and modernization for each ship in the next fiscal year. Additionally, a MMBP is required for those ships programmed for CNO availabilities in the first quarter of the following fiscal year. For example, in April 2006, an MMBP was developed for each ship in commission for FY2007 and a second MMBP, only addressing CNO availability controls, for those ships with CNO availabilities scheduled for the first quarter of FY2008.

In support of MMBP development, in March of each year, SPMs will deliver an EHMP listing all program SCs scheduled for each active ship under their cognizance to the RMCs. TYCOMs will deliver an EHMP listing all scheduled fleet SCs for each active ship under their cognizance to the RMCs. The EHMP will contain all SCs scheduled for the next fiscal year and the first quarter of the following fiscal year. It is a snapshot of the current maturity and authorization status and industrial man-day and material estimates for SCs scheduled for installation in the next fiscal year.

7-4.3 Preparation of EHMP

The SPM will develop and issue the EHMP pursuant to the requirements established in the NMP Business Rules (See Appendix D Block 250). In preparing an EHMP:

The PARM shall make NDE-NM entries as follows:

- Schedule accomplishment start and end dates for SCs IAW with the most recently approved CBA fielding plan
- Verify and update the installation method, estimated man hours, and material cost estimate fields identified in Table S7-1

The SPM shall:

- Generate a SPM Overhaul Download Report Excel format from NDE listing all Program SCs, including AIT Installations that have been scheduled in NDE-NM for installation.
- Apply the macros and NMP Business Rules Appendix D to create a report with the fields defined in Table S7-1 and Table S7- 2.

7-4.4 Funding

The following statement shall be included in all EHMP cover letters: “This letter does not authorize the use of funds or commencement of related tasks nor is it to include any effort that will potentially obligate funds. Only the valid funding document in support of this letter releases funds and authorizes commencement of effort.”

SUBSECTION 7-5 SHIP CHANGE ADVANCE PLANNING AND AUTHORIZATION

7-5.1 Scope

This subsection addresses hull specific Advance Planning Letter and Letters of Authorization. The HMP is used to create the hull specific A-540 Advance Planning Letter, A-360 Critical Milestone LOA, and subsequent change letters at A-180 and A-120 as well as any follow-on change messages. It is also used to develop the TYCOM Quarterly Scheduling Message for installations planned in other than CNO Availabilities. Fleet SCs are authorized by the TYCOM in accordance with Section 1 of this manual. Authorization, as used herein, is an action by a properly designated authority to direct that a specified SC be accomplished.

7-5.2 Advance Planning Letter

This subsection addresses the issuance of Advance Planning Letters for the accomplishment of Program SCs during specific ship availability. The following guidance and procedures provide for the development and issuance of Advance Planning Letters for SC installation.

7-5.3 Purpose

Advance Planning Letters are issued at the discretion of the cognizant SPM to the Naval Supervising Activity (NSA) in accordance with Appendix G milestones. In lieu of the Advance Planning Letter, the NSA may utilize the AHMP or EHMP for planning purposes. The NSA is advised of the SCs that have been Decision Board approved for planning purposes. Material to be provided by the NSA will be reviewed. Procurement action will be initiated upon receipt of supporting funding documentation for that material identified as Long Lead Time Material (LLTM). Modernization SC funds are provided for Advance Planning IAW Section 4 of this manual.

7-5.4 Preparation of Advance Planning Letters

The SPM will develop and issue Advance Planning Letters pursuant to the requirements established in the NMP Business Rules (See Appendix D). In preparing an Advance Planning Letter, the SPM shall review the HMP (see SUBSECTION 7-2) and include all SCs that have been approved by the Decision Boards for installation during the Fiscal Year including the availability start date. SCs that are planned but not yet approved MAY be included for visibility, but it must be made clear that those SCs have not yet been voted on and approved for installation.

7-5.5 Funding

The following statement shall be included in all Advance Planning Letters: “This letter does not authorize the use of funds or commencement of related tasks nor is it to include any effort that will potentially obligate funds. Only the valid funding document in support of this letter releases funds and authorizes commencement of effort.”

7-5.6 Change in Activity

If the NSA is changed after the Advance Planning Letter has been issued, the original letter will be cancelled, and a new Advance Planning Letter reflecting all changes required by the reassignment of the availability will be issued.

7-5.7 Material

The SPM shall ensure that material requirement actions are delegated to the proper designated activity for the availability in question. The NDE 4720/3 Report may be included.

7-5.8 Material Listing

The NSA can obtain a listing of material requirements from the NDE database. Items listed on the NDE 4720/3 Report should be checked against the material requirements information contained in the SCD Phase III Alteration Material List (AML), which is updated during SC development.

7-5.9 Modification of Material Requirements

If material requirements identified must be modified, the NSA will immediately notify the cognizant SPM and PY via a Liaison Action Request (LAR). After validation of the requirement, the SPM must then update the material requirements in NDE as appropriate.

7-5.10 Letters of Authorization (LOA)

This subsection addresses the issuance of LOA and LOA changes for the accomplishment of Fleet and Program SCs during a specific ship availability. The following guidance and procedures provide for the development and issuance of the LOA for SC installation.

7-5.11 LOA Purpose

The SPM LOA specifies to the NSA the SC(s) to be accomplished during specific ship CNO Availability. The initial LOA is issued by the cognizant SPM IAW Navy Modernization milestone charts in Appendix G.

A-180 is the cutoff point for adding new work without an impact assessment and late add concurrence from the Platform TYCOM with the exception of Sustainment Type SCs which may be added to the LOA up to A-75. All planned SCs not having satisfactorily completed a Hull Readiness assessment and Operational Impact Assessment and do not have an approved Impact Assessment IAW Navy Modernization milestone charts in Appendix G will be deferred from the package in the A-120 change letter (for surface ships) or as a result of the A-90 Modernization Readiness Assessment meeting (for carriers) or at the A-75 change message for Sustainment Type SCs.

7-5.12 A-360 SPM LOA

The SPM will develop and issue SPM LOAs IAW Navy Modernization milestones in Appendix G pursuant to the requirements established in the NMP Business Rules (See Appendix D). In preparing a SPM LOA, the SPM shall review the HMP (see SUBSECTION 7-2) and include all SCs that have been approved by the Decision Boards for installation during the Fiscal Year

including the availability start date. SCs that are planned but not yet approved MAY be included for visibility, but it must be made clear that those SCs have not yet been voted on and approved for installation. SCs shall be listed as either "Authorized" or "Planned Not Authorized (PNA)". The minimum requirements for SPM authorization are as follows (other requirements may be imposed for individual availabilities and will be documented in the LOA):

- SC approved through DP3 (DP2 for NPCs)
- SIDs approved by the Planning Yard/Executing Yard (PY/EY)
- Approved ILS Certification
- Authorized in the C5IMP Baseline (as applicable for SFI Cat 1 or 2)
- Ship Alteration Record (SAR) approved (for legacy SHIPALTs only)

Approved SCs meeting the above requirements and any other requirements imposed by the SPM will be listed as "Authorized". All other approved SCs will be listed as "PNA".

For Carriers, a single LOA is issued NLT A-360. From that point forward, SPM authorization is tracked via the Modernization Readiness Assessment process documented in the Carrier Team One IPT4ACM Desk Guide.

7-5.13 A-180 LOA (Surface Ships Only)

The SPM shall prepare and issue the A-180 LOA IAW Navy Modernization milestones in Appendix G. The A-180 LOA will identify all new SCs scheduled in NDE-NM for the applicable availability as well as identify any planned SCs identified in the A-360 letter that have reached maturity IAW Appendix D Block 265 and are authorized IAW Appendix D Block 270. This is the last opportunity for SCs to be added to the SPM LOA with the exception of Sustainment Type SCs which may be added to the LOA up to A-75.

7-5.14 A-120 LOA (Surface Ships Only)

The SPM shall prepare and issue the A-120 LOA. The A-120 LOA will identify any planned SCs identified in the A-360 letter that have reached maturity IAW Appendix D, Block 265 and are authorized IAW Appendix D, Block 270. All SCs that have not reached maturity at A-120 or do not have an approved impact assessment will be deferred from the availability with the exception of Sustainment Type SCs which must meet this criteria by A-75..

If a SC is deferred, the PARM will review the results of the impact assessment to determine whether to reschedule in a later TYCOM window of opportunity during the same fiscal year or to adjust the CBA fielding plan for accomplishment in a later fiscal year.

7-5.15 Other Changes to LOAs

Changes, cancellations, deletions, or additions to the LOA, other than those associated with the A-180 LOA, the A-120 LOA and Sustainment Type SCs added between A-180 and A-75, shall be approved IAW the following procedures.

7-5.16 Approval

Platform TYCOMs must approve any additions or deletions to the scope of the program specified in the LOA. If a SC is deferred, cognizant material managers must be advised, in writing, and disposition instructions for received material must be provided to the NSA.

7-5.17 LOA Change Documentation

A SC late addition is requested via official naval message to the Platform TYCOM. The SC must be fully mature or have an approved impact assessment prior to release of the naval message. All other changes to the LOA must be documented by an official serialized letter. Changes will be made for SC additions or deletions, material changes, availability date changes that are over 30 days, availability type changes, and to cancel letters when the availability has changed fiscal years or activity.

The disruptive effect on orderly shipyard planning shall be carefully evaluated IAW Impact Assessment Appendix D, Block 265.4 prior to requesting the Platform TYCOM authorize changes to SCs included in the LOA. The NSA assessment shall be obtained, including the disruptive impact that would result from the proposed change, prior to initiation of the change. Official changes may be required because of reports and information received such as, but not limited to the following:

- Completion information received from the ship and from industrial activities
- Late availability or non-availability of ship plans, drawings, and/or material
- Revisions in cost/funding information
- Change in ship availability
- Additions or deletions of SC by the Platform TYCOM
- Revision to material requirements caused by follow-on SCID development

Each change will include a notification together with a sequence number, stating that it is a change to the LOA; e.g., “This is change No. 1 to my Letter of Authorization Ser xxx-xxxx of 1 August 20xx”.

A change in material requirements subsequent to issuance of the SC Letter of Authorization may constitute a disruptive situation due to inherent procurement lead times. Accordingly, any such change will be conveyed both verbally and in writing to the cognizant material manager and NSA and the change will be entered into NDE-NM.

7-5.18 Distribution

The distribution of these change letters to the original LOA shall be the same as that of the original LOA. Changes with limited distribution may precede the formal change to the LOA.

7-5.19 Change in Activity

If the NSA is changed after the LOA has been issued, the original letter shall be cancelled, and a new letter reflecting all changes required by the reassignment of the availability shall be issued. If a contract has been awarded by one NSA (or NAVSEA) to a contractor within another NSA’s district, the original letter will not be cancelled. The NSA awarding the contract remains the

Procurement Contracting Officer (PCO) and shall turn over all information requirements to the new NSA for administration of the contract. In the case of a NAVSEA contract award, where NAVSEA is the PCO, the Planning Supervisor shall turn over all information to the Administrative Contracting Officer (ACO). Turnover procedures of the PCO to the ACO are delineated in NAVSEAINST 4710.9 Series.

7-5.20 TYCOM Quarterly Installation Scheduling Message (Surface Ships Only)

Develop the TYCOM QISM 60 days prior to the beginning of the quarter and issue 30 days prior to the beginning of the quarter. Condition for inclusion in the Quarterly Scheduling Message is a SC must satisfy all requirements IAW all Hull Readiness Assessments as defined in Subsection 3-6.3 of this manual. Development of the TYCOM QISM will be accomplished IAW the timelines outlined in Table S7- 3.

Table S7- 3 TYCOM Quarterly Installation Message Timeline

EVENT		DATE
1. COMUSFLTFORCOM N602 Electronic Scheduling Effort		Start First Week of the Second Month of the quarter prior to targeted quarter
2. Non-CNO Availabilities entered in NDE		Continuous weekly effort ~ every two weeks
3. AIT Scheduling in NDE-NM		Continuous effort
4. 3rd Fleet Conference / COMUSFLTFORCOM Conference		As Scheduled by respective coast
5. Community completes all scheduling effort for applicable quarter for COMUSFLTFORCOM ships		By Close of business (COB) First Friday.
6. NAVSEA-04R updates NAVSEA approvals in NDE for COMUSFLTFORCOM ships		By COB Friday Second Week.
7. SPMs update SAR, SID, ILS & SPM Approval in NDE for COMUSFLTFORCOM ships		By COB Friday Second Week.
8. SURFPAC & SURFLANT enters TYCOM Authorization for AERs in NDE		By COB Friday Second Week.
9. SURFPAC & SURFLANT pulls and distributes preliminary scheduling message files to community for final review		By Start of business (SOB) on the Monday of the third week.
10. Community completes final review of the preliminary scheduling message files for the applicable quarter		By SOB on the Monday of the fourth week.
11. SURFPAC & SURFLANT together with AIT Community, NAVSEA, NAVSEA-04R & SPMS, resolve issues and make any modification to approvals rising from review process.		Completed by SOB Friday of the fourth week.
12. SURFPAC & SURFLANT pulls final scheduling message files and forward for final review and release.		By COB Friday of the fourth week
13. AIT Scheduling message released		By the first week of the month prior to execution quarter.

SUBSECTION 7-6 MATERIAL AVAILABILITY AUTHORIZATION CRITERIA

7-6.1 Scope

This subsection addresses the material availability criteria for SCs authorized for specific ship availabilities. The authorization of SCs may be contingent upon receipt of Hardware System Command (HSC) or ICP Centrally Provided Material (CPM) at the NSA or the Installing Activity (IA) by SOA. Some SCs are of such significance as to warrant the impacts involved in late material delivery. Such SCs will only be authorized subsequent to receipt of formal concurrence or non-concurrence by the NSA and analysis or review by the cognizant SPM or CNO Platform Sponsor as to the impact of authorization. If the HSC is late in delivering, the following guidance applies.

7-6.2 Obtaining Concurrence/Non-Concurrence

The SPM will advise the NSA of the Best Estimated Delivery Dates (BEDDs) of the SC HSC and request concurrence/non-concurrence for HSC that will be delivered after the SOA or A-60 availability milestone.

The NSA will evaluate the BEDDs and advise the SPM of concurrence/non-concurrence.

In cases of non-concurrence, the NSA will provide a brief impact statement of problems anticipated and provide a Latest Acceptable Delivery Date (LADD).

7-6.3 Non-Concurrence

Authorization of SCs for which the NSA does not concur will normally be deferred unless:

- The criticality of the SC is considered to warrant authorization over the objections of the NSA. The SPM will prepare a written analysis and recommendation for consideration by the PARM, Availability Project Manager and the TYCOM as applicable.

The SC is a Proposed Military or Survivability Improvement (PMI/PSI) and the SPM considers the impact excessive. In this case, the SPM will obtain direction from CNO for consideration by the PARM, Availability Project Manager and the TYCOM as applicable.

SUBSECTION 7-7 SUBMARINE PLANNING AND SHIP CHANGE AUTHORIZATION LETTER

7-7.1 Scope

This subsection of the Navy Modernization Program (NMP) One Book addresses the issuance of Planning and Authorization Letters for Submarines for the accomplishment of Title "K" and "KP" Ship Changes (SCs) and Ordnance Alterations (ORDALTs) during a CNO availability. Title "D" and Title "N" SCs for submarines are authorized by the Type Commanders (TYCOMs) in accordance with Section 9 of this manual.

Authorization, as used herein, is an action by a properly designated authority to direct that a specified alteration be accomplished. The following guidance and procedures provide for the development and issuance of Planning and Authorization Letters for alterations installation.

7-7.1.1 Background

Planning Letters shall be provided by the cognizant Ship Program Manager (SPM) 24 months (A-24) prior to the start of the CNO Availability to the Naval Supervising Activity (NSA) or Lead Maintenance Activity (LMA), and when applicable to the Ship Availability Planning & Engineering Center (SHAPEC). The SPM will also provide appropriate advance planning funds to Naval Shipyard (NSY), Naval Ship Repair Facility, or Supervisor of Shipbuilding, Conversion, and Repair (SUPSHIPs) as appropriate. The NSA/LMA and SHAPEC are advised of the planned alterations for installation to facilitate necessary shipchecks and other planning efforts. Material to be provided by the NSA or SHAPEC will be reviewed, and procurement action will be initiated for that material identified as Long Lead Time Material (LLTM). NMP installation funds are provided for Advance Planning (AP) in accordance with Section 4 of this manual.

7-7.1.2 Preparation of Planning Letters

In preparing a Planning Letter, the SPM shall:

- List all Title "K", "KP" SCs and ORDALTs, including Alteration Installation Team (AIT) Installations that have been programmed in the Navy Data Environment-Navy Modernization (NDE-NM) for installation on a specific ship scheduled for an CNO availability
- Request cost estimates for executing activity alterations to support Advance Planning (AP) actions for LLTM and to identify the portion of the installation funds that is for use during AP for ordering or fabricating newly-identified LLTM (stock numbered) listed or not listed in NDE-NM or undergoing National Stock Number (NSN) assignment (non-standard), from NSA/LMA and SHAPEC or Planning SUPSHIP/Shipyard
- Provide a cost estimate for the installation of each executing activity programmed ship alteration
- Designate those SCs representing high management risk due to known problems in design guidance and equipment or LLTM availabilities; indicate responsible activities and actions required to support acceptable planning milestones
- Identify AIT Managing Activities

7-7.1.3 Funding

The following statement shall be included in all Planning Letters: "This letter does not authorize the use of funds or commencement of related tasks nor is it to include any effort that will potentially obligate funds. Only the valid funding document in support of this letter releases funds and authorizes commencement of effort."

7-7.1.4 Material

The SPM shall identify in the Planning Letter all material that requires early shipyard action to obtain that is contained in NDE-NM for each executing activity alteration. SPM can either provide a NDE-NM 4720 Report, which lists all material requirements for executing activity "K" and "KP" alterations or provide a material status assessment paragraph in the Planning Letter or as an enclosure that addresses material problems.

7-7.1.4.1 Material Listing Not Provided

If the SPM does not provide a listing of material requirements, the NSA/LMA and SHAPEC can obtain a listing from the NDE-NM database. Items listed on the NDE-NM 4720 Report should be checked against the material requirements information contained in the SC Alteration Material List (AML), which is updated during alteration development. In cases where material is statused, kitted and provided, the NSA/LMA and SHAPEC is not required to review NDE-NM 4720 Report.

7-7.1.4.2 Modification of Material Requirements

If material requirements must be modified, the NSA/LMA and SHAPEC will immediately notify the cognizant SPM and Planning Yard (PY) in writing. After validation of the requirement, the SPM must then update the material requirements in NDE-NM as appropriate. Submit requests for material modifications to the appropriate PY using the Liaison Action Record (LAR) process and provide an information copy to the SPM.

7-7.1.5 Changes to the Planning Letter

Additions to the Planning Letter subsequent to the A-24 initial issue shall be approved in accordance with the following procedures.

7-7.1.5.1 Assessment

The disruptive effect on orderly planning shall be carefully evaluated prior to adding programmed SCs to the Planning Letter. The NSA assessment shall be obtained, including the disruptive impact that would result from the proposed change, prior to addition of the change. Each change shall include a notification, together with a sequence number, stating that it is a change to the Planning Letter; e.g., "This is a Change No. 1 to Planning Letter Ser xxx-xxxx of 1 October 200x."

7-7.1.5.2 Distribution

The distribution of these change letters to the original Planning Letters shall be the same as the original Planning Letter.

7-7.1.5.3 Change in Activity

If the NSA/LMA is changed after the Planning Letter has been issued, the original letter will be cancelled, and a new Planning Letter reflecting all changes required by the reassignment of the availability will be issued.

7-7.2 SC IMPACT ASSESSMENT LETTERS

7-7.2.1 Scope

This subsection addresses SC Impact Assessment Letters which are required for any SC additions to a CNO availability after the A-24 planning letter is issued.

7-7.2.2 Background

Impact assessment letters are required to be sent to the NSA/LMA, copy to TYCOM, when a new SC is added to the CNO availability after the issuance of the A-24 Planning Letter requesting the NSA/LMA advise of any impact in funds or delay in availability due to the addition of the SC(s).

7-7.2.3 Preparation of the Impact Assessment Letters

Once an SC is identified as being added to the CNO Availability after issuance of the A-24 Planning Letter, the Impact Assessment Letter should be prepared to the NSA/LMA requesting an impact assessment to funding and availability timeframe from the addition of the SC(s). The SC will be identified along with an SC Point of Contact (POC) that can be contacted if the NSA/LMA requires additional information on the SC to make the assessment.

7-7.2.4 Response to the Impact Assessment Letters

If the NSA/LMA responds that there is no impact, the SCs can then be added via a change letter to either the Planning Letter or Authorization Letter, depending on which document is the current letter.

If the NSA/LMA responds that there is an impact, the SC addition must be presented to the Undersea Enterprise (USE) Board of Directors (BOD) for approval before the SC can be added to the availability modernization work load.

7-7.2.5 USE BOD

Any SC that has an impact to the availability but is still desired must be presented to the USE BOD for approval. The appropriate Participating Acquisition Resource Manager (PARM) will address the USE BOD with a brief of the SC and the benefits of installing regardless of the impact identified by the NSA/LMA. The USE BOD will make the final determination as to whether or not the SC may be added to the availability. If the USE BOD approves, the decision will be reflected in the board minutes and the SC will be added via a change letter to the current Planning or Authorization Letter.

If the USE BOD disapproves, the SC will not be added to the CNO availability and no change letter will be issued.

7-7.3 SC AUTHORIZATION LETTERS

7-7.3.1 Scope

This subsection addresses SC Authorization Letters which specify to the NSA/ LMA the Headquarters Sponsored alterations which include Title “K”, “KP”, and ORDALTs which are to be accomplished during a specific ship availability. They are issued by the cognizant SPM at A-12 or as late as A-6 with agreement from the applicable NSA and contain a list of all authorized SCs, material status, development status of the alteration, funding information and pertinent instructions. When proofing of programmed alteration(s) by the PY is required, authorization is to be provided in these letters. The SPM shall forward separate SC Authorization Letters for each ship scheduled for a CNO availability to the cognizant NSA/NSY or SUPSHIP at A-12 or as late as A-6 with agreement from the applicable NSA.

7-7.3.2 SC Authorization Letter Purpose

- Authorize the installation of an alteration on a specific hull
- Provide the authorization for those alterations specifically programmed for accomplishment in a particular availability in the NMP by the CNO. Alterations to be installed by an AIT are also listed and the AIT activity is identified
- Provide the NAVSEA planning estimates for the alterations authorized by the SPM. This is to include total planning estimates of funds identified in the SC Authorization Letter for Title “K” and “KP” executing activity accomplished SCs. These estimates are not to exceed programmed NMP funds
- Provide procurement/requisitioning instructions for the material required for alteration accomplishment utilizing the NDE-NM TP-05 and the NDE-NM 4720 Report that provides material information required for the planning activity to manage the material for the availability
- Provide specific reporting instructions on estimated manday and dollar expenditure rates, material costs for SCs, and required program reports in accordance with NMP Financial Management Procedures contained in Section 4 of this manual

7-7.3.3 Preparation of the SC Authorization Letter

In preparing the SC Authorization Letter, the following tasks are required by the SPM:

- **Task #1**. Extract and review the NDE-4720 Report applicable to the ship and alteration package to ensure that it reflects current material requirements from previous documents (i.e. SC, Ship Installation Drawings (SIDs), etc). The SPM should initially review NDE-NM material data at A-16 and update the report as needed. The NDE-NM 4720 Report will identify all known alteration material requirements meeting NDE-NM entry criteria for each Title “K” and “KP” SC programmed for a given ship. The NDE-NM 4720 Report should be compared with the information gained during AP
- **Task #2.** Insert or update material requirements in NDE-NM as necessary. The SPM, in conjunction with the appropriate technical code, will approve or disapprove any substitutions offered by material managers. This action will be completed by A-12. The SPM must review the recommended changes and upon approval update the NDE-NM Bill of Material. The SPM must also determine if additional items will be required on other ships of the class scheduled to receive the alteration. This determination may require a review of applicable

Ship Selected Records (SSRs) and SIDs to verify the need for the requirement on other ships. Information obtained from this review will be entered into NDE-NM as appropriate in accordance with NDE-NM entry criteria

- **Task #3.** Prepare the draft SC Authorization Letter. The SPM prepares the draft SC Authorization Letter No Later Than (NLT) A-12. Usually enclosed in the SC Authorization Letter is the NDE-NM 4720 or specific directions to retrieve it from NDE-NM
- **Task #4.** Sign and release the SC Authorization Letter to applicable LMA/NSA SHAPEC, PY, the ship and TYCOM. If centrally provided Title "K" , "KP" SC material requirements are expected to be available at the NSA/LMA by the Start of Availability (SOA), the SC Authorization Letter will be signed by the SPM and released in time to arrive at the NSA/LMA, SHAPEC and PY NLT A-12 or as late as A-6 with agreement from the applicable NSA. This letter will include a NDE-NM 4720 Report or a statement that this report is complete and the NSA/LMA and SHAPEC are authorized to extract it from NDE-NM

7-7.3.4 Changes to SC Authorization Letters

Changes, cancellations, deletions, or additions to the SC Authorization Letter shall be approved in accordance with the following procedures.

7-7.3.4.1 Approval

The USE BOD must approve any additions or deletions to the scope of the program specified in the SC Authorization Letter. If a SC is deferred, cognizant material managers must be advised, in writing, and disposition instructions for received material must be provided to the NSA/SHAPEC**.**

7-7.3.4.2 Funding

The following statement shall be included in each SC Authorization Letter:

"This letter does not authorize the use of funds or commencement of related tasks nor is it to include any effort that will potentially obligate funds. Only the valid funding documents in support of this letter release funds and authorizes commencement of effort."

7-7.3.4.3 Changes

Changes to SC Authorization Letters must be documented by an official serialized letter. Changes will be made for alteration additions or deletions, material changes, availability date changes that are over 30 days, availability type changes, and to cancel letters when an availability has changed fiscal years or activity. The disruptive effect on orderly shipyard planning shall be carefully evaluated prior to authorizing changes to programmed SCs included in the SC Authorization Letter. The NSA/LMA assessment of SUBSECTION 7-2 shall be obtained for addition of SCs, including the disruptive impact that would result from the proposed change, prior to addition of the change.

Official changes may be required because of reports and information received such as, but not limited to the following:

- Completion information received from the ship and from industrial activities
- Late availability or non-availability of ship plans, drawings, and/or material

- Revisions in cost/funding information
- Change in ship availability
- Additions or deletions of SCs by CNO
- Revision to material requirements caused by follow-on SID development

Changes to the SC Authorization Letter will include material availability information. If there are no changes in material status the SC Authorization Letter changes will include a statement to that effect.

Each change will include a notification together with a sequence number, stating that it is a change to the SC Authorization Letter; e.g., "This is change No. 1 to Authorization Letter Ser xxx-xxxx of 1 August 20xx".

All change documents will include appropriate modifications to the SPM planning estimate as shown in the basic SC Authorization Letter or a statement that no change is being made to the planning estimate.

A change in material requirements subsequent to issuance of the SC Authorization Letter may constitute a disruptive situation due to inherent procurement lead times. Accordingly, any such change will be conveyed both verbally and in writing to the cognizant material manager and NSA/LMA and SHAPEC and the change will be entered into NDE-NM.

7-7.3.4.4 Distribution

The distribution of these changes letters to the original SC Authorization Letter shall be the same as the original SC Authorization Letter. Changes with limited distribution may precede the formal change to the SC Authorization Letter.

7-7.3.4.5 Change in Activity

If the NSA/LMA is changed after the SC Authorization Letter has been issued, the original letter shall be cancelled, and a new letter reflecting all changes required by the reassignment of the availability shall be issued.

In the case of submarine CNO availabilities conducted by a private shipyard under a SUPSHIP, all work including alterations are identified in the availability work package which forms the basis for bid solicitation and eventual contract award by the NAVSEA Contracting Officer. Planning and Authorization Letters are not issued.

7-7.4 MATERIAL AVAILABILITY AUTHORIZATION CRITERIA

7-7.4.1 Scope

This subsection addresses the material availability criteria for Title "K" and "KP" SCs authorized for specific ship availabilities. The authorization of Title "K" and "KP" SCs may be contingent upon receipt of Headquarters Centrally Provided Material (HCPM) or Centrally Provided Material (CPM) at the NSA/LMA or the Installing Activity (IA) by SOA. For submarine Depot Modernization Periods (DMPs), the milestone is A-2. Some Title "K" and "KP" SCs are of such significance as to warrant the risks involved in late material delivery. Such SCs will only be authorized subsequent to receipt of formal concurrence or nonoccurrence

by the NSA//LMA and analysis or review by the cognizant SPM or CNO Platform Sponsor as to the risk of authorization. If the HCPM is late in delivering, the following applies.

7-7.4.2 Obtaining Concurrence/Non-Concurrence

- SPM will advise the NSA//LMA of the Best Estimated Delivery Dates (BEDDs) of the SC HCPM and request concurrence/non-concurrence for HCPM that will be delivered after the SOA or A-2 milestones.
- NSA/LMA will evaluate the BEDDs and advise the SPM of concurrence/non-concurrence. In case of non-concurrence, the NSA/LMA will provide a brief impact statement of problems anticipated and provide a Latest Acceptable Delivery Date (LADD).

7-7.4.2.1 Non-Concurrence

Authorization of SCs that the NSA//LMA does not concur will normally be deferred unless:

- The SC is considered to warrant authorization over the objections of the NSA/LMA. The SPM will prepare a written analysis and recommendation for consideration by NAVSEA 04, the Life Cycle Manager (LCM), and the TYCOM
- The SC is a Proposed Military or Survivability Improvement (PMI/PSI) and the SPM considers the risk excessive, the SPM will obtain direction from CNO for consideration by NAVSEA 04, the Life Cycle Manager (LCM), and the TYCOM

SUBSECTION 7-8 PRE-INSTALLATION CHECK OUT (PICO)

7-8.1 Background

This subsection of the Navy Modernization Process Management and Operations Manual addresses Pre-Installation Check Out (PICO) requirements, responsibilities, and process. PICO shall be conducted as determined by the PARM/ISEA when alterations/Ship Changes modify or relocate existing equipment or systems, including modifications that affect existing interfaces between systems. For PICOs, TYCOM coordination and approval is required.

7-8.2 Purpose

PICO is conducted in order to validate the operational status and characteristics of the equipment, systems and interfaces affected by the installation. PICO events support the establishment of clear responsibilities for maintenance and modernization communities. They also serve to identify existing discrepancies which, if uncorrected, could delay or prevent the installation of the alteration/SC or the post-installation System Operational Verification Test, providing stakeholders with confidence in the post-production System Light Off and SOVT schedules. PICO ensures that pre-installation component, system, or interface discrepancies are identified and planned for resolution. PICO also supports the early identification and planned availability of spare parts and technical assistance that may be required.

7-8.3 Execution

PICO may be coordinated via two methods:

- PICO events may be coordinated between individual PARM/ISEA/Installing Activity and Ship's Force via TYCOM.
- At the discretion of the Regional NSA/Lead Maintenance Activity (LMA)/RMC, a consolidated PICO event may be coordinated as part of the Availability Advance Planning process, led by a locally-designated PICO Coordinator.

Regardless of coordination method, all required PICOs shall be completed prior to start of installation.

The PARM/ISEA/Installing Activity shall specify the scope of PICO requirements via the following ways:

- PMS-Based PICO. PARM/ISEA/Installing Activity, via TYCOM, may request Ship's Force complete PICO. Ship's Force PICO testing shall be limited to current Ship's Force PMS. The PARM/ISEA/Installing Activity shall determine whether the PICO event shall be witnessed and assisted by the Installing Activity or other Subject Matter Expert (SME).
- Non-PMS Based PICO. Any non-PMS based PICO requirements shall be provided to the Installing Activity by the cognizant Program Office/ISEA/PARM in accordance with Appendix G. Responsibilities for conducting and witnessing of non-PMS PICO testing shall be coordinated in advance and documented in a POA&M/MOA.

7-8.4 PARM Responsibilities

PARMs, or their government installation agent, are responsible for identifying PICO requirements to the NSA/LMA. This includes:

- List of systems planned for PICO
- Coordinate with In-Service Engineering Agent (ISEA)/SME for development of PICO requirements for targeted systems
- Provide PICO support and test requirements, as well as the test plan, if required
- Identify satellite access, keymat and requirements for interfacing systems
- Develop cost estimates and fund any required technical support or witnesses for PICO accomplishment
- Confirm PICO dates with ship/TYCOM and SME
- Include PICO requirements in pre-installation messages
- Identify SME, if required (A-90 target)
- Finalize PICO test plan (A-90 target)
- Conduct a PICO in-brief, if required
- Conduct PICO (target A-60 to A-30)
- Generate a PICO completion report message IAW Appendix H, ensuring Plain Language Address Designators (PLADs) for ALCON are included. The message will be released by the ship by PICO completion +14 days (+30 days for submarines).

The PARM shall ensure PICO requirements are coordinated with the NSA/LMA and ship in accordance with Table S7-4.

7-8.5 NSA/LMA/Fleet Responsibilities

The TYCOM or TYCOM-designated representative shall coordinate the PICO test schedule and execution with the NSA/LMA/ship. For all installations, AIT and Non-AIT, Ship's Force will ensure repair requirements are documented in the ship's CSMP and coordinate work with the NSA/LMA. Additional reporting requirements for AIT installations can be found in Appendix B of reference (b).

Table S7-4 Consolidated PICO Event (Notional Timeline (for MSMO CNO Avail))

Consolidated PICO Event

Notional Timeline (for MSMO CNO Availability)

When	Requirement	Responsibility
A-135	Provide scope of PICO testing requirements to NSA	PARMs & AIT Manager
A-120	Confirm PICO start date (P-0) and duration; target accomplishment between A-60 and A-30	NSA, Installing Activities & Ship
A-90	Identify ISEA/SME and provide PICO test plan	PARMs & AIT Managers
P-7	Conduct ship's in-brief, if required	Installing Activities & Ship
P-0	Perform PICO testing	Ship, PARM, ISEA or Installing Activities, as required
P+5	PICO results out-briefed	PARM, ISEA or Installing Activities, as required
P+14	Document PICO results	PARM, ISEA or Installing Activities, as required
A-30	Screen new work and integrate into availability schedule, as applicable	Ship & NSA

SECTION 8 NAVY DATA ENVIRONMENT (NDE) SYSTEM

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References

S8(a) COMFLTFORCOMINST 4790.3 Series Joint Fleet Maintenance Manual (JFMM)

SUBSECTION 8-1 INTRODUCTION TO NAVAL DATA ENVIRONMENT

8-1.1 Scope

This section addresses the Navy Data Environment System (NDE). Fleet Modernization Program Management Information System (FMPMIS) was established under the direction of the Chief of Naval Operations (CNO) N43 in coordination with the Fleet Commanders (FLTCDRs) and was designated by reference S8(a) as the official Automated Information System (AIS) supporting the Fleet Modernization Program (FMP) and replaced by the NDE module in 2002. NDE was designed as an enterprise data model to integrate and merge existing modernization, maintenance, and logistics legacy data structures into a single design. The objective of NDE is to consolidate Fleet Modernization Business Processes and legacy Data Systems. The following applications have been merged into the NDE common model: FMPMIS (Logistics Module) and Alteration Installation Planning System (AIPS) became (NDE-NM), FMPMIS Program Module and FMPMIS Execution Modules became (NDE Program & Execution Modules respectively), Afloat Master Planning System (NDE AMPS Module), Integrated Logistics Support (ILS) Cert/Master List Module. The following systems replicate data and interface with NDE to share alteration, scheduling, material, and financial data: NDE-SPAWAR Integrated Data Environment (NDE-SIDE), and Configuration Data Managers Database-Open Architecture (CDMD-OA). The following systems will replicate data and interface with NDE to share alteration, scheduling, material and financial data: Type Commander (TYCOM) Alteration Management System (TAMS) and Integrated Modernization Planning for Aircraft Carriers (IMPAC).

The NDE databases contain data relative to all alterations; including ship overhaul schedules, material, ILS requirements and design support requirements, and related financial data. NDE is sponsored by CNO and managed by the Naval Sea Systems Command (NAVSEA) FMP Program Office (NAVSEA 04RP).

The Deputy Commander for Nuclear Propulsion, NAVSEA 08, is responsible for all technical matters pertaining to nuclear propulsion of US Navy ships and craft, including all aspects of integration of the nuclear plant into the ship system. Nothing in this manual detracts in any way from these responsibilities. Accordingly, NAVSEA 08 will be consulted in all matters relating to or affecting the nuclear propulsion plant and associated nuclear support facilities. In addition, the procedures and requirements in this section are not applicable to alterations under the cognizance of NAVSEA 08. Strategic Systems Program Alterations (SPALTs) affecting the configuration and/or capabilities of systems and equipment are under the cognizance of the Director, Strategic Systems Programs (DIRSSP). Alterations affecting configuration of firmware and support equipment of the TRIDENT System (including the SSBN 726 Class submarines) are under the cognizance of NAVSEA PMS392 and are exempt from this manual.

8-1.2 Background

The purpose of the NDE is to provide an automated, integrated information support system to enhance the decision-making capabilities of Modernization managers. The primary objective of NDE is to provide timely information to the FMP/Navy Modernization Process (NMP) community that supports planning, programming, budgeting, management, and execution of the

NMP. NDE is the official automated system providing information for Modernization managers throughout the Navy. Major users of NDE are CNO, FLTCDRs and TYCOMs, Hardware Systems Commands (HSCs), Material Managers, Design Agents (DAs), Planning Yards (PYs), Ship Program Managers (SPMs), Program Managers (PMs), ILS Managers, In-service Engineering Agents (ISEAs), Life Cycle Managers (LCMs) and Industrial Activities.

The purpose of NDE is to provide a web enabled enterprise data model to integrate and merge existing modernization, maintenance, and logistics legacy data structures into a single design to enhance the decision-making capabilities of Modernization managers. The primary objective of NDE is to consolidate Fleet Modernization Business Processes and Data Systems into a single architecture to provide timely information to the FMP/NMP community that supports planning, programming, budgeting, management, and execution of the NMP.

The NDE environment consists of client and web applications, business objects, and an enterprise data model that support those applications.

The objective of the Navy's ship maintenance program is to perform all necessary maintenance consistent with available funding and provide reasonable assurance that ships will be available for deployment and required operations. Ship maintenance, conducted during periods the Navy calls availabilities, includes three types of requirements: time-directed, condition-based, and modernization. Time directed requirements include those that are periodic in nature and are based on elapsed time or recurrent operations. The ship's crew or inspection teams usually identify condition-based requirements, which are based on the physical conditions of the ship. Modernization requirements include changes that either add new capability or improve reliability and maintainability of existing systems. When implemented NDE EP Website will improve and consolidate the steps required by automating the process, provide Cost Benefit Analysis (CBA), incorporate voting by Decision Boards, and enhance procedures involved in the NMP and Ship Modernization Program. NDE goals are to reduce Cost of Operations for FMPMIS and AIPS, provide total visibility of all ship change data and provide secure access to all Navy activities that have a requirement for reviewing ship change information. Current procedures for maintenance or modernization of a ship change require a submission of a 2-Kilo request for work to be authorized and/or performed onboard a ship. Upon completion, the request is recorded, documented and tracked on the Current Ship Maintenance Project (CSMP). The CSMP is a history of all the current projects, deferred maintenance, work orders and modernization request that have been submitted for action to the Maintenance, Material, and Management (3M) Department and the SPM. The 3M Department coordinates Planned Maintenance System (PMS), the Navy's method to plan, schedule and perform preventive maintenance; monitors the Organizational Maintenance Management System (OMMS), the system that collects and reports corrective maintenance actions; and maintains the Ship's Equipment Configuration files and the CSMP. Traditionally, the Navy has used 2 Kilo's and CSMP reports as the primary tools for generating maintenance of the fleet. The new NDE-NM module will introduce a new system that has been designed to automate and manage this process. The NDE-NM Entitled Process Module is a progressive elaboration of a proposed Ship Change Document (SCD). There are two types of SCDs, Fleet and Program. Fleet SCDs are funded by the TYCOMs, and a System Command (SYSCOM) or Program Executive Office (PEO) funds Program SCDs. The SCD is now the change input vehicle for the single authoritative web-enabled database, NDE. NDE and the SCD comprise a single modernization database and entry point for all changes. NDE

integrates and merges modernization, maintenance, and logistics structures into a single architecture system that provides timely ship change information that supports planning, programming, budgeting, management, and execution of the modernization process.

8-1.3 Policy Linking Modernization and NDE

The Ship Change development process is linked to selected support capabilities of NDE. As a result, certain major Modernization activities are keyed to NDE as a matter of policy. For example:

- The programming of a SC in NDE (Program and Execution Modules) constitutes authority for material managers to initiate material procurement in support of that SC. It further allows the SPM to provide funds to the PY to prepare SC Installation Drawings (SIDs) for the Legacy Title “K” and “K-P” SHIPALTs
- Ship Changes (SCs) are considered "programmed" in NDE (Program and Execution Modules) when they are scheduled for accomplishment on a specific hull during a designated availability
- NDE is the official information base for Modernization management
- NDE is the single official source for Modernization material management data
- NDE (Program and Execution Modules) indicates which SCs are budgeted
- NDE (Program and Execution Modules) indicates which funding document funded the SC installation cost

SUBSECTION 8-2 SUBSYSTEMS

8-2.1 Background

NDE consists of multiple subsystem modules tied together into one federated system with the NDE-NM module being the key subsystem. NDE has combined these functions, into one Graphical User Interface (GUI) client/server system built on a single unified database. Substantial efficiencies and increased effectiveness have been realized through combining the databases and upgrading the management tools to better meet the information requirements of the US Navy. These functions and responsibilities are described in further detail in subsections 8-2.2 and 8-2.3. NDE continues the basic policies that legacy FMPMIS is the official, authoritative repository for Modernization planning information and that access to Modernization data shall be exercised using approved and secure access methods or intersystem interfaces.

8-2.2 NDE Program and Execution Modules

The NDE Program and Execution Modules combine the functions of both the legacy FMPMIS Program and Execution Modules. The functionalities of these modules may expand to include all alterations under the Entitled Process.

The Program module of NDE is a tool that produces detailed financial compilation data required for Modernization budget submissions; provides automated program/fiscal scenarios used to adjust program budgets to remain within controls by utilizing current planning information incorporated in NDE-MP. The module allows planners to explore various combinations for assigning allocated funds, comparing projects for greatest overall effectiveness, and conducting "what-if" projections to balance identified needs. The programming of a SC in constitutes authority for material managers to initiate material procurement in support of that SC. It further allows the SPM to provide funds to the PY to prepare SIDs for the Legacy Title "K" and "K-P" SHIPALTs.

The Execution module of NDE provides an electronic workflow environment that processes approximately 5000 funding documents each year. The module supports financial planning, funding document preparation, cash management, budget change and tracking, and reporting. It promotes the accuracy of funding by validating funding documents against remaining budget, and promotes the timeliness of funding for availabilities through the systematic production of the funding documents.

The Execution module is comprised of six major subsystems, which correspond to primary Modernization budget execution functions.

- The Document subsystem supports the processing of the funding documents, and allows users to create, approve, and transmit funding documents
- The Plan subsystem allows users to enter the Obligation Plan for the Fiscal Year (FY)
- The Cash subsystem supports the Modernization offices entry of the cash (apportionment) received, and tracks financial status by automatically debiting/crediting the Chief of Naval Operations (OPNAV) Program Sponsor/SPM account when documents are issued

- The Control subsystem supports the entry of budget control data
- The Program subsystem allows users to enter current estimates for availabilities, and view the Shipsheet and Separate Funding Line (SFL) Summaries
- The reports subsystem allows users to report information in the Execution module

8-2.3 Modernization Plan Module (NDE-MP)

Based on the results of the Decision Boards, approved SCDs are used for the development of a comprehensive MP to fulfill Navy requirements. Once a SCD's funding profile has been entered into the MP, the PARM/SYSCOM can begin scheduling.

8-2.4 NDE-NM Module

NDE-NM is a tool that tracks and maintains logistical data for modernizing ships in the Navy. The purpose of NDE-NM is to store all the engineering information, materials, equipment and management support required to perform modernizations in the right place at the right time. This includes alteration information, automated tracking of materials usage and requirements, alteration scheduling and completion status and detailed shipyard scheduling.

During initiation of the SCD, fielding data be entered into the Fielding Plan. Once the SCD has been approved and placed into the MP, NDE-NM must be updated for scheduling of the Sites (ship/shore) applicable to the SCD. Scheduling in NDE-NM must match SCD Fielding Plan.

For SCDs identified as equipment modifications (or software only changes), the cognizant PARM must create the appropriate legacy alteration record in NDE-NM in order to schedule the SC.

Condition Based Fleet SCs (as defined in subsection 3-12) are not part of the MP, but will be scheduled by the TYCOM as the need arises. Standard Work Statements for the repair of the affected components shall include reference to the Condition Based SC. The Condition Based SC will be taken to completion on a particular hull once all installations are complete on that hull. (Note: All SCD actions must have a corresponding action in NM).

8-2.5 ILS Cert/Master List Module

The ILS Certification/Master List (ILS Cert/ML) Module was created and became operational in January 2005. This is a tool that provides the ability to develop, track and maintain a historical electronic repository for all ILS Certifications that are required to be submitted in accordance with the FMP/NMP business process. This module interfaces and links with the NDE-NM (Logistics) Module. The Surface Ships and Carriers Entitled Process for Modernization Management and Operations Manual identifies the SPM's responsibilities to oversee all of the logistics aspects of Modernization for their assigned ship classes. The ILS Certification Form/process is used to identify the requisite ILS products. The ILS Certification Form represents the most expedient means for a SPM to fulfill its responsibilities to oversee all of the logistics aspects of Modernization for their assigned ship classes. Major users of ILS Cert/ML are SPMs, SYSCOM, ILS Managers, ISEAs, LCMs, TYCOMs, and PYs.

8-2.6 NDE SPAWAR Integrated Data Environment (NDE-SIDE)(SPIDER)

NDE-SIDE is a tool that aligns and integrates SPAWAR and NAVSEA business processes, applications, and data. The goal is to enter the data once, store the data in a common environment, and use the data across applications. This promotes data convergence and assures data interoperability across processes and applications. It also allows the establishment of authoritative data sources and greater traceability of data for accuracy and quality, while providing for data deconfliction. NDE-SIDE provides this convergence through a shared data architecture that supports web-based applications and interfaces. The information in SPIDER shall comply with the requirements of the NMP.

8-2.7 Afloat Master Planning System (NDE-AMPS)

AMPS is a web-based, Program Manager-centric record of Combat Systems and Command Control, Communications, Computers, Surveillance and Reconnaissance Intelligence (C5I) systems and software present in and planned for installation aboard afloat units (both new construction and active) and connected shore elements affecting a Battle Force (BF). Its primary design is to support the FLTCDR Fleet Response Plan (FRP) process specified in the joint CINCPACFLT/CFFC Instruction 4720.3A. AMPS is the FLTCDRs tool for displaying and controlling, through electronic change control, the systems and software that deploy with a Battle Force. AMPS includes traditional Navy (NAVSEA, NAVAIR & SPAWAR) shipboard systems, embarked airwing and aircraft systems, embarked USMC systems, and systems from other Department of Defense (DoD) origins. All systems are associated with owning commands, and the people in those commands. All data entries are date-time stamped and credited to the particular authorized people that made those entries. AMPS does not include all systems or subsystems, but only those that influence a warfighting capability of the ships, Battle Force Interoperability (BFI), or are of special Fleet interest.

8-2.8 NDE-NM Entry (Non-Permanent Change (NPC) Surface Ships and Carriers only):

Upon Decision Point 1 or 2 SCD approval, the applicable SPM will enter the Non-Permanent Change (NPC) into NDE-NM database as a Legacy TEMPALT. There will be a generic system entry made for each NPC and then further subdivided into two separate entries by the SPM. One entry will be identified by “TMP” to indicate the installation and another entry by “RMV” for the removal. "TMP" and "RMV" will be included in the "Alteration Identifier" (combined with the 5-digit SC number) and "Alteration Type" columns. Both entries will be made for each separate platform hull that is applicable to the SCD. C5IMP baseline approval as documented in 4720.3 series, is required for SFI CAT 1 and CAT 2 NPCs.

8-2.9 Software/Firmware Changes that are being Back Fitted (Surface Ships and Carriers Only)

Process Guidance for Documenting in NDE-EP and NDE-NM Software/Firmware Changes that are being Back Fitted on Systems that have already been previously Installed and Closed out at the Hull Level without having to Submit a New Ship Change Document (SCD).

- NDE-EP action

  - Revise the SCD Phase IV submission block as required and include a statement regarding the Rev (patch) change
  - Modify CBA worksheet with additional funding lines and installation costs that support back fitting the new revision on hulls requiring the new Rev (patch)
  - Modify CBA fielding to add the ships that require the new Rev (patch)
  - Resubmit to Resource Sponsor / Decision Board
  - Update Material Management List (MML)
- NDE-NM action
  - Create NDE accomplishment record revision for those ships that require the back fit Rev (patch). For example SWD 70001 REV 1 with applicability for all the required hulls
  - Remove original applicability (SWD 70001 Rev 0) for ships if required
  - Ensure Section B of the ILS certification is updated to reflect the correct Rev (patch) being delivered
- C5IMP action
  - For patches that are categorized SFI 1 and 2, submit software only eCCB to document software baseline change as required

8-2.10 NDE-NM Data Responsibilities

NDE-NM data may be changed when authorized by the cognizant office as illustrated in Table S8-1 as an example.

Table S8- 1 NDE-NM DATA AUTHORITY

RESPONSIBLE OFFICE	TYPES OF DATA AUTHORIZED TO CHANGE
CNO (N43)	Overhaul schedules (CNO Controlled) Program SCs Installation funds for SCs Man-day rates as provided by NAVSEA 01 and 04X
TYCOMS (for assigned ships)	Availability schedule (DRAV, CMAV, IMAV, PRV, RAV, TAV, TOA) Fleet SCs TYCOM SC completion status
SPMs (for cognizant ship classes)	Creation/Maintenance of SCs SC technical data Installation requirements in man-days Material requirements for SCs SC status SC applicability to a ship ILS requirements SSR update requirements Conjunctive and Concurrent SC requirements
MATERIAL MANAGERS (for assigned material)	Material technical data Material procurement cost Projected material delivery date MILSTRIP data Procurement contract data "Consisting of" data
INSTALLING ACTIVITY (for assigned availabilities)	Cost to install SCs Required material delivery date Man-day cost Requisition Information
PLANNING YARD (for assigned hulls)	SID availability
PARMs/ISEAs	Creation/Maintenance of SCs Conjunctive and Concurrent Equipment SC requirements Accomplishment Start and End Date AIT SC installation accomplishment Start and End Date Days on Site Accomplishing activities Method of Installation

SUBSECTION 8-3 MODERNIZATION APPLICATIONS - INTERFACE WITH NDE

8-3.1 NDE SPAWAR Integrated Data Environment (NDE-SIDE)(SPIDER)

NDE-SIDE is a tool that aligns and integrates SPAWAR and NAVSEA business processes, applications, and data. The goal is to enter the data once, store the data in a common environment, and use the data across applications. This promotes data convergence and assures data interoperability across processes and applications. It also allows the establishment of authoritative data sources and greater traceability of data for accuracy and quality, while providing for data deconfliction. NDE-SIDE provides this convergence through a shared data architecture that supports web-based applications and interfaces. The information in SPIDER shall comply with the requirements of the NMP.

8-3.2 Configuration Data Managers Database-Open Architecture (CDMD-OA)

CDMD-OA is the authoritative database for establishing, and maintaining Ships' configuration, alteration and logistics information by Unit Identification Code (UIC). CDMD-OA's primary objective is to identify actual ships' configuration, track alterations and logistics data, and to provide necessary support to the Fleet.

8-3.3 Submarine Modernization Alteration Requirements Tool (SMART) resident in Naval Tool for Interoperability Risk Assessment (NTIRA) website

SMART/NTIRA: All C5ISR modernization planning is conducted utilizing Submarine Modernization Alteration Requirements Tool (SMART) resident in Naval Tool for Interoperability Risk Assessment (NTIRA) website. SMART is the authoritative scheduling tool for C5I alteration requirements for the Submarine Force. SMART can be found on the NIPRNET for SSN and SSGN and on SIPRNET for SSBN. This tool is used to support C5I alteration planning and scheduling based on documented requirements (primarily the PURL) during C5IMP scheduling conferences. SMART is also the vehicle used to propose the Submarine Force C5I modernization plan to NETWARCOM and COMPACFLT for the NCMC baseline.

SUBSECTION 8-4 MODERNIZATION APPLICATIONS – STANDALONE

8-4.1 Type Commander (TYCOM) Alteration Management System (TAMS)(Currently not integrated)

TAMS is an automated system operated by Submarine Force Type Commanders that contains submarine specific maintenance and modernization information related to alteration authorization, scheduling, designated accomplishing activity, and completion status. It tracks all Alteration and Improvement (A&I) items, TRIDENT Alteration Type Zero (TZ) Improvements, and TRIDENT Alterations (TRIDs) with the exception of Title K non-reactor plant SHIPALTs. TAMS is an instrument by which the TYCOM authorizes and tracks the accomplishment and completion status for nuclear and non-nuclear submarine modernization.

8-4.2 Integrated Modernization Planning for Aircraft Carriers (IMPAC) (currently not integrated, manual data sharing)

IMPAC is a tool used to track and maintain Aircraft Carrier SC scheduling and status information including Naval Nuclear Propulsion Information/No Foreign Access (NNPI/NOFORN) and new construction data (which is currently not included in NDE). This program tracks SC installation schedules, cost estimates, estimate histories, installation histories, guidance data, and funding data. IMPAC is a stand-alone program maintained by the Carrier Planning Activity (CPA) and is not integrated into NDE. IMPAC is used to produce several Aircraft Carrier specific reports such as the “Rainbow Book” for Carrier modernization, and to provide a platform for determining the impact of various scenarios.

Aircraft Carrier information is entered in NDE-MP, NDE-EP and NDE-NM, and then consolidated in IMPAC. All programming and scheduling information in IMPAC is consistent with the information contained in the authoritative databases in NDE. Additional information is added in separate fields in IMPAC to support Carrier-specific needs (for example, Change Requests or SCD Fielding Plan revisions in progress have the new scheduling entered as “recommended programming”).

SECTION 9 SUBMARINE FORCE SHIP CHANGE DESIGN AND DEVELOPMENT PROCESS

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SUBSECTION 9-1 INTRODUCTION TO THE SUBMARINE FORCE SHIP CHANGE DESIGN AND DEVELOPMENT PROCESS

9-1.1 Scope and Background of Section 9

This subsection provides an overview of the Modernization process for Submarine Forces. Modernization practices, processes, procedures and supporting documentation support a disciplined hierarchical decision-making process for submarine modernization.

The Submarine Force Modernization Program has been refined over the years to respond to the unique nature of SSN mission requirements and the strategic nuclear deterrent role of the OHIO Class SSBNs. In order to retain program responsiveness, the Undersea Enterprise (USE) Board of Directors chose not to participate in the Navy Modernization Program Entitled Process. In addition the Submarine Force will continue to utilize the Justification Cost Form (JCF) and the Ship Alteration Record (SAR) in accordance with references S9(ak) and S9(al). Ship alterations (SHIPALTs) for the Submarine Force is comparable to a Surface Ship or Carrier Ship Change (SC).

While there are several process commonalities between SSN and TRIDENT (OHIO Class) SSBN/SSGN ship changes (e.g., prioritization via the Minimum Modernization Matrix, Alteration Installation Team requirements), TRIDENT program unique modernization process requirements are not covered by this document. TRIDENT specific requirements are covered by references S9(a) through S9(e).

9-1.2 Section 9 Exceptions

The Deputy Commander for Nuclear Propulsion, NAVSEA 08, is responsible for all technical matters pertaining to nuclear propulsion of US Navy ship and craft, including all aspects of integration of the nuclear plant into the ship system. Nothing in this manual detracts in any way from these responsibilities. Accordingly, NAVSEA 08 will be consulted in all matters relating to or affecting the nuclear propulsion plant and associated nuclear support facilities. In addition, the procedures and requirements in this section are not applicable to alterations under the cognizance of NAVSEA 08. Strategic Systems Program Alterations (SPALTs) affecting the configuration and/or capabilities of systems and equipment are under the cognizance of the Director, Strategic Systems Programs (DIRSSP). Submarine TEMPALTs are exempt from this manual and shall be processed and approved in accordance with reference S9(f), NAVSEAINST 4720.14 (Series).

9-1.3 References for Section 9

S9(a) OPNAVINST 4000.57 (Series) Logistic Support of the TRIDENT System

S9(b) NAVSEA TL130-AB-PLN-010 (Series) TRIDENT System Change Management Plan

S9(c) NAVSEA T9410-GB-PLN-010 (Series) Configuration Management Plan for the OHIO Class (SSBN/SSGN) Command Control System (CCS/Non-Propulsion Electronics System (NPES)

S9(d) NAVSEA T8501-AF-PLN-010 (Series), OHIO Class Submarine Engineering and Operations Training (EOT) Materials Management Plan

S9(e) OPNAVINST 3502.5 (Series), Policy for Managing the Life Cycle Support of the TRIDENT Engineering and Operations Training (EOT) Program

S9(f) NAVSEAINST 4720.14 (Series), Temporary Alteration (TEMPALT) Program

S9(g) Submarine Force (SUBFOR) Prioritized Undersea Enterprise Requirements Letter (PURL) Standard Operating Procedure

S9(i) NAVSEAINST 5400.57 (Series), Engineering Agent Assignment and Technical Authority

S9(j) NAVSEAINST 5400.61 (Series), Headquarters Engineering and Technical Authority Policy

S9(k) NAVSEAINST 5400.95 (Series), Shipyard, SUPSHIP, and Fleet Engineering and Technical Authority Policy

S9(l) NAVSEAINST 5400.97 (Series), Technical Authority Principles and the Responsibility, Accountability and Authority of the NAVSEA Chief Engineer

S9(m) NAVSEAINST 5400.98 (Series), Warfare Center Engineering and Technical Authority Policy

S9(n) Appendix B, Planning Yard (PY) Assignment Matrix

S9(o) NAVSEA SL720-AA-MAN-010/020 (Series), Fleet Modernization Program (FMP) Management and Operations Manual

S9(p) MIL-STD-1662 (Series), Ordnance Alteration (ORDALT) Instruction, Preparation of

S9(q) NAVSEA 0902-018-2010 (Series), General Overhaul Specifications for Deep Diving SSBN/SSN Submarines

S9(r) NAVSEA 0989-LP-037-2000 (Series), Commissioned Submarine Ships General Reactor Plant Overhaul & Repair Specification

S9(s) NAVSEAINST 7300.14 (Series), Classification of Cost Estimates for Ships

S9(t) Appendix I, NAVSEA Technical Specification TS9090-600 (Series), Ship Alteration Drawing Preparation

S9(u) CINCLANTFLT/CINCPACFLTINST 4720.3 (Series), Management of Afloat Combat Systems and C4I Installations and Improvements

S9(v) Appendix A, NAVSEA Technical Specification TS9090-310 (Series), Alterations Accomplished by Alteration Installation Teams (AIT)

S9(w) NAVSEAINST 4720.11 (Series), Alterations to Ships Accomplished by Alteration Installation Teams

S9(x) COMFLTFORCOMINST 4790.3 (Series), Joint Forces Maintenance Manual (JFMM)

S9(y) NAVSEA Technical Specification TS9090-700 (Series), Ship Configuration and Logistics Support Information System

S9(z) NAVSEAINST 4790.8 (Series), Ships' Maintenance and Material Management (3-M) Manual

S9(aa) NAVSEAINST 4790.14 (Series), Ship Departure and Alteration Completion Reports

S9(ab) Appendix F, NAVSEA Technical Specification TS9090-100 (Series), Liaison Action Record

S9(ac) MIL-HDBK-61 (Series), Configuration Management Guidance

S9(ad) NAVSEAINST C9210.4 (Series), Changes, Repair and Maintenance to Nuclear Powered Ships

S9(ae) NAVSEA Technical Specification TS9090-1500 (Series), Provisioning, Allowance and Fitting Out Support (PAFOS) Manual

S9(af) NAVSEA ltr 63E:BAS, Ser 237 of 19 Oct 83; ASW Engineering Change (EC) Installation Program for Sonar/Acoustic Warfare Equipment

S9(ag) Appendix C, Ship Selected Records

S9(ah) Appendix J, NAVSEA Technical Specification TS9090-800 (Series), Selected Record Drawings

S9(ai) NAVSEAINST 4130.12 (Series), Configuration Management Policy and Guidance

S9(aj) NAVSEAINST 8020.6 (Series), Navy Weapon System Safety Program

S9(ak) NAVSEA Technical Specification TA9090-210 (Series) Justification Cost Form

S9(al) NAVSEA Technical Specification TS9090-500 (Series), Ship Alteration Record Preparation

9-1.4 Submarine Force (SUBFOR) Modernization Ship Change Process Foundation

PEO SUB manages and provides oversight to the Submarine Force Modernization Program in accordance with Undersea Enterprise requirements. They provide strategic direction to the Modernization Program and produce a plan for modernization for inclusion in the Program Objectives Memorandum/Program Review (POM/PR) each year. This is accomplished through the annual Prioritized Undersea Enterprise Requirements Letter (PURL) and associated Minimum Modernization Matrix (MMM). Annual prioritization of submarine modernization is accomplished live at the Submarine Modernization (SUBMOD) Conference by all stakeholders. The annual PURL is issued as a joint letter from both Submarine Force TYCOMs and provides the basis for the official Submarine Force Modernization Program.

9-1.4.1 Prioritized Undersea Enterprise (USE) Requirements Letter (PURL)

9-1.4.1.1 Overview.

The PURL provides an annual prioritized requirements letter to OPNAV Resource Sponsors (RS) as a guide for funding priorities during the development of their respective Sponsor Program Proposals (SPP). The PURL is a significant reference tool which adds value to be used in developing USE inputs to the following processes:

- Resource Sponsor Program Proposals (SPP)
- FFC/PACFLT Component Priority Issue (CPI) input into the COCOMs Integrated Priority List (IPL)
- Mission Capability Pillar (MCP) Gap Assessments
- Experimentation Priorities (EXPLAN/STIMS)
- SUBTECH Research and Development Priorities
- Advanced Joint Concept Technology Demonstrations (ACTD/JCTD)
- CNIC MILCON Integrated Priority List (IPL)
- Readiness Assessment (RA)

9-1.4.1.2 PURL Matrices.

Close coordination between COMSUBFOR, Deputy COMSUBFOR, Resource Sponsors and other USE stakeholders is imperative during PURL development so that Resource Sponsors can use the PURL as a tool to produce an informed SPP that delivers current and future readiness with acceptable risk at acceptable cost. Items on a given matrix should not be duplicated on other matrices. The matrices included in the PURL are listed and described below:

9-1.4.1.2.1 Cost of Doing Business (CODB)

The CODB matrix identifies prioritized USE OPNAV N87 sponsored programs that are necessary for safe operations and basic mission accomplishment.

9-1.4.1.2.2 Readiness Requirements (RR)

The RR matrix prioritizes COMSUBFOR unfunded OPNAV N4 sponsored program requirements. Capability Plan (CP) funded requirements are not included in the RR matrix. Unfunded requirements will be identified as “new” or “at risk” with impact on operational readiness articulated.

9-1.4.1.2.3 Military Construction (MILCON)

The MILCON matrix identifies those MILCON projects that have a direct impact on submarine readiness/ operational availability.

9-1.4.1.2.4 Minimum Modernization Matrix (MMM)

The MMM identifies and prioritizes USE modernization required to maintain safe and reliable mission effectiveness.

9-1.4.1.2.5 Future Capability (FC)

The FC matrix identifies and prioritizes USE future capabilities.

9-1.4.1.2.6 Science and Technology (S&T)

The S&T matrix identifies and prioritizes the top USE prioritized S&T technical challenge areas of interest to ONR.

9-1.4.1.2.7 Commander Naval Meteorological and Oceanographic Center (CNMOC)

The CNMOC matrix identifies and prioritizes the top USE prioritized CNMOC products and services of interest to the USE.

9-1.4.1.2.8 NETWARCOM Current Programs (NWCP)

The NWCP matrix defines prioritizes the current USE prioritized NETWARCOM programs of interest.

9-1.4.1.3 Lead Agents

COMSUBFOR N8 assigns a lead agent to each matrix of the PURL. The Lead agent is the stakeholder in the best position to provide subject matter expertise as well as program level detail to items on their respective matrix. They provide advice and guidance in the development of priorities, and ensure technical and financial challenges are considered. Furthermore, the lead agent is charged with executing the priorities of the Undersea Enterprise.

9-1.4.1.4 Process

The PURL process includes two phases: data collection and prioritization. Detailed business rules which govern the process can be found in reference S9(g), the PURL Standard Operating Procedure (SOP). The PURL SOP is maintained by the Submarine Force TYCOM Staffs and is updated annually to address changes to this dynamic process.`

9-1.4.1.4.1 Data Collection

Data collection will begin with a letter from COMSUBFOR containing specific instructions and a POA&M for the Annual PURL. Data collection starts with the submarine TYCOMs and ends with the lead agent. Each review group is given a minimum of three weeks for review and update. All stakeholders are highly encouraged to make any and all updates during their scheduled review period. Late entries will be accepted but will not be added until the end of the data collection phase. During the initial data update phase, no prioritization will occur.

9-1.4.1.4.2 Prioritization

Once data collection is complete, the Submarine Force TYCOMs will promulgate the prioritization phase schedule that will include principle stakeholders at the O-6 level for each matrix with the exception of the MMM. Each matrix Staff Administrator will be responsible for scheduling and facilitating correspondence and meetings to develop a final smooth, prioritized matrix. Live prioritization of the MMM will occur annually by all stakeholders at the SUBMOD Conference for approval.

The COMSUBFOR Staff Administrator of each matrix is responsible for capturing priorities on each matrix after the prioritization phase. Lead agents shall be invited and encouraged to participate in the final prioritization process (O-6 level), but COMSUBFOR shall be the final adjudicator for conflicts in prioritization.

COMSUBFOR N8 staff shall collate the matrices, develop the cover letter, and print out the final draft of the PURL for presentation to COMSUBFOR and Deputy COMSUBFOR.

9-1.4.1.4.3 Annual Suspense Date

The PURL annual COMSUBFOR/Deputy COMSUBFOR signature date is 15 August.

9-1.4.1.4.4 Process Improvement

Points of contact shall be established on the COMSUBFOR, Deputy COMSUBFOR, and OPNAV staffs to collect data throughout the process to identify process improvements. COMSUBFOR N8 shall be the lead for the process improvement data collection, and will provide more information throughout the process. All feedback is welcomed and will be reviewed and considered as input to lessons learned as the USE continues to prioritize requirements as a single voice across the enterprise.

9-1.4.2 Minimum Modernization Matrix (MMM)

The Annual Undersea Enterprise (USE) Minimum Modernization prioritized requirements matrix (MMM) plays a critical role in the USE Modernization Program process as it identifies and prioritizes modernization aimed at enhancing war fighting and communications capabilities and providing a safe, maintainable, and regulatory/requirement compliant operating Submarine Force well into the future.

9-1.4.2.1 History of Development Process.

For many years, the Submarine Force generated a prioritized modernization list separate from the MMM to ensure funding was directed to the highest priority modernization programs. The MMM was historically a COMSUBFOR N8 document in support of the PURL (previously known as the “5-Star Letter”) and was developed and managed separate from other prioritized modernization lists. In 2006, MMM ownership was shifted to NAVSEA (PEO SUBs), the USE Modernization Directorate, with Process Administrator responsibility assigned to COMSUBFOR N4. The MMM has become the Submarine Force’s requirements document for identifying and prioritizing modernization.

9-1.4.2.2 Description of Matrix

The Minimum Modernization Matrix (MMM) is the result of an annual collaborative effort of USE Modernization Stakeholders. The following information is contained therein:

- Description of Alteration
- Applicable platforms
- Threshold Categories
- Threshold (must complete by) Requirements
- Fielding Plans (IOC/FOC)

- Relational alterations
- Points of Contact
- Resource Sponsor funding status and program health indicators
- Previous and Current Year Priorities

9-1.4.2.3 Roles and Responsibilities:

- **COMSUBFOR N4:** PURL Matrix Lead Agent – Provides USE leadership insight to stakeholders and responsible for executing modernization in accordance with the official PURL/MMM.

- **COMSUBFOR N43321**: PURL Matrix Administrator – responsible for administering TYCOM Staff review and update of the MMM in support of the Submarine Modernization (SUBMOD) Conference and final MMM development and delivery back to COMSUBFOR N8/PEO SUB.

- **PEO SUB**: Coordinates SPM and PARM review and update of the MMM and development of supporting QUAD Charts. Hosts and chairs the Annual Submarine Modernization (SUBMOD) Conference and is responsible for presenting the final prioritized MMM to COMSUBFOR N8 for inclusion in the PURL.

- **COMSUBFOR and Deputy COMSUBFOR TYCOM Staffs**: Reviewers/Subject Matter Experts – responsible for reviewing and MMM and providing updates. Deputy COMSUBFOR N4: Responsible for administering the review of and forwarding of inputs to COMSUBFOR N4 for incorporation into MMM.

- **OPNAV N87/N6:** Resource Sponsor – responsible for updating Resource Sponsor fields on the MMM and providing overall program health indicators.

- **USE Modernization Stakeholders**: Responsible for monitoring the MMM to ensure high priority modernization programs are documented therein and for proposing process improvements and for executing Submarine Force modernization in accordance with the official MMM.

9-1.4.2.4 Annual Timeline

9-1.4.2.4.1 COMSUBFOR/Deputy COMSUBFOR (N4) Administer MMM Fleet Review/Update (January-February).

The MMM will be distributed to all TYCOM Directorates with instructions to:

- Conduct a thorough review within their directorate/community of all fields in the MMM. Recommendations for additions, deletions, or changes must be made through their N-

Head back to N4. Thorough justification will be required for any additions, changes, or deletions.

- Review the priorities of alterations in relation to other alterations and make recommended changes for adjudication at the SUBMOD Conference.

- Identify prerequisite or co requisite alterations to ensure they are prioritized appropriately in the MMM and that the relationship of the alterations is clearly identified.

- Update TYCOM Comment field as required.

9-1.4.2.4.2 Resource Sponsor/PARM/SPM Review/Update MMM (March – April).

- COMSUBFOR N4 will forward the Draft MMM to the Resource Sponsor for review/update.

- Resource sponsor will update responsible fields to include status of funding and whether or not TYCOM assigned installation date thresholds will be met, and provide fielding plans using a red/yellow/green color scheme to indicate overall program health.

9-1.4.2.4.3 PARM/SPM Review MMM to Prepare for SUBMOD Conference (March-April).

COMSUBFOR N4 will forward the Draft MMM to the PEO SUB for distribution to appropriate PARMs and SPMs for review/update with instructions to:

- Conduct a thorough review within their community of all fields in the MMM. Recommendations for additions, deletions, or changes will be made to COMSUBFOR (N4) or held for live discussion during the SUBMOD Conference. Conduct a review of assigned priorities in relation to other alterations and identify recommended priority changes. Identify pre-requisite or co-requisite alterations to ensure they are prioritized appropriately in the MMM and that the relationship of the alterations is clearly identified.

- Develop required QUAD Charts to support stakeholder prioritization at the SUBMOD Conference.

9-1.4.3 Threshold Categories

Threshold Categories play a major role in the Submarine Force modernization process. Threshold categories assist stakeholders in identifying required modernization. Modernization must meet the requirements of at least one of the below Threshold Categories to be approved for development. The Threshold Category Worksheet is used during review of proposed modernization to determine placement on the MMM. Threshold Categories are:

- **Critical:** If not accomplished, the deficiency corrected by this alteration will eventually prevent applicable submarines from getting underway. Projected "Fail to Sail" date must be provided when available.

- **Ship/Submarine Safety:** These alterations prevent potential loss of submarine.

- **Safety/Security:** These alterations affect safety of personnel and equipment, as well as Security/Force Protection.

- **Survivability/Escape:** These alterations increase the crew's ability to survive in or escape from a disabled submarine.

- **Obsolescence:** These alterations replace critical equipment that it no longer available/manufactured. Projected obsolescence date must be provided when available.

- **Regulatory Compliance:** Alterations which are mandated by law or outside agencies (i.e. Environmental Protection Agency, National Security Commission). Date regulation becomes law must be provided when available.

- **Mandatory Requirement:** Mandated by higher authority (Congress, SECNAV, OPNAV). Must provide requirement date when available.

- **Warfighting (SEAPOWER 21 SEA BASING) :** These alterations provide capabilities that project responsive forces worldwide with the capability to fight and win, operate continuously from an expanded and secure maneuver area – the sea, and minimize vulnerabilities tied to overseas land support. Includes Deploy and Employ Forces (including special forces), provide Integrated Logistics Support to sustain forces, and pre-position Joint Assets Afloat.

- **Warfighting (SEAPOWER 21 SEA STRIKE):** These alterations project decisive and persistent offensive power anywhere in the world and launch immediate, agile, and sustainable operations from the sea. Includes Strike Operations, Naval Fire Support, Maneuver, and Strategic Deterrence.

- **Warfighting (SEAPOWER 21 SEA SHIELD):** These alterations assure access throughout the battle space for the Joint Force, project a defense around friends, allies, coalition, and Joint Forces, and provide a sea-based layer of Homeland Defense. Includes Force Protection, Surface and Undersea Warfare, and Theater Air Missile Defense.

- **Communications/Technology (SEAPOWER 21 FORCENET):** These alterations are required for communications or IT technology. Includes items with C5I Baseline visibility. Connect sensors, networks, weapons, decision aids and warriors from seabed to space and accelerate speed and accuracy of decisions across spectrum of command. Includes Communications and Data Networks, Intel, Surveillance, and Reconnaissance, Deter and ID Targets, and Common Operational and Tactical Pictures.

- **Reliability/Maintainability:** These alterations improve or increase the ability of a system or component to perform its mission in a specified interval of time without functional failure or the ease and efficiency with which preventative and corrective maintenance can be conducted.

- **Cost Benefit/Return on Investment (ROI):** The projected savings realized from these alterations outweigh the projected cost to perform and support the modernization. ROI data must be provided when available.

- **Quality of Service/Quality of Life (QOS/QOL):** These alterations provide improvements to morale, welfare, or recreation, or reduce sailor workload in maintenance, cleaning, preservation, facilitate distance support, or otherwise enhance sailor operational performance. This category includes habitability improvements (improves living, messing, berthing conditions aboard ship) and Human Systems Integration (enhances sailor performance, reduces operator workload/cumbersome workload issues).

- **Reactor Plant Impact/Naval Reactors Interest Item:** These non-reactor plant alterations support the reactor plant and their installation is monitored by Naval Reactors.

- **Top Management Attention/Top Management Item (TMA/TMI):** These alterations have been identified as a TMA or TMI top priority.

- **Platform Wholeness/Infrastructure:** These alterations affect critical systems required to operate the submarine (battery, electrical capacity, A/C, damage control equipment)

9-1.4.4 Submarine Modernization (SUBMOD) Conference

The purpose of the Annual SUBMOD Conference is to discuss submarine planned modernization as it relates to the Prioritized Undersea Enterprise Requirements Letter (PURL) and associated Minimum Modernization Matrix (MMM). The MMM is the basis for the Submarine Force Modernization Program. The SUBMOD Conference is held annually and is chaired by the submarine SPM (PMS392). Conference participants include COMSUBFOR and Deputy COMSUBFOR Fleet representatives, Resource Sponsor representatives, In-Service Engineering Agents, C5I Participating Managers, SEA 05, SPAWAR, and submarine logistics, maintenance and training activities. Working drafts of Minimum Modernization Matrix are provided in advance to conference participants for review. Quad Charts summarizing proposed Ship Changes are prepared by the submarine SPM to support conference discussions. Stakeholders discuss the funding and installation status, fielding plans and Threshold (required completion) dates, priority (initial triage ranking of Critical, High, Medium, and Low), and ultimately agree with the integrated prioritization of all Ship Change initiatives presented in the

matrix. The SUBMOD Conference is held in the May-June time period to support annual USE PURL timelines and the Resource Sponsor budgetary process.

9-1.5 Submarine Force Modernization Responsibilities

9-1.5.1 CNO Responsibilities

- Define an integrated NMP consisting of alteration installations and procurements.
- Define all policy for modernization.
- Update the overhaul schedule in NDE-NM and issue the official overhaul schedule.
- Develop the NMP budget.

9-1.5.2 NAVSEA Responsibilities

Manage and execute the NMP in accordance with this document and exercise Technical Authority for all alterations. Technical authority assignment and requirements are contained in references S9(i) through S9(m).

9-1.5.3 Ship Program Manager (SPM) Responsibilities

- Act as primary point of contact for coordination of NMP efforts for submarines under their cognizance.
- Develop Ship Change/SHIPALT estimates, entering them in NDE-NM for Ship Changes/SHIPALTs under NAVSEA cognizance, and budgeting for installation costs for CNO scheduled availabilities.
- Authorize, task, negotiate, and manage all Title "K", and “KP” Ship Change/ SHIPALT efforts including advance planning, design, configuration control, and installation.
- Task and manage Title "D" and “N” Ship Change/SHIPALT efforts (limited to design and configuration control).
- Final approval of all Ship Change/SHIPALT design and development efforts.
- Advise the Systems Command (SYSCOM) Life Cycle Manager (LCM)/Participating Manager (PARM) on the status of End of Availability (EOA) ILS Verifications.
- For all Ship Changes/SHIPALTs, ensure that all required NDE-NM worthy material that will be drawn down from the supply system is entered into the NDE-NM database.
- Program and execute Title “K” and “KP” Ship Changes/SHIPALTs in NDE.

9-1.5.4 NAVSEA Engineering Directorate (SEA05) Responsibilities

Ensure technical integrity of the ship change development process by establishing technical policies and procedures for the design and development of ship changes by headquarters and field activity Engineering Agents.

- Responsible for Integration of ship changes for Battle Groups
- Technical Warrant Holders for specific equipment.

9-1.5.5 NAVSEA 04X and 04Z Responsibilities

Manage Naval Shipyards (NSYs) and Supervisors of Shipbuilding, Conversion and Repair (SUPSHIPs) respectively.

9-1.5.6 NAVSEA 04RP Responsibilities

- Execute delegated responsibilities to act as the principal NAVSEA agent for the NMP as defined in CNO and NAVSEA Directives.
- Manage the NDE-NM system, the official NMP database.
- Maintain current the NMP/ONE BOOK Manual and NMP related directives.

9-1.5.7 Planning Yard (PY) Responsibilities

Act as class engineering Design Agent (DA) for ship change design and development as delegated by the SPM. Reference S9(n) lists PY assignments.

9-1.5.8 Naval Supervising Activity (NSA) Responsibilities

- Accomplish modernization efforts tasked and funded by SPM or TYCOMs. Obtain PY approval of any material/equipment requirement from activities other than the cognizant SPM or PY.
- Advise SPM immediately when unusual circumstances beyond the control of the industrial activity impact the quality, cost, or completion time for planning and/or executing a Ship Change/SHIPALT. Unusual circumstances are defined as, but not limited to (a) acts of God, (b) strikes, (c) incorrect or incomplete guidance or design efforts received from other NAVSEA activities, and (d) non-receipt or substitution of material which causes a disruption in design or production schedules.
- Upon completion of the availability, report Ship Change/SHIPALT completion, show the status of completion of each alteration and listing those items authorized but not undertaken, to the SPM/TYCOM in accordance with existing instructions. Copies of the completion report will be sent to the PY, applicable Squadron/Group Commander, applicable Ship Availability Planning and Engineering Center (SHAPEC) or Submarine Maintenance, Engineering, Planning and Procurement (SUBMEPP) and the applicable SPM/TYCOM.
- Execute Availability Work Packages.
- Maintain/Manage ship configuration control for all respective submarine classes by permitting only approved and authorized ship changes to be installed and reporting completion of ship changes installed.

9-1.5.9 Life Cycle Manager (LCM)/Participating Acquisition Resource Manager (PARM) Responsibilities

- Maintain technical and logistics authority over assigned equipment throughout its life cycle.
- Accomplish all equipment configuration changes in accordance with the NMP policy and coordinating installations with appropriate SPM.
- Program, budget, and procure all Headquarters Centrally Provided Material (HCPM) and corresponding installation requirements.
- Coordinate with SPMs and AIT/Program Support Managers to ensure matching of HCPM procurements with installations.
- Maintain NDE-NM Material Dictionary (Material IDs) current, allowing for lead P-1 calculation for the budget.
- Keep current the Procurement Lead Time (PLT) and material cost in NDE-NM Material Dictionary.
- Monitor material delivery and maintain current in NDE-NM the delivery status (Best Estimated Delivery Date (BEDD), Military Standard Requisitioning and Issue Procedures (MILSTRIPs), etc.).
- Notify SPM whenever substitution of NDE-NM material is being considered or accomplished.
- Procurement of Ship Change driven Technical Training Equipment (TTE) and tactical software installed at the submarine learning facilities unless the PARM has advised SEA 07TR of the change at the beginning of the Ship Change process. SEA 07TR will then POM for the cost of procuring and installing the change.
- Provide updated tactical software for integration with SEA 07TR managed SIM/STIM team trainers (e.g. legacy SMMTT, SMMTT, etc)
- Development/update of SIM/STIM for non SEA 07TR funded team trainers (SCMT/PCU, CSRR/MRTS as examples) when simulation updates are required/driven by a tactical hardware or software change unless the PARM has advised SEA 07TR of the change at the beginning of the Ship Change process. SEA 07TR will then POM for the cost of procuring and installing the change.

9-1.5.10 Material Manager Responsibilities

- Identify, budget for, and procure Ship Change/SHIPALT material for Title K and KP SCs based on NMP programming for a given fiscal year (FY) on a given hull.
- Maintain accurate material availability status in NMP.
- Ensure material availability for Ship Change/SHIPALT installation.
- Identify major components supplied as part of major equipment or system in the NDE-NM Material Dictionary.
- Enter Material Identifications (MTLIDs) and Headquarters Centrally Provided Material (HCPM) or Centrally Provided Material (CPM) in the NDE-NM Material Dictionary.
- Budget for both equipment and installation funds for Field Changes (FCs), Engineering Changes (ECs) and Ordnance Alterations (ORDALTs).

9-1.5.11 Type Commander (TYCOM) Responsibilities

- Program, budget, schedule and authorize Title "D" and "N" Ship Changes/SHIPALTs/A&Is.
- Maintain accurate Title "D" and "N" Ship Change programming status in NDE-NM of design efforts when NDE-NM can accommodate U-NNPI data.
- Review and comment on all Ship Change/SHIPALT/A&I proposals regarding essentiality, level of accomplishment and likelihood of being funded.
- Add proposed alterations to the Minimum Modernization Matrix (MMM) as appropriate.
- Authorize material procurement for Title "D" and "N" Ship Changes/SHIPALTs/A&Is through programming in NDE-NM when NDE-NM can accommodate U-NNPI data.

9-1.5.12 Submarine Training Systems Division (SEA 07TR) Responsibilities

- Review all proposed Ship Changes to identify impacts to trainers and any facility modifications (equivalent to supporting shipboard HM&E modifications) necessary to support installation at the submarine learning facilities. Should modifications to trainers, such as Simulation/Stimulation (SIM/STIM) equipment be required, coordinate development of a trainer change with the cognizant activity. Funding required to support tactically driven Ship Changes implemented at the submarine learning facilities is to be provided to the cognizant agency for a trainer by the Acquisition Program Office/PARM/LCM or PMS392 as part of the overall tactical change budget unless PMS 392 and/or the PARM have advised SEA 07TR of the change at the beginning of the Ship Change process. SEA 07TR will then POM for the cost of procuring and installing the change.

- Identify the impacts of proposed ship changes to multi-class submarine training systems such as Legacy SMMTT, SMMTT, MRTS (ES, SCSS, CSRR, etc.) and SPAN 2000. Due to equipment differences between the submarine trainers and the tactical SSN equipments, it will often be impossible to implement the change in these trainers using the tactical Ship Change. In this case, SEA 07TR will direct development of a corresponding trainer change document (TSIP, TCI, TECD, etc.) to implement the functional equivalent of the tactical change in the trainers. Also, the trainers are often common among the SSN and TRIDENT training sites, therefore, to preclude duplication of effort, SEA 07TR will direct development of a trainer change document that can be used at all of the submarine training sites. Change installation at the submarine learning facilities using TSIPs, TCIs or TECDs to support training on tactical SSN system changes will be coordinated with the tactical change installation schedule but the trainer unique change documents will not be included as part of the tactical Ship Change package.

- In support of the above efforts, and as part of the change review process:

    1. Identify tactical hardware and software resources required from the PARM or Program Office to support implementation of tactically driven trainer changes.

2. Identify SIM/STIM or other TUE modifications necessary to support installation of tactically driven changes in the trainers.

3. POM for the resources to procure and install the tactically driven change, if notified at the beginning of the change process.

SUBSECTION 9-2 SUBMARINE FORCE SHIP CHANGE TYPES

For SSN Submarines, many of the ship alteration type designations defined in the FMP manual, reference S9(o), are retained because of intelligence associated with the change type designation. The alteration types for SSN Submarines are defined below. Alteration procedures, types and documentation applicable to the OHIO Class SSBN/SSGN submarine force are unique in order to support strategic mission and availability requirements. OHIO Class SSBN/SSGN procedures and documentation requirements are described in references S9(a) - S9(e).

No other types of changes to equipment/systems are authorized for installation on operational submarines and support facilities. Section 9-2 identifies the key factors used to categorize the different types of submarine alterations and includes military characteristics; funding; material requirements; impacts to weight and moment, distributive systems; and installation complexity.

9-2.1 Ship Change (SC)

A SC is an approved permanent change to the configuration of a ship that is documented in a Ship Alteration Record (SAR) and implemented through the Submarine Ship Change authorization process. SCs are classified by title/type and comprise any change in hull, machinery, equipment, or fittings, which involves changes in design, material, quantity, location, or relationship of the component parts of an assembly. The title assigned to a SC identifies the approving authority and responsibility for funding. SC types are:

9-2.1.1 Title “K” Ship Change/SHIPALT

A Title “K” SC permanent alteration to provide a military characteristic, upgrade existing systems or provide additional capability not previously held by a ship. A Title “K” SC may affect configuration controlled areas or systems of a ship or which otherwise requires the installation of Headquarters Centrally Provided Material (HCPM). These SCs are approved for development and authorized for accomplishment by the CNO (military improvements) or the Hardware Systems Commands (HSCs) (non-military improvements). The technical approval for Title “K” SCs is provided by the SPM. Title “K” SCs are identified and processed in accordance with Subsections 9-3 through 9-7.

9-2.1.2 Title “KP” Ship Change/SHIPALT

A submarine Title “KP” SC is a permanent alteration that is within ship’s forces or Alteration Installation Team (AIT) capability for accomplishment, and for which required special program and Centrally Provided Material (CPM) are provided as a package by the cognizant HSC. The technical approval for Title “KP” SCs is provided by the SPM. Title “KP” SCs are identified and processed in accordance with Subsections 9-3 through 9-7.

9-2.1.3 Title “D” Ship Change/SHIPALT

A Title “D” SC is an Alteration Equivalent to a Repair (AER) that does not affect the military characteristics of a ship. It is formally approved by the SPM in the form of a SAR and is authorized for accomplishment by the Type Commander (TYCOM). It may require Centrally Provided Material (CPM), but it does not require HCPM. A Title "D" SC may specify whether it should only be accomplished by a depot level maintenance facility or if it is within the capabilities of Ship’s Force or Fleet Maintenance Activity (FMA), Intermediate Maintenance Facility (IMF) or Regional Maintenance Center (RMC) to accomplish. A Title ”D” SC shall be issued for all non-nuclear AERs that require changes to the equipment or system Integrated Logistics Support (ILS). The technical approval for Title “D” SCs is provided by the SPM. Title “D” SCs are identified and processed in accordance with Subsections 9-3 through 9-7.

9-2.1.4 Title “N” Ship Change/Alteration & Improvement Item

A Title “N” SC is a permanent ship change previously known as an Alteration & Improvement (A&I) Item which is technically approved by the SPM, typically via letter, and programmed for installation by the TYCOM. Title “N” SCs must meet all of the following criteria:

- It does not impact BFI.
- It does not impact the ship’s stability records (weight and moment).
- It does not impact or alter the 3-dimensional footprint of the equipment it is replacing.
- It does not impact shipboard distributive systems (i.e. water, ventilation, electrical, power), their Ship Selected Records (SSRs) or interfacing equipment or systems; compartmental arrangement records; or Damage Control records.
- It does not impact Manpower and Personnel.

The technical approval for Title “N” SCs is provided by the SPM. Title “N” SC identification and processing differs from Title “K’, “KP” and “D” SCs and is described in the subsections which follow.

9-2.1.4.1 Scope of Subsection 9-2.1.4

Title “N” SCs are normally performed by Ship’s Force or a Fleet Maintenance Activity (FMA). Title “N” SCs are distinct from ship alterations. Title “N” SCs have no significant design changes, no logistically significant material requirements, no significant Integrated Logistics Support (ILS) requirements, and no significant industrial production work or support requirements. The depth of technical development is commensurate with complexity associated with the Title “N” SC but less than more involved other types of ship changes. This subsection establishes NAVSEA PMS392 policies and procedures for determining whether a proposed alteration is acceptable as a Title “N” SC. Reference S9(al) provides the basic format to be used when developing a Title “N” SAR and provides guidance for preparing recommendation letters to the TYCOMs.

9-2.1.4.2 Title "N" SC Policy

Modifications and improvements will only be designated as a Title "N" SC by the Sponsor and cognizant In-Service Program Manager subsequent to evaluation. Proposed Title "N" SCs will be developed by either an engineering directorate such as PMOs and PEOs, a cognizant technical code within NAVSEA 05, NAVSEA 07, or a designated planning yard. Once a Title "N" SC has been developed, the cognizant engineering directorate, technical codes and the Assistant Program Manager (APM) must provide concurrence before submittal to the Ship's Program Manager (SPM) (PMS 392) or Assistant Program Manager (PMS392D) for final approval. PMS392 has final authority and responsibility for technical Title "N" SC approval and signature of Title "N" SC recommendation messages.

In addition to aforementioned originators of Title "N" SCs, it should be noted that non-technical Title "N" SCs may be originated by the TYCOMs to account for inspections and tests for which a specific record of accomplishment is desired. Non-technical Title "N" SCs originated by the TYCOMs do not require NAVSEA review or approval prior to issuance. However, TYCOMs must obtain a PMS392 Title "N" SC serial number and provide copies of authorized Title "N" SCs to PMS392 and the applicable planning yard.

9-2.1.4.3 Title "N" Determination

The following guidelines have been established to determine whether a proposed alteration or improvement should be accomplished as a Title "N" SC. If the proposed alteration or improvement does not meet the criteria of a Title "N" SC it should be recommended for accomplishment as a Title "K", "KP" or "D" Ship Change in accordance with Subsections 9-3 through 9-7. NAVSEA will review the proposed Title "N" SC to determine if the modification or improvement meets the criteria of a Title "N" SC or Title "K", "KP" or "D" Ship Change.

Proposed modifications and improvements should meet all of the following general criteria to be classified as a Title "N" SC:

(1) Capability: The proposed alteration is within the capability of Forces Afloat. The proposed modification or improvement should be accomplished by the Ship's Force or the FMA

(2) Design: No significant design support is required. The technical scope of the work must improve reliability, maintainability, and supportability standards without degradation of the functional requirements of the hardware or equipment. In general, installation drawings, if required, are minimal and can be provided as part of the alteration document.

(3) Industrial Work: No significant industrial production work or support is required, such as installations requiring hull cuts or unscheduled dry-docking.

(4) Inspection: The proposed Title "N" SC is an inspection or documentation change requiring no equipment modification. If the proposed Title "N" SC is required until a suitable ship alteration can be developed, the Title "N" SC SAR or message shall identify the ship alteration number and its estimated availability date.

(5) Integrated Logistics Support (ILS): The proposed Title "N" SC shall not significantly affect any element of a system or equipment's logistics support, Ship's Selected Record Data (SSRD), system or equipment performance parameters, or equipment interchangeability to be approved as a Title "N" SC. Exceptions to this requirement must be limited to instances where the required ILS has been identified and is readily available and requires no further development action. Additionally, in support of scheduled/planned Title "N" SC installations, the cognizant Life Cycle Manager (LCM) must submit an ILS Certification Form for SPM/SEA 07L3 approval in accordance with Subsection 6.

(6) Material: Material required for the accomplishment of Title "N" SCs must be approved by the cognizant ILS Life Cycle Manager (LCM) and should be standard stocked material readily available from the supply system, Inventory Control Point (ICP) or Defense Logistics Agency (DLA). The Title "N" SC material list should include National Stock Numbers (NSNs). A proposed Title "N" SC should not include material that is nonstandard, requires special traceability or material that is long lead-time without approval from the TYCOM. Title "N" SC material is not forecast to the supply system via Navy Data Environment - Navy Modernization (NDE-NM) for advance procurement and is, except in rare circumstances, the responsibility of the TYCOM to procure. If nonstandard material is required and authorized for Title "N" SC accomplishment, complete ordering information such as drawing and piece number, manufacturer's name and Commercial and Government Entity (CAGE) number along with the manufacturer's model or part number, MILSPEC/MILSTDs and physical characteristics must be included on the material list.

A Title "N" SC can be a prerequisite to a Title "D", "K" or "KP" ship change as defined in Subsections 9-2.1.1 through 9-2.1.3 above. Information relating to the development of the Title "D", "K" or "KP" SC should be included in the body of the Title "N" SAR, such as the Title "D", "K" or "KP" SC number and availability date when available. Additionally, it should be identified if any ILS elements affected will be covered by the Title "D", "K" or "KP" SC.

9-2.2 Equipment Alteration

An Equipment Alteration is any alteration to the configuration of an equipment or system (including embedded equipment, software or firmware computer programs and expendable ordnance) after establishment of the product baseline which does not impact the configuration the ship platform or external interfaces of the equipment or system. If the ship platform or external interfaces are impacted in any way, a change must be processed and approved as a Ship

Change.

An Equipment Alteration involves a change in design, type of material, quantity, installed location, logistics, supportability or the relationship of the component parts of an assembly within the ship which does not impact the configuration the ship platform. Equipment Alterations include the addition, deletion, rework or replacement of parts, assemblies or equipment; or changes in assembly procedures. Alterations to associated computer programs include the incorporation of different computer program versions and approved modifications or corrections to both operational test and maintenance programs. Equipment Alterations are authorized by approved Class I Engineering Change Proposals (ECPs).

Equipment Alterations apply equally to changes installed in delivered systems and equipment, and changes installed in systems and equipment in production to identify differences from an established product baseline. Equipment Alterations may be initiated to correct a design defect, to change equipment operational capability, to eliminate safety hazards, to update obsolete components or for any combination of these reasons. There are three types of permanent Equipment Alterations: Ordnance Alteration, Engineering Change, and Field Change; and one type of temporary equipment alteration: Temporary Engineering Change Instruction, that are each defined below. Section 9-8 contains detailed procedures for Equipment Alterations.

9-2.2.1 Ordnance Alteration (ORDALT)

An ORDALT is any modification, other than a SC, in the configuration of ordnance equipment/systems (including embedded equipment and computer programs) after establishment of the product baseline. An ORDALT involves a change in design, material, quantity, installed location, ILS, or the relationship of the component parts of an assembly within the ship or shore installation. ORDALTs include the addition, deletion, rework or replacement of parts, assemblies or equipment; or changes in assembly procedures. ORDALT policies and procedures are detailed in reference S9(p).

9-2.2.2 Combat Systems Electronic Equipment and Systems Field Changes (FCs), Anti-Submarine Warfare/Combat System Engineering Changes (ECs) and SPAWAR Field Change Implementation Program (FCIP)

A FC, FC by FCIP or EC is a mechanical, electronic or electrical change, modification or alteration made to electronic equipment after establishment of the product baseline and delivery to the government, including software changes, which do not impact interfaces to other equipment within the ship, change the footprint, form or fit, change power, weight, or air conditioning requirements. FCs and ECs are initiated and approved by the cognizant HSC and are implemented by FC Bulletins (FCBs), EC instructions or by FCIP instructions. AITs or ship’s force can accomplish FCs or ECs.

9-2.2.3 Temporary Engineering Change Instruction (TECI) Program

A TECI is an abbreviated ECI generated to meet urgent or emergent installation requirements. A TECI can be used for an urgent or emergent requirement that cannot be delayed by the development of CM and Integrated Logistics Systems (ILS) support. TECIs can also be used in development situations where builds need to be tested (i.e., Subsystem Development) prior to a software release to the Fleet.

9-2.3 Submarine Temporary Alteration (TEMPALT) and Operational Alteration (OPALT)

A TEMPALT is any alteration that provides given capabilities on a temporary basis (not to exceed fourteen (14) months or one operational deployment in duration) in support of Research, Development, Test and Evaluation (RDT&E), fleet exercise, or mission requirements. TEMPALTs are reviewed and technically approved by the cognizant SPM and authorized for accomplishment by the cognizant TYCOM. The SPM review considers safety, technical adequacy, impact on ship stability, operational characteristics including warfare capability, damage control, ship structure, ship services, ships interfaces, and habitability. Alterations that are intended to be installed for a period in excess of fourteen months or one operational deployment shall be considered a permanent change to a ship's configuration and shall be accomplished as a SC accordingly or shall be considered an OPALT if OPALT criteria are met. After completion of testing requirements, mission or exercise support requirements or fourteen months, whichever comes first, TEMPALTs must be removed and the ship restored to its previous configuration or converted to OPALT or SC.

An OPALT is any alteration that provides given capabilities on a temporary basis which may exceed fourteen (14) months or one operational deployment in duration in support of Research, Development, Test and Evaluation (RDT&E) or exercise or mission requirements. OPALTs shall have logistics support developed and in place at the time of installation to support the alteration throughout the time it is installed. As with TEMPALTs, OPALTs are reviewed and technically approved by the cognizant SPM and authorized for accomplishment by the cognizant TYCOM. The SPM review considers safety, technical adequacy, impact on ship stability, operational characteristics including warfare capability, damage control, ship structure, ship services, ships interfaces, and habitability. After completion of testing requirements, mission or exercise support requirements, OPALTs must be removed and the ship restored to its previous configuration or converted to SC.

Budgeting and funding for TEMPALT and OPALT accomplishment is usually part of the applicable project or program for RDT&E alterations, or cognizant FLTCINC, TYCOM or CNO Resource Sponsor for mission support alterations. Budgeting for TEMPALTs and OPALTs shall include sufficient funding to accomplish any ship platform modifications required, install and support the alteration and to remove the alteration and restore the ship to its original configuration.

TEMPALTs and OPALTs are exempt from this manual and are mentioned here for information purposes only. TEMPALTs/OPALTs are be funded, developed, approved and implemented in accordance with reference S9(f), NAVSEAINST 4720.14 (series).

SUBSECTION 9-3 IDENTIFICATION AND INVESTIGATION OF PROPOSED SUBMARINE FORCE SHIP CHANGES

9-3.1 Scope of Subsection 9-3

This subsection details the beginning steps involved in the identification and investigation of proposed Submarine Force Ship Changes.

9-3.2 Sources of Ship Changes

Proposed Ship Changes may be initiated by any number of sources. Newly identified changes are reviewed within their originating activities as to viability and necessity prior to being proposed to the Submarine Enterprise community in the forums which follow.

9-3.2.1 Submarine Force HM&E Conference

The Hull, Mechanical & Electrical Conference combined with the Maintenance Planning conference (MP/HM&E) provides a forum for NAVSEA and Fleet activities to identify, review and resolve submarine MP/HM&E issues. Conferences identify areas of concern and build a mutual understanding of the processes associated with defining issues and focusing corrective actions. MP/HM&E conferences are held quarterly under the cognizance of the submarine SPM (PMS392) and are attended by technical representatives from NAVSEA 05 and In-Service Engineering Agent activities to address HM&E systems and equipments, representatives from the Navy Inventory Control Point (NAVICP) and the Defense Logistics Agency (DLA) to address supply issues and representatives from NSWCCD-SSES Philadelphia to address MRC/MIP issues.

9-3.2.2 Top Management Attention (TMA) Forum

The TMA forum was established to assess and define specific courses of action to resolve the most significant submarine Fleet technical problems. The TMA is coordinated by the submarine SPM (PMS392) acting on behalf of the Commander, Submarine Directorate (SEA07). An on-going list of TMA items is maintained and reviewed on a regular basis by TMA participants. TMA participants include OPNAV (N87), Fleet Type Commander (N4) representatives, Fleet technical representatives, Field activities, and NAVSEA technical representatives.

9-3.2.3 Submarine Modernization (SUBMOD) Conference

Although the main goal of the SUBMOD Conference is to discuss submarine planned modernization as it relates to the COMSUBFOR Undersea Enterprise Minimum Modernization Matrix (MMM), newly proposed ship changes are also discussed and agreed for further development. Conference participants include COMSUBFOR Fleet representatives, In-Service

Engineering Agents, C5I Participating Managers, SEA 05, SEA 08, SPAWAR and submarine logistics, maintenance and training activities.

9-3.2.4 C5ISR Conference

Command, Control, Communications, Computers, Collaboration, Intelligence, Surveillance and Reconnaissance (C5ISR) Conferences are held periodically to review and agree to the C5I Modernization Plan (C5IMP) for Non-Propulsion Electronic System (NPES) equipment. NPES modernization is the evolutionary process of cost-effective development, integration, and installation of upgraded NPES subsystems in an open-system architecture. The Program Executive Office, Submarines (PEO SUB) goal for NPES modernization is to produce a common, affordable, advanced capability warfare system for all submarines, while leveraging and consolidating existing and future subsystem development and acquisitions. The C5I Modernization Plan (C5IMP) focuses on the complete cycle of system requirements definition, resource allocation, system development, delivery, and deployment. The C5I Roadmap describes the mapping of current and anticipated Fleet requirements to existing and future C5I systems and produces a list of systems needed to meet Fleet requirements arranged over time. Available OPNAV resources are balanced against this list of systems through the Navy Modernization process to yield a list of funded, authorized alterations. The Navy Modernization list of approved alterations provides the foundation for the C5IMP, which maps specific alterations to specific hulls. The Authorized Modernization Baseline approved by the Fleet Commanders then drives the Team SUB Modernization Process.

C5I conferences and the C5IMP are under the cognizance of the Program Executive Officer for Submarine Warfare (PEO SUB(W)). Participants include NAVSEA and SPAWAR equipment Program Managers (PMS 425 and PMW 165), the submarine Ship Program Manager (PMS 392) and Fleet and OPNAV representatives.

9-3.2.5 Other Sources

Other sources of proposed Ship Changes include:

- PARM equipment upgrades
- Equipment life cycle managers
- Habitability conferences
- Submarine Escape and Rescue Working Group (SERWG) Conferences
- Submarine ship silencing conferences
- Ships Force change requests
- Congressionally mandated changes
- Obsolescence changes

9-3.3 Ship Change Proposal (SCP) Initiation

Requests for ship changes are initiated by a variety of sources based upon identification of need for ship capability improvements or ship survivability or technical improvements. For submarines, a Justification Cost Form (JCF) (See Subsection 9.4) will be prepared by the requesting activity for submittal via NAVSEA 05, the impacted equipment PARM or directly to the SPM as appropriate. In cases where ship impact information is not available to support JCF preparation, an engineering study may be requested. NAVSEA 05, the appropriate PARM or the SPM will determine from the information received whether additional information is required prior to a JCF being processed. For proposed changes selected to be further developed and where additional information as to ship impact is necessary, SEA 05 or the PARM will request the SPM to accomplish a ship design study to provide a rough determination of ship impacts. The documentation will include a statement requesting details of design study tasking and funding requirements, with an anticipated completion date after receipt of funds in the event that a contractual effort is required.

9-3.3.1 Ship Change Design Study Tasking and Funding

Where possible, the SPM will task ship change studies to be accomplished with NAVSEA SPM PY resources. Where expertise or scope is not sufficient to complete a ship change study within existing PY funding, the SPM will request the proposing activity to identify funding for the study. Tasking will be issued, on a case-by-case basis, for PY contractual effort or to another appropriate activity charging an NMP line item established for that purpose.

9-3.3.2 Ship Change Design Study Execution

Ship change studies will include a review of all pertinent information and special design baseline studies. The primary function of the study is to provide an initial assessment of ship impacts including, if possible, additional material requirements, installation cost estimates, technical feasibility assessment including impact on existing systems, and cost/benefit trade-offs. Engineering studies will include, but not be limited to, an investigation of the following elements:

a. Equipment to be removed and replaced.
b. Positioning or repositioning required for other equipment.
c. Changes in weight, weight distribution, or moment of the ship.
d. Changes to ship's power/cooling requirements.
e. Changes to ship's functional and operational capabilities.
f. Impact on existing Ship Changes/SHIPALTs (Including Title “N” SCs/A&Is)
g. Impact to Ship Interoperability capabilities.

The above assessment should lead to a formal definition of the proposed improvement's benefits and feasibility to support preparation of a JCF. Installation cost estimates must be described in terms of installation man days and material costs. The precision for the study should be Class F, "ballpark" estimates.

Because ship class configuration detail, including configuration variations within classes, is a PY area of expertise, the PY typically will be requested to provide engineering design support services. In support of the development effort, the PY may be tasked to prepare:

a. New technical data documentation.
b. Preliminary designs.
c. Preliminary tests.
d. Preliminary and special studies, including mockups.

The PY may not initiate development efforts until receipt of funding documents and authorization from the SPM.

9-3.3.3 Ship Change Design Study Review/Approval to Proceed

Once the design study is completed and the results reviewed by NAVSEA 05/53 or cognizant PARM, SEA 05 or the PARM will prepare a JCF for submittal to the SPM with the source(s) of funding for change development and installation identified. If required due to scope of the change, SEA 05, the PARM or the SPM(s), as appropriate, will forward the study results recommending feasibility to CNO (N43) and to the appropriate OPNAV Sponsor.

SUBSECTION 9-4 SUBMARINE FORCE SHIP CHANGE (SC) JUSTIFICATION PHASE

9-4.1 Justification Cost Form (JCF) Initiation

Justification Cost Forms (JCFs) are initiated by the SPM or LCM/ PARM upon the identification by an SCP of a new military, survivability, or technical requirement to describe proposed Ship Changes. JCFs may also be initiated for completed ships of a new construction ship program by the approval of an Engineering Change Proposal (ECP) for the ships under contract. As a condition of approval of the ECP, the applicability and necessity of back fitting the change into Fleet Operational ships of the class will be addressed. If the approved change is to be considered for back fitting, the ECP will be attached to the approved JCF form. JCF data requirements contained in the ECP need not be repeated in the JCF form. Instructions for completing a JCF can be found in reference S9(ak)

The submarine Ship Change development process is shown in figure S9-1.

9-4.1.1 JCF Tasking

The cognizant SYSCOM PARM/LCM or SPM will develop a JCF for all proposed and approved requirements. The EA and the SPM shall approve and sign the JCF prior to the SPM tasking the development of a Record Ship Change Document to authorize the next phase of SC development.

9-4. 2 JCF Development

JCFs may be prepared by the PARM, In-Service Engineering Agent (ISEA), LCM or PY as tasked by the SPM. The SPM provides requisite documentation to prepare the JCF. The SPM also assesses the priority of the JCF, identifying the relative priority of his tasks with the Planning Yard. Completed JCFs are to be submitted to the SPM for consideration and approval NLT A-16.

9-4.3 JCF Review and Approval

The SPM is responsible for review and approval of all SCs for development and installation. Complete JCF documentation is essential to permitting a through review to be accomplished. Submitted JCFs will be reviewed for completeness and accuracy prior to being released for NAVSEA and TYCOM reviews. The SPM will determine if the submitted JCF contains sufficient technical and financial detail to support a determination to proceed with the Ship Change.

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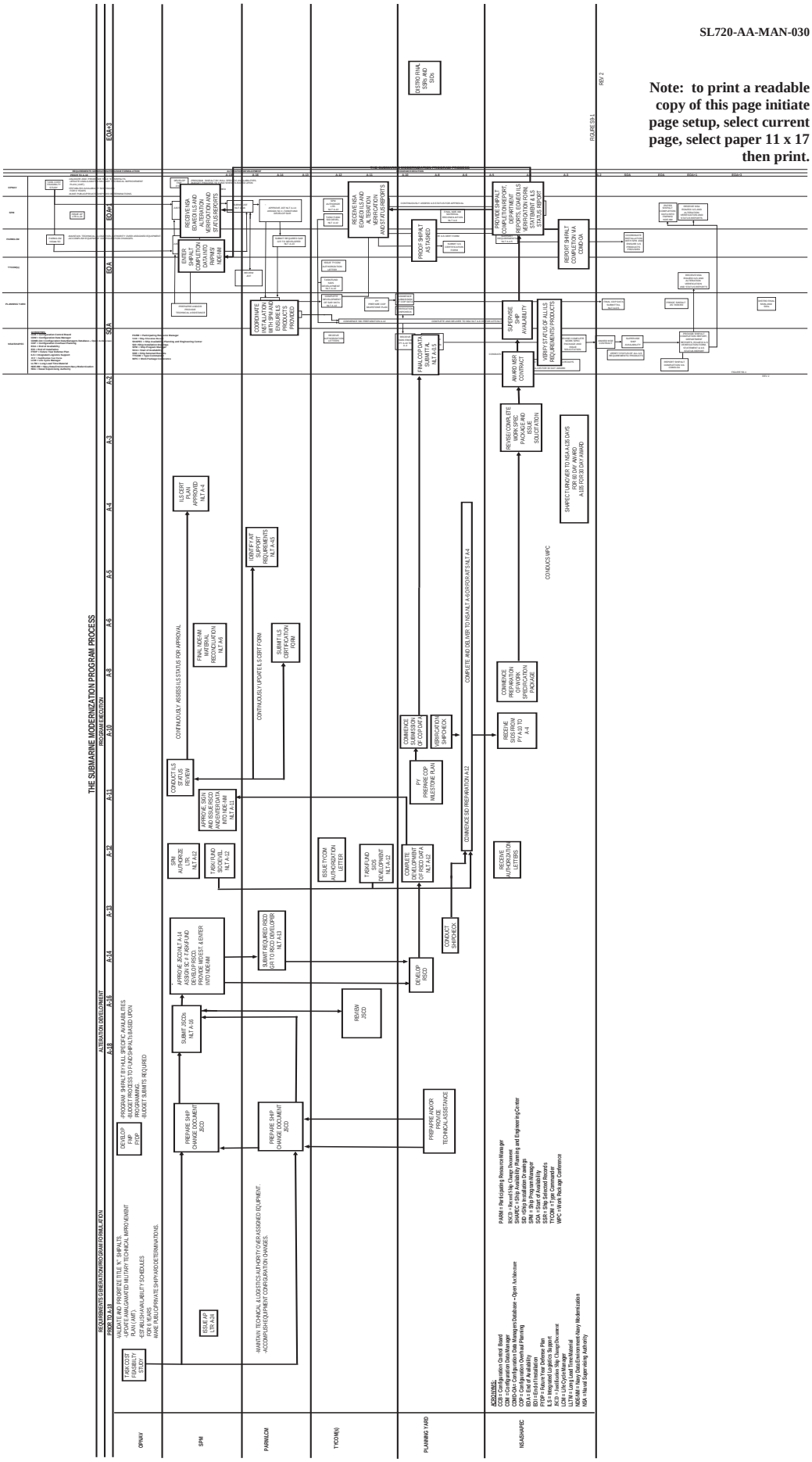

9-4.3.1 SPM JCF Review

The SPM will accomplish a technical, logistics and financial review of the submitted JCF. The purpose of this review is to determine if the proposed SC satisfies the requirements of the identified need in the in the most economically feasible manner. The SPM will forward the JCF justification to the System Engineering Point of Contact (POC). The System Engineering POC will review the SC justification to determine if the proposed SC satisfies the stated requirement. The Systems Engineering POC will also determine whether all shipboard impacts resulting from the SC have been identified and adequately addressed. The SPM will ensure that the SC justification is reviewed for logistics impact and that all logistics impacts have been documented.

Upon completion of the technical, logistics, and financial reviews and verification that all attributes have been addressed and documented, the SPM will obtain the signature of the System Engineering POC on the JCF. The System Engineering POC's signature on the JCF signifies an Engineering endorsement of the change and that the proposed change will technically satisfy the needed requirement.

If the JCF identifies any impact to the submarine's Nuclear Propulsion Plant, the SPM will obtain the concurrence of NAVSEA 08. NAVSEA 08 concurrence will be signified by appropriate signature on the JCF. This concurrence will be obtained following completion of the technical review and based upon the recommendation of the System Engineering POC.

9-4.3.2 Submarine TYCOM Approval of Proposed Ship Changes.

The NAVSEA SPM will provide proposed ship changes in the form of a JCF to TYCOMs for review and approval prior to beginning alteration development. TYCOMS will maintain an internal process for reviewing and approving proposed alterations, as well as feeding new proposed alterations onto the Minimum Modernization Matrix (MMM) and Prioritized Undersea Enterprise Requirements Letter (PURL).

Upon completion of review, TYCOMs will provide one unified TYCOM position (approve/disapprove) back to NAVSEA. Impacted Threshold Categories for alterations recommended for further development will also be provided (see paragraph 9-1.4.3 for details of Threshold categories), as well as a general priority of High, Medium or Low. All threshold modernization will be captured on the MMM and prioritization of the new alterations will take place during the next annual Submarine Modernization (SUBMOD) Conference.

9-4.3.2.1 Undersea Enterprise (USE) Modernization Threshold Categories.

Threshold Categories play a major role in the Submarine Force modernization process. Threshold categories assist stakeholders in identifying required modernization. Modernization

must meet the requirements of at least one of the Threshold Categories to be approved for development. The Threshold Category Worksheet maintained by the submarine TYCOMs is used during review of proposed modernization to determine placement on the MMM and relative priority of the alteration. See Paragraph 9-1.4.3 for Threshold Category definitions.

9-4.3.3 Return of Investment

The Return on Investment (ROI) calculations assist decision making authorities in determining the best course of action for ship equipment/system installations, upgrades and replacements. The ROI procedure will allow the JCF originator to develop necessary cost data without the services of a trained cost estimator. For SC ROI calculations, it is acceptable to use high level cost estimates/approximations based upon the best available data at the time. In order to reduce the complexity of the SC ROI calculations, time value of money calculations are not used when discussing dollar amounts of costs or savings.

The ROI metric relates the Maintenance Cost Effectiveness (MCE) of a proposed alteration to the Implementation Cost (IMP). MCE is the reduction in life cycle maintenance costs of the remaining life of the class of ships impacted by the proposed alteration. Therefore, ROI calculations can only be made if a comparison to baseline life cycle maintenance costs can be made. For example, if a new system is being proposed (that does not impact baseline life cycle maintenance costs), then ROI calculations cannot be made.

ROI calculations shall be made as outlined in reference S9(am).

9-4.3.4 JCF Approval

Once the JCF has been signed by the System Engineering POC and, if required, NAVSEA 08, the JCF will be signed by the SPM or his designated agent. SPM approval of the JCF signifies that the proposed SC is technically and financially justified. SPM approval also signifies that the submarine TYCOMS have endorsed the proposed change, have determined that is meets the Submarine Force's requirements, and that it will be prioritized added to the Minimum Modernization Matrix. The SPM will authorize preliminary ship design and task the JCF to be further developed to become a Ship Alteration Record (SAR).

SUBSECTION 9-5 SUBMARINE FORCE SHIP CHANGE RECORD PHASE

9-5.1 Ship Alteration Record (SAR) Initiation

This subsection details the tasking, funding, and preparation to update JCF information in the form of a Ship Alteration Record (SAR) to support the equipment design and external interface impact identification phase required for all Submarine Force Ship Changes to be approved for installation. See Figure S9-1 for the SC process flowchart. The SAR is the official record document defining approved changes to be made which impact ship platform interfaces. The SAR builds upon the previously approved JCF, providing greater details, a more complete Alteration Material List (AML), if there are ILS products impacts and a list of equipment removals. Ship level ILS products impacted (i.e. SSRs) are identified in the JCF. The ILS Certification Form discussed in Section 6 of this manual identifies the actual equipment level ILS products impacted. The SAR shall be developed in accordance with reference S9(al).

9-5.1.1 SAR Tasking

Normally, the PY will develop or complete the SAR. In some cases, the NAVSEA 05, SPM or LCM/PARM will develop the draft SAR. In these cases, the draft SAR will be submitted to the SPM who will task the PY to complete the SAR. Unless the OPNAV Platform Sponsor or the TYCOM has classified the alteration as an emergent requirement, the SPM will not task the SAR development efforts until the JCF initially has been approved and released. Development of the SAR is not authorized unless the OPNAV Platform Sponsor/TYCOM has programmed or committed to program the alteration for installation.

9-5.1.2 SAR Funding

For SCs for which the SPM receives Design Services Allocation (DSA) funds, the SPM has budget development and financial management responsibilities for SAR efforts. For SCs for which the PARM receives DSA funding, the SPM has responsibility for tasking SAR development regardless of who funds the SAR to be updated. Financial management is in accordance with Section 4).

9-5.2 SAR Development

The Planning Yard is normally tasked to prepare the SAR, which serves as the Design Development Record, and basis for any subsequent SC documentation revisions. The PARM or the cognizant System Engineering Point of Contact is responsible for supplying technical requirements, identifying SC documentation requiring SPM approval, specifying proofing requirements (see Subsection 9-6.6), and noting any requirements for in-process reviews.

The SAR will not identify incidental and consumable material normally procured by the NSA. Standard material items that are stocked on a recurring demand basis are identified in the SAR but need not be identified in NDE-NM. All Logistically Significant Material (LSM) should be reflected in the SAR (see Section 6). Material should be identified, to the fullest extent possible, at the National Stock Number (NSN) level. The SAR will also define material that is to be removed and the associated disposition status, if known.

The SAR developer specifies if the SC impacts ILS products, and impacts on the ship's weight and moment characteristics. Those SARs initiated outside the PY will be forwarded to the cognizant PY for review, approval and completing the development of a cost estimate if required. The PY will return the finished SAR, and all revisions to previously approved SARs, to the cognizant tasking activity for further review and approval.

9-5.2.1 Equipment Design and Interface Control Drawings

Equipment design parameters and impacts to the ship platform and to other equipment interfaces external to the equipment must be identified to support development of an SAR. Equipment design and development of Interface Control Drawings (ICDs) are tasked by the cognizant program office. Equipment design shall meet the requirements of reference S9(q). Equipment which interfaces with Reactor Plant equipment or Naval Reactors-responsible equipment shall additionally meet the interface requirements of reference S9(r).

9-5.2.2 Equipment ILS Plan and Support Requirements

Ship and equipment ILS and support impacts and costs must be identified to support development of SARs. Identification of ILS impacts are tasked by the cognizant program office. See Section 6 of the One Book for ILS product and ILS Plan development procedures.

9-5.3 SC External Interfaces

The cognizant program office and the SPM, once the development of a SAR is approved and funded, will monitor to assure sufficient progress towards completion and conformance to standard practices. The cognizant Systems Engineering Point of Contact will provide additional technical assistance and guidance as required by the PY.

9-5.4 SAR Review/Approval

The cognizant PY, LCM/PARM, System Engineering Point of Contact and SPM shall review and approve the prepared SAR. Subsequent to this approval, the SPM will obtain the required concurrences (e.g., NAVSEA 08 concurrence is mandatory for SCs affecting equipments, systems and spaces associated with nuclear power plants). The SPM or their designee will then conduct the final review of the SAR. Final approval of the SAR by the SPM is required before issuance of the SIDs. Final approval is required NLT A-11 to support a first time SC installation.

A SAR not approved at A-11 or earlier could impact SID development, therefore, if the SAR has not been approved by A-11, consideration must be given to deferral of the first installation at that time. The SPM will update NDE-NM with the latest SC status and material requirements. Engineering Agent/Point of Contact assignment and approval authority requirements are contained in references S9(i) through S9(p).

9-5.4.1 Planning Yard (PY) Approval

When the PY has completed preparation of the SAR and has prepared an SC Cost Estimate Sheet, the PY Chief Design Engineer, or a designated representative, shall sign and date the SAR. The PY approval signature on the SAR indicates that the SAR has been reviewed for completeness, technical, logistics and material requirements adequacy and accuracy, impact on existing equipment and spaces, and consistency with other SCs or SHIPALTs, and based on the information available to the PY, the SAR is correct as written.

9-5.4.2 Naval Air Systems Command (NAVAIR)/Space and Warfare Systems Command (SPAWAR)/PARM Approval

When the accomplishment of an SC affects the configuration of, or installs or removes systems or equipments under the cognizance of NAVAIR, SPAWAR or another activity outside NAVSEA, that activity shall review and approve the technical, material requirements and logistics data in the SAR prior to issue. The NAVAIR/SPAWAR/Other approval signature on the SAR indicates that the SAR has been reviewed for completeness, technical, material requirements and logistics adequacy and accuracy, impact on existing equipment and spaces and consistency with other SCs and, based on the information available to the reviewing activity, the SAR is correct as written.

9-5.4.3 NAVSEA Engineering Approval

The lead NAVSEA Engineering Point of Contact shall review the SAR prior to issue. The cognizant Engineering POC signature on the SAR indicates that the SAR has been reviewed for completeness, technical, material requirements and logistics adequacy and accuracy, impact on existing equipment and spaces and consistency with other SCs or SHIPALTs and, based on the information available to the Engineering POC, the SAR is correct as written. In some cases where the engineering life cycle management responsibilities have been transferred from NAVSEA to another activity, the SPMs will assign technical approval authority to that activity. References S9(i) through S9(p) specify engineering agent assignment and authority requirements.

9-5.4.4 TYCOM Review of SARs

Submarine Type Commanders will review SARs as requested by the SPM in order to make an accurate assessment of the requirements necessary to install the alteration including technical feasibility, level of accomplishment, special material or capability requirements, and inclusion in special TYCOM program initiatives (i.e. Type Commander Kit (TYKIT), AIT).

9-5.4.5 SPM Approval for Ship Platform Level SC Documentation Development and SC Installation

When all other approval signatures have been obtained, the SPM shall sign and date the SAR. The SPM approval signature on the SAR indicates:

- All required reviews have been conducted,
- All required approvals have been received,
- Concurrence with engineering design impact on existing equipment and spaces,
- Consistency with other SCs, SHIPALTs and ILS and
- Based on the information available to the SPM, the SAR is correct as written.

SUBSECTION 9-6 SUBMARINE FORCE SHIP CHANGE DOCUMENTATION DEVELOPMENT AND INSTALLATION PLANNING PHASE

Following approval of the Ship Change SAR, design, material and installation budgets are refined, ship installation design and ILS product development is tasked and accomplished, and SC ship installations are planned and authorized. See Figure S9-1 for flowchart.

9-6.1 SHIP CHANGE COST ESTIMATING

9-6.1.1 SC Cost Estimating Policy

Man-day and material cost estimates shall be of the highest level of accuracy possible. The estimates are to be reviewed and updated as additional information becomes available. All estimates are to be annotated to identify the degree of uncertainty in accordance with reference S9(s). An official set of man-day rates for both public and private yards are to be established and maintained current. Only the established rates are to be used for determining SC installation man-day cost estimates.

9-6.1.2 Cost Estimating Responsibilities

9-6.1.2.1 Ship Program Manager (SPM)

The SPM is the sole authority and is responsible for the following:

- Quality and timeliness of SC installation man day estimates and material cost estimates. The SPM shall establish or confirm the initial estimates at time of approval of the Justification Cost Form (JCF) and shall include these estimates with the JCF.
- Entering and updating SC estimates in NDE.

9-6.1.2.2 Planning Yards (PYs)

The PYs are responsible for providing formal estimates at the time the Ship Alteration Record (SAR) is submitted for approval and again when the SIDs are completed. The estimates are to be provided to the cognizant SPM utilizing a standard estimating record sheet. The SPM shall retain the estimating record sheets as part of the official SC file.

9-6.1.2.3 Naval Sea Systems Command (NAVSEA) Comptroller Directorate (NAVSEA 01) and Logistics, Maintenance & Industrial Operations Directorate (NAVSEA 04)

NAVSEA 04 develops man-day rates for Private and Public sector yards. Based on these individual rates, NAVSEA 04 develops the weighted average port and east/west coast weighted rates, as applicable, applies escalation factors to develop the out-year rates, and issues the final approved rates to the Fleet, NAVSEA 013, and other NMP customers for budget development. With NAVSEA 013 concurrence, man-day rates are entered into the NDE Program Module by NAVSEA 04.

9-6.1.3. Cost Estimating

Estimates are usually developed by the planning yard. The SPM must enter an estimate in NDE based on development information after the completion of each of following stages in the SC development:

- JCF
- SAR
- SID
- Return costs after the accomplishment of the SC

The man-day estimate to be entered into NDE-NM includes those listed in the JCF and SAR with overview to identify basic process explanation.

9-6.1.4 Factors to be Considered in Ship Change Cost Estimating

9-6.1.4.1 First Time Accomplishment of a SC

Determine if any of the following exist:

a. Cost & Feasibility study installation man-day estimate
b. SC initial installation man day estimate
c. Incidental Material costs
d. SC installation man day estimate prepared by an activity other than the PY
e. PY installation cost/man-day estimate
f. Return costs for the accomplishment of a similar SC on another class of ships

9-6.1.4.2 Other Than First Time Accomplishment of a SC

a. If a recent return cost exists for the SC, apply common sense evaluation (Does the estimate appear reasonable for this application?).
b. If a recent return cost does not exist for the SC in question or a similar SC, or the return cost does not appear valid for this application (unique situation for current or previous ship, design refinements since previous accomplishment, etc.), obtain cost/man day

estimate from the PY.

9-6.1.4.3 Other Factors to be Considered

a. Is the SC planned to be accomplished in the public or private sector on the ship under consideration?
b. If the SC is planned to be accomplished in the private sector on the ship under consideration, is the availability likely to be cost-plus or fixed-price?
c. Region of the country where availability is planned?
d. Is the SC a complex alteration or require the use of new or high technology skills or does it require equipment not normally used by most shipyards?
e. Does the SC require the concurrent or prior accomplishment of other SC ?
f. Does accomplishment of the SC require major rearrangement of existing spaces?
g. Does accomplishment of the SC have significant impact on ship's services, i.e. power, lighting, Heating, Ventilation and Air Conditioning (HVAC), electronic equipment cooling water, habitability, etc.?
h. Does accomplishment of the SC require weight and moment compensation not provided by the accomplishment of conjunctive SC?
i. Does accomplishment of the SC require the use of shelters or other special environmental protection measures?
j. Does accomplishment of the SC require the use or disposal of hazardous waste?
k. Does accomplishment of the SC require special hull access cuts to remove/install the SC material?
l. Does accomplishment of the SC require dry-docking of the ship?
m. Does accomplishment of the SC require gas freeing of one or more spaces?

9-6.2 SHIP INSTALLATION DRAWINGS (SIDS)

9-6.2.1 Type of SIDs

SIDs will be prepared for all Title "K", "KP," and "D" SCs/SHIPALTs in accordance with references S9(q) and S9(t). These drawings shall include, as required, system drawings, structural drawings, arrangement drawings, manufacturing drawings, ripout drawings, assembly and detail drawings, temporary access/egress drawings, diagrams, and cabling sheets. The drawings shall not rely on references to other drawings or other data sources to provide information, which the installation drawings should provide. NAVSEA hull, mechanical, electrical, and electronic Standard or Type Drawings may be referenced to eliminate redundancy and promote standardization.

9-6.2.1.1 Class-Applicable SIDs

Class-applicable SIDs are single sets of SIDs, which are prepared to accomplish an SC/SHIPALT on an entire class or sub-class of ships. SC/SHIPALTs which are candidates for utilization of class-applicable SIDs shall be selected based on the following criteria:

- At least the initial set of SIDs for the candidate SC/SHIPALT shall be prepared based on a shipcheck of an applicable ship.
- Sub-class distinctions within the applicable class of ships are reflected in different sets of SIDs.
- Potential hull variations with the applicable class of ships are minimal in the area of the ship to be impacted by the accomplishment of the SC/SHIPALT (i.e., no compartmentation changes).
- Requirements for accomplishment of concurrent SCs/SHIPALTs, field changes, etc., are minimal.

9-6.2.2 Initiation of SID

Development of SIDs is not authorized before an SC/SHIPALT has been programmed for installation on a specific hull in a particular year. Normally, the SPM initiates SID development by tasking and funding the cognizant PY to develop the drawings and associated engineering data package. SID development is normally funded with DSA funds. For alterations in which the LCM/PARM receives the DSA funds, the LCM/PARM shall fund SID development. For some AIT-installed alterations, SIDs are developed by EAs other than the PY - in such cases the PY shall approve the SIDs, and DSA funding shall be provided to PY to support the SID review and approval by whomever receives the DSA funding. The SPM shall task SID development and all required funding for SID development shall be in place not later than A-12.

9-6.2.2.1 Tasking/Funding Letter for SID

The Advance Planning Letter and Authorization Letter will include a list of all programmed SCs/SHIPALTs and identify those for which drawings are to be prepared. Each SC/SHIPALT will have a separate and complete drawing package. With formal approval from the cognizant SDM and SPM, the drawings may integrate multiple SCs/SHIPALTs for efficiency and clarity. The tasking letter will enclose or refer to relevant source documents. Possible sources are the JCF, SAR, relevant SSRs and, upon request, data from NAVSEA 05.

The extent of work for each SC/SHIPALT is included in the drawing. The drawing package shall provide an integrated design of all SCs/SHIPALTs authorized for a specific availability and, as a result, may include work authorized by two or more SCs/SHIPALTs on the same drawing. This is particularly true of drawings such as system modification drawings, structural and foundation

drawings, arrangement drawings, ripout drawings, and temporary access/egress drawings. The cognizant SPM will be immediately notified if adequate guidance is not available.

SC/SHIPALT installation authorization details are contained in Subsection 9-7.

9-6.2.3 Development of SID

Upon receipt of the SID tasking letter, the PY will confirm by letter/message, to the SPM, the ability to complete the design within the specified time frame and within the initial PY DSA requirement estimate. If the PY cannot meet the required completion date or the planning estimate, they must justify why completion is not possible or offer a revised cost estimate. If late tasking jeopardizes the ability to satisfactorily prepare the drawings for an SC/SHIPALT or adversely impacts the ability to accomplish existing higher priority tasks, the PY will advise the SPM, TYCOM and the assigned NSA. SIDs shall be in compliance with references S9(q) and S9(t).

9-6.2.3.1 Shipchecks for SID

There are several types of shipchecks associated with the development and maintenance of SIDs. They include:

- The design information on SIDs is developed based on a shipcheck of the actual configuration of the ship.
- The design information presented on prepared SIDs may be verified by shipcheck.
- The total scope of work presented on SIDs (SC/SHIPALT work) may be ship-checked together with anticipated repair work for possible impact.
- If SC/SHIPALT proofing is required, (see Subsection 9-6.6) the SIDs are checked against the accomplished SC/SHIPALT work to verify that the SIDs reflect the work actually accomplished.

9-6.2.3.1.1 Design Shipchecks

The PY conducts design shipchecks before the development of SIDs to determine the actual configuration of the applicable ship. The engineering information presented on SIDs is based on this shipcheck. This shipcheck is generally conducted around A-18, or for AIT installed interoperability alterations, A-11 to A-8, depending on the availability of the ship, in order to provide sufficient time for the PY to develop the engineering design and produce the SIDs. To support development of specifications and contractual requirements, SID issue date shall be NLT A-6, or for AIT-installed interoperability alterations, (A-4).

9-6.2.3.1.2 Verification Shipchecks

The PY conducts verification ship checks for high risk or complex SCs/SHIPALTs in order to verify that the design information presented on the SIDs reflects the actual conditions on the applicable ship. This shipcheck is generally conducted after preparation of the SIDs but before the required issue date of A-6, or for AIT-installed interoperability alterations, A-4.

9-6.2.3.1.3 Production Shipchecks

The Naval Support Activity (NSA) may conduct production shipchecks for non-competed availabilities to determine the extent of required repair work as well as the total scope of work indicated in the SIDs. For public/private competed availabilities, the bidder who receives Request for Bids can conduct shipchecks. The information gained from these ship-checks is used for workload integration, for manpower planning, and for the development of production job orders. This shipcheck, when required, is generally conducted after delivery of the SIDs and after the TYCOM's Work Planning and Integration Conference (WPIC) (or equivalent meeting).

9-6.2.3.1.4 Proofing Shipchecks

When proofing of an SC/SHIPALT is required by a SAR (see Subsection 9-6.6) and tasked in the SHIPALT Authorization Letter, the PY performs special testing as part of the first accomplishment of the SC/SHIPALT to verify that the intent of the SC/SHIPALT has been met. Part of proofing includes verifying that the applicable SIDs accurately represent the work required to successfully accomplish the SC/SHIPALT. The SIDs are ship-checked against the final ship configuration after accomplishment of the SC/SHIPALT. Based on the information gained from this shipcheck, the PY updates the SIDs to reflect the actual "as-installed" configuration on the ship.

9-6.2.3.2 SID Drawing Development

Drawings are to be user-oriented by providing sufficient detail for manufacturing, assembling, testing, and installing. In addition, drawings will contain engineering support data to ensure design adequacy and to provide an engineering baseline for subsequent users.

Each SID shall be assigned a unique NAVSEA drawing number. When the SC/SHIPALT design affects the configuration of, or data on, other systems, compartments, equipment, etc., sufficient drawing modifications or system drawings shall be prepared to reflect these impacts.

All revised or modified drawings must be clearly identified as such. Drawings will contain a general notes list; parts/materials/equipment lists; an engineering data package; weight, volume, and moment data; and required signatures. (see reference S9(t)).

Completion and approval of SIDs is to be accomplished NLT A-6, or for AIT-installed interoperability alterations, A-4. This deadline must be strictly adhered to. No SID will be issued without an approved SAR. The PY should use all means available to remain on schedule. Should the PY project that the A-6 or the A-4 for AIT installed interoperability alterations deadline cannot be met, the SPM, TYCOM (for Title "D" SCs/SHIPALTs only) and the NSA must be informed immediately with justification for the delay and any recommended resolutions.

9-6.2.3.3 External Interfaces for SIDs

Upon request, NAVSEA 05/53 or the EA will provide technical guidance. Liaison with the scheduled NSA regarding design work progress on SCs/SHIPALTs is encouraged. The NSA should be included as information addressee on all PY correspondence relating to design work.

9-6.2.3.4 Review/Approval of SIDs

SIDs which require review and approval by the SPM are specified in individual SARs. Copies of these SIDs are to be submitted to the cognizant SPM for review and approval prior to the required SID issue date of A-6 or for AIT-installed interoperability alterations, A-4 as directed by the SPM. The SPM coordinates the technical review of the SIDs with NAVSEA 05 and, if required, other activities such as, NAVAIR or SPAWAR. When all technical review comments are resolved, the SPM will issue a letter or message approving the SIDs and the PY will indicate the approval document in the approval block on the applicable SIDs and then issue the SIDs NLT A-6 or for AIT-installed interoperability alterations, A-4.

9-6.2.3.4.1 Resubmission of SIDs

When SIDs are disapproved, they shall be corrected and resubmitted by the PY to the SPM for approval and issuance of the SID approval letter to the SPM.

9-6.2.3.4.2 Revision of NAVSEA Approved SIDs

When revisions are made to SIDs which have been previously approved by SPMs, the SIDs do not require further NAVSEA review or approval unless the revisions result in a change of the technical design details indicated on the SID (revisions which add ship applicability, correct reference listings or stock numbers, or clarify details on the SID which do not change the technical design do not require further NAVSEA review or approvals). Revisions to SIDs which are made as a result of NAVSEA responses to (LARs) do not require further NAVSEA review or approval unless otherwise required by the cognizant SPM. Completion of revised SIDs (as built drawings) shall be accomplished NLT EOA+3.

9-6.2.4 Drawing Schedules

For each scheduled availability the PY will maintain a complete schedule of all SIDs and associated support drawings which are required by the NSA to accomplish the scheduled SHIPALTs/SC. The drawing schedule shall contain the following information as a minimum (the form and format are left to the discretion of the PY):

a. Issue date of drawing schedule.
b. Issuing activity.
c. Applicable ship.
d. Scheduled ship availability dates.
e. All applicable SHIPALTs.
f. All required drawings listed by drawing number.
g. Applicable revision of each drawing listed (see note below). *
h. Title of each drawing listed.
i. Estimated date of delivery to NSA.
j. Actual date of delivery/shipment to NSA.

Note: An asterisk (*) or similar notation on the drawing schedule shall identify all adds, deletes and changes made since previous drawing schedule was issued.

* When a drawing is issued and later revised, the drawing revision shall be listed on the drawing schedule as a separate entry and the original entry shall not be removed from the schedule.

A preliminary drawing schedule shall be issued to the NSA at A-12 and the final schedule is to be issued NLT A-6 with the formal issue of the SIDs. The drawing schedule is to be updated and issued to the NSA at least monthly after A-12 or for AIT installed alterations, A-4 until all drawings and revisions are completed and issued.

9-6.2.5 SID Material Support Requirements

Once the SIDs have been developed, drawing material requirements must be reviewed to ensure that proper material and material quantities are identified to the various supply activities. Section 5 provides detailed material support procedures.

9-6.2.5.1 SAR Material Listing

The PY shall review the SARs against the applicable SIDs to verify consistency of material specified in the SAR AML and the SAR lists of Material (LOMs). The SPM or the designee shall be notified if the SAR LOMs modify previously identified material on the SAR AML. The SPM shall then update NDE-NM Logistics Application to identify the actual material requirements for the accomplishment of the applicable SC on the specific ship and change the Alteration Bill of Material Source Code (ABOM) indicator, if necessary.

9-6.2.5.2 Material Procurement Specifications

As directed by the SPM, procurement specifications shall be prepared by the PY for all SID required non-standard material (material which cannot be ordered by NSN, which is not being provided by a HSC (NAVSEA, NAVAIR, SPAWAR, etc.) as part of the SC. The specifications shall be as self contained as possible and tailored to reflect only those requirements necessary for the designated ship. The specifications shall be provided to the NSA at the same time the SIDS are issued.

9-6.3 NAVY DATA ENVIRONMENT-NAVY MODERNIZATION (NDE-NM) DATABASE

NDE-NM is used for submarine Ship Change ILS Status Tracking and Certification support and for Ship Change Material and Installation Cost Tracking. Further information is contained in Subsection 8 of this manual.

9-6.4 MATERIAL TASKING AND PROCUREMENT

See Subsection 5 of this manual for material tasking and procurement procedures.

9-6.5 HULL READINESS ASSESSMENT

A SC is deemed mature when it has met specific criteria. Maturity elements may include but are not limited to: SAR approved by the applicable milestone (see Appendix G); SID/System/Equipment ICDs approved; ILS package certified complete; contained in the fleet

commander's approved C5IMP baseline for execution year (for applicable C5ISR equipment) and all conjunctive SCs are also mature and ready for installation.

A SC that has met all maturity requirements for installation; is properly scheduled; and is reflected as authorized by the SPM(s) and Operational Commander(s) approval recommendation is deemed ready for installation. Authorization implies tasking to execute SC specifically programmed for accomplishment in a particular availability. A requirement to install SCs conjunctively may impact authorization status. All known conjunctive SCs must be fully mature before any will be authorized.

SPMs will:

- Ensure the ship's Maintenance Plan has been updated to reflect the changes authorized
- Ensure each SC meets the required milestones for the availability.

and PEOs will:

- Ensure that all required finalization of design, procurement of material and pre-installation testing is completed
- Ensure that all required certifications/risk assessment(s) are completed and approved prior to initial installation
- Clarify the resolution to any identified discrepancy(s), at a hull level, by presenting a complete review to include technical shortfalls, costs, and operational impacts. If it is determined that all testing/certifications listed as required in the SAR are complete and approved, the installation is authorized.

If it is determined that the SC does not meet all of the requirements, then a risk assessment must be submitted. The appropriate Approval Authority may accept or deny any risk(s) associated with a SC not fully mature and the process is tracked to closure. The SPM will coordinate with individual Submitter(s) and Fleet POC(s) to determine the acceptance of risk(s) associated with SC not fully mature. Authorization Letters and Quarterly Scheduling messages will be updated.

9-6.6 PROOFING OF SUBMARINE FORCE SHIP CHANGES (SCs)

9-6.6.1 Background

In the accomplishment of high visibility, major, or complex SCs or the integration of several major or complex SCs which are accomplished during the same availability it may be desirable to assure that the accomplishment of the SC or combination of SCs achieves the desired results. When required the decision to conduct proofing is made during the SC development process and is a specifically funded event which is noted in the applicable Advance Planning and

Authorization Letters issued by the SPM for the first ship scheduled to receive the SC(s). Only those SCs which indicate "PROOFING REQUIRED" in the respective SAR shall be proofed.

9-6.6.2 Proofing Process

Proofing of a SC or a combination of SCs is normally conducted by the cognizant PY or, in some cases, by another activity with the participation of the PY. The applicable SAR(s) provides basic information on specifically what functions are to be proofed, the rationale for proofing, and the activity responsible to conduct of the proofing (normally the PY).

9-6.6.2.1 Planning Requirements for Proofing

As soon as the PY receives an Advance Planning Letter from the SPM which indicates that proofing of one or more SCs is required as part of the availability, the PY should begin planning for the proofing event, usually conducted near the end of an availability. The planning includes making a determination of the technical characteristics which are to be demonstrated (from the applicable SAR(s) and contacts with the HSC Technical Point(s) of Contact indicated on the SAR(s)) and then determining what methods are to be used to demonstrate the specific characteristics (generally, special testing is developed which demonstrates the specific characteristics). If a SAR indicates that the proofing is to be conducted by an activity other than the PY (generally a system or equipment ISEA), the PY will establish points of contact with the designated activity and provide assistance as required to insure that the required technical characteristics will be adequately demonstrated by the proofing.

9-6.6.2.2 Proofing Documentation

The activity designated to perform the proofing will develop all documentation (generally special tests or operational demonstrations necessary to demonstrate the characteristics which are required to be proofed in accordance with the applicable SAR(s)). NAVSEA 05 shall approve the methods selected for proofing before the actual development of documentation. The final proofing procedure shall be reviewed, and may be required to be approved by, the cognizant NAVSEA 05 prior to performance of proofing. In cases where the at-sea participation of the ship is required, the approval of the Commanding Officer of the applicable ship and the applicable TYCOM is required.

9-6.6.2.3 Performance of Proofing

The performance of proofing requires coordination between the activity responsible for the proofing, the NSA overseeing the assigned ship availability, and the cognizant LCM/PARM. The NSA is responsible for the scheduling and integration of all testing to be performed in support of a given availability and shall schedule all tests or demonstrations in support of SC proofing. In some cases proofing may be conducted during sea trials or after the EOA. For example, weapons systems demonstrations (target tracking, gunnery and missile demonstrations, etc.), have special support or operational requirements for proofing (e.g., airborne or submerged targets, live fire testing, use of gunnery or missile ranges, support ships or aircraft). In these cases, coordination with the applicable TYCOM and support activities will also be required prior to the proofing.

The proofing is generally witnessed by representatives of the SPM, PY, LCM/PARM, ship's force, and other activities as required.

9-6.6.2.4 Proofing Report

The activity responsible for the proofing shall prepare a Proofing Report which describes the results of the proofing, overall technical evaluation of the SC, and recommended changes/corrections to the SARs, SIDs, or other SC documentation which would improve the performance or accomplishment of the SC(s). The report shall be submitted to the cognizant SPM.

9-6.6.3 Proofing Follow-up

After successful proofing, the PY shall shipcheck the applicable ship and verify that the applicable SIDs accurately reflect the "as-installed" configuration of the SC. The applicable SID master files are then revised to reflect the actual ship configuration. The SIDs which may have been prepared for follow-on ships of the class receiving or scheduled to receive the proofed SC(s) are reviewed against these corrected drawings for possible corrections/revisions to insure successful accomplishment of the SC(s) in follow-on ships.

9-6.7 AUTHORIZATION FOR SC INSTALLATION

Authorization procedures and approval authority for submarine Title "K" and "KP" SCs is contained in Section 7.7 of this manual.

9-6.8 SUBMARINE FORCE SHIP CHANGE FIELDING PLAN

The Submarine Force develops fielding plans based on the threshold (must accomplish by date) in the Minimum Modernization Matrix (MMM), part of the Prioritized Undersea Enterprise Requirements Letter (PURL), and available funding. The goal is to field all installations in accordance with thresholds established by the Undersea Enterprise (USE).

9-6.8.1 Initial Installation Planning/Budgeting

Based on budget availability and Ship Change priorities established by the USE, OPNAV provides funding to meet thresholds identified in the MMM/PURL. PARMs and TYCOMs develop an initial plan for installations based on funding provided and platform availability. Installations will be planned during CNO Availabilities, TYCOM Opportunity Availabilities (TOAs), and pierside upkeeps using fleet maintenance activity (FMA), Intermediate Maintenance Facility (IMF), shipyard, and Alteration Installation Team (AIT) labor as appropriate and necessary.

9-6.8.2 C5I Conference

The Undersea Enterprise C5I scheduling process establishes a baseline for near-term modernization windows and advance planning over an eighteen-month period. It aligns submarine C5I modernization with operational commitments and requirements; driving submarine classes (or flights) toward a common configuration; ensuring proper testing is conducted; certifying C5I alterations well in advance of modernization windows in order to reduce late changes and associated cost increases during submarine maintenance availabilities; while providing POM/Program of Record (POR) input for future budget planning. This process supports and feeds the Naval NETWAR FORCEnet Enterprise (NNFE) C5I Modernization Conference (NCMC).

9-6.8.3 Submarine Force Installation Schedule Changes

Scheduling changes will be handled by the appropriate responsible activity (PARM or TYCOM) and vetted through the Undersea Enterprise (USE) as required on a case by case basis.

9-7 INSTALLATION AND CLOSEOUT OF SUBMARINE FORCE SCs

9-7.1 Scope

This section addresses installation of the SC, feedback from installations, evaluation of installations to determine whether to continue, and final closeout of the SC.

9-7.1.1 Install SC

Once an installation readiness assessment is completed, and all risks have been either mitigated or accepted by the cognizant TYCOM, the SC is ready for installation. Note that acceptance of Risk does not absolve the SC sponsor (PARM/LCM/SPM/TYCOM) from the requirement to complete the planning products for which the Risk was accepted. Reference S9(u) provides specific requirements for combat system and C5I installations.

9-7.1.2 SC Check In (for AIT installations)

AIT installations shall follow the requirements of references S9(v) and S9(w). Regional Maintenance and Modernization Coordination Office (RMMCO) Check In is required for all SCs being installed by an AIT. For locations where no RMMCO has been established, AITs shall follow RMC/FMA/IMF Check In requirements. RMMCO Check In requirements are contained in Appendix H. AITs are required to comply with all RMMCO Check In requirements prior to proceeding onboard the ship to accomplish the installation.

9-7.1.3 Installation of SC

The designated Executing Activity will execute the work based on the technical documentation developed during the installation planning for a Ship Change. The RMC/NSA is responsible for government oversight of all work performed during an availability. AIT supervisors/On-Site Installation Coordinator assigned by PARMs or TYCOMs are responsible for overseeing contractor work and shall work closely with the RMC/NSA to ensure the proper integration and installation of the SC.

9-7.1.4 Testing of SC

Testing of the SC will be accomplished in accordance with the Test Plan. The results of the testing shall be documented and provided as feedback to the SC.

9-7.1.5 ILS Delivery

SC-specific ILS shall be developed and certified in accordance with One Book Section 6. The SC sponsor (PARM/LCM/SPM/TYCOM) is responsible to ensure the SC-specific ILS is delivered to the ship upon completion of the installation. For AIT installations, this is part of the RMMCO Check Out process in accordance with references S9(v) and S9(w).

9-7.1.6 Validation of Installation and ILS Delivery

The RMC/NSA is responsible for validation of the installations and that ILS has been delivered to the ship. The RMC/NSA is also responsible for developing the Completion Report at the end

of the installation/availability. The SC sponsor (PARM/LCM/SPM/TYCOM) is responsible, for AIT installations, to provide the RMC/NSA with data required for the Completion Report and 2K Closeout.

9-7.1.7 Completion Report

The RMC/NSA will issue a Completion Report at the end of the availability in accordance with references S9(x), S9(y), S9(z) and S9(aa).

9-7.1.8 Installation Return Costs

Installation labor and material return costs shall be provided when known. These costs must be recorded in the appropriate fields in NDE by the SC sponsor (PARM/LCM/SPM/TYCOM) or designated activity. Return costs for AIT installations must be provided by the SC sponsor for inclusion in NDE.

9-7.1.9 Configuration Management

During installation planning, the SC sponsor (PARM/LCM/SPM/TYCOM) or designated agent (i.e. ISEA/AIT/PY) will have submitted to the Configuration Data Manager (CDM) the CDMD-OA work files for each SC. This shall have occurred no later than 60 days prior to installation start. These work files will have been combined with additional data from the PY and processed into the ship's database as Configuration Overhaul Planning (COP) data by the CDM.
Upon installation completion, the Executing Activity shall submit CDMD-OA "end of installation" work files updating the pre-loaded COP records, providing any additional data in accordance with TS 9090.700 series. Completion of the installation and accuracy of the reported configuration will be verified by the NSA/CDM and will be checked against the CDMD-OA record. The record will be corrected or updated as necessary prior to closing the SC COP file. Upon completion of the installation and site validation by the CDM or designated homeport CDM On-Site Representative, the installation status code and validation will be updated in CDMD-OA.

9-7.1.10 Schedule (Completion Date and Status)

SPM/TYCOM shall ensure that the actual completion date of the SC is entered into the appropriate field(s) in NDE-NM. For CNO availabilities, the availability completion date may be used as the SC completion date. TYCOM will enter Title "D" and "N" SCs and SHIPALTs in NDE-NM when NDE-NM is revised to accept U-NNPI data.

9-7.1.11 ILS

Once the NSA/SPM has verified that all ILS has been delivered to the ship, the SC may be placed in status “C” (Complete) in NDE-NM. If ILS is incomplete or testing is reported as incomplete, the SPM or TYCOM will place the SC in status “R”. Outstanding ILS is to be tracked by the SPM/TYCOM until delivery is confirmed. Monthly messages from the PARM to the SPM or designated activity and TYCOM are required providing status of outstanding ILS until delivery is confirmed. ILS issues will also be tracked as ILSMT action items and/or in the EOA/EOI reporting structure.

9-7.1.12 Partial Accomplishment

If a SC is only partially accomplished for some reason, a meaningful description of the additional effort required to complete the installation will be provided in the Completion Report. This information may necessitate that remaining work be scheduled for a later availability. If the completion of the SC requires an action in accordance with Subsection 9-7.1.6 of this manual, the SC shall remain in status “A” (Active) for the subject hull (with appropriate comments in NDE-NM) until the SC is completed for that hull.

9-7.1.13 HSI Fleet Certification

SARs with significant impact to Sailor performance will be certified by the applicable TYCOM to verify that the SC has met requirements and enhances Sailor performance. Definitions of “Significant Impact to Sailor Performance” can be found on the HSI website (http://hsiport.serco-na.com).

The HSI certification is an operational certification conducted by the TYCOM to determine that the SC met the original requirement for Sailor Performance. The TYCOM will evaluate the SC upon completion of installation and a suitable operational demonstration period as defined by the TYCOM. The TYCOM certification occurs after an operational assessment, and the TYCOM is the certifying authority.

If the SC meets the original requirement, the TYCOM will certify the SC and notify the HAT Coordinator, the Submitter/PARMs, SPM, Technical Authorities and any other applicable parties (such as Learning Centers). Notification will be in a written format (to include standard Navy message formats) and will include issues and concerns that must be mitigated.

9-7.1.14 OPNAV 4790 2-Kilo Closeout

Processing and closeout of 2-Kilos is covered under NAVSEAINST 4790.8 series, reference S9(z). As applicable, a 2-Kilo associated with a particular hull SC can be closed out once all feedback information required by the 2-Kilo is received and the SC can be considered complete. Using the feedback provided above, the SC sponsor (PARM/LCM/TYCOM), Fleet Commander

(FLTCDR) for C5I, and SPM will determine whether to recommend stopping future installations of the SC, and whether the SC requires revision.

Technical, ILS, Material, CM, or other issues may require evaluation by the SPM, PARM, or TYCOM to determine if the SC merits further installation.

9-7.2 LIAISON ACTION REQUEST

This subsection addresses the preparation of the LAR, which is the formal documentation tool for technical communications among PYs, NSAs/RMCs/IAs, and the SPMs in the installation of SCs. LARs shall be used to facilitate the resolution of design questions and change requests regarding drawings, changes to technical documentation and tasking assignments, and the transmittal of waivers and deviations and shall be the only vehicle used by NAVSEA for the transmittal of technical requirement changes to PYs after approval of a SAR. LARs are not to be used to authorize work or deal with programmatic changes. Reference S9(ab) states "cost and impact information should not be included in the LAR, but should be provided in supplementary documentation". LARs shall follow guidance in reference S9(ab).

9-7.2.1 Initiation of LARs

At A-480, the NSA/RMC shall establish points of contact with the applicable PY. In situations where the availability is being offered to the private sector, the Planning SUPSHIP shall establish initial contact. The NSA/RMC will establish contact with the PY as soon as the industrial activity is selected. Each activity will designate individuals as points of contact and supply the names, codes, telephone numbers, and functional areas of these individuals. Each activity will also maintain a log of all LARs and LAR responses applicable to a specific availability. Processing of LARs will be accomplished in accordance with reference S9(ab).

9-7.2.2 NSA/RMC Generated LARs

An NSA may generate LARs to:

- Request clarification of information provided on SARs, SIDs, test requirements, specifications, etc., provided by the PY
- Request modifications to design information provided by the PY
- Request on-site engineering support
- Request deviations and waivers from installation design requirements (see Subparagraph 9-7.2.5)

9-7.2.3 PY Generated LARs

A PY may generate LARs to:

- Request SPM/PARM clarification of information provided on SARs, SC guidance

drawings, test requirements, specifications, etc., after a SAR is issued
- Request on-site engineering support from the SPM/PARM
- Request modifications to or reassignment of SPM/PARM tasking related to SC design or accomplishment
- Request deviations and waivers from SC design requirements imposed by the SPM/PARM (see Subparagraph 9-7.2.5)
- Provide advance notification to the NSA/RMC of urgent and mandatory or new requirements which may impact on-going production work.

9-7.2.4 Ship Program Manager (SPM) Generated LARs

A SPM/PARM may issue a LAR to forward SC requirements changes to a PY after the applicable SAR(s) has been approved and issued.

The LAR shall be developed and processed in accordance with reference S9(ab). The initial request may be made by telephone, message or fax when urgency demands, but must subsequently be followed up with a written serialized LAR.

9-7.2.5 Deviation and Waiver LARs

A LAR may be utilized to forward a request for major and minor critical departures from specified requirements per reference S9(ac). For nuclear-powered vessels, all minor departures on propulsion plant systems or support systems shall be in accordance with references S9(r). Deviations from non-reactor plant, non-deviation submarine drawings must be submitted on Form DD 1694 Request for Deviation/Waiver as an attachment to the LAR. The completed Form DD 1694 shall be sent directly to the cognizant SPM by the activity requesting the departure (i.e., PY or NSA/RMC). If a request is developed by a NSA/RMC, a copy of the request shall also be forwarded to the applicable PY for information.

Excepting minor departures covered by reference S9(ad) and deviations from non-reactor plant drawings, minor departures (per reference S9(ac)) may be approved at the local NSA/RMC level. The NSA/RMC will forward copies of all locally approved departures to the applicable PY at end of availability plus two months (EOA+60). A LAR shall be used as the forwarding document for these departures.

9-7.2.6 Review/Approval of LARs

NSA/RMC generated LARs that do not involve waivers and deviations will be routed to the PY or on-site representative for action. Unresolvable LARs and those initiated by the PY will be forwarded to the cognizant Engineering Agent (EA) via the appropriate SPM. The EA will

respond via the SPM with a copy to the NSA/RMC and the PY. The action addressee will notify the originating activity of the date of response, particularly when a response will require more than fourteen days or will exceed the requested response date. The response to a LAR will be communicated on the LAR form or by letter/message to the originating activity. LARs generated by the SPAWAR, LCMs, equipment managers, etc., to reflect requirements changes, will be forwarded via the cognizant SPM for approval.

9 -7.3 EMERGENT REQUIREMENTS

9-7.3.1 Background

The responsibilities and procedures contained in this manual have been designed to provide orderly and systematic accomplishment of necessary design and documentation functions in support of the submarine modernization program. These procedures, however, may not be sufficiently responsive where, because of military or technical necessity for emergent SC accomplishment, deviation from specified procedures and responsibilities is required.

9-7.3.2 Execution of Emergent Requirements

The SPM will indicate the SC as high priority to all SC development and design activities. The SDM and the SPM will review the SC development status and reprioritize schedules to best facilitate the development of the emergent SC within the specified time period. This may include delaying the development of lower priority SCs, providing extra manpower or material resources, and closely monitoring the status of all related products within the design phase.

The SPM will be informed of any problems in meeting completion dates by development activities or the cognizant EA. The SPM will approve, through the LAR system, procedural changes and deviations it deems necessary to ensure the satisfactory completion of the emergent requirement. Should the SPM determine that sufficient resources or materials will not be available, they will advise the OPNAV Platform Sponsor and revise or cease the SC development process for the emergent requirement.

The NSA will take all possible actions to accomplish the tasking within the completion date specified by the SPM. It is mandatory that the PY be prepared to support the NSA with added design support. In addition, the SPM will define SC/SHIPALT execution steps that need not be fulfilled. The appropriate PY or NSA will immediately notify the SPM when delays, interruptions, or lack of required guidance are evident.

The SPM will ensure that appropriate actions are taken, in accordance with Section 6 of this manual, to provide logistics support for emergent requirements. SCs/SHIPALTs will be installed with full Logistics Support unless otherwise authorized by the TYCOM with an approved risk assessment. Interim support will be provided in those cases when lead times preclude full Navy support. This will be in accordance with reference S9(ae).

9-7.4 SC COMPLETION REPORTING

The RMC/NSA will issue a Completion Report at the end of the availability in accordance with references S9(x), S9(y), S9(z) and S9(aa). For ship changes installed by the Fleet Maintenance Activity or ship's force, the ship's alteration coordinator, FMA, and the ISIC will ensure 4790/CKs are processed in accordance with references S9(x) and S9(af).

9-7.5 SHIP SELECTED RECORDS (SSRs)

9-7.5.1 Background

SSRs are documentation of design or characteristics of HM&E systems, and related information by hull. They are selected because of their value for operational, maintenance, modernization, training, and consulting purposes to individual ship's forces, fleet commands, shipyard personnel, training centers, and other naval activities.

SSR drawings and data are updated by the PY as tasked by the SPM. SSRs shall be in accordance with the requirements of references S9(q) and S9(ag). Selected Record Drawings (SRDs) shall further be in accordance with reference S9(ah). The update is to be done during the scheduled availability's year and is to be funded NLT A-12 via the SAR. The update will be reflected in two products. These products are the interim "printer’s proof copies" delivered to the ship prior to the end of the ship's availability (or Fast Cruise, if applicable) and the final copies provided to the ship by EOA+2, except Training Aid Booklets (TABs), which should be delivered by EOA+6. The NSA/RMC will verify the delivery status of the Selected Record Drawings (SRDs) and Data at the designated milestones for all ships.

9-7.5.2 Initiation of SSRs

The PY has life cycle responsibility for SSRs for those ships assigned to it. The PY maintains custody of the SSR Masters (vault copies) and maintains the SSRs configuration on a continuing basis. NSWCCD-SSES, Standard General Markup Language (SGML) Repository is the custodial location of Electronic Master Copies of SGML Manuals used by the PYs to support the individual ships.)

9-7.5.3 Tasking for SSRs for SCs Installed During Scheduled Availabilities

Tasking for SSR maintenance and update incident to an industrial availability is accomplished, via the SAR, through the SC LOA. The Technical Instruction (TI) is used for private PYs. The PY may, in turn, task SSR work to Technical Manual Maintenance Activities (TMMAs) or ISEAs as necessary but retains the responsibility for accuracy of the final product. The task will require that the work be done during the availability.

9-7.5.4 Tasking for SSRs for SCs Installed Outside Scheduled Availabilities

If a significant SSR update is required as the result of an availability not covered by a SC LOA, the PY must inform the cognizant SPM of the circumstances, including the scope of work and an estimate of funds required for accomplishment. All SSR operations not incident to a scheduled industrial availability are separately funded by SCs sponsor as directed by the SPM.

9-7.5.5 Execution of SSRs

The PY insures the incorporation of all required changes and/or modifications to SSR drawings and data. Changes from any source may impact PY maintained documents and necessitate revision. Sources of changes are:

- Maintenance activities performing industrial availabilities
- SCs accomplished by forces afloat or AIT for assigned ships
- Reactor Plant Planning Yards (RPPYs) modifications to reactor plant and associated systems for nuclear-powered ships

9-7.5.6 Industrial Availabilities

For industrial availabilities, the PY is responsible for identifying ship's SSRs affected by the SCs authorized for accomplishment during the availability. The PY includes any changes indicated in the marked-up Ship's Master Copies, which are furnished to the PY representative by the Ship’s Force at the SOA. The PY provides interim SSR drawings and data to the ship at EOA-1, or by Fast Cruise, if applicable.

9-7.5.7 SSR Update/Changes

The PY will identify the SCs being installed during the availability along with the impacted SSRs. Document change activity will be captured in the revision block or via the change page listing of the impacted documents. The PY is responsible for incorporating all changes resulting from the availability in the SSR.

For industrial availabilities of nuclear powered ships, the PY is responsible for providing to the cognizant NSA/RMC two copies of the ship's SSR update reflecting all known configuration changes previously accomplished and the SCs authorized for accomplishment during the availability. The cognizant NSA/RMC forwards a request for SSR NLT A-4 and the PY provides them prior to SOA

9-7.5.8 Expanded SSR Drawing Baselines

The number of SRDs required for each ship varies with the ship class (see reference S9(ah)). The required size of the drawing baseline has been increased for most ships. The PYs will produce the additional drawings on a ship-by-ship basis as tasked by the SPM. The PY will assume the full maintenance responsibility, storage, update, validation, certification, and distribution for each ship's total SRD suite.

As tasked by the SPM, the PY ensures the distribution of final printed copies by EOA+2. During periods of budget constraints, the delivery schedule for SSRs may be modified by the SPM. For computerized Damage Control Plates, the PY ensures distribution of final printed copies within 45 days following EOA.

Forty-five days after EOA, the PY provides the ship with a delivery status report/letter indicating, for each SSR item, the anticipated delivery date and the transmittal identification of any item being forwarded. All deliveries of corrected copies must be completed NLT EOA+2, or notification of delay is required, in writing, to the cognizant SPM identifying the document and cause of delay. During periods of budget constraints, the delivery schedule for SSRs may be modified by the SPM. The PY has the primary responsibility to maintain and update SSR. However, it is essential for the industrial activity to establish close liaison with the PY before, during, and after all availabilities to ensure that accurate and timely exchange of information takes place to facilitate periodic update of all SSR.

9-7.5.9 Verification of SSR

The PY will verify to the ship that SSR affected during the availability have been updated and reflect the current ship configuration. This verification of accuracy and currency is made in writing by the PY with the preprinted SSR update package delivered to the ship at EOA ~~-30~~ -1or by Fast Cruise, if applicable.

For Industrial Availabilities of all ship types the PY/NSA/RMC will verify the delivery status of the SSRs at the EOA milestone, and will also verify that the Coordinated Shipboard Allowance List (COSAL) has been updated, in accordance with the verification requirements of reference S9(ae) and Section 6 of this manual.

9-7.5.10 SSR Transfer for PY Assignment Changes

When notified by NAVSEA of pending changes in the PY assignments (see reference S9(n)), the current PY will be responsible for establishing orderly SSR transfer procedures and carrying out the transfer in a timely manner. When the new PY is identified, it shall make a formal request to the "old" PY for documentation transfer. All documentation is to be forwarded within 30 days of receipt of a valid and authorized request. The cost of SSR transfer is not chargeable to Miscellaneous Documentation Services (MDS), but will be absorbed in PY overhead.

SUBSECTION 9-8 EQUIPMENT ALTERATION SPECIAL REQUIREMENTS

Equipment alterations are changes that are internal to specific equipment which do not impact interfaces with the ship platform, ship weight and moment, ship characteristics, submarine silencing or submarine safety or are changes which are temporary in nature. Equipment alterations may include hardware, software or firmware changes. SARs will not be used in the Submarine Force modernization program to process these changes. Change approval processes and documentation for these special equipment alterations are addressed in the subsections which follow.

9-8.1 ORDNANCE ALTERATIONS (ORDALTs)

9-8.1.1 Scope of Subsection 9-8.1

This subsection defines the policies, procedures and responsibilities associated with the preparation and installation of ORDALTs in non-expendable ordnance items. It applies only to installations on submarines under the cognizance of the Navy Modernization Program (NMP). ORDALTs to expendable ordnance items are not part of the NMP process. Expendable items include such items as torpedoes, external countermeasure devices and missiles. Non-expendable items include such items as Vertical Launch System tubes, Torpedo Tube Control Panels and External Countermeasure Launcher Systems.

9-8.1.2 Definitions for Subsection 9-8.1

For purposes of this subsection, the following definitions are provided:

a. Combat System (CS) - A functional grouping of all shipboard equipment and systems that are designed to detect, track, identify, communicate, process, evaluate and control the engagement of enemy forces, either actively or passively. The CS includes: command and control, missiles, combat control systems, launchers, torpedoes, rockets, sensors, electronic warfare, communications, navigation, associated computer programs and related off-board assets. The CS is the totality of the warfighting capability of a submarine.

b. Configuration Control Board Directive (CCBD) – A document that authorizes the implementation and the commitment of resources for an approved ECP and associated ORDALT.

c. Conjunctive Ship Change (SC)/SHIPALT – ORDALTs that impose an impact on a ship's system (such as increase in ship's power, increase in cooling requirements, change in weight and moment, and impact on water tight integrity) may, as determined by the CCB, require a conjunctive SC/SHIPALT. The ORDALT will become a part of the SC's/SHIPALT's bill of material and will be accomplished concurrently with and be funded by the SC/SHIPALT.

d. Conjunctive ORDALT – A conjunctive ORDALT is one that must be accomplished before, with or after another ORDALT or other alteration type for the system/equipment to

operate as designed.

e. Embedded Equipment - A configuration item that is resident within or associated with another system or equipment and is therefore identified as an integral component of that host system or equipment. Embedded computer resources, usually comprising an embedded computer and its associated computer programs, typically define embedded equipment.

f. Latent Defect - A defect that existed at the time of government acceptance of the equipment/system but was not detectable with existing inspection or test procedures.

g. Ordnance Alteration (ORDALT) - Any modification, other than a SHIPALT/SC, in the configuration of non-expendable ordnance equipment or systems (including embedded equipment and computer programs) after establishment of the product baseline. An ORDALT involves a change in
design, material, quantity, installed location, ILS, supportability, or the relationship of the component parts of an assembly within the ship or shore installation. ORDALTs include the addition, deletion, rework or replacement of parts, assemblies or equipment; or changes in assembly procedures. Alterations to associated computer programs include the incorporation of different computer program versions, and approved modification or corrections to both operational test and maintenance programs. ORDALTs are initiated by approved Class I ECPs, in accordance with reference S9(p) and apply equally to changes installed in delivered systems and equipment, and changes installed in systems and equipment in production to identify differences from an established product baseline. ORDALTs may be initiated to correct a design defect, to change equipment operational capability, to eliminate safety hazards, to update obsolete components, or for any combination of these reasons.

h. ORDALT Instruction - ORDALT Instructions are technical documents that provide directions, drawings, test procedures and list of parts and material supplied or required to accomplish an alteration and the procedures for reporting the change as being installed at a specific site. ORDALT instructions are technical documents which are to be prepared in accordance with reference S9(p).

(1) ORDALT Instruction Change - A correction, addition or deletion to the text to improve clarity, for changes in applicability, to correct latent defects or for other simple corrections such as typographical errors. A change does not affect the entire ORDALT Instruction but rather affects existing pages or may add pages to the instruction. Changes are identified numerically, for example, ORDALT 12345 Change 1.

(2) ORDALT Instruction Revision - A complete rewrite of an existing ORDALT Instruction retaining the same ORDALT Instruction number together with a revision letter, for example, ORDALT 12345 Revision A. A revision is employed when a major correction, rewrite or revision to the technical data is required, or to correct latent defects discovered after government acceptance of the basic ORDALT. Revisions shall not be used when form, fit or function as defined in MIL-STD-480 is affected.

(3). New (Superseding) ORDALT Instruction - An instruction issued instead of a

revision whenever: (a) the material to be supplied with the new ORDALT is not completely interchangeable with the content of the original ORDALT kit and (b) the changes are such as to require the submission of a new completion report even though the original ORDALT has been completed. New ORDALT Instruction numbers are assigned to superseding ORDALTs.

i. ORDALT Kit - An assemblage of the ORDALT Instructions, publications, ILS package (TM changes, revised PMS documentation, and updated APLs, On Board Repair Parts (OBRPs), I&C spares, Maintenance Assistance Modules (MAMs), special tools, special test equipment), the required hardware to accomplish the alteration, revised computer programs/software, alteration identification plates. The kit may contain Interim Supply Support (ISS) material to support the alteration until the Material Support Date (MSD) has been achieved.

j. Performing Activity - An activity performing any of the requirements of a contract or any instrument implementing an agreement between a tasking activity and a performing activity. A performing activity can be either a commercial or government activity.

k. Product Baseline - For in-service equipment/systems, the product baseline is the currently approved product baseline plus government approved changes thereto for deployment, operation and reprocurement. For new equipment and systems in production, the product baseline is considered established when Functional and Physical Configuration Audits (FCAs and PCAs) have been successfully completed, the procurement documents defined in reference S9(ae) are in place and the baseline APL has been created and entered into Level C of the Weapon Systems File (WSF).

l. Tasking activity - An activity imposing the requirements of a contract on a performing activity, for example, a government contracting activity awarding a contract, a government program management office tasking a performing activity; or a contractor tasking a sub-activity.
m. Technical Documentation - Documents that transmit the technical data, instructions and safety procedures related to the operation, installation, maintenance and modification of the system/equipment being altered. These documents include new and revised TMs, PMS documentation (including Maintenance Index Pages (MIPs) and Maintenance Requirement Cards (MRCs)), test procedures, revised APL/AEL and other documentation required to maintain and support the equipment being altered.

9-8.1.3 Organizational Responsibilities

Roles and responsibilities required for the approval, development, installation, and support of ORDALTs are described below.

9-8.1.3.1 Equipment Life Cycle Manager (LCM)

The LCMs (sometimes referred to as Participating Manager (PARM)) for ORDALTs have

technical and ILS responsibility for assigned equipment. Specific responsibilities of the LCM include:

- Process Class I ECPs to effect the transition of an approved Class I ECP into an ORDALT.
- Prepare and process a Justification Cost Form (JCF) if a conjunctive Ship Change requirement is indicated.
- Issue the CCBD initiating each alteration.
- Recommend priority levels for ORDALT accomplishment.
- Plan, program and budget for ORDALT procurement and ILS.
- Provide procurement budget detail as well as estimated cost and schedule for ORDALT installation to NAVSEA 04M313.
- Provide accurate and timely ORDALT planning and installation information and input this data into the NDE-NM.
- Plan and monitor the development and implementation of ILS products as detailed in Section 6 of this manual.
- Maintain configuration control and CSA information for cognizant equipment and systems.
- Direct evaluation or proof-in of ORDALT, including computer programs and other documentation changes.
- Approve the ORDALT Instruction, changes and revisions.
- Direct ORDALT kit assembly, shipment, storage, inventory, maintenance, and kit issue to the installing activity.
- Direct cannibalization and disposal of material removed by ORDALT Instructions and obsolete kits still in inventory.
- Interface with the SPM and ORDALT Program Manager (PM) regarding required escrow changes in NMP funding.

9-8.1.3.2 Combat Systems Engineer (CSE)

- Conduct cognizant Ship Class Combat System Engineering reviews of all ECPs for CS interface impact if required under subsection 9-8.2.5.1.
- Review and provide technical approval for SARs and SIDs for conjunctive SCs/SHIPALTs.
- Review alteration installation waiver requests and provide concurrence as appropriate.

9-8.1.3.3 NMP ORDALT Line Item Manager (NAVSEA 04M313)

- Establish ORDALT program policies and procedures.
- Define ORDALT program requirements and establish tasking and planning estimates for the accomplishment of ORDALTs by installing activities.
- Formulate ORDALT installation budget requirements for inclusion in the NMP budget prepared for the NMP Financial Manager (NAVSEA 013) and act as NAVSEA's execution agent for ORDALTs installed under the NMP. Line item manager

responsibilities regarding budgeting and financial management are also specified in Section 4 of this manual.

- Forward signed funding requests to the NMP Financial Manager (NAVSEA 013) for installation funding as detailed in Section 6 of this manual.
- Prepare the ORDALT portion of the SHIPALT Authorization Letter.
- Obtain SPM's and NMP Financial Manager's (NAVSEA 013) concurrence prior to releasing any correspondence that changes the scope of ORDALT work to be accomplished by shipyards or contractors under the cognizance of the Naval Supervising Activity (NSA).
- Manage and maintain the NDE-NM and associated functions including alteration installation scheduling activities and conference, ILS certification and ORDALT release information, alteration installation waivers, data input and validation and verification of system data.
- Prepare, support and defend ORDALT installation funding requirements.
- Interface with the LCM and the SPM regarding required escrow changes in NMP funding.

9-8.1.3.4 NMP Financial Manager (NAVSEA 013)

The roles and responsibilities of the NMP Financial Manager are detailed in Section 4 of this manual.

9-8.1.3.5 Ship Program Manager (SPM)

- Approve equipment ECPs that impact SPM funding, ship design interface (i.e., conjunctive SCs) or schedule.
- Include approved ORDALTs in the authorization letter for ORDALTs that will be installed during an industrial availability.
- Provide tasking and funding to SC/SHIPALT Alteration Installation Team (AIT) activities as requested by the LCM.
- Interface with the SPM and ORDALT Program Manager regarding required escrow changes in NMP funding.

9-8.1.3.6 Field Activities Designated to Execute ORDALTs

The designated activity will act as the technical direction and management agent for the program relating to the ORDALT. Specific functions include:

- Provide alteration index data as defined herein, for all alterations under its cognizance.
- Review preliminary ORDALT Instructions and documentation changes for technical adequacy and accuracy.
- As directed by the PM, incorporate changes or revisions, as appropriate, to the ORDALT Instruction based on feedback (problem reports) from installing activities, technical

review of data from Naval Inventory Control Point-Mechanicsburg (NAVICP-M), and revisions to the CCBD.

- Prepare and maintain ORDALT Instructions in accordance with reference S9(p).
- Authenticate ORDALT Instructions, when directed by the cognizant PM.
- Direct the inspection and quality monitoring of the ORDALT kit.
- Authorize shipment of each ORDALT kit from the stocking and issuing activity.
- Maintain liaison with ORDALT OBRP staging facilities, when required.
- Initiate the cannibalization or disposition of ORDALT kits in Not-Ready-For-Issue, inactive or unaccomplished status, when directed by the cognizant PM.
- Develop and recommend to the PM solutions to ORDALT installation problems.
- Update or ensure update of local CSA records, the NDE-NM, Configuration Overhaul Planning Data, and the CDMD-OA record for each CS Configuration Item (CI).
- Store Foreign Military Sales (FMS) alteration kits and issue, as directed by the SPM, to the foreign countries.
- Provide scheduling and coordination for non-industrial availability alterations.
- Supervise and augment, as necessary, non-industrial availability AITs.
- Provide technical and logistics Quality Assurance (QA) checks for equipment alterations as directed
- Assure that ORDALTs comply with the requirements of reference S9(aj)

9-8.1.3.7 Naval Inventory Control Point-Mechanicsburg (NAVICP-M)

- Provide information for revision of APLs/AELs lists.
- Identify the MSDs for the OBRPs required by the ORDALT.
- Budget for, procure and provide OBRPs and Operating Space Items (OSIs) as required to support ORDALTs after MSD is achieved.

9-8.1.3.8 Installing Activity

- Check in with the local Regional Maintenance and Modernization Coordination Office (RMMCO) with the proper documentation prior to going onboard the ship for ORDALT accomplishment.
- Validate alteration completion data prior to submission to the CDM.
- Complete installations in accordance with ORDALT instructions.
- Conduct Pre-installation and Post-installation testing.
- Completion of the AIT ILS Verification Statement Checklist, as described in reference S9(v).

When an AIT accomplishes the ORDALT installation, both the installation and ILS certifications remain the responsibility of the government representative designated by the PM.

9-8.1.3.9 Embedded Equipment Activities

Embedded equipment has an “owner” and various “users”. The owner is the PM for the

embedded equipment, and the users are the PMs for the equipment or systems in which the equipment is embedded.

a. Owner PM

- Develop and provide ORDALT Instructions to all users of embedded equipment.
- Procure embedded equipment and ILS products for user PM accepting the ORDALT.

b. User PM

- Provide change requirements to owner PM for embedded equipment used in their systems.
- Determine applicability of ORDALTs to their systems.
- Plan, budget and fund for procurement and installation of applicable ORDALTs.
- Update CSA records for all ORDALTs installed, and provide as necessary to the owner PM.

9-8.1.4 Embedded Equipment

A Memorandum Of Agreement (MOA) shall be developed between the embedded equipment PM and user PMs for change control. The MOA will designate responsibility for development of the ORDALT Instruction, procurement of the kit, and installation of the ORDALT.
The owner PM is responsible for overall life-cycle management, technical direction of engineering, Configuration Management (CM) and ILS of the embedded equipment.

Owner originated changes to embedded equipment, i.e., Equipment Alterations, shall be offered by the embedded equipment owner PM to all users of the item. Users of the item have the option of accepting or rejecting Equipment Alterations. If a user PM determines a change is required, the requirement will be executed in accordance with the MOA.

9-8.1.5 ORDALT Process

9-8.1.5.1 Overview

All ORDALTs are generated from approved Class I ECPs prepared in accordance with reference S9(z). ECP DD Forms 1692 and 1693 are available electronically in the NAVSEA local network Form Flow directory or on line at http://www.dior.whs.mil/forms//dd1692. Other activities may obtain this form through normal supply channels per Naval Supply Systems Command (NAVSUP) Publication 2002, through their local networks or on line at http://www.dior.whs.mil/forms//dd1692. Weapons and CS equipment/system LCMs and SPMs are responsible for review and approval or disapproval of these ECPs.

9-8.1.5.2 ORDALT Engineering Change Proposal (ECP) Evaluation Phase

Each system/equipment manager will establish a CCB for CIs under their cognizance and delegate approval authority to the CCB Chairpersons appointed within each organization. An ECP for an alteration to in-service-use equipment, when approved by the CCB Chairperson, will

be implemented under the NMP only after it has been assigned an ORDALT number in accordance with Subsection 9-8.2.5.12.

All ECPs will be evaluated for interface impact. If there is an interface impact within or between system/equipment organizations, the interfacing system/equipment technical manager affected and the CSE will be a member of the CCB. ORDALTs shall comply with the weapon system safety requirements of reference S9(aj). ECPs that impose an impact on ship's systems (such as an increase in ship's power or cooling requirements) shall be submitted as a Ship Change Proposal (SCP) to the SPM for approval and determination of a requirement for a conjunctive Ship Change. The LCM having the greatest responsibility or impact will be designated the lead for development of the Justification Cost Form (JCF) in accordance with reference S9(ak). The resulting ORDALT will become a part of the Ship Change and its installation will be funded by the SC. Final approval and issuance of the Ship Change is the responsibility of the SPM. Minor shipboard work associated with an ORDALT installation, that meets the criteria for incorporation into the ORDALT Instruction, will be included in the ECP for review and evaluation by the cognizant CCB and the appropriate SPMs. The criteria for minor shipboard work are as follows:

- The work consists of picking up spare wires existing in cables or installing cables between two ordnance equipment cabinets or associated junction boxes in the same space.
- The work has no effect or only negligible effect on weight and moment (less than 50 pounds).
- The work shall not exceed existing electrical power, coolant or air conditioning levels available in the work compartments affected.
- The work area is accessible without creating special access.
- The work is in the accomplishment level of an FMA and can be accomplished within a reasonable time (i.e., 20% of total hours on the job).
- The work requires a minimum of additional work centers (welding, fabrication or painting) support.

Completion data such as marked-up drawings, modified wiring diagrams, or other data for update of the SSRs shall be forwarded to the SPM. The SPM will be responsible for forwarding the completion data to the appropriate PY.

9-8.1.5.3 Configuration Control Board Directive (CCBD)

Delegation of functions to designated performing field activities, such as ORDALT development and evaluation or proof-in functions, shall be documented in each CCBD, as required by reference S9(z). Any additional delegation of functions or termination of delegated functions for specific alterations shall be fully documented and recorded in the CCBD by the appropriate CCB Secretariat.

9-8.1.5.4 ORDALT Planning Phase

Procurement and installation funding guidelines for alterations are provided as follows:

a. OPN and Weapons Procurement, Navy (WPN) funds will be used to procure and install alterations for NMP installations, and non-NMP installations at shore sites and training activities.

b. Alterations to be installed in new construction ships that are within the Shipbuilding and Conversion, Navy (SCN) obligation work limiting date will be procured and installed using SCN funds. NMP funds may be used during Post Shakedown Availabilities (PSAs) to install alterations procured under OPN or WPN appropriations.

c. Research and Development (R&D) funds are appropriately used to fund Engineering and Manufacturing Development (EMD) prototypes and test and evaluation of some types of alterations prior to the installation of the production alteration kit.

d. Separately planned and budgeted Operation and Maintenance, Navy (O&MN) funds are used to support the NDE-NM database, as described in Section 8 of this manual.
Once an ORDALT number has been assigned to an approved ECP, ORDALT information (number, description, key point check and applicability) is entered into the NDE-NM by the system/equipment LCM or a designated In-Service Engineering Agent (ISEA). The LCM validates the NDE-NM ORDALT data and recommends installation priorities.
The ORDALT number, a brief description of the alteration and key point check data, identifying physical and functional features of the equipment in sufficient detail to enable determination with certainty the accomplishment status of the alteration, will be provided by the designated field activity (i.e., ISEA, Technical Support Activity (TSA)) or other performing activity, to the NDE-NM for incorporation into the index of all alterations. This is in addition to information, including the loading of total applicability, already provided to the NDE-NM.

9-8.1.5.5 ORDALT Preparation Phase

a. Upon receipt of the CCBD, associated ECP procurement package, required funding, and first production article hardware/computer program package changes, the performing activity(s) designated by the CCBD shall initiate the preparation of the ORDALT Instruction and kit. Unless otherwise directed by the cognizant PM, initial preparation shall be as a preliminary alteration instruction and evaluation change kit.

b. Concurrent with the preparation of the ORDALT Instruction, the cognizant PM shall ensure that the designated performing activities provide the following data:

(1) Revisions to TMs.
(2) Revisions to Technical Data Packages (TDPs), including drawings, Military Specifications, Weapons Specifications (WSs), Ordnance Specifications (OSs), Critical Item Fabrication Specification.
(3) New required documentation (TDPs, specifications or publications).

(4) Justification for use of proprietary items/data.
(5) Preliminary Provisioning Technical Documentation (PTD).
(6) Test and evaluation data supporting complete design evaluation of the alteration.
(7) Requirements for general or special purpose test equipment additions or deletions.
(8) Requirement for special tools.
(9) Change to training documentation or requirements.
(10) Recommended changes to tactical publications.
(11) Changes to PMS Documentation.
(12) Changes to equipment documentation/tests.
(13) Computer program revisions.

c. Unless otherwise directed by the cognizant PM, the preliminary ORDALT Instruction and supporting information developed by the procurement activity, contractor, or field activity shall be submitted to the designated control activity for review. A copy of the preliminary ORDALT Instruction, along with Program Support Data (PSD) sheets, and the PTD shall be submitted to NAVICP-M for processing allowance list changes, and final disposition of replaced material and material recommended by the PM to be returned to the supply system. NAVICP-M will also verify previously provided supply data during this review.

d. The designated control activities will review the preliminary ORDALT Instruction and documentation changes for technical adequacy and accuracy and for compatibility with the CCBD and ECP procurement package. The designated control activities will accomplish the following:

(1) Verify ships, stations, and equipment applicability in light of those stipulated by the CCBD.
(2) Develop a distribution list and initiate the distribution process.
(3) Revise applicable documentation, as necessary.
(4) Advise NAVICP-M, PM, and SHIPALT preparing activities and others of any changes to the preliminary ORDALT Instruction and propose appropriate amendments to the CCBD, if any.
(5) Incorporate supply data furnished by NAVICP-M.
(6) Prepare or verify final ORDALT Instructions for authentication. Authentication must be by signature of a SPM official and will constitute approval of the ORDALT Instruction. Signature authority may be delegated to an official of the designated control activity.

Alterations may be blocked (e.g., CIWS Block 12 may consist of ORDALTs 18001, 18002 and 18003) for the convenience of installation.

9-8.1.5.6 ORDALT Proof-in Phase

The proof-in is part of the ORDALT preparation and is the responsibility of the LCM or the designated ISEA. A proof-in should demonstrate that the ORDALT would achieve the change approved by the CCB. The activity responsible for the proof-in of the ORDALT is identified in

the CCBD. Proof-ins are preferably accomplished in a shipboard environment by technicians having the same skill level as those who will generally be installing the alteration. The functions of the proof-in are to ensure:

- The accuracy of the ORDALT Instruction procedures.
- The form, fit and function of kit material.
- The accuracy and completeness of all ILS products.

The activity performing the proof-in is responsible for providing all required ILS products, including sufficient OBRPs for any proof-in that remains as a permanent installation until MSD is achieved.

Proof-in and evaluation determine whether immediate action must be initiated to correct discrepancies in the initial alteration design package (hardware or computer program packages) and/or related documentation prior to authorizing subsequent installations or additional procurement. Proof-in and evaluation, including validation and verification of the alteration instruction, alteration kit and ILS products shall be certified by the performing activity as directed by the PM.

9-8.1.5.7 ORDALT Implementation Phase

ORDALT kits shall be released for installation by the PM or designated control activity after ensuring that all ILS products for the new configuration, or an approved waiver is in place and a successful proof-in has been accomplished. ILS data shall be entered in NDE-NM. Unless otherwise directed by the cognizant PM, alteration kits shall be delivered to designated control activities. As directed by the PM, stocking and issuing activities for kits shall receive and store kits delivered from the manufacturer. They shall also inspect, perform quality monitoring, cannibalize and dispose of kits.

When individual kit issue control functions have been delegated to the designated control activity for a specific system/equipment, requisitions for ORDALT kits shall be forwarded to the designated control activity by the performing activity responsible for the installation of the ORDALT. If the request is in accordance with the PM's planned implementation schedule or NMP priority, the designated control activities will direct shipment from the stocking and issuing activity. When a request is not in accordance with the implementation plan, the designated control activity shall obtain concurrence from the cognizant PM. A designated control activity shall not release for shipment any ORDALT kit that is not fully logistically supported unless a waiver has first been obtained in accordance with Section 6 of this manual. The designated control activity also will not release for shipment any ORDALT kit subject to the NMP process that is not appropriately scheduled for installation under that process.

The designated control activity will maintain ORDALT Instructions by the preparation and issuance of revisions and changes, as directed by amendment to the CCBD. In response to feedback (problem reports) from installing activities, the designated control activity will notify the PM, and initiate corrective action within three working days.

The designated control activities will review ORDALT accomplishment reports and update, or ensure update of, the CSA record for each ORDALT in accordance with references S9(y) and S9(z).

9-8.1.5.8 ORDALT Installation Phase

ORDALTs are installed in accordance with the policies and guidance contained in this manual. Prior to the installation of an ORDALT, the equipment is pre-tested to ensure that it is operating within the prescribed parameters.

After installation of the ORDALT, the equipment is again tested to ensure that the equipment remains operational and that the change has been correctly installed. These tests are prescribed to minimize equipment failures.

Most ORDALTs can be accomplished by FMAs or by AITs in accordance reference S9(v). For ORDALTs installed outside a depot level availability, the NSA will verify the completeness and adequacy of an installation and the support provided in accordance with this manual. These ORDALT installations will be scheduled by inputting the scheduling data into NDE-NM and working through the TYCOM's Alteration Installation Scheduling Conference process.

9-8.1.5.9 Integrated Logistic Support (ILS)

The impacts of an alteration on ILS products shall be identified in the ECP. The LCM for an ordnance item is responsible for procuring or initiating the development of all ILS products for ORDALTs. All required ILS products shall be available in final form at the time the ORDALT is installed as indicated on the approved ILS Certification Form. For cases where final products are not available, as a minimum, approved markups shall be provided. Outstanding ILS is to be tracked by the ORDALT manager until delivery is confirmed. For further details on ILS requirements and certification refer to Section 6 of this manual.

9-8.1.5.10 ORDALT Installation Reporting

ORDALT installation completions shall be reported by the installing activity to the appropriate ISEA and to the assigned CDM in accordance with reference S9(y) for entry into CDMD-OA. For those activities using a Shipboard Non-Tactical ADP Program (SNAP) computer, ORDALT completions shall be reported by entry into the configuration change screen display using one of the following methods:

- Keyboard entry into the SNAP computer.
- Unsequenced Automated Shore Interface (ASI) tape entry into the SNAP Computer.

The ISEAs shall also report ORDALT installation completions by updating the NDE-NM.

9-8.1.5.11 ORDALT Information Management

The LCM, or the designated ISEA is responsible for CSA for equipment under their cognizance and for accurate and timely reporting of ORDALT planning information. The purpose of this information is to facilitate the procurement, scheduling and reporting of ORDALT installations. The LCM or designated ISEA reports the ORDALT planning information to the NDE-NM and to the appropriate CDM for entry into CDMD-OA. The following is a brief description of each system.

9-8.1.5.11.1 Navy Data Environment-Navy Modernization (NDE-NM) Information Reporting

NDE-NM is the system that supports the planning and information reporting objectives for ORDALTs installed under the NMP. This system contains the ORDALT planning details, such as, applicability, scheduling and installation information. The LCMs or ISEAs are responsible for timely submission of status and planning information to NDE-NM. Refer to Section 8 of this manual for detailed description of NDE-NM.

9-8.1.5.11.2 Configuration Data Managers Database-Open Architecture (CDMD-OA) Information Reporting

CDMD-OA is the Navy's designated system for management and control of ship configuration and logistics per reference S9(y). The types of ORDALT information reported to CDMD-OA include scheduling information, planned equipment installations or removals, planned alteration installations and installation status reports. Action steps and milestones for CM are contained in Section 6 of this manual.

9-8.1.5.12 ORDALT Instruction Numbers

Instructions for the alteration or modification of ordnance equipment in-service (shipboard or shore activities), in store or awaiting installation shall be issued as ORDALT Instructions and prepared in accordance with reference S9(p). ORDALTs also apply to changes installed in systems/equipment in production to identify differences from an established baseline. Policy and procedural guidance for ORDALT Instruction preparation, acquisition and ORDALT installation are contained in references S9(ai) and S9(p). ORDALT Instructions direct (or describe) configuration changes to ordnance equipment/systems after delivery from production, or during production after establishment of the product baseline.

The following general rules apply to the assignment of a single ORDALT number to multiple ECPs and multiple ORDALT numbers assigned to a single ECP.

a. Multiple ECPs that are technically and logistically related may be combined into a

single ORDALT number. For example, one ECP for a change to a Submarine Torpedo Tube and a second ECP for Torpedo Ejection Pump and or Air Turbine Pump may be assigned the same ORDALT Instruction number.

b. A single ECP for the same change or for related changes that are to be installed in systems/equipment having different nomenclature may be assigned more than one ORDALT Instruction number. For example, a single ECP may contain changes for a hardware item and changes for a related computer program. That ECP will have two ORDALT numbers (a hardware number and associated computer program number) assigned to it.

c. Changes which are to be installed in different configurations of equipment that require unique parts or installation instructions to accomplish a specified purpose will be treated as separate changes and will be assigned separate ORDALT numbers. As a prerequisite for obtaining ORDALT Instruction numbers, Class I ECPs that apply to any Combat Weapons System equipment/system that are to be installed as ORDALTs must have been reviewed by the cognizant CSE.

The assignment and control of ORDALT Instruction numbers, instruction change numbers, and revision letters are the responsibility of NAVSEA 04M313.

Prior to being signed, issued or certified for installation, ORDALT Instructions will be reviewed and evaluated per reference S9(p). The equipment PM will be responsible for obtaining approval for release of ORDALTs, with intended applicability to foreign ships, to a foreign government. Stocking and distribution of ORDALT Instructions will be as directed by the ORDALT Instruction and usually kept at the ISEA's facility. There is no central repository for instructions. Revisions and changes to ORDALT Instructions will have the same distribution as the basic ORDALT Instruction. ORDALT Instructions will be issued as technical documentation. Accordingly, the title page of these instructions will carry a distribution statement. Revisions and changes to ORDALT Instructions will, in most cases, carry the same distribution statement as the basic ORDALT Instruction.

ORDALT numbers will be assigned according to the following convention:
16,000 series for generic non-expendable hardware ordnance systems/equipment, 23,000 series for Tomahawk weapon system, 30,000 series for computer program, and 45,000 series for submarine Combat Control System (CCS) changes.

The central database for all ORDALT numbers is NDE-NM. As such, NDE-NM shall be populated with pertinent information as soon as practicable after ORDALT number assignment. NDE-NM shall be loaded with ORDALT description, total applicability, key point check, system program, point of contact, installation support requirements, and ILS information. This information will be easily retrievable from NDE-NM using a view account.

9-8.1.5.12.1 Assignment of ORDALT Instruction Numbers

After approval of a Class I ECP the cognizant equipment PM will prepare and forward a

memorandum requesting assignment of the ORDALT Instruction number in the format of Figure S9-2. A copy of the approved ECP, ECP control sheet, an ECP implementation plan (shown in Figure S9-3), and approved JCF, ship ECP or WSESRB endorsement, if applicable, will be attached to the memorandum. After assignment of the instruction number, NAVSEA 04M313 will prepare an endorsement to the memorandum and return it to the cognizant CCB Secretariat for implementation. The ORDALT Instruction number will be identified in the CCBD.

Emergency or advance assignment of ORDALT Instruction numbers will be requested by a memorandum in the format of Figure S9-4 as specified in reference S9(z). This memorandum shall contain, as a minimum, the ORDALT applicability, estimated work-hours for installation and checkout, level of accomplishment and a justification for the emergency assignment. The request must also attest to the availability of all required ILS products. NAVSEA 04M313 will assign the ORDALT Instruction number by endorsement of the memorandum. The endorsed memorandum will be returned to the requesting authority for appropriate action. An ORDALT Instruction number assigned on an emergency basis must be substantiated by a formal Class I ECP and CCB action within 60 days of the assignment and formal CCB approval within 90 days in accordance with reference S9(ac).

9-8.1.5.12.2 Corrections to Issued ORDALT Instructions

After issuance, ORDALT Instructions remain subject to formal change control procedures in accordance with reference S9(ai) but may be revised or changed. Under no circumstances will an ORDALT Instruction be revised without appropriate CCB authority. The use of kit numbers or other designators as ORDALT suffixes is specifically prohibited. Such use indicates a need for either a separate ORDALT Instruction or a revision to an existing ORDALT Instruction. Revisions and changes, or new superseding ORDALT Instructions, are used to correct latent defects discovered after government acceptance of the basic ORDALT. Changes are numbered consecutively and the next letter of the alphabet indicates revisions.

Proposals for revisions to ORDALT Instructions, or a new ORDALT Instruction superseding an existing ORDALT Instruction, will be prepared and submitted as Class I ECPs to the appropriate CCB on ECP DD Form 1692. Upon CCB approval, the cognizant equipment PM will submit a memorandum in the format of Figure S9-2 to NAVSEA 04M313 requesting assignment of an ORDALT Instruction revision letter or a new ORDALT Instruction number as determined by the CCB review. After NAVSEA 04M313 has assigned the revision letter or new instruction number, the CCB Secretariat will issue a CCBD implementing the action.

Changes to ORDALT Instructions will be prepared in complete narrative text in accordance with procedures contained in reference S9(p). The complete change will be attached to an approval and cover sheet prepared in the format of Figure S9-5 and submitted to the PM for approval. Approval will be signified by the PM's signature on the Approval and Cover Sheet. Signature authority for approval of changes may be delegated by the PM to a TSA or ISEA. NAVSEA 04M313 will be notified in writing of such delegation. A memorandum in the format of Figure S9-2 will be submitted to NAVSEA 04M313 identifying the proposed change number and requesting the assignment of that number. After the ORDALT Instruction change number has

been approved and endorsed by NAVSEA 04M313, the CCB Secretariat will issue an amended CCBD to implement the change.

9-8.1.5.12.3 Cancellation of ORDALT Instruction Numbers

ORDALT Instruction numbers can only be cancelled by documented action from the cognizant PM or the cognizant ISEA via the CCB, with a copy of the action to NAVSEA 04M313. Letter, memorandum or a superseding Class I ECP, if applicable, may make the cancellation. Cancellations will become effective upon issuance of an amended CCBD. ORDALTs that have already been installed in at least one ship or system technically cannot be cancelled. Therefore, all letters and all CCBDs initiating or effecting cancellation will contain one of the following statements as applicable:

"There have been no installations of ORDALT (xxxxx) and none are planned." or "ORDALT (yyyyy) has been installed in (XX) ships. No further installations are planned to be accomplished. For all intent and purposes, ORDALT (yyyyy) is considered 100 percent complete."

ORDALT number changes and revisions, cancellations and completions will be loaded in NDENM either on line or by file submission.

FIGURE S9-2

SAMPLE ORDALT Instruction Number (Change or Revision)

Request Memorandum

4130
Ser
(Date)

MEMORANDUM

From: (Requesting Code)
To: NAVSEA 04M313

Subj: REQUEST FOR ORDNANCE ALTERATION (ORDALT) INSTRUCTION NUMBER (CHANGE 0R REVISION) ASSIGNMENT

Ref: (a) NAVSEA SL720-AA-MAN-010 (Section 9)

Encl: (1) ECP (with process control sheet)_____(for original or revision), or (1) Change _____ to ORDALT _____ (with Approval and Cover Sheet)
_____ to ORDALT _____ (with Approval and Cover Sheet),
(2) Approved Justification Ship Change Document (if applicable)
(3) Approved Ship ECP
(4) Approved WSESRB Process Control Form (if applicable)

1. In accordance with reference (a), request ORDALT number, ORDALT Change number or ORDALT Revision letter be assigned to enclosure (1).
2. (Use as many paragraphs as required to provide justification or explanatory data as necessary).
3. The point of contact regarding this request is _____, Code _____, phone _____.

_____
(Requesting Official)

FIGURE S9-3

Sample ECP Implementation Plan

ECP ORIGINATOR _____
ECP NUMBER _____
CHANGE DESCRIPTION _____
SYSTEM/EQUIPMENT AFFECTED _____
SHIP AND SHORE SITE APPLICABILITY _____
RECOMMENDATION FOR APPROVAL/
DISAPPROVAL REVIEW ACTION _____
EMERGENCY ACTION _____
CCB SECRETARIAT ACTION _____
CCB ACTION _____
SUPPORTING DOCUMENTATION
JCF _____
SHIP ECP _____
WSESRB _____
SUPPORTING INFORMATION
INTERFACE IMPACT _____
EMBEDDED EQUIPMENT _____
COMPUTER PROGRAM _____
PROOF IN DATA _____
PROCUREMENT FUNDING _____
ILS _____
NMP CHECK SHEET
$ VALUE OF NMP REQUIRED FUNDS _____
CHANGE PROGRAMMED IN NMP AND
LOADED IN NDE-NM _____
CONJUNCTIVE ALTERATIONS
PROGRAMMED AND LOADED _____
SAFETY _____
SCN CHECK SHEET _____

FIGURE S9-4

SAMPLE Emergency or Advance ORDALT Instruction

Number Request Memorandum

4130
Ser:
(Date)

MEMORANDUM

From: (Requesting Code)
To: NAVSEA 04M313

Subj: REQUEST FOR EMERGENCY (OR ADVANCE) ORDALT INSTRUCTION NUMBER ASSIGNMENT (Circle appropriate one.)

Ref: (a) NAVSEA SL720-AA-MAN-010 (Section 9)

1. In accordance with reference (a), request an emergency (advance) ORDALT number assignment for Engineering Change Proposal (ECP) (ECP Number) for (System or Equipment, MK and MOD or JETDS Designation.)
2. The following data applies:
a. Alteration applicability: _____.
b. Estimated installation and checkout man-hours: _____.
c. Level of accomplishment: _____.
d. Justification: _____.
e. Availability of support documentation: _____.
3. Formal Class I ECP will be submitted as required to substantiate the emergency/advance ORDALT number assignment not later than 30 days after the date of this request.
4. The Point of Contact regarding the above is_____,
Code_____, telephone_____,
email_____.

_____
(Requesting Authority)

FIGURE S9-5

Sample ORDALT Instruction Change Number

Assignment Approval and Cover Sheet

CAGE CODE 53711
TITLE: ORDALT No. XXXXX
CHANGE NO. X
SUBJECT: Date:

Approved By: _____
Position_____
Code: _____
_____
_____
After attached enclosures have been inserted, place this page immediately following the title page of basic ORDALT Instruction.

1. Purpose:
2. All holders of ORDALT Instruction No. XXXXX should incorporate this change upon receipt.
3. Except as indicated, remove the following pages and replace with new pages attached.
REMOVE INSERT

DISTRIBUTION STATEMENT - (Should be same as on basic ORDALT Instruction)

9-8.2 COMBAT CONTROL SYSTEMS ELECTRONIC EQUIPMENT AND SYSTEMS FIELD CHANGES (FC); ANTI-SUBMARINE WARFARE/COMBAT CONTROL SYSTEM ENGINEERING CHANGES (EC); AND SPAWAR FIELD CHANGE IMPLEMENTATION PROGRAM (FCIP)

9-8.2.1 Scope of Subsection 9-8.2

This subsection defines the procedures, roles and responsibilities associated with the preparation, development and installation of Submarine Force FCs in Combat Control System (CCS) electronic equipment/systems; Anti-Submarine Warfare/Combat System Engineering Changes (ASW/CSECs); and FCs processed through the FCIP. The following items are also exempt from the requirements of this manual:

- Ordnance Items and Expendables
- Mine Warfare Expendables
- Mobile Targets
- Ranges

The FCIP provides a central point of contact for all SPAWAR FCs and provides consolidated installation of all SPAWAR minor FCs. References S9(u) and S9(af) provide specific policies as well as detailed procedures relevant to the development and installation of FCs by the FCIP. A FC must meet all of the following conditions:

- Can be accomplished without changing interface external to the equipment or system.
- Is a modification made within the equipment or system boundary?
- Can be accomplished without the ship being in an industrial activity.

A minor FC must meet all of the above-described conditions in addition to the following:

- Have no impact on Battle Force Interoperability (BFI).
- The estimated time for the FC installation, pre-test and post-test takes less than 60 hours and assistance from ship's force is minimal.

Will be accomplished individually and not in conjunction with a Ship Change (SC)/SHIPALT

9-8.2.2 Definition of a Field Change, Engineering Change and FC by the FCIP

An CS FC, FC by the FCIP or EC is any modification made to electronic equipment or systems, including software changes, (e.g. search radars, combat system switchboards, electronic warfare equipment, external communications equipment and ASW equipment) after establishment of a product baseline and after delivery to the Navy, which does not impact

interfaces to other equipment within the ship, or ship interfaces including changes to the footprint, form or fit, power, weight or air conditioning requirements. Electronic equipment modifications are initiated for one or more of the following reasons:

- To correct a design defect
- To change equipment operational capability
- To eliminate safety hazards
- To update obsolete components

9-8.2.3 Policies Concerning Field Changes and Engineering Changes

All approved modifications to configuration baselines of CS/AWS/FCIP electronic equipment/systems shall be accomplished as formal FC/ECs. FC/ECs shall not be installed until such time as the required ILS products are certified available. FC/ECs availability, along with the FC/EC kit National Stock Number (NSN) and ordering data may be published in the Engineering Information Bulletin (EIB). However, the EIB is not to be used in place of a formal FC Instruction or Field Change Bulletin (FCB).

9-8.2.3.1 Policies Concerning Anti-Submarine Warfare (ASW)/Combat System (CS) ECs

Policies concerning ASW ECs developed for SONAR/Acoustic Warfare systems and equipment are defined in reference S9(af).

9-8.2.3.2 SPAWAR ECP Development, Approval and Installation

ECPs are prepared in accordance with reference S9(ac) with additional amplifying information as specified in its appendix. ECPs must contain sufficient data to justify the expenditure of resources prior to approval by the SPAWAR CCB. ECPs are reviewed and approved by SPAWAR CCBs in accordance with reference S9(ac). The CCB issues a CCBD that provides detailed actions required to develop and to implement the ECP. When a conjunctive SC/SHIPALT is required, SPAWAR will generate the necessary JCF and submit it to the SPM for approval. FCs are the modifications resulting from approved ECPs. FCs are prepared in accordance with references S9(ac) and S9(af). All authorized FCs for SPAWAR cognizant equipment are developed under the direction of the SPAWAR equipment acquisition and LCM. SPAWAR notifies the SPMs of all FCs to be installed. FC procurement is normally a two-phase process:

- Prototype Field Change
- Production Field Change

9-8.2.4. Organizational Responsibilities for Field Changes

Roles and responsibilities required for the approval, development and installation of FCs/ECs are described below.

9-8.2.4.1. Equipment Life Cycle Manager (LCM)

The LCMs for FCs/ECs have technical and ILS responsibility for assigned equipment. Specific responsibilities of the LCM include:

- Process ECPs to effect transition of an approved Class I ECP into a FC/EC and assign FC/EC numbers.
- Prepare a Justification Cost Form (JCF) if a SC is required.
- Plan, program and budget for FC/EC procurement and ILS products.
- Provide procurement budget detail, estimated cost, and schedule for FC/EC installations to the NAVSEA ORDALT Program (NAVSEA 04M313).
- Plan and monitor the development and implementation of ILS products for approved FCs/ECs.
- Maintain CM over assigned equipment.
- Provide accurate and timely FC/EC planning and installation information and input this data into the NDE-NM.

9-8.2.4.2 Combat Systems Engineer (CSE)

The responsibilities of the CSE in each cognizant SPM organization are as follows:

- Conduct CS engineering reviews for a ship class for CS interface impact.
- Provide technical approval for the SAR and SIDs if the requirement for a SC is established.

9-8.2.4.3 ORDALT Line Item Manager (NAVSEA 04)

The roles and responsibilities of the ORDALT Line Item Manager are as follows:

- Establish FC/EC policies and procedures.
- Define program requirements and establish tasking and planning estimates for the accomplishment of FCs/ECs by installing activities.
- Formulate FC/EC installation budget requirement for inclusion in the budget prepared for the Financial Manager (NAVSEA 01) and is NAVSEA’s execution agent for FCs/EC installed. Line item manager responsibilities regarding budgeting and financial management are detailed in Section 4 of this manual.
- Forward signed funding requests to the Financial Manager (NAVSEA 01) for installation funding as detailed in Section 4 of this manual.
- Prepare the ORDALT portion (including FCs/ECs) of the Industrial Activity Authorization Letter.
- Obtain SPM’s and the Financial Manager's (NAVSEA 01) concurrence prior to releasing any correspondence that changes scope of FC/EC work to be accomplished by shipyards or

contractors under the cognizance of the NSA.

- Manage and maintain the NDE-NM and associated functions including alteration installation scheduling activities and conference, alteration installation waivers, data input, and validation and verification of system data.

9-8.2.4.4 Financial Manager (NAVSEA 01)

The roles and responsibilities of the Financial Manager are detailed in Section 4 of this manual.

9-8.2.5 Field Change/Engineering Change Process

The following subsections provide a brief description of the FC/EC process.

9-8.2.5.1 Overview of Field Change/Engineering Change Process

FCs/ECs are developed from Class I ECPs prepared in accordance with reference S9(ac). The CCBD directs the implementation of a FC/EC in accordance with reference S9(z). All ECPs are evaluated for interface impact within or between the system/equipment organizations, the interfacing system/equipment technical manager affected, and the CSE who will all be members of the CCB. ECPs that impose an impact on ship's systems, such as an increase in ship's power or cooling requirements, shall be submitted as Ship Change Proposals (SCPs) to the SPM for approval. The SPM must also determine if a Ship Change (SC) is required. When a proposed FC/EC requires or is part of a SC, the LCM having the greatest responsibility or impact will be designated the lead for development of the JCF in accordance with reference S9(ak). Under these circumstances, the FC/EC becomes a part of the SHIPALT and is funded by the SHIPALT. Final approval and issuance of the SHIPALT is the responsibility of the SPM. An alteration or modification to in-service equipment, when approved by the CCB is implemented only after it has been assigned a FC/EC number. If the FC/EC requires a SC, it is processed in accordance with Sections 9-3 through 9-7 of this document.

9-8.2.5.2 Field Change/Engineering Change Development and Implementation

FC/ECs are developed under the direction of the equipment LCM. FC/ECs are normally procured in two phases:

- Evaluation or pre-production phase
- Production phase

9-8.2.5.2.1 Field Change/Engineering Change Evaluation Phase

The purpose of the FC/EC evaluation phase is to:

- Determine the military suitability of a pre-production FC/EC.

- Determine the adequacy of the modification to correct the problem identified in the ECP prior to preparation of a production FC/EC.

9-8.2.5.2.2 Production Field Change/Engineering Change

A production FC/EC provides the material necessary to accomplish an approved modification to applicable electronic equipment and to correct related publications. A production FC/EC is identified by an assigned FC/EC number. Production FC/ECs fall into the following types:

- Type I - A FC/EC that requires parts, all of which are included in a kit consisting of publications, parts, materials and special tools required to accomplish the change to one equipment and to revise existing equipment nameplates, publications and charts as required.
- Type II - A FC/EC that requires parts, none of which are included with the FC/EC. The Type II FC/EC may be either a kit consisting of a publications package or articles for a publication providing instructions for accomplishing the FC/EC and for correcting related publications.
- Type III - A FC/EC that requires parts, some of which are included in a kit. The FC/EC kit consists of a publication package and some of the parts, materials and special tools required to accomplish the FC/EC to one equipment and to revise existing nameplates, publications and charts as required.
- Type IV - A FC/EC that does not require parts or the use of special tools. This FC/EC may be either a kit consisting of a publications package or articles for a publication providing instructions for accomplishing the FC/EC and for correcting related publications.

9-8.2.5.3 Field Change/Engineering Change Funding Class

Funding and installation responsibility for production FC/ECs is designated by classes. The following classes apply:

- Class 1 - A FC/EC approved for accomplishment by forces afloat or station personnel; no installation funding is required.
- Class 2 - A FC/EC that requires Fleet Installation and TYCOM funding.
- Class 3 - A FC/EC that normally requires industrial assistance for installation. The appropriate Systems Command funds it.

All approved FC/ECs shall be designated as Class 1 or Class 3, whichever is most appropriate. Class 2 FCs/EC generally will not be used. Once the FC/EC number has been assigned to an approved ECP, the FC/EC number is entered into the NDE-NM by the system/equipment LCM or a designated ISEA. The LCM validates the NDE-NM data and recommends installation priorities in accordance with reference S9(af). FC/EC requiring installation with a Ship Change/SHIPALT are funded as part of that Ship Change/SHIPALT. Most FC/ECs can be

accomplished outside depot availabilities by FMA personnel or AITs in accordance with reference S9(v). These FC/ECs will also be funded by the SEA04.

9-8.2.5.4 Field Change/Engineering Change Installation

Prior to the installation of a FC/EC, the equipment is pre-tested to ensure that it is operating within the prescribed parameters. After the installation of the FC/EC, the equipment is again tested to ensure that the equipment remains operational and that the change has been correctly installed. These tests are prescribed to minimize equipment failures.

For FCs/ECs installed outside a depot availability, the NSA will verify the completeness and adequacy of an installation and the ILS products provided in accordance with reference S9(q) and this manual. These FC/EC installations will be scheduled by inputting the scheduling data into NDE-NM and coordinating with the TYCOM's Alteration Installation Scheduling Conference process.

9-8.2.6 Integrated Logistics Support (ILS)

The LCM for electronic CIs is responsible for procuring or initiating the development of all required ILS products for FCs/ECs. All required ILS products must be available in final form at the time the FC/EC is installed, which is indicated by a formal alteration release letter, or ILS Certification Form by the program office certifying that all ILS products are in place. For further information detailing the ILS requirements and certification process refer to Section 6 of the One Book.

The impact of an alteration on ILS shall be identified in the ECP. Changes to TMs and the PMS shall be developed concurrently with the preparation of the FC/EC bulletin and the FC/EC kit. At the end of the installation, all required OBRPs will be provided or the FC/EC installer will advise the ship to requisition the allowance changes identified in the FC/EC Instruction. Requisitions for initial outfitting OBRPs will be sent to the initial outfitting Technical Operating Budget (TOB) holder, Fleet and Industrial Supply Center (FISC) Puget Sound. If an APL has not yet been developed for the system, a Preliminary Allowance List (PAL) will be developed. ISS shall only be used on unstable design equipment for which provisioning cannot be accomplished. The NSA shall verify the delivery of all required ILS products in accordance with the requirements of Section 6 of the One Book.

9-8.2.7 Field Change/Engineering Change Installation Reporting

FC/EC installation completions shall be reported by the installing activity to the appropriate ISEA and to the assigned CDM in accordance with references S9(y) and S9(z) for entry into

CDMD-OA. For those activities using a SNAP computer, FC/EC completions shall be reported by entry into the configuration change screen display using one of the following methods:

- Keyboard entry into the SNAP computer.
- Unsequenced ASI tape entry into the SNAP computer.

The ISEAs shall also report FC/EC installation completions by updating NDE-NM.

9-8.2.8 Field Change/Engineering Change Information Management

The LCM, or designated ISEA, is responsible for CSA for equipment under their cognizance and for accurate and timely reporting of FC/EC planning information. The purpose of this information is to facilitate the procurement, scheduling and reporting of FC/EC installations. The LCM or designated ISEA reports the FC/EC planning information to the NDE-NM and to the appropriate CDM for entry into CDMD-OA.

The following is a brief description of each system.

9-8.2.8.1 Navy Data Environment-Navy Modernization (NDE-NM) Information Reporting

NDE-NM is the system that supports the planning and information reporting objectives for FCs/ECs installed. This system contains the FC/EC planning details, such as, applicability, scheduling and installation information. The LCMs or ISEAs are responsible for timely submission of status and planning information to NDE-NM. Refer to Section 8 for detailed information on NDE-NM requirements.

9-8.2.8.2 Configuration Data Managers Database-Open Architecture (CDMD-OA) Information Reporting

CDMD-OA is the Navy's designated system for management and control of ship configuration and logistics in accordance with reference S9(y). The types of FC/EC information reported to CDMD-OA include scheduling information, planned equipment installations or removals, planned alteration installations required ILS products and installation status reports. Action steps and milestones for CM are contained in Section 6 of this manual.

9-8.3 RAPID FIELDING/TEMPORARY ENGINEERING CHANGE INSTRUCTION (TECI) PROCESS

9-8.3.1 Scope of Subsection 9-8.3

This subsection defines the process for installing emergent changes aboard Submarine Force SSNs while maintaining an acceptable level of Configuration Management (CM). This

subsection addresses guidance for the Submarine Force SSN Modernization for Temporary Engineering Change Instruction (TECI) preparation and installation policy.

9-8.3.2 Background and Definitions of TECIs

A TECI is an abbreviated ECI generated to meet urgent or emergent installation requirements. A TECI can be used for an urgent or emergent requirement that cannot be delayed by the development of CM and Integrated Logistics Systems (ILS) support. TECIs can also be used in development situations where builds need to be tested (i.e., Subsystem Development) prior to a software release to the Fleet.

- Subsection 9-8.2 defines the procedures, Roles and Responsibilities associated with the preparation, development, and installation of Combat Systems (CSs) and Electronic Equipment and Systems Field Changes (FCs), Anti-Submarine Warfare (ASW)/Combat Systems (CSs) and Engineering Changes (ECs) but does not address any temporary changes such as TECIs.

- A TECI is a temporary document used for initial installation(s) until a complete ECI can be generated and approved or the TECI is generated to formalize the installation and to install the change on any remaining platforms, as applicable. A sample form is provided within this subsection. Program offices/ISEAs will follow this format for any TECIs.

- The maximum allotted time for the installation of a TECI on any hull is 14 months. After the maximum time period expires, the TECI must be removed from the hull or transitioned to an ECI. This transition will follow a normal ECI installation to include scheduling in SMART for baselining.

9-8.3.3 Applicability

Subsection 9-8.3 is applicable to all TECI installations on Submarine Force SSNs and C5ISR systems.

9-8.3.4 Overview of the TECI Process

9-8.3.4.1 TECI and change requirement entrance into the Submarine Warfare Federated Tactical System (SWFTS) process.

As soon as practical after identification of the need for a TECI, the originating organization must ensure that an applicable NPES Baseline Change Request (NBCR) is in the SWFTS Software Engineering and Integration (SE&I) database when the TECI is a result of a requirement change or change resulting from another subsystem change affecting their

subsystem. If the change is a result of a problem found during testing, the originating organization must ensure that an appropriate problem report is entered into their system to document the problem. Both the NBCR number and problem report number will be carried forward on the TECI so that there is traceability for the change.

9-8.3.5 TECI Content Requirements

At a minimum, the TECI will contain the following sections:

- Title
- Description
- Applicability; Specific Hull applicability, or class where applicable.
- Prerequisite requirements (Prerequisite ECIs/TECIs)
- Conjunctive requirements (Conjunctive ECIs/TECIs)
- Software provided; If applicable, include software part number, nomenclature, version, etc.
- Logistics provided; If applicable for example, any updated or red-lined manuals provided for interim use.
- Installation procedures; Pre-installation, installation, and post-installation key steps such as: operability check/tests; cautions/warnings; and identification of the technical data and/or technical support Installation and Checkout (I&C) spares; tools, and test equipment required to ensure functionality/ operability of the installed change without adverse impact to safety.
- Duration of installation
- Superseded media Removed if applicable including software part number, nomenclature, version, etc.
- Referring NBCR or Problem Report; Document the NBCR or Problem Report which drove the change/requirement for this TECI. Reference to a Naval Message is also acceptable.

9-8.3.6 TECI Responsibilities for scheduling and authorization of TECIs

All PARMs are responsible for entering TECIs into SMART for each hull as they are planned. Although TECIs will be entered into SMART, they will not be part of the NCMC baseline process since they are interim temporary changes. Additionally, TECIs will not be pushed to AMPS. TECIs will be reviewed/approved for installation at the UC5IMP conference even though their timeliness will, in some cases, result in installation authorization being required between C5IMP conferences to meet time critical installations, problem fixes, etc. The following process will be utilized for SMART entry and fleet notification for installation:

a. Immediately after identification of the need for a TECI, the TECI must be entered into SMART and assigned to the appropriate hulls for installation in fleet approved availabilities. Populate all hulls on which the TECI is required to be installed.

b. The UC5IMP conference will be the approving forum for TECI installations. During the boat-by-boat review the TECIs will be authorized for installation.

c. If an unscheduled/not approved TECI requires installation on a hull(s) prior to the next scheduled UC5IMP Conference, and specifically during an availability in progress, TYCOM must be contacted for concurrence for installation.

d. If an availability is needed, contact TYCOM to request availability be entered in SMART.

e. Schedule the TECI for the appropriate hull in the current COMSUBFOR C5IMP Working Plan inside of SMART.

f. Release a Naval Message to the appropriate TYCOM requesting authorization to install the appropriate TECI. Message may be applicable to multiple hulls.

g. TYCOM will release a Naval Message authorizing installation of the applicable TECI.

h. Post installation Naval Message will be released by the installing activity once the TECI has been installed and tested satisfactorily.

i. Once TECI is installed, mark it “completed” in SMART.

9-8.3.7 TECI removal or transition to an ECI

During the quarterly UC5IMP conferences time will be allotted to review current TECI installations in the fleet. A special query is available to review all TECIs installed in the fleet and time on board. During the review PARMs will be responsible for ensuring plans are in place to remove TECIs that have been installed for 14 months by having permanent ECIs authorized for their replacement or authorization in place to remove. This permanent ECI will follow the normal installation process. If a TECI has to be removed from a hull, the TECI documenting the installation will be the vehicle used to remove the TECI if feasible. Care should be taken during initial TECI creation to identify procedures to back out the change if it is in fact meant to be temporary. If a new TECI is required to remove an existing TECI, the new TECI will only contain those items required to remove the current TECI and will be authorized via this process. Upon removal of the TECI, update the status in SMART to removed (RMVD).

Navy Modernization Process
Management and Operations Manual

NMP-MOM

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E	**Acronym List**, 17 March 2009	18
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H	**Technical Specification, Alterations to Ships Accomplished by Alteration Installations Teams**, TS9090.310F, 1 June 2011	150
I	**Technical Specification, Ship Alteration Drawings (SIDs) Preparation**, Rev 2, No.: TS9090-600A, June 2002 (Supersedes: TS9090-600, Aug 1985)	74
J	**Technical Specification, Ship Selected Record Drawings**, Rev 2, No.: TS9090-800A, June 2002 (Supersedes TS9090-800, May 1986)	56
K	**CFT 4 Metrics**, Rev 2, November 2005 (Draft)	9
L	**NMP Concept of Operations for Management and Oversight of the Navy Modernization Process**, Rev 2, 1 November 2007 (posted 17 March 2009)	28
M	**Non-Permanent Changes** (posted 31 August 2009)	18

This collection of NMP-MOM appendices was assembled from versions stored on the Navy Data Environment (NDE) on 11 April 2012.

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TECHNICAL INSTRUCTIONAL GUIDANCE DOCUMENT
VERSION: 1.4

TITLE: SHIP CHANGE DOCUMENT (SCD) TECHNICAL SPECIFICATION

NO.: TS9090-400C

DATE: 1 April 2009

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Published by
Commander, Naval Sea Systems Command

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1.0 Scope

This specification provides criteria for the uniform preparation of Navy Modernization Process (NMP) Ship Change Documents (SCDs) and a block-by-block description of how to fill out a SCD. This document provides general rules and practices along with step-by-step instructions for the preparation of a SCD. This Technical Instruction Guidance Document must be used in conjunction with the Surface Ship and Carrier Entitled Process for Modernization (SSCEPM) Management and Operations Manual (One Book) in order to provide complete guidance.

1.1 Applicability

This specification is applicable to carriers and surface ships, and shall be used by all personnel for the preparation of SCDs. All participants in this process must have active Navy Data Environment (NDE) accounts. For access, users must have a hard Public Key Information (PKI) card (either DOD CAC or Commercial). To request user access, please go to https://www.nde.navy.mil.

1.2 Requirements

Refer to One Book Section 1-3.3 for SCD development exemptions. The amount of detail provided in each phase of SCD development depends on the technical maturity and complexity of the proposed change and is determined by the submitter and Participating Acquisition Resource Manager (PARM).

1.3 Responsibilities

Refer to One Book Section 2 for specific responsibilities of the NMP team members.

2.0 SCD Development Preparation

> **NOTE:** Definitions of all pertinent terms used in the SCD may be found in Section 8.0 Definitions.

This section is a discussion of the SCD preparation process including basic rules and general practices. During this portion of the SCD development process the initiator, with the guidance of the submitter, shall determine the type of ship change, initiate outside activity coordination, assess technical maturity to gauge the Entitled Process (EP) phase entry, etc. Information that is unique to each phase is provided in the step-by-step detail in Section 3.0 of this document.

2.1 Separate SCDs for Carriers and Surface Ships

A separate SCD shall be completed for Carriers and Surface Ships. The EP software does not provide for consolidation of the assessments from the Surface Ship and the Carrier enterprises into a single SCD.

2.2 Determine Phase Entry

SCD phase entry is selected when the SCD is initially created in the EP software and cannot be changed. SCDs may be submitted at Phase I, II or III, depending on the technical maturity of the ship change concept determined using the Technical Readiness Level table located in One Book Section 3 Table S3-1. If the proposed change is a candidate for Phase I to Phase IIa processing, it should be recommended up front in the executive summary of the Phase I SCD.

2.3 Determine Duration

The SCD duration, permanent or non-permanent, is selected when the SCD is initially created in the EP software and cannot be changed until Phase III for Non-Permanent Change (NPC) SCDs. Duration categories are defined as follows:

- **Permanent.** Modifications of ships and its systems that are not temporary in nature. A permanent SCD may include a prototype (production representative, proof of concept, engineering development model, etc.) installation after Decision Point 2 to support development and operational testing.

- **Non-Permanent**. Modifications of ships and its systems that provide new capabilities or improve existing capabilities on a temporary basis. Non-Permanent Change (NPC) SCDs may not exceed one year or one operational deployment in duration. Extension beyond this limit requires authorization by the TYPE/Operational Commander. For more information on converting a NPC to a Permanent change, see Section 3 of this manual.

2.4 SCD Header Tab Information

The EP software monitors user activity. After approximately 15 minutes of inactivity, the application will time out and unsaved data will be lost. Thus, when creating the SCD Header Tab, the user should review the Header fields for applicable phase of entry and ensure all required information is available prior to starting the SCD. This will permit the user to complete all fields and SAVE the SCD before it times out.

2.5 SCD Technical Assessment Team (TAT) Tab Information

2.5.1 Description of Change Block General Information and Special Instructions

Description provides the scope of the proposed change; however, the level of detail is dependent upon the phase of the SCD. The information should be sufficient for the SCD to stand on its own. This is where the actual criteria for the installation is spelled out. Description of change information should meet the following criteria:

- Do not duplicate the information from the Executive Summary and/or Impact field (except when addressing special or unique modernization issues).
- Explain the what, why, where information at a minimum.
- All acronyms must be spelled out the first time used.
- Include references to any other amplifying information or data, if available. To help the TAT reviewers, utilize the SCD attachment feature whenever possible to add sketches, diagrams, etc. that support the description. Also, use notes in the Comment tab.
- Provide an explanation for any unique requirements between hulls or classes.
- If a SC is applicable to some, but not all, ships of a class an explanation must be provided.
- If available, include results of any SYSCOM or Enterprise level reviews. For example:
  - Warfare System Working Group (WSWG) and/or PEO IWS Enterprise CCB for systems that have direct or indirect impact on the weapon system configuration and integration.
  - Carrier TRIAD concurrence should be included for SC's that are submitted after A-4. The TRIAD consists of the respective Hull Maintenance Program Manager (MPM), the Maintenance Coordinator (MC) and the Combat Systems Maintenance Coordinator (CSMC) who must concur with the addition to the work package and a statement made in the SCD prior to submission for TAT.

- Special or unique modernization or ship information should be clearly described in the SCD Description of Change, if applicable:
  - Any unique Forward Deployed Naval Forces (FDNF) issues
  - Request for Phase I to Phase IIa processing
  - Non-Permanent Change length of installation and removal plan including dates
  - Permanent Changes planned for incremental installation
  - Sustainment Type 1 or 2 Internal Equipment Modifications
  - Acquisition Category (ACAT)
  - Condition Based Maintenance
  - Prototype installation prior to Low Rate Initial Production (LRIP) or Full Rate Production (FRP)
  - Not Releasable to Foreign Nationals/ Governments/Non-US Citizens (NOFORN) Ship Changes
    - Include the following statement as the first sentence: "SC is NOFORN - See Hard-Copy NOFORN SCD for complete details."
  - For legacy ship changes being converted to a SCD, add the following text: "This SCD was created from the signed Ship Alteration Record (SAR) # CVN 68CL XXXXD. No additional engineering or cost analyses were conducted and there is no change in scope from the legacy SHIPALT. This SCD is applicable to CVN XX and CVN YY. The intent of this alteration is complete on CVN XX, CVN YY."
  - For SCDs previously completed as a result of Emergent installation, include the Date Time Group (DTG) of the approval message.

2.5.2 Executive Summary General Block Information and Special Instructions

Executive Summary must clearly state what is planned and articulate the need for change including improved capability, operational readiness, etc. Executive Summary should contain any information required to support voting by the O-6 board.

Special or unique modernization or ship information that should be clearly described in the SCD Executive Summary:

- Request for Phase I to Phase IIa processing
- Permanent Ship Changes planned for incremental installation
- Sustainment Type 1 or 2 Internal Equipment Modifications
- Acquisition Category (ACAT)
- NOFORN Ship Changes - Include the following statement as the first sentence: "SC is NOFORN - See Hard-Copy NOFORN SCD for complete details."
- SCDs previously completed as a result of initial Emergent installation and should include the Date Time Group (DTG) of the approval message

2.5.3 Impact if not Accomplished Block Information and Special Instructions

Address the impact to equipment, system, ship, site, or fleet readiness relative to safety, mission, manpower, or economic cost if the SC is not accomplished within the scheduled timeframe. Attach references if available.

If the SC needs to be incremented, include the impact of not incrementing the SC.

2.5.4 Shock, Vibration, EMI, Topside, Combat System, IC Switchboard Impacts

Impacts should be identified in the Distributed Systems/Other Impacts section. Certification plans and accomplishments should be identified in the Shock, Vibration and EMI Requirements or the Certifications / Qualifications as Required sections of the SCD TAT Tab. Unclassified results of any testing should be referenced in the Description of Change and attached to the SCD.

2.6 Alteration Figure of Merit (AFOM) Tab Information

Each proposed modernization item is linked to the Navy's Sea Power 21 pillars and subordinate capability requirements. A numerical value that equates to the benefit is derived from these linkages and the degree of capability change expected. Additional factors are employed to account for shipboard suitability (safety, quality of life, maintainability, etc.) considerations not directly measured in the Sea Power 21 capability matrix.

The initiator/submitter of a proposed change determines which capabilities and suitability areas are affected by the proposal. During the Fleet-level AFOM review, the selections are validated, and if required corrected, then the degree of capability change is evaluated and recorded.

Below are the capability and suitability areas contained in the SCD AFOM Tab. The AFOM Tab contents and process do not change from phase to phase of SCD development. All Acronyms are spelled out and defined in the Acronym list at the end of this document.

Sea Shield

- Force Protection
  - **Protect against SOF & Terrorist Threats**
  - **Mitigate effect of CBRNE**
- Surface Warfare
  - **Provide Self Defense against Surface Threats**
  - **Conduct Offensive Operations against Surface Threats**
- Under Sea Warfare
  - **Provide Self Defense against Subsurface Threats**
  - **Neutralize Submarine threats in the Littorals**
  - **Neutralize open oceans Submarine Treats**
  - **Counter Minefields from deep to shallow water**
  - **Breach Minefields, Obstacles, and Barriers from very shallow water to the beach exit zone**
  - **Conduct Mining Operations**
- Theater Air and Missile Defense
  - **Provide Self Defense against Air and Missile Threats**
  - **Provide Maritime Air and Missile Defense**
  - **Provide Overland Air and Missile Defense**
  - **Conduct Sea-Based Missile Defense**

Sea Strike

- Conduct Strike OPS
  - **Engage Fixed Land Targets**
  - **Engage Moving Land Targets**
- Conduct Special OPS
  - **Provide Precision Targeting**
  - **Conduct Direct Action**
- Conduct Offensive Information Operations
  - **Jam Potential Threats**
  - **Conduct Network Attacks**
- Naval Fire Support
  - **Provide Precision Fires**
  - **Provide High Volume Fires**
  - **Provide Extended Range Fires**
- Maneuver
  - **Project/Reposition Forces**
  - **Assault Centers of Gravity and Critical Vulnerabilities**
  - **Conduct Concurrent/Follow-on Missions**
- Strategic Deterrence
  - **Conduct Nuclear Strike**
  - **Provide Assured Survivability**

Sea Basing

- Close, Assemble, Employ, & Reconstitute
  - **Close the Force & Maintain Mobility**
  - **Provide at Sea Arrival & Assembly**
  - **Allow Selective Offload**
  - **Reconstitute Regenerate at Sea**
- Provide Integrated Joint Logistics
  - **Provide Sustainment for Operations at Sea**
  - **Provide Sustainment for Operations Ashore**
  - **Provide Focused Logistics**
  - **Provide Shipboard and Mobile Maintenance**
  - **Provide Force Medical Services**
  - **Provide Advance Base Support**
- Preposition Joint Assets Afloat
  - **Integrate and Support Joint Personnel and Equipment**
  - **Provide Afloat C2 Physical Infrastructure**
  - **Provide AFSB Capability for Joint Operations**

ForceNet

- Communications and Data Networks
  - **Provide Communication Infrastructure**
  - **Provide Network Protection**
  - **Provide Network Synchronization**
  - **Provide Information Transfer**
  - **Intel, Surveillance and Recon**
  - **Conduct Sensor management and Information Processing**
  - **Detect and ID Targets**
    - **Fixed Land Targets**
    - **Moving Land Targets**
    - **Air and Missile Targets**
    - **Surface Targets**
    - **Submarine Targets**
    - **Mines**
  - **Provide Cueing and Targeting Information**
  - **Assess Engagement Results**
- Common Operational and Tactical Pictures
  - **Provide Mission Planning**
  - **Provide Battle Management Synchronization**
  - **Provide Common PNT and Environmental Info**
  - **Integrate and Distribute Sensor Info**
  - **Track and Facilitate Engagement of Time Sensitive Targets**
  - **Track and Facilitate Engagement of Non Time Sensitive Targets**

QOS/QOL

- HCI/HSI/HFE

- Habitability
- Personnel Survivability
- Training

RMAS
- Manpower Work Load
- Reliability
- Maintainability
- Operational Ability
- Supportability

Safety
- Ship Distributed Systems Margins
- Ship Safety
- Personnel Safety

2.7 SCD Cost Benefit Analysis Tab Information

There are four sections of the CBA for each of the three phases: (1) Investment Cost by work breakdown structure element; (2) Appropriation and Program Element Funding; (3) Projected Savings and Cost Avoidance associated with the change; and (4) Installation Fielding Plan Data.

Prior to completing the CBA, the program office Business Financial Manager (BFM) may be contacted to identify the correct Budget Line Item (BLI), Appropriation (APPN), Budget Submitting Office (BSO), Program Element (PE), and Resource Sponsor.

Portions of the CBA will be locked. Data entry cells are colored tan or green, and are the only cells that can be edited. Tan cells require generic data entry (i.e., cost estimate or projected savings, or production units), where cost entries are in thousands of dollars. References in this document made to "*FYXX*" apply to all fiscal year (FY) columns. Entries in these columns are made in *Then Year Dollars (TY$)*. Green cells are the *To Complete (Constant Year Dollars)* column, which is an escalation correction column, also in thousands of dollars. These estimates are required ONLY when funds for a SC extend beyond the 10th fiscal year in the *To Complete (Then Year Dollars)* column (tan cells). The initiator/submitter (herein referred to as "user") must confirm this estimate is necessary. If any funds in years beyond the 10th fiscal year are required for the SC, the user must group the estimates together into a lump sum and a separate calculation must be done for correcting escalation effects. This value is entered in the *To Complete (Constant Year Dollars)* column (green cells). Most cells will be filled in with estimated cost values, and text entry cells are identified in this document when required. Any sections (i.e., rows or columns of data) that are not applicable to the SC should remain blank.

In order to calculate or recalculate estimated cost value cells and save information at any time, click the green Save button in at the bottom of each tab. If the data the user has entered is incorrect, click the red Discard Changes button; this will delete the unsaved data that was entered so the user can reenter the correct data.

When completing the CBA Appropriations Tab, use the Program Budget Information System (PBIS) tool to verify the Budget Line Item number is valid. This tool is located in the NDE NM module. From the menu under Documents, select Downloads. Scroll down to find the latest "PBIS Information" spreadsheet.

In the Projected Savings and Cost Avoidance Tab, all values must be positive numbers. Errors will occur if negative values are used. A savings or cost avoidance can be calculated only if a baseline comparison is possible. This section may not be skipped if a baseline comparison can be made. If the SC is for installation of a new system, no data entry is required. However, it must be saved or the CBA cannot be completed. To save this section, click the green Save button in at the bottom of the tab.

In the Installation Fielding Plan Tab, applicable ships and sites identified in the Header Tab will be listed. Each applicable ship or site must have a quantity greater than zero (0). Total production units and installations must match in order to save this tab.

3.0 Initiating and Submitting a SCD

These are the step-by-step procedures for initiating and submitting a SCD in the EP software. Review Section 2.0 prior to initiating a SCD.

3.1 Create a New SCD in Any Phase

If the SCD does not exist, use the following steps to create a new SCD:

(1) Open the web browser and navigate to NDE https://www.nde.navy.mil
(2) When requested, select correct PKI certificate and enter PKI PIN
(3) At NDE log in page, enter authorized Username and Password
(4) At NDE Applications menu, select **Entitled Process**
(5) At NDE NM Entitled Process menu, select **New SCD**

CAUTION: Once selected, the duration of Non-Permanent cannot be changed until the SCD is updated for submission into Phase III.
NOTE: Parent/System/Capability is not an active option at this time.

(6) From Option One, select the SCD duration, either **Permanent** or **Non-Permanent**

CAUTION: Once the Phase of entry is selected, it cannot be changed for this SCD.

(7) From Option Two, select **Phase I**, **Phase II** or **Phase III**.

3.2 Create / Update the SCD Header

Information provided in this section populates the SCD Header Tab and is applicable to all Phases. Differences from Phase to Phase are clearly identified.

The initiator must complete this section with all required fields and save the SCD. The initiator can edit most items in this section as long as the SCD is in the **My Action** folder and the SCD status is Phase X Initiate. Once the SCD is forwarded to the submitter, only the submitter or a submitter assignment with "edit" rights to a user can modify this section.

> **NOTE:** It is important to complete and save this section within 15 minutes or the data will be lost if the software times out due to user inactivity.

- **Change Tracking Number** (CTN). The EP software automatically provides the next sequential number in the system. This becomes the assigned SCD number.
- **SCD Title** (50 characters). Ship change title will identify the ship change. The title must be descriptive enough to distinguish this SC from others. Include Joint Type Electronics Designation System (JTEDS) Nomenclature (AN/XX) for C4I, MK/MOD for Weapons Systems, include Engineering Change Order (ECO) plus number and/or SW/HW for alterations that bring both software and hardware. This title will be used throughout the life of the change and cannot be altered once the SCD is submitted into the EP software review process.

  CAUTION: Ensure the title is valid, thru all phases. (i.e. do not put NPC in the title)

- **Linked SCDs**. The initiator or submitter can create a list of SCDs that have either a concurrent or prior to relationship to this SCD. Select **Manage SCD Linkage**. Search for the SCD using the CTN, select the desired SCD and **Add SCD**. Set the relationships, then **Set Linkages**. This will add the selected SCD to the **Linked SCD** list.
- **Classified/NOFORN: Yes/No**. NDE is an unclassified environment. Do not enter Classified or NOFORN data in EP. This block is automatically checked as No.
- **Recommend Expedite.** This is a recommendation from the initiator or submitter, and is approved by the Voting Board. If expedite is approved, it puts the SCD at the top of the review queues in the next Phase. It does not shorten the review process. If the expedite box is selected, provide an explanation and justification why the SC must be expedited through the process in the **Expedite Reason** text block.
- **Creation Date**. This data is automatically generated by the EP software.
- **Was this formally submitted as a CFC or PA? Yes/No.** Candidate for Change (CFC) and Proposed Alterations (PA) were change types are from the legacy process that were included in the Modernization Plan. If the SCD is being developed from a CFC or PA, select **Yes** and **CFC** or **PA.** In the **If Yes, please specify:** text block, provide the CFC or PA number.
- **Is this a legacy alteration? Yes/No.** If the change is based on a legacy alteration, select **Yes**. In the **If Yes, please specify:** text block, provide the approved NDE NM Alteration Identification.
- **Is your activity an Afloat Command? Yes/No**. This function is currently disabled in the EP software.
- **Is there a Program SCD associated with this change? Yes/No**. This can be used to identify a Parent/Child relationship between SCDs. Since Parent/Child functionality does not exist within EP, it has to be tracked manually. If **Yes** is selected, provide details in the **If yes, please specify:** text block.

- **Has or will have NM Alt Increment:? Yes/No**. If this change is proposed for incremental installation, select yes. Details on how the incremental installation will be executed shall be described in the Description of Change block in the TAT Tab of the SCD.
- **Applicable Classes, Ships and Sites**: A SCD must have at least one Ship Class and one Hull selected. Carriers and Surface Ships shall not be included on the same SCD. If there is a corresponding shore site receiving the SC, each applicable shore site must be identified. The information selected in this block is also populated in the CBA Fielding Plan Tab.

  (1) Click on **Select Classes, Ships** box to open Classes, Ships menu.
  (2) Highlight the applicable Class in the **Classes** window. To select multiple ship classes, press and hold the CTRL key.
  (3) Once all classes are selected, click on **Select**.
  (4) All the hulls in each class selected will be populated in **Ships** window.

  NOTE: New construction hulls are only included if the installations are going to be accomplished with OMN/OPN funding **or** if it is accomplished on an Aircraft Carrier in Refueling Complex Over Haul (RCOH).

  (5) Click on the green **SAVE** button.
  (6) Observe the list of **Selected Sites and Ships** displayed on the left side in blue text. Use the scroll bar to see the full list.
  (7) For individual ships that are not applicable to the SC, click on the ship name to remove it.
  (8) Any ships that are within the five year decommissioning window will be displayed on the right. A SC planned for installation on a ship within five calendar years of the ship's decommissioning has unique requirements, mandated by law, which must be followed before any appropriated funds can be obligated or expended for such purpose. Refer to One Book Section 1-7 for the SECNAV Waiver and Memorandum For the Record (MFR) processes. If a SECNAV waiver or MFR has been approved, select the **SECNAV Waiver Approved** check box and provide amplifying information in the **SECNAV Waiver Approval Information** (200 characters) text block and click on green **Save**.
  (9) Click on **Select Sites** box to open Sites menu.
  (10) Use the UIC or Site Name to filter the list.
  (11) Click on the check box next to applicable sites that will also receive the ship change.
  (12) Click on the green **SAVE** button.
  (13) Observe the list of **Selected Sites and Ships** displayed on the left side in blue text. Use the scroll bar to scroll to the bottom to see the sites selected.
  (14) Clicking on an individual ship or site will remove the ship or site from the list.
  (15) If CVN 73 is selected, answer the following additional questions in the **CVN 0073 Question** pop up:

  1) **Does this Ship Change impact both propulsion plants and / or supporting systems / ship spaces per NAVSEAINST C9210.4?** Select **Yes** or **No**

  2) **Is greater than eighty-five (85) production days required to complete this Ship Change?** Select **Yes** or **No**

- **Recommended SCD**
  - Under **Scope**, check the boxes for all that apply:
    - **Internal Equipment Modification.** Changes are contained within the boundaries of the individual equipment/system and have limited system ramifications. All of the following criteria must be met:
      - The SC can be accomplished without changing an interface external to the equipment or system.
      - The SC is made within the equipment or system.
      - The SC does not impact Strike Force Interoperability (SFI).
      - The SC does not impact shipboard distributive systems, Ship Selected Records (SSRs) or interfacing equipment or systems, compartmental arrangement records, or Damage Control records.
      - The SC does not impact manning levels.

    - **Ship Modification.** Any permanent change in hull, machinery, equipment, or fittings, which involves changes in design, material, quantity, location, or relationship of the component parts of an assembly. Any of the following criteria may apply:
      - The SC changes an interface external to the equipment or system.
      - The SC is made outside the equipment or system boundaries.
      - The SC impacts Strike Force Interoperability (SFI) (positively or negatively).
      - The SC impacts shipboard distributive systems, Ship Selected Records (SSRs) or interfacing equipment or systems, compartmental arrangement records, or Damage Control records.
      - The SC brings new capability or functionality.

    - **Site Modification.** If choosing a shore site, the SC must also be applicable to a ship or ship class. Select Site Modification only if the site will also be modified/modernized with the same funding as the ship or ship class.

  - Under **Category**, check the boxes for all that apply (at a minimum HM&E, C4I or CS must be selected):
    - **HM&E** – Changes to the ship Hull, Mechanical, and Electrical systems.
    - **C4I** – Changes to Command, Control, Communications, Computer, and Intelligence systems.
    - **CS** – Changes to the Combat System.
    - **Computer Program / Software** – Change affects a computer program or software. It is selected in conjunction with HM&E, C4I or CS.
    - **Aviation** – Change is on an aviation system. It is selected in conjunction with HM&E, C4I or CS.

  - **Duration**, **Permanent** or **Non-Permanent**, was selected when the SCD was created. Non-Permanent may be changed to Permanent when transitioning from Phase II to Phase III.
  - Under **Funding**, check the boxes for all that apply:

- **Program** – Programmed for installation by SYSCOMs or PEOs, as well as funded for accomplishment by the SYSCOMs, PEOs or other organization as agreed upon. Select if the SC has Program office funding.
- **Fleet** – Programmed for installation by the Fleet (TYCOM) as well as funded for accomplishment by the Fleet or other organization as agreed upon. Select if the SC has Fleet (TYCOM) funding.
- **Non-Navy Funded** – Funding is from non-Navy sources (ex. Missile Defense Agency (MDA), Joint Program Executive Office (JPEO)).

– **Points of Contact** (POC). Select the POC from the drop down list for each contact type. The initiator is only required to provide the Submitter POC. If a POC is not available from the drop down, a request may be sent to the NDE-EP Secretariat requesting the individual be listed in the appropriate POC role, noting that the POC is not listed in drop down menu data fields. POCs must have an active NDE account. If the POC is not in the drop down list, the POC will be identified in the Description of Change (including Phone number and Email address).

- **Initiator Point of Contact**. This field is automatically populated when the SCD is created with the initiator POC information.
- **Submitter Point of Contact**. This is a required field and a submitter must be selected in order to save the SCD. Each Program Office, SYSCOM or TYCOM have designated submitters.

  NOTE: In order to save the SCD Number a Submitter must be selected. If the Submitter is unknown randomly select a submitter from the list. Once the correct submitter has been identified, change the submitter.
- **PARM Point of Contact**. Program Office POC or Fleet/TYCOM POC. In Phase I if the PARM POC is not known, check "TBD". However, in Phase II NPC, Phase II(a) or Phase III the PARM POC is required.
- **TYCOM Point of Contact.** Platform TYCOM POC. In Phase I if the TYCOM POC is not known, check "TBD". However, in Phase II NPC, Phase II(a) or Phase III the TYCOM POC is required.
- **Technical Point of Contact.** Technical POC as identified by the PARM, TYCOM or TAT. In Phase I if the technical point of contact is not known, check "TBD". However, in Phase II NPC, Phase II(a) or Phase III the Technical POC is required. Technical point of contact does not have to be the Technical Warrant Holder (TWH).

– Once all data elements are complete, click on green **Save SCD** button**.**

NOTE: A red error message will appear at the top of the Header Tab page if any mandatory information is incomplete. Missing information will be annotated in red text as ***Required***.

NOTE: Once the SCD is saved, the initiator may exit the EP software and return later to continue filling out the SCD. The SCD is accessible from **My Action List**.

For Phase I proceed to Section 3.3, for Phase II proceed to Section 3.4, or for Phase III proceed to Section 3.5.

3.3 Create / Update Phase I SCD

The Phase I SCD is defined as a conceptual idea with minimal engineering information required.

3.3.1 Phase I TAT Tab

Review Section 2.5 prior to completing the Technical Assessment Team (TAT) Tab. The initiator must complete this section with all required fields and save the SCD. The initiator can edit all items in this section as long as the SCD is in the **My Action** folder and the SCD status is Phase I Initiate. Once the SCD is forwarded to the submitter, only the submitter or a submitter assignment with "edit" rights to a user can modify this section.

> **NOTE:** Click the green **SAVE** button frequently to save changes in EP and to ensure data is not lost. The **SAVE** button is located at the end of the **TAT Tab** document.
> **NOTE:** The following error message will appear in red at the top of the TAT Tab page if any mandatory information is incomplete or incorrect: ***The requested operation could not be completed, because one or more of the fields on this form are incomplete or contain invalid data***.
> **NOTE:** It is recommended users create **Description of Change**, **Executive Summary** and **Impact if not accomplished** sections in a text editor like Notepad or Wordpad then copy and paste into EP software. This ensures data is captured prior to the EP software timing out and prevents data loss. Microsoft Word is not recommended since unseen text formatting can be included when copying and pasting into EP software.

– **General**
  - **SCD cloned Flag:** Select **Yes** or **No**. Refer to paragraph 4.4 for information about SCD cloning.
  - **SCD Clone Number:** If Yes is selected, then provide the four digit CTN of the cloned SCD in the text block.
  - **Description of Change** (4,000 characters). This is a mandatory text field. For a Phase I SCD, level of detail must be sufficient for the Technical Assessment Team to judge the feasibility of the proposed SC and provide a recommendation to the Voting Boards. Every SCD should stand on its own, so this block is where the actual criteria for the installation is spelled out. Information that cannot be included in the description may be attached to the SCD and the document title referenced in the Description of Change. Refer to Section 4.2 for information about attachments.

    If the Phase I SC meets the criteria to progress to Phase IIa IAW One Book Section 3, provide justification.

    Ensure NOFORN data is NOT included in EP. Include the following statement if the SC is NOFORN and complete details cannot be provided in EP: "SC is NOFORN - See hard-copy NOFORN SCD for complete details."

- **Executive Summary** (2,750 characters). This is a mandatory text field. User shall provide a summary/snapshot of the SC that will be used to describe the change throughout the Entitled Process.

  Executive Summary must clearly state what is planned and articulate the need for change including improved capability, operational readiness, etc. Executive Summary should contain any information required to support voting by the O-6 board.

  Ensure NOFORN data is NOT included in EP. Include the following statement if the SC is NOFORN and complete details cannot be provided in EP: "SC is NOFORN - See hard-copy NOFORN SCD for complete details."

  If the Phase I SC meets the criteria to progress to Phase IIa make recommendation

  If the SCD meets ST 1 / 2criteria make recommendation

- **Impact if not accomplished** (2,750 characters). This is a mandatory text field. Provide the impact to equipment, system, ship, site, or fleet readiness relative to safety, mission or economic cost if the SC is not accomplished. Attach references if available. Include the following statement if the SC is NOFORN and complete details cannot be provided in EP: "SC is NOFORN - See hard-copy NOFORN SCD for complete details." If incremental installation is proposed, include impact of not installing incrementally.

– **Requirement and Justification of Proposed Change.** Users shall add text (up to 255 characters) citing requirements, and noting deficiencies or explanations next to each applicable item. Do not click on checkboxes. Checkboxes will auto-select when text is entered.

  - **Anti-Terrorism/Force Protection.** Provide an explanation.
  - **Aviation Capability and Air Wing.** Provide details of how the SC would impact ship/aircraft integration. (for example, C4ISR, catapults or arresting gear) of applicable ships.
  - **Compatibility.** Identify issues, cite references.
  - **Battle Force Interoperability (BFI).** Cite Requirement/Reference. Provide recommended Strike Force Interoperability Category in accordance with CUSFFC/CPF 4720.3 (series).
  - **Contract Defect.** Address correction of defective specifications, unavailable Government Furnished Equipment (GFE), or unavailable Government Furnished Information (GFI). Cite requirement.
  - **Environmental Requirement.** Provide details of how the SC has an environmental impact (air/water discharge, use of hazardous materials, solid waste generation, etc) to applicable ships. Cite requirement/reference as applicable.
  - **Legislated Regulatory Requirement.** Cite legislative requirement/reference.
  - **Mandatory Safety.** Cite directive reference and attach supporting documentation.

- **Proposed Military Improvement.** Approved/directed by OPNAV and intended to increase the ship's ability to meet its Required Operational Capability (ROC). Cite rationale/reference.
- **Proposed Survivability Improvement.** Approved/directed by OPNAV, and intended to reduce the ship's susceptibility to defined threats, or to increase the ability to recover from damage. Cite requirement/reference.
- **QOL/QOS.** Provide details of how the SC would impact the Quality Of Life and Quality Of Service (QOL/QOS) (i.e. messing, berthing, recreational, and sanitary spaces) of applicable ships.
- **Restoring Margins.** Restoring system capacity (weight and moment; electrical system; heating, ventilation, air conditioning or increasing inventory to meet new authorized baseline; etc). Provide an explanation.
- **Reduction of Total Ownership Costs.** These initiatives address long standing concerns about the adverse impact of defense budgetary and operational trends on force structure and readiness. Department of Defense (DOD) has directed Program Managers to achieve specific RTOC goals in their programs. Return on Investment (ROI) and payback period will be calculated in EP using data provided in the Cost Benefit Analysis (CBA) tabs.
- **Safety.** Check if the change eliminates or reduces hazards to ship personnel or components. Safety considerations include human (includes human/system interfaces), toxic/hazardous materials and substances, testing, logistical support, weapons, and munitions/explosives. If safety analysis has been accomplished, attach copy.
- **Statutory Requirement.** Cite requirement/reference.
- **Testing and Trial Deficiency.** Testing and trial deficiencies address component or system modifications derived from deficiencies noted during developmental or operational testing. Provide an explanation.
- **TMA/TMI.** Cite Top Management Attention/Top Management Interest (TMA/TMI) number and description.
- **Unavailable, Obsolete or Unreliable Equipment.** Provide an explanation for changes that replace equipment or components no longer available, unsupportable, or unreliable.
- **War fighting Improvement Program.** A PEO Aircraft Carrier's (PMS 312) program for identifying, tracking and resolving ship propulsion plant related improvements. Provide WIP number. Do not enter NOFORN data in EP. If unable to input data due to NOFORN, state NOFORN.
- **Other (Specify).** Enter any other requirement not specified above. This may include Engineering for Reduced Maintenance (ERM), Capital Investment for Labor (CIL) or other justifiable Fleet or Program initiatives.

– **Distributive Systems/Other Impacts:** At least one impact area must be selected. Identify distributive and other impacts affected or changed by the proposed change. As each box is checked or unchecked, the page will refresh. For the Phase I SCD, no further explanation is required.
  - **AC Plants (Tons).** Selection indicates the change impacts Air Conditioning Plants.
  - **Chilled Water (GPM).** Selection indicates the change impacts Chilled Water Systems(s).
  - **Air Systems.** Selection indicates the change impacts Air Systems(s).

- **Certification Required.** Selection indicates that pre-installation or post-installation certifications are required. See One Book Section sub-paragraph 3-6.5.1 Hull Installation Readiness Review Criteria for the list of certifications that should be addressed in the SCD.

  NOTE: This next selection covers Damage Control, Fire Fighting, and Fire Protection until the SCD is updated to reflect all three impact areas.

- **Damage Control.** Selection indicates the change impacts Damage Control, Fire Fighting, and Fire Protection equipment and/or systems (e.g., detection, suppression, equipment stowage). This includes consideration of the future susceptibility/vulnerability to fire or battle damage with the intent of improving the serviceability/recoverability of the ship, systems and subsystems both currently installed and being planned. The configuration consideration will include the adjacent compartments to the planned installation to identify possible problems that would affect the ships current and future Damage Control posture.
- **Dry Docking Required.** Selection indicates the ship requires dry-docking.
- **Electric Generation and Power Distribution Systems (kW).** Selection indicates the change impacts Electric Generation and Power Distribution Systems
- **Electrical (400 Hz).** Selection indicates the change impacts Electrical 400 Hz power system
- **Fiber Optic Cable Plant (Yes/No).** Selection indicates the change impacts shipboard Fiber Optic Cable Plant.
- **Fire Main (GPM).** Selection indicates the change impacts Fire Main System
- **Fuel System.** Selection indicates the change impacts Fuel Systems
- **HVAC System.** Selection indicates the change impacts Heating, Ventilation, and/or Air Conditioning equipment and/or systems.
- **Hangar Bay/Flight Deck Encroachment.** Selection indicates the change impacts the hanger bay and/or the flight deck of applicable ships.
- **Human System Integration (HSI) Impacts.** Selection indicates the change may impact manpower, workload, personnel, training, human factors engineering, habitability, environment, safety, occupational health, or personnel survivability. See NAVSEA Instruction. 3900.8A for further clarification.
- **IC Circuits.** Selection indicates the change impacts individual Interior Communication circuits.
- **IC Switchboard (Loads).** Selection indicates the change impacts Interior Communications switchboards.
- **Database Multiplex System (Loads).** Selection indicates the change impacts Database Multiplex System Loads.
- **Combat Systems Switchboard Impact.** Selection indicates the change impacts Combat Systems Switchboards.
- **Integrated Logistics Support Impact (ILS).** Selection indicates the change will impact Technical Manuals, Provisioning, Planned Maintenance System, Ship's Selected Records, Operating Sequence System, Steam Plant Manual, Test Equipment, Commercial Off-The Shelf/Non-Development Items (COTS/NDI), Facilities, Software Management, Spares, or other logistic products.

- **Networks.** Selection indicates the change impacts shipboard networks including Ship Wide Area Networks (SWAN), various HM&E (including Machinery Control Systems and Navigation Networks, C4I or Combat System Local Area Networks.
- **Ordnance Handling/Storage.** Selection indicates the change impacts ordnance handling and storage.
- **Potable Water.** Selection indicates the change impacts potable water.
- **Prior/Concurrent/Conjunctive Alts.** Selection indicates the change is associated with other ship changes or alterations.
- **SUBSAFE.** Selection indicates the change impacts the structures, systems and components critical to the watertight integrity of a submarine and are subject to Submarine Safety Certification (not applicable to carriers and surface ships).
- **Ship/Aviation Integration.** Selection indicates the change impacts the ship or aviation systems integration (for example, C4ISR, catapults or arresting gear).
- **Ships Characteristics Document change required.** Selection indicates the change impacts the ship characteristics document.
- **Software.** Selection indicates the change includes software or a change to previously installed software.
- **Space Configuration.** Selection indicates the change impacts space configurations or space designation.
- **Storage Requirements.** Selection indicates the change impacts the storage spaces and requirements of applicable ships.
- **Surgeon General/Fleet Surgeon.** Selection indicates the change impacts Surgeon General/Fleet Surgeon spaces/systems.
- **Topside Design/Mast Structure (Tons).** Selection indicates the change impacts the topside design or the mast structure of the ship. The change will be subject to the Integrated Topside Design and Certification Process for In-Service Ships.
- **Weapons Systems.** Selection indicates the change impacts weapons systems.
- **Weight & Moment Change (Tons).** Selection indicates the change impacts ship's weight and moment.
- **Other (Systems/Equipment/Sites).** Specifically identify any other impacts not covered in the above list including other installed equipment or systems.

– Click the green **SAVE** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button. This will delete all unsaved TAT Tab data that was entered, so the user can enter the correct data.

  NOTE: The **AFOM** and **CBA Tabs** do not require further initiator input. Consult with the submitter and local organization policies to determine responsibility for completion of the rest of the SCD prior to forwarding it to the submitter.

  To forward the SCD to the submitter, at the top of the TAT Tab, click the green **SUBMIT** button.

3.3.2 Phase I AFOM Tab

Review Section 2.6 prior to completing the AFOM Tab.

(1) Check each capability and suitability area affected by the proposed. More than one capability or suitability area may be selected. At least one must be selected for SCD submission.

(2) Click the green **Save** button to save changes in EP. If the data entered is incorrect, click the red Discard Changes button, this will delete the unsaved data that was entered and the user can enter the correct data.

3.3.3 Phase I CBA Tab

Review Section 2.7 prior to completing the CBA Tab.

This guidance refers to the CBA for the SCD "Concept Development Cost Information" section for Phase I. SCD cost estimates for this phase are broad, high-level cost estimates that may become summary level categories comprised of sub-categories in later phases.

The initiator can edit all items in this section as long as the SCD is in the **My Action** folder and the SCD status is Phase I Initiate. Once the SCD is forwarded to the submitter, only the submitter or a submitter assignment with "edit" rights to a user can modify this section.

> **NOTE**: This is the only section that can be saved prior having all mandatory fields completed. While populating data in the CBA, save often by clicking the green SAVE button at the bottom of each tab.
> **NOTE**: All costs in the CBA Tabs are entered in thousands of dollars (ex. 10.00 entered is equal to $10,000.00.

3.3.3.1 Investment Cost Tab

> **NOTE:** If the Starting Year is reset at any time after the CBA has been populated with data, that data will be cleared.

(1) **Set Starting Year**. Select the starting Fiscal Year (FY) for the SCD. It will determine the FY headers on the rest of the CBA tabs.
(2) The estimated cost value is a future dollar value calculated by taking the cost estimate and inflating the values with the corresponding FY escalation factor. This manual calculation must be done for every applicable FYXX. If funds extend beyond 10th fiscal year, it is necessary to calculate and enter a de-escalated cost estimate in the To Complete (Constant Year Dollars) column (green cells). Consult current Navy Financial Management and Budget (FMB) guidance to determine appropriate escalation factors.

- Provide estimated cost values in the **System/Equipment Procurement Cost** subsections for the following:
  - Enter **Concept Development**
  - Enter **Preliminary Engineering**
  - Enter **Design Development**

- Observe the subtotal is calculated in ***Subtotal System/Equipment Design/Development Cost.***
- Enter estimated cost values for **System/ Equipment Procurement Cost**
- Enter estimated cost values for **Installation/Checkout Cost**
- Observe the subtotal of ***Subtotal System/Equipment Design/Development Cost,*** **System/ Equipment Procurement Cost**, and **Installation/Checkout Cost** are calculated in ***Subtotal (Sum of Major Cost Element Categories By FY)***.

(3) Review each cell box to verify each section is completed.
(4) Click the green **Save** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button, this will delete the unsaved data that was entered and the user can enter the correct data.

> **NOTE:** Error messages will appear after completing the Investment Costs Tab. The error message is generated because the subtotal row for Investment Costs Tab must match the subtotal row in the Appropriations Tab for each FYXX column, which has not been completed yet. The user cannot go onto the next tab (AFOM) until the errors are corrected.

3.3.3.2 Appropriations Tab

This tab is used to identify the SC funding sources. Information contained in this tab is the same regardless of the Phase of the SCD. At least one row needs to be completed. If there is no funding, include a comment in the **Comments Tab** explaining why. Enter estimated cost values for each Phase by completing the following steps:

> **NOTE:** It is important to have matching data between the Investment Cost Tab and the Appropriations Tab. Cost information is often transferred incorrectly between sections. For example, if the Preliminary Engineering costs are 10K in the Investment Cost Tab, they should be 10K in the Appropriations Tab.

(1) Select **Appn** drop down menu and select the proper appropriation from the drop-down menu
(2) Select **Sponsor** drop down menu and select the sponsor information from the drop-down menu.

> **NOTE:** The BLI Number and PE Number should be formatted ***exactly*** how it is in the PBIS database.

(3) Enter **BLI.** Enter correct Budget Line Item (BLI) information as text/numerals. This is normally 4 digits unless the appropriation type is RDTEN, then the BLI and PE fields are the same.
(4) Enter **PE.** Enter Program Element (PE) information as text/numerals.
(5) Enter estimated cost value for applicable FYXX and To Complete (Then Year Dollars) columns, if necessary.

(6) If funds extend beyond the 10th fiscal year column on the CBA, it is necessary to calculate and enter a de-escalated cost estimate in the To Complete (Constant Year Dollars) column (green cells). Consult current Navy FMB guidance to determine appropriate escalation factors.

NOTE: Lines cannot be edited after adding, so verify data entry.

(7) Click **Add**

NOTE: Repeat the above steps for additional funding lines as appropriate.
NOTE: The totals for each fiscal year must be the same in the **Investment Cost Tab** and the **Appropriations Tab**. If the totals are not the same, an error message will be displayed.

(8) Identify any error messages that remain in the Appropriations Tab of the CBA and locate which rows have a total(s) that do not match. Address errors for applicable FYXX, To Complete (Then Year Dollars), and To Complete (Constant Year Dollars) columns by adjusting values in either the Investment Cost Tab or the Appropriations Tab so the subtotal rows contain accurate estimates and are equal. The error message will disappear when the Investment Costs Tab and the Appropriations Tab match. The user cannot submit the SCD until errors are corrected.
(9) Review each cell box to verify each section is completed.
(10) Click the green **Save** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button, this will delete the unsaved data that was entered and the user can enter the correct data.

3.3.3.3 Projected Savings and Cost Avoidance Tab

NOTE: This section can only be calculated if a baseline comparison is possible. If a new system is proposed by the ship change, no data is entered and the tab is saved.
NOTE: Savings should be represented by positive values in this section. Errors will occur if negative values are used.

(1) Enter estimated cost value for **Development Phase** row in applicable **FYXX** and **To Complete (Then Year $)** columns.
(2) Enter estimated cost value for **Production Phase** row in applicable **FYXX** and **To Complete (Then Year $)** columns.
(3) Enter estimated cost value for **Operating and Support** row in applicable **FYXX** and **To Complete (Then Year $)** columns.
(4) Identify and address any errors that may exist in Projected Savings and Cost Avoidance Tab.
(5) Review each cell box to verify each section is completed.
(6) Click the green **Save** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button, this will delete the unsaved data that was entered and the user can enter the correct data.

3.3.3.4 Installation Fielding Plan Tab

NOTE: Total Production Units procured must be equal to the total number of installations. An error message will appear if **Total Installations** does not equal **Total Production Units** and the SCD cannot be saved.
NOTE: Changes proposed for incremental installation must show total installations planned in each increment by fiscal year for each applicable single hull or site.

(1) Enter estimated values for **Total Production Units** in applicable **Prior**, **FYXX** or **To Complete (Then Year $)** columns representing the number of units to be installed in each FY.
(2) Applicable ships identified in the Header Tab will be listed in the **Installation Fielding Plan Data** column.

NOTE: For Condition Based Maintenance SCD where there is not a year by year fielding plan, use the **To Complete (Then Year $)** field to account for the eventual installations.

(3) For each **Ship – SHIP NAME – HULL #** listed, enter values in **Prior**, **FYXX** or **To Complete (Then Year $)** columns as required.
(4) Repeat step (3) for each ship listed.

NOTE: **Ship Total Installations** is a calculation row that calculates the sum of **Ship Quantity** units.

(5) For each **Site – SITE NAME** listed, enter values in **Prior**, **FYXX** and **To Complete (Then Year $)** columns as required.
(6) Repeat step (5) for each site listed.

NOTE: **Site Total Installations** is a calculation row that calculates the sum of **Site Quantity** units.
NOTE: **Total Installations** is a calculation row that calculates the sum of **Ship Quantity** units and **Site Quantity** units.

(7) Identify and address any errors that may exist in **Installation Fielding Plan** Tab. **Total Installations** must equal **Total Production Units** entered.
(8) Review the cell boxes to verify this section is completed.
(9) Click the green **Save** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button, this will delete the unsaved data that was entered and the user can enter the correct data.

3.3.4 Submitter Review and Submission

Once all mandatory entries and organizational entries are complete and supporting documentation is attached, the Initiator can forward the SCD to the Submitter. Once the SCD is forwarded to the submitter, only the submitter or a User assigned “edit” rights can modify the

SCD. At this point, all viewing rights of the CBA except the Installation Fielding Plan are limited to the Submitter and any User assigned either edit or comment rights by the Submitter.

1) From any tab on the SCD, at the top of the tab page, click on the green **SUBMIT** button.
2) An automated email notification will be sent to the selected Submitter.
3) The SCD will appear in the Submitter's **Phase I Pending Submission My Action List**.
4) The SCD will be removed from the Initiator's **Initiation My Action List**.
5) The Submitter reviews the SCD and validates all information has been correctly entered and may take the following actions in support of the review and validation:
   - Modify any field except the Phase entry and the CTN.
   - Assign all or any portion of the SCD for to a user for Edit or Comment
   - Cancel the SCD

6) Once the Submitter is satisfied, the SCD is submitted into the Review process.
7) The SCD is removed from the Submitter's **Phase I Pending Submission - My Action List**.
8) An automated email notification is sent to the TAT CM.
9) While the SCD is in TAT Review, all Tabs of the SCD can be assigned back for edit or comment to the Submitter by the TAT CM.
10) While the SCD is in SPM Review, CBA Review, AFOM Review, Resource Sponsor Review and Voting Board, the SCD section in review can be assigned back to the Submitter for Edit or Comment by the review CM.
11) If the SCD is approved by the Voting Board, the following actions occur:
    - CBA appropriation data is entered into the Modernization Plan automatically.
    - An automated email notification is sent to the Submitter.
    - SCD is sent to the Submitter's **Phase II Pending Submission - My Action List** and the SCD can be updated based on the results of the preliminary design and development engineering for Phase II submission.
    - If a request for Phase IIa was approved, then the SCD is sent to the **Phase IIa Pending Submission – My Action List** and the SCD can be updated based on the final design and development engineering for Phase III/IIa submission.
    - NDE NM must be updated with approved hull applicability and scheduling.

12) If the SCD is disapproved by the Voting Board, the SCD is placed in Inactive status and archived in EP.

3.4 Create/Update a Phase II SCD

3.4.1 Phase II TAT Tab

Review Section 2.5 prior to updating or completing the TAT Tab in Phase II. If the SCD is being initiated in Phase II, the initiator must complete this section with all required fields and save the SCD. The initiator can edit all items in this section as long as the SCD is in the **My Action** folder and the SCD status is Phase II Initiate. Once the SCD is forwarded to the submitter, only the submitter or a submitter assignment with "edit" rights to a user can modify this section.

NOTE: Click the green **SAVE** button frequently to save changes in EP and to ensure data is not lost. The **SAVE** button is located at the end of the TAT Tab document.
NOTE: The following error message will appear at the top of the TAT Tab page if any mandatory information is incomplete or incorrect: ***The requested operation could not be completed, because one or more of the fields on this form are incomplete or contain invalid data***.
NOTE: It is recommended users create **Description of Change**, **Executive Summary** and **Impact if not accomplished** sections in a text editor like Notepad or Wordpad then copy and paste into EP software. This ensures data is captured prior to the EP software timing out and prevents data loss. Microsoft Word is not recommended since unseen text formatting can be included when copying and pasting into EP software.

- **General**
  - **SCD cloned Flag:** Select **Yes** or **No**
  - **SCD Clone Number:** If Yes is selected, then provide the four digit CTN of the cloned SCD in the text block.
  - **System/Equipment Designation:** Enter the assigned JTEDS Nomenclature (AN/XX) for C4I, MK/MOD for Weapon Systems, or ESWBS for HM&E in the text block.
  - **Model Number:** Enter model number in the text field.
  - **Cage Code(s):** Enter the top four Commercial and Government Entity (CAGE) codes, TBD, or N/A (Cage Codes not utilized anywhere else) in the text blocks.
  - **New ESWBS:** Enter one Expanded Ship Work Breakdown Structure (ESWBS) number most closely associated with the system, component or structure impacted by the alteration. This ESWBS should be to the fifth level (ex. 15092). As of September 2003, ESWBS look up and new EWSBS requests, deletes and modification are completed in the Configuration Management Reference Material (CMRM) website. User registration is required and can be accessed at https://www.cm.navsea.navy.mil/cm/index.nsf.
  - Click on the green **Add** button and the ESWBS number will be listed in the **Existing ESWBS** block. Invalid ESWBS will be marked with an asterisk (*).
  - To remove an ESWBS from the list, select the number in the **Existing ESWBS** block, then click on the red **Remove** button.
  - **Prototype required:** Select **Yes** or **No. Selecting** Yes means a prototype installation is planned as part of the acquisition strategy. Fielding Plan/CBA for remaining installs is known.
  - **Approximate time required on board for Install:** Enter the estimated number of calendar days required on board the ship/site for installation. The purpose of this block is to validate that the SC can be installed during a specific availability length.
  - **Description of Change** (4,000 characters). This is a mandatory text field. Description further defines the intent and scope of the proposed change. Every SCD should stand on its own so this block is where the actual criteria for the installation is spelled out. For a Phase II SCD, level of detail must be sufficient for the Technical Assessment Team to judge the continued technical maturity and integration of the proposed SC and provide a recommendation to the Voting Boards.
    - Information that cannot be included in the description may be attached to the SCD. Refer to Section 4.2 for information about attachments.
    - In addition to items described in Subsection 2.5.1, the following should be addressed:

- List equipment to be added and/or deleted and spaces impacted, if known. If this list is extensive or addresses multiple ship classes, provide as an attachment and reference it.
- Justify and describe vital power requirements for new or modified systems and equipments, if known.

- For NPC SCDs and prototype installations, the Phase II SCD must address technical maturity and shipboard integration in preparation for Decision Point 2 approval for installation planning; therefore, the SCD must include sufficient technical detail to assess impact and feasibility of proposed duration of the non-permanent installation. The NPC data package where applicable shall be attached to the Phase II SCD (in NDE) for review and approval.

- **Executive Summary** (2,750 characters). This is a mandatory text field. User shall provide a summary/snapshot of the SC that will be used to describe the change throughout the Entitled Process.

  The Executive Summary must clearly state what is being done and must clearly articulate the need for change. The Executive Summary needs to be a fairly broad overview of what the SC brings in the way of improved capability, operational readiness, etc.

  Ensure NOFORN data is NOT included in EP. Include the following statement if the SC is NOFORN and complete details cannot be provided in EP: "SC is NOFORN - See hard-copy NOFORN SCD for complete details."

- **Impact if not accomplished** (2,750 characters). This is a mandatory text field. Provide the impact to equipment, system, ship, site or fleet readiness relative to safety, mission or economic cost if the ship change is not accomplished. Attach references if available. Include the following statement if the SC is NOFORN and complete details cannot be provided in EP: "SC is NOFORN - See hard-copy NOFORN SCD for complete details." If incremental installation is proposed, include impact of not installing incrementally.

– **Requirement and Justification of Proposed Change.** Users shall add text (up to 255 characters) citing requirements, and noting deficiencies or explanations next to each applicable item. Do not click on checkboxes. Checkboxes will auto-select when text is entered.
  - **Anti-Terrorism/Force Protection.** Provide an explanation.
  - **Aviation Capability and Air Wing Compatibility.** Provide details of how the SC would impact ship/aircraft integration. (for example, C4ISR, catapults or arresting gear) of applicable ships.
  - **Compatibility.** Identify issues, cite references.
  - **Battle Force Interoperability (BFI).** Cite requirement/reference. Provide recommended Strike Force Interoperability Category in accordance with CUSFFC/CPF 4720.3 (series).

- **Contract Defect.** Address correction of defective specifications, unavailable Government Furnished Equipment (GFE), or unavailable Government Furnished Information (GFI). Cite requirement.
- **Environmental Requirement.** Provide details of how the SC has an environmental impact (air/water discharge, use of hazardous materials, solid waste generation, etc) to applicable ships. Cite requirement/reference as applicable.
- **Legislated Regulatory Requirement.** Cite legislative requirement/reference.
- **Mandatory Safety.** Cite directive reference and attach supporting documentation.
- **Proposed Military Improvement (PMI).** Approved/directed by OPNAV and intended to increase the ship's ability to meet its Required Operational Capability (ROC). Cite rationale/reference.
- **Proposed Survivability Improvement (PSI).** Approved/directed by OPNAV, and intended to reduce the ship's susceptibility to defined threats, or to increase the ability to recover from damage. Cite requirement/reference.
- **QOL/QOS.** Provide details of how the SC would impact the QOL/QOS (i.e. messing, berthing, recreational, and sanitary spaces) of applicable ships.
- **Restoring Margins.** Restoring system capacity (weight and moment; electrical system; heating, ventilation, air conditioning or increasing inventory to meet new authorized baseline; etc). Provide an explanation.
- **Reduction of Total Ownership Costs.** These initiatives address long standing concerns about the adverse impact of defense budgetary and operational trends on force structure and readiness. Department of Defense (DOD) has directed Program Managers to achieve specific RTOC goals in their programs. Return on Investment (ROI) and payback period will be calculated in EP using data provided in the Cost Benefit Analysis (CBA) tabs.
- **Safety.** Check if the change eliminates or reduces hazards to ship personnel or components. Safety considerations include human (includes human/system interfaces), toxic/hazardous materials and substances, testing, logistical support, weapons, and munitions/explosives. If safety analysis has been accomplished, attach copy.
- **Statutory Requirement.** Cite Requirement/Reference.
- **Testing and Trial Deficiency.** Testing and trial deficiencies address component or system modifications derived from deficiencies noted during developmental or operational testing. Provide an explanation.
- **TMA/TMI.** Cite Top Management Attention/Top Management Interest (TMA/TMI) number and description.
- **Unavailable, Obsolete or Unreliable Equipment.** Provide an explanation for changes that replace equipment or components no longer available, unsupportable, or unreliable.
- **War fighting Improvement Program.** A PEO Aircraft Carrier's (PMS 312) program for identifying, tracking and resolving ship propulsion plant related improvements. Provide WIP number. Do not enter NOFORN data in EP. If unable to input data due to NOFORN, state NOFORN.
- **Other (Specify).** Enter any other requirement not specified above. This may include Engineering for Reduced Maintenance (ERM), Capital Investment for Labor (CIL) or other justifiable Fleet or Program initiatives.

– **Distributive Systems/Other Impacts:** At least one impact area must be selected. Identify distributive and other impacts affected or changed by the proposed change. As each box is checked or unchecked, the page will refresh and provide additional fields for completion.

> **NOTE:** Where the explanation box is not large enough, use the text box to direct reviewers to either a comment or attachment with the full explanation.

- **AC Plants (Tons).** Selection indicates the change impacts Air Conditioning Plants.
  - For **Net Change Type**, from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**

- **Chilled Water (GPM).** Selection indicates the change impacts Chilled Water Systems(s).
  - For **Net Change Type**, from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**

- **Air Systems.** Selection indicates the change impacts Air Systems(s).
  - Provide an explanation of the impact in the text block (up to 500 characters).

- **Certification Required.** Selection indicates that pre-installation or post-installation certifications are required. See One Book Section sub-paragraph 3-6.5.1 Hull Installation Readiness Review Criteria for the list of certifications that should be addressed in the SCD.
  - Provide an explanation of the impact in the text block (up to 500 characters).

> **NOTE:** This item covers Damage Control, Fire Fighting, and Fire Protection until the SCD is updated to reflect all three impact areas.

- **Damage Control.** Selection indicates the change impacts Damage Control, Fire Fighting, and Fire Protection equipment and/or systems (e.g., detection, suppression, equipment stowage). This includes consideration of the future susceptibility/vulnerability to fire or battle damage with the intent of improving the serviceability/recoverability of the ship, systems and subsystems both currently installed and being planned. The configuration consideration will include the adjacent compartments to the planned installation to identify possible problems that would affect the ships current and future Damage Control posture.
  - Provide an explanation of the impact in the text block (up to 500 characters).

- **Dry Docking Required.** Selection indicates the ship requires dry-docking.
  - Provide an explanation why the change would require dry-docking in the text block (up to 500 characters).

- **Electric Generation and Power Distribution Systems (kW).** Selection indicates the change impacts Electric Generation and Power Distribution Systems.
  - Provide an explanation of the impact in the text block (up to 500 characters).

- For **Net Change Type,** from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**

- **Electrical (400 Hz).** Selection indicates the change impacts Electrical 400 Hz power system.
  - Provide an explanation of the impact in the text block (up to 500 characters).

- **Fiber Optic Cable Plant (Yes/No).** Selection indicates the change impacts shipboard Fiber Optic Cable Plant.
  - For **Net Change Type**, from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**

- **Fire Main (GPM).** Selection indicates the change impacts Fire Main System.
  - For **Net Change Type**, from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**

- **Fuel System.** Selection indicates the change impacts Fuel Systems.
  - Provide an explanation of the impact in the text block (up to 500 characters).

- **HVAC System.** Selection indicates the change impacts Heating, Ventilation, or Air Conditioning equipment and systems.
  - Provide an explanation of the impact in the text block (up to 500 characters).

- **Hangar Bay/Flight Deck Encroachment.** Selection indicates the change impacts the hanger bay or the flight deck of applicable ships.
  - Provide an explanation of the how the change encroaches upon the flight deck or hanger bay in the text block (up to 500 characters).

- **Human System Integration (HSI) Impacts.** Check the box for each item that is applicable. See Section 7 of this appendix or NAVSEA Inst. 3900.8A for further descriptions of the domains.
  - **Manpower / Workload Impact:** Check if change increases or decreases workload of crew including increased training workload.
  - **Personnel Impact:** Check if the change increases or decreases the number of personnel required and/or the change impacts the qualifications of the personnel required.
  - **Training Impact:** Check when the change requires updates be made to existing training, if new training is required, or if training is to be reduced.
  - **Human Factors Engineering:** Check if human-machine interfaces will change.
  - **Habitability:** Check if the change impacts living or working conditions, the physical environment and personnel facilities to optimize mission readiness, crew morale, and professional development, retention, and recruitment that support system performance.
  - **Environment, Safety, and Occupational Health:** Check if the change presents, increases, or reduces any hazards including but not limited to hazardous materials.

- **Personnel Survivability:** Check if the change impacts the detection of and protection against instantaneous, cumulative, and residual nuclear, biological, and chemical weapon effects, the integrity of the crew compartment against such effects, as well as protection against fratricide.

- **IC Circuits.** Selection indicates the change impacts individual Interior Communication circuits. (For Example 5JV impacts)
  - Provide an explanation of the impact in the text block (up to 500 characters).

- **IC Switchboard (Loads).** Selection indicates the changes impacts Interior Communications switchboards.
  - For **Net Change Type**, from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**

- **Database Multiplex System (Loads).** Selection indicates the change impacts Database Multiplex System loads.
  - For **Net Change Type**, from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**

- **Combat Systems Switchboard Impact.** Selection indicates the change impacts Combat Systems switchboards
  - For **Net Change Type**, from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**

- **Integrated Logistics Support Impact (ILS).** All modernization will have some logistic impact so this box should always be selected. Provide an explanation of the impact in the text block (up to 500 characters). Select the check the box for each item that is applicable.
  - **Technical Manuals**
  - **Provisioning**
  - **Planned Maintenance System**
  - **Ship's Selected Records**
  - **Operating Sequence System**
  - **Steam Plant Manual**
  - **Test Equipment**
  - **COTS/NDI**
  - **Facilities**
  - **Software Management**
    - Provide an explanation of the impact and identify the Software Support Activity in the text block (up to 500 characters).

  - **Spares**
    - Provide an explanation of the impact in the text block (up to 500 characters).

  - **Other**
    - Provide an explanation of the impact in the text block (up to 500 characters).

- **Networks.** Selection indicates the change impacts shipboard networks including Shipwide Area Networks (SWAN), various HM&E (including Machinery Control Systems and Navigation Networks), ~~or various HM&E,~~ C4I or Combat System Local Area Networks.
  - Provide an explanation of the impact in the text block (up to 500 characters).

- **Ordnance Handling/Storage.** Selection indicates the change impacts ordnance handling and storage.
  - Provide an explanation of the impact in the text block (up to 500 characters).

- **Potable Water.** Selection indicates the change impacts potable water.
  - Provide an explanation of the impact in the text block (up to 500 characters).

- **Prior/Concurrent/Conjunctive Alts.**
  - Provide or update any prior or concurrent ship changes required for this change or alteration to perform as stated. Ensure all concurrent/prior ship changes are identified by class, number, title and revision (up to 500 characters).

- **SUBSAFE.** Selection indicates the change impacts the structures, systems and components critical to the watertight integrity of a submarine and are subject to Submarine Safety Certification (not applicable to carriers and surface ships).
  - Provide an explanation of the impact in the text block (up to 500 characters).

- **Ship/Aviation Integration.** Selection indicates the change impacts the ship or aviation systems integration (for example, C4ISR, catapults or arresting gear).
  - Provide an explanation of the impact in the text block (up to 500 characters).

- **Ships Characteristics Document change required.** Selection indicates the change impacts the ship characteristics document.
  - Provide an explanation of the impact in the text block (up to 500 characters).

- **Software.** Selection indicates the change includes software or a change to previously installed software.
  - Provide an explanation of the impact in the text block (up to 500 characters).

- **Space Configuration.** Selection indicates the change impacts space configurations or space designation.
  - Provide an explanation of the impact in the text block (up to 500 characters).

- **Storage Requirements.** Selection indicates the change impacts the storage spaces and requirements of applicable ships.
  - Provide an explanation of the impact in the text block (up to 500 characters).

- **Surgeon General/Fleet Surgeon.** Selection indicates the change impacts Surgeon General/Fleet Surgeon spaces/systems.

- Provide an explanation of the impact in the text block (up to 500 characters).

- **Topside Design/Mast Structure (Tons).** Selection indicates the change impacts the topside design or the mast structure of the ship. The change will be subject to the Integrated Topside Design and Certification Process for In-Service Ships.
  - For **Net Change Type**, from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**

- **Weapons Systems.** Selection indicates the change impacts weapons systems.
  - Provide an explanation of the impact in the text block (up to 500 characters).

- **Weight & Moment Change (Tons).** Selection indicates the change impacts ship's weight and moment.
  - For **Net Change Type**, from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**

- **Other (Systems/Equipment/Sites).** Identify any other impacts not covered in the above list including other installed equipment or systems.
  - Provide an explanation of the impact in the text block (up to 500 characters).

– **Shock, Vibration and EMI Requirements**

- **Shock Grade.**
  - From the **Select Grade - -** drop down menu, select one: **A**, **B**, **C**, or **N/A**
  -
  - Provide an explanation of the selection in the text block (up to 500 characters). Include the reference and attach at least one of the following to the SCD (if unclassified):

    (1) Actual completion date of shock qualifications

    (2) POA&M for completing shock qualifications before the first installation with Estimated Completion Date

    (3) Shock Waiver or Deviation per NAVSEAINST 9072.1 series

    (4) Individual equipment Shock Deficiency Correction Plan(s) (SDCP) per NAVSEAINST 9072.1 series

    (5) A statement that when applicable Industrial furnished equipment will be mounted in accordance with applicable shock requirements of the GSO section

    (6) An explanation on why shock is not required.

NOTE: If existing system is grade A and a new component will be added, that component must be grade A also. If changing a component in a rack, then the

component must be re-qualified. Grade shock requirements are based on grade shock of existing system. If an item is not applicable (example software) then state it.

- **Compliant with MIL-STD-167-1 Type 1 Vibration Requirements**
  - From the **Select - -** drop down menu, select one: **Yes**, **No**, or **N/A**
  - Provide an explanation of the impact in the text block (up to 500 characters). Include status of testing and expected completion date. If complete, attach unclassified results. For Hardware changes when N/A is selected, provide an explanation.

- **Compliant with MIL-STD-461 EMI Requirements.**
  - From the **Select - -** drop down menu, select one: **Yes**, **No**, or **N/A**
  - Provide an explanation of the impact in the text block (up to 500 characters). Include status of testing and expected completion date. If complete, attach unclassified results.

- **Compliant with MIL-STD-464 EMI Requirements.**
  - From the **Select - -** drop down menu, select one: **Yes**, **Tailored**, **No**, or **N/A**
  - Provide an explanation of the impact in the text block (up to 500 characters). Include status of testing and expected completion date. If complete, attach unclassified results.

- **Compliant with OPNAVINST-2400.20 RF Spectrum Management Requirements.**
  - From the **Select - -** drop down menu, select one: **Yes**, **No**, or **N/A**
  - Provide an explanation of the impact in the text block (up to 500 characters). Include status of testing and expected completion date. If complete, attach unclassified results.

- **Compliant with HERO/HERP/HERF (NAVSEA OP 3565) Requirements.**
  - From the **Select - -** drop down menu, select one: **Yes**, **No**, or **N/A**
  - Provide an explanation of the impact in the text block (up to 500 characters). Include status of testing and expected completion date. If complete, attach unclassified results. Requirements detailed in DoDINST 6055.11 and OP 3565 Volume I.

– **Change Material / Software List**

NOTE: Identify all known material in the Change Material/Software List. Refer to One Book Section 6 for criteria concerning SCD/NDE material. Perform the following steps for each material or software line item:

- **Class.** For multiple class SCDs, account for different material requirements for each class separately. For material items that are class specific, enter the applicable class in the text box.
- **Item Number.** Enter the sequential item number for the item in the text box.
- **Description.** Enter Nomenclature, Software/Firmware (SW/FW) Version number to the patch level (when it is known), Functional description, Cognizance Code, National Stock

Number or part/model number/symbol, CAGE/manufacturer, Manufacturer/Navy Drawing/piece number and estimated unit cost in the text box.

- **Unit of Issue.** Enter the material item unit of issue in the text box.
- **Quantity.** Enter the highest quantity per ship in the text box. The specific quantity for each ship will be updated post Decision Point 3.
- **Procuring Activity.** Enter the procuring activity in the text box.
- **Critical Material.** Enter the critical material information in the text box.
- Click the green **SAVE** button to save the Material/Software Item.
- Observe the new line item was added to the list.

– **Detail Design Criteria**

- **Ship Specification.** Select check box if proposed change affects a new construction ship specification (i.e., a new system that will also be incorporated into new ship design).
- **Deep Diving General Overhaul Specification.** Select check box if the proposed change will be installed in-accordance with this specification.
- **General Specifications for Overhaul.** Select check box if the proposed change will be installed in-accordance with this specification.
- **Other**
  - Provide an explanation of the other design criteria in the text block (up to 500 characters).

- **Additional Non-Standard Quality Assurance.** Enter NONE or cite documentation in the text box (up to 255 chracters). Include the reference in the Reference List in Phase III SCD.
- **Installation Support and Test Equipment.** Enter NONE or provide a list of all the Support and Test Equipment (S&TE) that is required to support the installation of the alteration (Jigs, Alignment, I/D level TE) in the text block (up to 2000 characters). (The S&TE required for ship's force to trouble-shoot and maintain the equipment is listed in the ILS Certification).
- **Shipboard Stowage Details.** Enter NONE or provide an explanation of the requirement for all general shipboard stowage requirements for this change in the text block (up to 2000 characters).
- **NAVSEA Ship Change Drawing (SID) Review Required: Yes** or **No.** The Core TAT Lead will make the final determination whether a particular SCD requires NAVSEA SID review. The initiator/submitter can choose Yes if it is determined the SCD warrants NAVSEA SID review due to complexity or associated system impacts.
- **Special Industrial Storage Requirements.** Enter NONE or provide an explanation of all special stowage requirements at the industrial activity installing the ship change. This section should include but not be limited to requirements such as environmental or security stowage in the text block (up to 2000 characters).

– Click the green **SAVE** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button. This will delete the all unsaved TAT Tab data that was entered, so the user can enter the correct data.

3.4.2 Phase II AFOM Tab

Review Section 2.7 prior to completing or updating the AFOM Tab.

(1) If the SCD is entering the process at Phase II, check each capability and suitability area affected by the proposed change (bolded in the list below). More than one capability or suitability area may be selected, but at least one must be selected for SCD submission.
(2) If the SCD has been through one Decision Point, then previously selected capability and suitability line items will remain selected. Review selected capability and suitability area affected by the proposed change. If a change is necessary, perform the following:

- Change the selection by either checking the box to add or un-checking the box to remove each applicable line item.
- View prompt ***Are you sure you wish to change the selected Naval Capabilities?***
- Select **Yes** or **No** as applicable.

(3) Click the green **Save** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button, this will delete the unsaved data that was entered and the user can enter the correct data.

3.4.3 Phase II CBA Tab

Review Section 2.6 prior to completing the CBA Tab.

This guidance refers to the CBA for the SCD "Concept Development Cost Information" section for Phase II. SCD estimates are now required for the sub-categories. The user will be required to enter more detailed information.

If the SCD is being initiated in Phase II, the initiator can edit all items in this section as long as the SCD is in the **My Action** folder and the SCD status is Phase I Initiate. Once the SCD is forwarded to the submitter, only the submitter or a submitter assignment with "edit" rights to a user can modify this section.

> **NOTE**: This is the only section that can be saved prior having all mandatory fields completed. While populating data in the CBA, save often by clicking the green SAVE button at the bottom of each tab.
> **NOTE**: All costs in the CBA Tabs are entered in thousands of dollars (ex. 10.00 entered is equal to $10,000.00.

3.4.3.1 Investment Cost Tab

> **NOTE:** If the Starting Year is reset at any time after the CBA has been populated with data, that data will be cleared.

(1) **Set Starting Year**. Select the starting Fiscal Year (FY) for the SCD. It will determine the FY headers on the rest of the CBA tabs.

(2) The estimated cost value is a future dollar value calculated by taking the cost estimate and inflating the values with the corresponding FY escalation factor. This manual calculation must be done for every applicable FYXX. If funds extend beyond 10th fiscal year, it is necessary to calculate and enter a de-escalated cost estimate in To Complete (Constant Year Dollars) column (green cells). Consult current Navy Financial Management and Budget (FMB) guidance to determine appropriate escalation factors.
(3) Provide estimated cost values in the **System/Equipment Design Development Cost** subsection for the following:

- Enter **Concept Development**
- Enter **Preliminary Engineering**
- Enter **Hardware Development**
- Enter **Software Development**
- Observe the subtotal for Hardware and Software Development costs are calculated in **Design Development.**
- Enter **EDM/Pre-Production Prototype**
- Enter **Testing**
- Enter **Program Management**
- Observe the subtotal in ***Subtotal System/Equipment Design/Development Cost.***

(4) Provide estimated cost values in the **System/ Equipment Procurement Cost** subsection for the following:

- Enter **Hardware Cost**
- Enter **Installation Material**
- Enter **Testing (Production/Post Production)**
- Enter **H.S.I.**
- Enter **Logistics**
- Enter **Topside Analysis/Design**
- Enter **Documentation (PTD)**
- Enter **Certifications**
- Enter **Distributed System Impacts**
- Enter **Battle Force Interoperability Studies**
- Enter **Stability Analysis and Studies**
- Enter **Program Management**
- Observe the subtotal in ***Subtotal System/ Equipment Procurement Cost.***

(5) Provide estimated values in the **Installation/Checkout Cost** subsection for the following:

- Enter **Design Services Allocation (DSA)** cost
- Enter **Certifications** cost

NOTE: Enter data in **Production Mandays** and select **Installation Location** or enter actual estimated costs in **AIT** and **Services**.

- Enter **Production Mandays**
- Observe **Prorate Planning Factor** is calculated

NOTE: For multiple installation locations, select the location with the most installations across the life of the SCD.
NOTE: Installation locations cannot be entered for FY15 and beyond due to software limitations.

- Select an **Installation Location** from the drop down menu
- Observe **Installation Cost** is calculated based on embedded formulas for the **Prorate Planning Factor** and **Installation Location**

OR

- Enter **AIT** cost
- Enter **Services** cost
- Observe **Installation Cost** is the subtotal of the subtotal of **AIT** and **Services**
- Enter **Planning Costs**
- Enter **Incidental Material (NSA/IA Procured)** cost
- Enter **Total Ships Testing** cost
- Observe the subtotal in ***Subtotal Installation/Checkout Cost*** is the calculation of **Installation Cost, Planning Cost, Incidental Material (NSA/IA Procured),** and **Total Ships Testing.**

(6) Observe the subtotal of ***Subtotal System/Equipment Design/Development Cost, Subtotal System/ Equipment Procurement Cost***, and ***Subtotal Installation/Checkout Cost*** are calculated in ***Subtotal (Sum of Major Cost Element Categories By FY)***.
(7) Review each cell box to verify each section is completed.
(8) Click the green **Save** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button, this will delete the unsaved data that was entered and the user can enter the correct data.

NOTE: Error messages will appear after completing the Investment Costs Tab. The error message is generated because the subtotal row for Investment Costs Tab must match the subtotal row in the Appropriations Tab for each FYXX column, which has not been completed yet. The user cannot submit the SCD until the errors are corrected.

3.4.3.2 Appropriations Tab

This tab is used to identify the SC funding sources. Information contained in this tab is the same regardless of the Phase of the SCD. At least one row needs to be completed. Of there is no funding include a comment in the **Comments Tab** explaining why. Enter estimated cost values for each Phase by completing the following steps:

NOTE: It is important to have matching data between the Investment Cost Tab and the Appropriation Tab. Cost information is often transferred incorrectly between sections. For example, if the Preliminary Engineering costs are 10K in the Investment Cost Tab, they should be 10K in the Appropriation Tab. Also, verify that the totals are the same for each fiscal year.

(1) Select **Appn** drop down menu and select the proper appropriation from the drop-down menu
(2) Select **Sponsor** drop down menu and select the sponsor information from the drop-down menu.

NOTE: The BLI Number and PE Number should be formatted ***exactly*** how it is in the PBIS database.

(3) Enter **BLI.** Enter correct Budget Line Item (BLI) information as text/numerals. . This is normally 4 digits unless the appropriation type is RDTEN, then the BLI and PE fields are the same.
(4) Enter **PE.** Enter Program Element (PE) information as text/numerals.
(5) Enter estimated cost value for applicable FYXX and To Complete (Then Year Dollars) columns, if necessary.
(6) If funds extend beyond the 10th fiscal year column on the CBA, it is necessary to calculate and enter a de-escalated cost estimate in the To Complete (Constant Year Dollars) column (green cells). Consult current Navy FMB guidance to determine appropriate escalation factors.

NOTE: Lines cannot be edited after adding, so verify data entry.

(7) Click **Add**

NOTE: Repeat the above steps for additional funding lines as appropriate.
NOTE: The totals for each fiscal year must be the same in the **Investment Cost Tab** and the **Appropriation Tab**. If the totals are not the same, an error message will be displayed.

(8) Identify any error messages that remain in Appropriations Tab of the CBA and locate which rows have a total(s) that do not match. Address errors for applicable FYXX, To complete (Then Year Dollars), and To complete (Constant Year Dollars) columns by adjusting values in either Investment Cost Tab or Appropriations Tab so the subtotal rows contain accurate estimates and are equal. The error message will disappear when the Investment Costs Tab and the Appropriation Tab match. The user cannot go to the next tab (AFOM) until errors are corrected.
(9) Review each cell box to verify each section is completed.
(10) Click the green **Save** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button, this will delete the unsaved data that was entered and the user can enter the correct data.

3.4.3.3 Projected Savings and Cost Avoidance Tab

NOTE: This section can only be calculated if a baseline comparison is possible. If a new system is proposed by the ship change, no data is entered and the tab is saved.
NOTE: Savings should be represented by positive values in this section. Errors will occur if negative values are used.

(1) Enter estimated cost value for **Development Phase** row in applicable **FYXX** and **To Complete (Then Year $)** columns.
(2) Enter estimated cost value for **Production Phase** row in applicable **FYXX** and **To Complete (Then Year $)** columns.
(3) Enter estimated cost value for **Operating & Support** row in applicable **FYXX** and **To Complete (Then Year $)** columns.

- Enter **Unit Level Consumption** cost
- Enter **Depot Maintenance** cost
- Enter **Contractor Support** cost
- Enter **Sustaining Support** cost
- Enter **Indirect Support** cost
- Enter **Other** cost
- Enter **O Level ($K/man-year)** rate
- Enter **I Level ($K/man-year)** rate

(4) Enter estimated cost value for **MILPERS Workload Production (Man-years)** subsection in applicable **FYXX** and **To Complete (Then Year $)** columns.

NOTE: Personnel man-years are limited to two decimal places. (i.e., 0.75)

- Enter **Organizational Level Personnel** man-years
- Observe **Operating & Support O-Level/Mission Personnel** is calculated using the **O- Level ($K/man-year)** rate.
- Enter **Intermediate Maintenance** man-years
- Observe **Operating & Support Intermediate Maintenance** is calculated using the **I-Level ($K/man-year)** rate.

(5) Observe **Projected Savings and Cost Avoidance** final calculation.
(6) Identify and address any errors that may exist in **Projected Savings and Cost Avoidance Tab**.
(7) Review each cell box to verify each section is completed.
(8) Click the green **Save** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button, this will delete the unsaved data that was entered and the user can enter the correct data.

3.4.3.4 Installation Fielding Plan Tab

NOTE: Total Production Units procured must be equal to the total number of installations. An error message will appear if **Total Installations** does not equal **Total Production Units** and the SCD cannot be saved.
NOTE: Changes proposed for incremental installation must show total installations planned in each increment by fiscal year for each applicable single hull or site.

(1) Enter estimated values for **Total Production Units** in applicable **Prior**, **FYXX** or **To Complete (Then Year $)** columns representing the number of units to be installed in each FY.

(2) Applicable ships identified in the Header Tab will be listed in the **Installation Fielding Plan Data** column.

> **NOTE:** For Condition Based Maintenance SCD where there is not a year by year fielding plan, use the **To Complete (Then Year $)** field to account for the eventual installations.

(3) For each **Ship – SHIP NAME – HULL #** listed, enter values in **Prior**, **FYXX** or **To Complete (Then Year $)** columns as required.
(4) Repeat step (3) for each ship listed.

> **NOTE:** **Ship Total Installations** is a calculation row that calculates the sum of **Ship Quantity** units.

(5) For each **Site – SITE NAME** listed, enter values in **Prior**, **FYXX** and **To Complete (Then Year $)** columns as required.
(6) Repeat step (5) for each site listed.

> **NOTE:** **Site Total Installations** is a calculation row that calculates the sum of **Site Quantity** units.
> **NOTE:** **Total Installations** is a calculation row that calculates the sum of **Ship Quantity** units and **Site Quantity** units.

(7) Identify and address any errors that may exist in **Installation Fielding Plan** Tab. **Total Installations** must equal **Total Production Units** entered.
(8) Review the cell boxes to verify this section is completed.
(9) Click the green **SAVE** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button, this will delete the unsaved data that was entered and the user can enter the correct data.

3.4.4 Phase II AFOM Tab

Review Section 2.6 prior to completing or updating the AFOM Tab.

(1) If the SCD is entering the process at Phase II, check each capability and suitability area affected by the proposed change (bolded in the list below). More than one capability or suitability area may be selected, but at least one must be selected for SCD submission.
(2) If the SCD has been through one Decision Point, then previously selected capability and suitability line items will remain selected. Review selected capability and suitability area affected by the proposed change. If a change is necessary, perform the following:

- Change the selection by either checking the box to add or un-checking the box to remove each applicable line item.
- View prompt ***Are you sure you wish to change the selected Naval Capabilities?***
- Select **Yes** or **No** as applicable.

(3) Click the green **Save** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button, this will delete the unsaved data that was entered and the user can enter the correct data.

3.4.5 Submitter Review and Submission

When the SCD is being initiated in Phase II and once all mandatory and organizational entries are complete and supporting documentation is attached, the Initiator can forward the SCD to the Submitter. Once the SCD is forwarded to the submitter, only the submitter or a User assigned "edit" rights can modify the SCD. At this point, all viewing rights of the CBA except the Installation Fielding Plan are limited to the Submitter and any User assigned either edit or comment rights by the Submitter.

If the SCD is being submitted into Phase II from a Phase I SCD, proceed to Step 4.

1) From any tab on the SCD, at the top of the tab page, click on the green **SUBMIT** button.
2) An automated email notification will be sent to the selected Submitter.
3) The SCD will be removed from the Initiator's **Initiation My Action List**.
4) The SCD will appear in the Submitter's **Phase II Pending Submission My Action List**.
5) The Submitter reviews the SCD and validates all information has been correctly entered and may take the following actions in support of the review and validation:
   - Modify any field except the Phase entry and the CTN.
   - Assign all or any portion of the SCD to a user for Edit or Comment
   - Cancel the SCD

6) Once the Submitter is satisfied, the SCD is submitted into the Review process.
7) The SCD is removed from the Submitter's **Phase II Pending Submission - My Action List**.
8) An automated email notification is sent to the TAT CM.
9) While the SCD is in TAT Review, all Tabs of the SCD can be assigned back for edit or comment to the Submitter by the TAT CM.
10) While the SCD is in SPM Review, CBA Review, AFOM Review, Resource Sponsor Review and Voting Board, the SCD section in review can be assigned back to the Submitter for Edit or Comment by the review CM.
11) If the SCD is approved by the Voting Board, the following actions occur:
    - CBA appropriation data is entered into the Modernization Plan automatically.
    - An automated email notification is sent to the Submitter.
    - SCD is sent to the Submitter's **Phase III Pending Submission - My Action List** and the SCD can be updated based on the results of the preliminary design and development engineering for Phase III submission.
    - NDE NM must be updated with approved hull applicability and scheduling.

12) If the SCD is disapproved by the Voting Board, the following actions occurs:
    - The SCD is placed in Inactive status and archived in EP.
    - If the SCD was previously approved, the Modernization Plan is updated to remove the SCD funding.

- If the SCD was previously approved, NDE NM must be updated to remove the hull applicability and scheduling.

3.5 Create/Update Phase III/IIa SCD

3.5.1 Phase III/IIa TAT Tab

Review Section 2.5 prior to updating or completing the TAT Tab in Phase III or Phase IIa. If the SCD is being initiated in Phase III, the initiator must complete this section with all required fields and save the SCD. The initiator can edit all items in this section as long as the SCD is in the My Action folder and the SCD status is Phase X Initiate. Once the SCD is forwarded to the submitter, only the submitter or a submitter assignment with "edit" rights to a user can modify this section.

> **NOTE:** Click the green **SAVE** button frequently to save changes in EP and to ensure data is not lost. The **SAVE** button is located at the end of the TAT Tab document.
> **NOTE:** The following error message will appear at the top of the TAT Tab page if any mandatory information is incomplete or incorrect: ***The requested operation could not be completed, because one or more of the fields on this form are incomplete or contain invalid data***.
> **NOTE:** It is recommended users create **Description of Change**, **Executive Summary** and **Impact if not accomplished** sections in a text editor like Notepad or Wordpad then copy and paste into EP software. This ensures data is captured prior to the EP software timing out and prevents data loss. Microsoft Word is not recommended since unseen text mark-up can be included when copying and pasting into EP software.

– **General**
  - **SCD cloned Flag:** Select **Yes** or **No**
  - **SCD Clone Number:** If Yes is selected, then provide the four digit CTN of the cloned SCD in the text block.
  - **System/Equipment Designation:** Enter the assigned JTEDS Nomenclature (AN/XX) for C4I, MK/MOD for Weapon Systems, or ESWBS for HM&E in the text block.
  - **Model Number:** Enter model number, TBD, or N/A in the text field.
  - **Cage Code(s):** Enter the top four Commercial and Government Entity (CAGE) codes, TBD or N/A (Cage Codes not utilized anywhere else) in the text blocks.

  - **New ESWBS:** Enter one Expanded Ship Work Breakdown Structure (ESWBS) number most closely associated with the system, component or structure impacted by the alteration. This ESWBS should be to the fifth level (ex. 15092). As of September 2003, ESWBS look up and new EWSBS requests, deletes and modification are completed in the Configuration Management Reference Material (CMRM) website. User registration is required and can be accessed at https://www.cm.navsea.navy.mil/cm/index.nsf.

- Click on the green **Add** button and the ESWBS number will be listed in the **Existing ESWBS** block. Invalid ESWBS will be marked with an asterisk (*).
- To remove an ESWBS from the list, select the number in the **Existing ESWBS** block, then click on the red **Remove** button.
- **Prototype required: Selecting** Select **Yes** or **No. Selecting** Yes means a prototype installation is planned as part of the acquisition strategy. Fielding Plan/CBA for remaining installs is known.
- **Approximate time required on board for Install:** Enter the estimated number of calendar days required on board the ship/site for installation. The purpose of this block is to validate that the SC can be installed during a specific availability length.
- **Description of Change** (4,000 characters). This is a mandatory text field. For a Phase III/IIa SCD, the Description field shall provide a description of the change to the extent necessary to begin detailed design. The description of the change shall indicate the spaces/space name (including topside location(s) if applicable), systems and equipment impacted by the change and the extent of the impact. The description shall specifically address equipment to be added (government or installing activity furnished) and/or deleted.

  Changes impacting SUBSAFE systems or equipment as defined in NAVSEA 0924-062-0010 (SUBSAFE Manual) shall include in the description field a statement identifying the systems and equipment as SUBSAFE. An explanation of how the SUBSAFE boundaries are impacted and how the SUBSAFE integrity will be maintained shall also be included in this field. Mandatory locations and interface requirements shall be supported by sketches and/or referenced documentation. Include references to any other amplifying information or data, if available, as attachments or notes in the Comment tab. Refer to Section 4.2 for information about attachments.

  For NPC SCDs that have completed their testing or test, the user will choose one of the following options and provide the required information to complete the NPC. (In the interim, the Phase III SCD will be completed and shall indicate the status of the SCD as outlined below):

  1) NPC has been removed
     - Test results
     - Actual Costs
     - Actual Date Removed
  2) NPC testing completed, recommend making the SCD a permanent change:
     - Phase III SCD will be completed for detailed design. Some of the major areas that must be updated are:
       - Assign classes and hulls for Program of Record (POR) installations to SCD.
       - Expand on Executive Summary, Description of Change, Impact if not Accomplished and all Distributive Systems impacts. (If needed for mature design information and maturity impacts based upon a successful installation). Should include test results.
       - Provide AFOM data.
       - Provide complete cost data as outlined in the CBA.

- Submit SCD into the review process for NMP approval/disapproval to procure and install change.
  - If approved, NPC will become a permanent change and proceed to Phase IV for completion of the EP milestones prior to installation of the change.
  - If disapproved, the board will require the NPC be removed and the SCD resubmitted with removal information.

- **Executive Summary** (2750 characters). This is a mandatory text field. User shall provide a summary/snapshot of the ship change that will be used to describe the change throughout the Entitled Process.

  Executive Summary must clearly state what is being done, must clearly articulate need for change. The Executive Summary needs to be a fairly broad overview of what this alteration brings to the carrier in the way of improved capability, operational readiness, etc.

  Ensure NOFORN data is NOT included in EP. Include the following statement if the SC is NOFORN and complete details cannot be provided in EP: "SC is NOFORN - See hard-copy NOFORN SCD for complete details."

- **Impact if not accomplished** (2750 characters). This is a mandatory text field. Provide the impact to equipment, system, ship, site, or fleet readiness relative to safety, mission or economic cost if the ship change is not accomplished. Attach references if available. Include the following statement if the SC is NOFORN and complete details cannot be provided in EP: "SC is NOFORN - See hard-copy NOFORN SCD for complete details." If incremental installation is proposed, include impact of not installing incrementally.

- **Requirement and Justification of Proposed Change.** Users shall add text (up to 255 characters) citing requirements, and noting deficiencies or explanations next to each applicable item. Do not click on checkboxes. Checkboxes will auto-select when text is entered.
  - **Anti-Terrorism/Force Protection.** Provide an explanation.
  - **Aviation Capability and Air Wing.** Provide details of how the SC would impact ship/aircraft integration. (for example, C4ISR, catapults or arresting gear) of applicable ships.
  - **Compatibility.** Identify issues, cite references.
  - **Battle Force Interoperability (BFI).** Cite requirement/reference. Provide recommended Strike Force Interoperability Category in accordance with CUSFFC/CPF 4720.3 (series).
  - **Contract Defect.** Address correction of defective specifications, unavailable Government Furnished Equipment (GFE), or unavailable Government Furnished Information (GFI). Cite Requirement.
  - **Environmental Requirement.** Provide details of how the SC has an environmental impact (air/water discharge, use of hazardous materials, solid waste generation, etc) to applicable ships. Cite Requirement/Reference as applicable.

- **Legislated Regulatory Requirement.** Cite Legislation Requirement/Reference.
- **Mandatory Safety.** Cite directive reference and attach supporting documentation..
- **Proposed Military Improvement (PMI).** Approved/directed by OPNAV and intended to increase the ship's ability to meet its Required Operational Capability (ROC). Cite Rationale/Reference.
- **Proposed Survivability Improvement (PSI).** Approved/directed by OPNAV, and intended to reduce the ship's susceptibility to defined threats, or to increase the ability to recover from damage. Cite Requirement/Reference.
- **QOL/QOS.** Provide details of how the SC would impact the QOL/QOS (i.e. messing, berthing, recreational, and sanitary spaces) of applicable ships.
- **Restoring Margins.** Restoring system capacity (weight and moment; electrical system; heating, ventilation, air conditioning or increasing inventory to meet new authorized baseline; etc). Provide an explanation.
- **Reduction of Total Ownership Costs.** These initiatives address long standing concerns about the adverse impact of defense budgetary and operational trends on force structure and readiness. Department of Defense (DOD) has directed Program Managers to achieve specific RTOC goals in their programs. Return on Investment (ROI) and payback period will be calculated in EP using data provided in the Cost Benefit Analysis (CBA) tabs.
- **Safety.** Check if the change eliminates or reduces hazards to ship personnel or components. Safety considerations include human (includes human/system interfaces), toxic/hazardous materials and substances, testing, logistical support, weapons, and munitions/explosives. If safety analysis has been accomplished, attach copy.
- **Statutory Requirement.** Cite Requirement/Reference.
- **Testing and Trial Deficiency.** Testing and trial deficiencies address component or system modifications derived from deficiencies noted during developmental or operational testing. Provide an explanation.
- **TMA/TMI.** Cite Top Management Attention/Top Management Interest (TMA/TMI) number and description.
- **Unavailable, Obsolete or Unreliable Equipment.** Provide an explanation for changes that replace equipment or components no longer available, unsupportable, or unreliable.
- **War fighting Improvement Program.** A PEO Aircraft Carrier's (PMS 312) program for identifying, tracking and resolving ship propulsion plant related improvements. Provide WIP number. Do not enter NOFORN data in EP. If unable to input data due to NOFORN, state NOFORN.
- **Other (Specify).** Enter any other requirement not specified above – May include Engineering for Reduced Maintenance (ERM), Capital Investment for Labor (CIL) or other justifiable Fleet or Program initiatives.

– **Distributive Systems/Other Impacts:** At least one impact area must be selected. Identify distributive and other impacts affected or changed by the proposed change. As each box is checked or unchecked, the page will refresh and provide additional fields for completion.

NOTE: Where the explanation box is not large enough, use the text box to direct reviewers to either a comment or attachment with the full explanation.

- **AC Plants (Tons)** Selection indicates the change impacts Air Conditioning Plants.
  - For **Net Change Type**, from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**
  - Provide details of amount in tons **Added / Removed** in the text block (up to 50 characters).

- **Chilled Water (GPM)** Selection indicates the change impacts Chilled Water Systems(s).
  - For **Net Change Type**, from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**
  - Provide details of amount in gallons per minute (GPM) **Added / Removed** in the text block (up to 50 characters).

- **Air Systems** Selection indicates the change impacts Air Systems(s).
  - Provide or update explanation of the impact in the text block (up to 500 characters).

- **Certification Required.** Selection indicates that pre-installation or post-installation certifications are required. See One Book Section sub-paragraph 3-6.5.1 Hull Installation Readiness Review Criteria for the list of certifications that should be addressed in the SCD.

  NOTE: ILS certification shall be checked.

  - Provide an explanation of the impact in the text block (up to 500 characters).

  NOTE: This item covers Damage Control, Fire Fighting, and Fire Protection until the SCD is updated to reflect all three impact areas.

- **Damage Control.** Selection indicates the change impacts Damage Control, Fire Fighting, and Fire Protection equipment and/or systems (e.g., detection, suppression, equipment stowage). This includes consideration of the future susceptibility/vulnerability to fire or battle damage with the intent of improving the serviceability/recoverability of the ship, systems and subsystems both currently installed and being planned. The configuration consideration will include the adjacent compartments to the planned installation to identify possible problems that would affect the ships current and future Damage Control posture.
  - Provide or update explanation of the impact in the text block (up to 500 characters).

- **Dry Docking Required.** Selection indicates the ship requires dry-docking.
  - Provide an explanation of why the change would require dry-docking in the text block (up to 500 characters).

- **Electric Generation and Power Distribution Systems (kW)** Selection indicates the change impacts Electric Generation and Power Distribution Systems.
  - Provide or update explanation of the impact in the text block (up to 500 characters).
  - For **Net Change Type,** from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**

- Provide details of amount in kilowatts (kW) **Added / Removed** in the text block (up to 50 characters).

- **Electrical (400 Hz)** Selection indicates the change impacts Electrical 400 Hz power system.
  - Provide or update explanation of the impact in the text block (up to 500 characters).

- **Fiber Optic Cable Plant (Yes/No).** Selection indicates the change impacts shipboard Fiber Optic Cable Plant.
  - For **Net Change Type**, from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**
  - Provide details of what will be **Added / Removed** in the text block (up to 50 characters).

- **Fire Main (GPM)** Selection indicates the change impacts Fire Main System.
  - For **Net Change Type**, from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**
  - Provide details of amount in GPM **Added / Removed** in the text block (up to 50 characters).

- **Fuel System** Selection indicates the change impacts Fuel Systems.
  - Provide or update explanation of the impact in the text block (up to 500 characters).

- **HVAC System.** Selection indicates the change impacts Heating, Ventilation, or Air Conditioning equipment and systems.
  - Provide or update explanation of the impact in the text block (up to 500 characters).

- **Hangar Bay/Flight Deck Encroachment.** Selection indicates the change impacts the hanger bay or the flight deck of applicable ships.
  - Provide or update explanation of the how the change encroaches the flight deck or hanger bay in the text block (up to 500 characters).

- **Human System Integration (HSI) Impacts.** Check the box for each item that is applicable. See Section 7 of this appendix or NAVSEA Inst. 3900.8A for further descriptions of the domains.
  - **Manpower / Workload Impact:** Check if change increases or decreases workload of crew including increased training workload.
  - **Personnel Impact:** Check if the change increases or decreases the number of personnel required and/or the change impacts the qualifications of the personnel required.
  - **Training Impact:** Check when the change requires updates be made to existing training, if new training is required, or if training is to be reduced.
  - **Human Factors Engineering:** Check if human-machine interfaces will change.
  - **Habitability:** Check if the change impacts living or working conditions, the physical environment and personnel facilities to optimize mission readiness, crew

morale, and professional development, retention, and recruitment that support system performance.
  - **Environment, Safety, and Occupational Health:** Check if the change presents, increases, or reduces any hazards including but not limited to hazardous materials.
  - **Personnel Survivability:** Check if the change impacts the detection of and protection against instantaneous, cumulative, and residual nuclear, biological, and chemical weapon effects, the integrity of the crew compartment against such effects, as well as protection against fratricide.
  -

- **IC Circuits.** Selection indicates the change impacts individual Interior Communication circuits.
  - Provide or update explanation of the impact in the text block (up to 500 characters).

- **IC Switchboard (Loads).** Selection indicates the changes impacts Interior Communications switchboards. (For Example: 5JV impacts)
  - For **Net Change Type**, from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**
  - Provide details of load amount **Added / Removed** in the text block (up to 50 characters).

- **Database Multiplex System (Loads)** Selection indicates the change impacts Database Multiplex System Loads.
  - For **Net Change Type**, from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**
  - Provide details of load amount **Added / Removed** in the text block (up to 50 characters).

- **Combat Systems Switchboard Impact** Selection indicates the change impacts Combat Systems Switchboards.
  - For **Net Change Type**, from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**
  - Provide details of circuits **Added / Removed** in the text block (up to 50 characters).

- **Integrated Logistics Support Impact (ILS).** All modernization will have some logistic impact so this box should always be selected. Provide an explanation of the impact in the text block (up to 500 characters) the check the box for each item that is applicable.
  - **Technical Manuals**
  - **Provisioning**
  - **Planned Maintenance System**
  - **Ship's Selected Records**
  - **Operating Sequence System**
  - **Steam Plant Manual**
  - **Test Equipment**
  - **COTS/NDI**
  - **Facilities**

- **Software Management**
  - Provide or update explanation of the impact and identify the Software Support Activity in the text block (up to 500 characters).

- **Spares**
  - Provide or update explanation of the impact in the text block (up to 500 characters).

- **Other**
  - Provide or update explanation of the impact in the text block (up to 500 characters).

- **Networks.** Selection indicates the change impacts shipboard networks including Shipwide Area Networks (SWAN), various HM&E (including Machinery Control Systems and Navigation Networks, C4I or Combat System Local Area Networks.
  - Provide or update explanation of the impact in the text block (up to 500 characters).

- **Ordnance Handling/Storage.** Selection indicates the change impacts ordnance handling and storage.
  - Provide or update explanation of the impact in the text block (up to 500 characters).

- **Potable Water.** Selection indicates the change impacts potable water. .
  - Provide or update explanation of the impact in the text block (up to 500 characters).

- **Prior/Concurrent/Conjunctive Alts.**
  - Provide or update any prior or concurrent ship changes required for this change or alteration to perform as stated. Ensure all concurrent/prior ship changes are identified by class, number, title and revision (up to 500 characters).

- **SUBSAFE** Selection indicates the change impacts the structures, systems and components critical to the watertight integrity of a submarine and are subject to Submarine Safety Certification (not applicable to carriers and surface ships).
  - Provide or update explanation of the impact in the text block (up to 500 characters).

- **Ship/Aviation Integration.** Selection indicates the change impacts the ship or aviation systems integration (for example, C4ISR, catapults or arresting gear). .
  - Provide or update explanation of the impact in the text block (up to 500 characters).

- **Ships Characteristics Document change required.**
  - Provide or update explanation of the impact in the text block (up to 500 characters).

- **Software.** Selection indicates the change includes software or a change to previously installed software. .
  - Provide or update explanation of the impact in the text block (up to 500 characters).

- **Space Configuration.** Selection indicates the change impacts space configurations or space designation.
  - Provide an explanation of the impact in the text block (up to 500 characters).

- **Storage Requirements.** Selection indicates the change impacts the storage spaces and requirements of applicable ships.
  - Provide or update explanation of the impact in the text block (up to 500 characters).

- **Surgeon General/Fleet Surgeon** Selection indicates the change impacts Surgeon General/Fleet Surgeon spaces/systems.
  - Provide or update explanation of the impact in the text block (up to 500 characters).

- **Topside Design/Mast Structure (Tons).** Selection indicates the change impacts the topside design or the mast structure of the ship. The change will be subject to the Integrated Topside Design and Certification Process for In-Service Ships.
  - For **Net Change Type**, from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**
  - Provide details of amount in tons **Added / Removed** in the text block (up to 500 characters).

- **Weapons Systems.** Selection indicates the change impacts weapons systems.
  - Provide or update explanation of the impact in the text block (up to 500 characters).

- **Weight & Moment Change (Tons).** Selection indicates the change impacts ship's weight and moment.
  - For **Net Change Type**, from the **Choose Type --** drop down menu, select one: **Net Increase**, **Net Decrease**, **No Net Impact**, or **Unknown.**
  - Provide details of amount in tons **Added / Removed** in the text block (up to 50 characters).

- **Other (Systems/Equipment/Sites).** Identify any other impacts not covered in the above list including other installed equipment or systems.
  - Provide or update explanation of the impact in the text block (up to 500 characters).

– **Shock, Vibration and EMI Requirements**
- **Shock Grade**
  - From the **Select Grade - -** drop down menu, select one: **A**, **B**, **C**, or **N/A**
  - Provide an explanation of the selection in the text block (up to 500 characters). Include the reference and attach at least one of the following to the SCD (if unclassified):
    (1) Actual completion date of shock qualifications
    (2) POA&M for completing shock qualifications before the first installation with Estimated Completion Date
    (3) Shock Waiver or Deviation per NAVSEAINST 9072.1 series
    (4) Individual equipment Shock Deficiency Correction Plan(s) (SDCP) per NAVSEAINST 9072.1 series

(5) A statement that when applicable Industrial furnished equipment will be mounted in accordance with applicable shock requirements of the GSO section or (6) an explanation on why shock is not required.

NOTE: If existing system is grade A and a new component will be added, that component must be grade A also. If changing a component in a rack, then the component must be re-qualified. Grade shock requirements are based on grade shock of existing system. If an item is not applicable (example software) then state it.

- **Compliant with MIL-STD-167-1 Type 1 Vibration Requirements**
  - From the **Select - -** drop down menu, select one: **Yes**, **No**, or **N/A**
  - Provide or update explanation of the impact in the text block (up to 500 characters). Include status of testing and expected completion date. If complete, attach unclassified results.
  - If N/A is selected, provide an explanation.

- **Compliant with MIL-STD-461 EMI Requirements**
  - From the **Select - -** drop down menu, select one: **Yes**, **No**, or **N/A**
  - Provide an explanation of the impact in the text block (up to 500 characters). Include status of testing and expected completion date. If complete, attach unclassified results.
  - If N/A is selected, provide an explanation

- **Compliant with MIL-STD-464 EMI Requirements**
  - From the **Select - -** drop down menu, select one: **Yes**, **Tailored**, **No**, or **N/A**
  - Provide or update explanation of the impact in the text block (up to 500 characters). Include status of testing and expected completion date. If complete, attach unclassified results.
  - If N/A is selected, provide an explanation

- **Compliant with OPNAVINST-2400.20 RF Spectrum Management Requirements**
  - From the **Select - -** drop down menu, select one: **Yes**, **No**, or **N/A**
  - Provide or update explanation of the impact in the text block (up to 500 characters). Include status of testing and expected completion date. If complete, attach unclassified results.
  - If N/A is selected, provide an explanation

- **Compliant with HERO/HERP/HERF (NAVSEA OP 3565) Requirements**
  - From the **Select - -** drop down menu, select one: **Yes**, **No**, or **N/A**
  - Provide or update explanation of the impact in the text block (up to 500 characters). Include status of testing and expected completion date. If complete, attach unclassified results. Requirements detailed in DoDINST 6055.11 and OP 3565 Volume I.
  - If N/A is selected, provide an explanation

– **References / Supporting Documentation**

Provide a list of all applicable documents including those referred to in the Description of Change.

- **Doc ID.** Enter the document identification number.
- **Document Name.** Enter the document name.
- Click the green **ADD** button, and observe the reference is added to the list.
- Repeat the above three steps for all documents.

– **Change Material / Software List**

Identify all known material in the Change Material/Software List. Refer to One Book Section 6 for criteria concerning SCD/NDE material. Perform the following steps for each material or software line item:

- **Class** For multiple class SCDs, account for different material requirements for each class separately. For material items that are class specific, enter the applicable class in the text box.
- **Item Number.** Enter the sequential item number for the item in the text box.
- **Description.** Enter Nomenclature, Software/Firmware (SW/FW) Version number to the patch level (when it is known), Functional description, Cognizance Code, National Stock Number or part/model number/symbol, CAGE/manufacturer, Manufacturer/Navy Drawing/piece number and estimated unit cost in the text box.
- **Unit of Issue.** Enter the material item unit of issue in the text box.
- **Quantity.** Enter the highest quantity per ship in the text box. The specific quantity for each ship will be updated post Decision Point 3.
- **Procuring Activity.** Enter the procuring activity in the text box.
- **Critical Material.** Enter the critical material information in the text box.
- Click the green **SAVE** button to save the Material / Software Item.
- Observe the new line item was added to the list.

– **Special Disposition Requirements for Removed Materials.**

– **Detail Design Criteria**

- **Ship Specification.** Select check box if proposed change affects a new construction ship specification. (i.e., a new system that will also be incorporated into new ship design.)
- **Deep Diving General Overhaul Specification.** Select check box if the proposed change will be installed in-accordance with this specification.
- **General Specifications for Overhaul.** Select check box if the proposed change will be installed in-accordance with this specification.
- **Other**
  - Provide or update explanation of the other design criteria in the text block (up to 500 characters).

- **Additional Non-Standard Quality Assurance:** Enter NONE or cite documentation in the text box (up to 500 characters). Include the reference in the Reference List in Phase III SCD.
- **Installation Support and Test Equipment:** Enter NONE or provide a list of all the S&TE that is required to support the installation of the alteration (Jigs, Alignment, I/D

level TE) in the text block (up to 2000 characters). (The S&TE required for ship's force to trouble-shoot and maintain the equipment is listed in the ILS Certification).

- **Shipboard Stowage Details:** Enter NONE or provide an explanation of the requirement for all general shipboard stowage requirements for this change in the text block (up to 2000 characters).
- **NAVSEA Ship Change Drawing (SID) Review Required: Yes** or **No.** The Core TAT Lead will make the final determination whether a particular SCD requires NAVSEA SID review. The vast majority will not require a NAVSEA SID review and therefore the box should be checked No. However, the initiator/submitter can choose Yes if they feel that the SCD warrants NAVSEA SID review due to complexity, associated system impacts, or political sensitivity.
- **Special Industrial Storage Requirements:** Enter NONE or provide an explanation of all special stowage requirements at the industrial activity installing the ship change. This section should include but not be limited to requirements such as environmental or security stowage in the text block (up to 2000 characters).

– **Certifications / Qualifications as Required:** Provide status of all required certifications. For certifications identified in One Book 3-6.5.1 Hull Installation Readiness Review Criteria not listed below use OTHER CERT 1 or OTHER CERT 2.

- **ILS CERT:** All SCDs required ILS certification from the SPM.
  - **Estimated Date:** If not complete, enter estimated completion date.
  - **Actual Date:** If complete, enter date completed.
  - **ILS CERT Remarks:**
  - **Status:** Select one of the following from the **Select Status --** drop down menu, **Completed, Scheduled, In Progress,** or **N/A**

- **HSI CERT:**
  - **Estimated Date:** If not complete, enter estimated completion date.
  - **Actual Date:** If complete, enter date completed.
  - **HSI CERT Remarks:**
  - **Status:** Select one of the following from the **Select Status --** drop down menu, **Completed, Scheduled, In Progress,** or **N/A**

- **EMI CERT:**
  - **Estimated Date:** If not complete, enter estimated completion date.
  - **Actual Date:** If complete, enter date completed.
  - **EMI CERT Remarks:**
  - **Status:** Select one of the following from the **Select Status --** drop down menu, **Completed, Scheduled, In Progress,** or **N/A**

- **WSESRB CERT:**
  - **Estimated Date:** If not complete, enter estimated completion date.
  - **Actual Date:** If complete, enter date completed.
  - **WESERB CERT Remarks:**

- **Status:** Select one of the following from the **Select Status --** drop down menu, **Completed, Scheduled, In Progress,** or **N/A**

- **SOFTWARE CERT:**
  - **Estimated Date:** If not complete, enter estimated completion date.
  - **Actual Date:** If complete, enter date completed.
  - **SOFTWARE CERT Remarks:**
  - **Status:** Select one of the following from the **Select Status --** drop down menu, **Completed, Scheduled, In Progress,** or **N/A**

- **SHOCK QUALIFICATION:**
  - **Estimated Date:** If not complete, enter estimated completion date.
  - **Actual Date:** If complete, enter date completed.
  - **SHOCK QUALIFICATION Remarks:**
  - **Status:** Select one of the following from the **Select Status --** drop down menu, **Completed, Scheduled, In Progress,** or **N/A**

- **SPAWAR PPL/SSIL CERT:**

  NOTE: This certification includes CANES, ISNS, and LPD 17 Class SWAN PPL/SSIL certification requirements.

  - **Estimated Date:** If not complete, enter estimated completion date.
  - **Actual Date:** If complete, enter date completed.
  - **SPAWAR PPL/SSIL CERT Remarks:**
  - **Status:** Select one of the following from the **Select Status --** drop down menu, **Completed, Scheduled, In Progress,** or **N/A**

- **SEA 62 Interoperability:**
  - **Estimated Date:** If not complete, enter estimated completion date.
  - **Actual Date:** If complete, enter date completed.
  - **SEA 62 Interoperability CERT Remarks:**
  - **Status:** Select one of the following from the **Select Status --** drop down menu, **Completed, Scheduled, In Progress,** or **N/A**

- **OTHER CERT 1:**
  - **Estimated Date:** If not complete, enter estimated completion date.
  - **Actual Date:** If complete, enter date completed.
  - **OTHER CERT 1 Remarks:**
  - **Status:** Select one of the following from the **Select Status --** drop down menu, **Completed, Scheduled, In Progress,** or **N/A**

- **OTHER CERT 2:**
  - **Estimated Date:** If not complete, enter estimated completion date.
  - **Actual Date:** If complete, enter date completed.
  - **OTHER CERT 2 Remarks:**

- **Status:** Select one of the following from the **Select Status --** drop down menu, **Completed, Scheduled, In Progress,** or **N/A**

– **Estimated Weight and Moment**
The Weight and Moment Impact field shall provide an estimate of any weight and moment change caused by the ship change (increase or decrease), including loads (ammunitions, provisions, stores, fuel oil, water, etc.). Provide estimated weight and moment of each class identified in the Header.

If the ship change includes modification to a hull form or an appendage (bilge keel, sonar dome, etc.), a buoyancy impact of the weight of the displaced water volume shall also be estimated to the nearest +/- 0.1 ton.

- **Class**: The class is automatically entered from the information provided in the Header
- **Weight**: Select **Long Tons** and enter weight. Weight shall be estimated to the nearest +/- 0.1 ton. The term "Negligible" shall not be used for the weight estimate.
- **TCG (Transverse Center of Gravity):**
  - Select either **Port** or **Starboard**.
  - Enter TCG to the nearest foot port or starboard of the centerline.
- **VCG (Vertical Center of Gravity):** Enter VCG to the nearest foot.
- **LCG (Longitudinal Center of Gravity):**
  - Select either **Forward** or **Aft**.
  - Enter LCG to the nearest foot forward or aft of the mid perpendicular of the ship.
- **Stability Status:** Select one of the **Select Stability Status –** drop down menu: **Status 1**, **Status 2**, **Status 3**, or **Status 4**.
- **Stability Statement:** Enter remarks as required.

– Click the green **SAVE** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button. This will delete the all unsaved TAT Tab data that was entered, so the user can enter the correct data.

3.5.2 Phase III/IIa AFOM Tab

Review Section 2.7 prior to completing or updating the AFOM Tab.

(1) If the SCD is entering the process at Phase III, check each capability and suitability area affected by the proposed change (bolded in the list below). More than one capability or suitability area may be selected, but at least one must be selected for SCD submission.
(2) If the SCD has been through at least one Decision Point, then previously selected capability and suitability line items will remain selected. Review selected capability and suitability area affected by the proposed change. If a change is necessary, perform the following:

- Change the selection by either checking the box to add or un-checking the box to remove each applicable line item.
- View prompt ***Are you sure you wish to change the selected Naval Capabilities?*.**
- Select **Yes** or **No** as applicable.

(3) Click the green **Save** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button, this will delete the unsaved data that was entered and the user can enter the correct data.

3.5.3 Phase III/IIa CBA Tab

Review Section 2.6 prior to completing the CBA Tab.

This guidance refers to the CBA for the SCD "Concept Development Cost Information" section for Phase II. SCD estimates are now required for the sub-categories. The user will be required to enter more detailed information.

If the SCD is being initiated in Phase II, the initiator can edit all items in this section as long as the SCD is in the **My Action** folder and the SCD status is Phase I Initiate. Once the SCD is forwarded to the submitter, only the submitter or a submitter assignment with "edit" rights to a user can modify this section.

> **NOTE**: This is the only section that can be saved prior having all mandatory fields completed. While populating data in the CBA, save often by clicking the green SAVE button at the bottom of each tab.
> **NOTE**: All costs in the CBA Tabs are entered in thousands of dollars (ex. 10.00 entered is equal to $10,000.00.

3.5.3.1 Investment Cost Tab

> **NOTE:** If the Starting year is reset at any time after the CBA has been populated with data, that data will be cleared.

(1) **Set Starting Year**. Select the starting Fiscal Year (FY) for the SCD. It will determine the FY headers on the rest of the CBA tabs.
(2) The estimated cost value is a future dollar value calculated by taking the cost estimate and inflating the values with the corresponding FY escalation factor. This manual calculation must be done for every applicable FYXX. If funds extend beyond 10th fiscal year, it is necessary to calculate and enter a de-escalated cost estimate in To Complete (Constant Year Dollars) column (green cells). Consult current Navy Financial Management and Budget (FMB) guidance to determine appropriate escalation factors.
(3) Provide estimated cost values in the **System/Equipment Design Development Cost** subsection for the following:

- Enter **Concept Development**
- Enter **Preliminary Engineering**
- Enter **Hardware Development**
- Enter **Software Development**
- Observe the subtotal for Hardware and Software Development costs are calculated in **Design Development.**
- Enter **EDM/Pre-Production Prototype**
- Enter **Testing**

- Enter **Program Management**
- Observe the subtotal in ***Subtotal System/Equipment Design/Development Cost.***

(4) Provide estimated cost values in the **System/ Equipment Procurement Cost** subsection for the following:

- Enter **Hardware Cost**
- Enter **Installation Material**
- Enter **Testing (Production/Post Production)**
- Enter **Training/Training Support**
- Enter **Manpower and Personnel**
- Enter **Human Factors Engineering (Habitability, ESOH, Personnel Survivability)**
- Observe the subtotal for **Training/Training Support**, **Manpower and Personnel,** and **Human Factors Engineering** are calculated in **H.S.I.**
- Enter **Special Tools/Test Equipment/MAMS**
- Enter **Facilities**
- Enter **PHS&T (Special Handling)**
- Enter **Support Equipment**
- Observe the subtotal for **Special Tools/Test Equipment/MAMS**, **Facilities**, **PHS&T (Special Handling),** and **Support Equipment** are calculated in **Logistics**
- Enter **Topside Analysis/Design**
- Enter **Documentation (PTD)**
- Enter **Certifications**
- Enter **Distributed System Impacts**
- Enter **Battle Force Interoperability Studies**
- Enter **Stability Analysis and Studies**
- Enter **Program Management**
- Observe the subtotal in ***Subtotal System/ Equipment Procurement Cost.***

(5) Provide estimated values in the **Installation/Checkout Cost** subsection for the following:

- Enter **ILS Certification**
- Enter **H.S.I. Certification**
- Observe the subtotal for are **ILS Certification** and **H.S.I. Certification** are calculated in **Certifications** cost
- Enter **Design Services Allocation (DSA)** cost

NOTE: Enter data in **Production Mandays** and select **Installation Location** or enter actual estimated costs in **AIT** and **Services**.

- Enter **Production Mandays**
- Observe **Prorate Planning Factor** is calculated

NOTE: For multiple installation locations, select the location with the most installations across the life of the SCD.
NOTE: Installation locations cannot be entered for FY15 and beyond due to a programming error in the EP software.

- Select an **Installation Location** from the drop down menu
- Observe **Installation Cost** is calculated based on embedded formulas for the **Prorate Planning Factor** and **Installation Location**

OR

- Enter **AIT** cost
- Enter **Services** cost
- Observe **Installation Cost** is the subtotal of the subtotal of **AIT** and **Services**
- Enter **Planning Costs**
- Enter **Incidental Material (NSA/IA Procured)** cost
- Enter **Total Ships Testing** cost
- Observe the subtotal in ***Subtotal Installation/Checkout Cost*** is the calculation of **Installation Cost, Planning Cost, Incidental Material (NSA/IA Procured),** and **Total Ships Testing.**

(6) Observe the subtotal of ***Subtotal System/Equipment Design/Development Cost, Subtotal System/ Equipment Procurement Cost***, and ***Subtotal Installation/Checkout Cost*** are calculated in ***Subtotal (Sum of Major Cost Element Categories By FY)***.
(7) Review each cell box to verify each section is completed.
(8) Click the green **Save** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button, this will delete the unsaved data that was entered and the user can enter the correct data.

NOTE: Error messages will appear after completing the Investment Costs Tab. The error message is generated because the subtotal row for Investment Costs Tab must match the subtotal row in the Appropriations Tab for each FYXX column, which has not been completed yet. The user cannot submit the SCD until the errors are corrected.

3.5.3.2 Appropriations Tab

This tab is used to identify the SC funding sources. Information contained in this tab is the same regardless of the Phase of the SCD. At least one row needs to be completed. Of there is no funding include a comment in the **Comments Tab** explaining why.. Enter estimated cost values for each Phase by completing the following steps:

NOTE: It is important to have matching data between the Investment Cost Tab and the Appropriation Tab. Cost information is often transferred incorrectly between sections. For example, if the Preliminary Engineering costs are 10K in the Investment Cost Tab, they should be 10K in the Appropriation Tab. Also, verify that the totals are the same for each fiscal year.

(1) Select **Appn** drop down menu and select the proper appropriation from the drop-down menu
(2) Select **Sponsor** drop down menu and select the sponsor information from the drop-down menu.

NOTE: The BLI Number and PE Number should be formatted ***exactly*** how it is in the PBIS database.

(3) Enter **BLI.** Enter correct Budget Line Item (BLI) information as text/numerals. This is normally 4 digits unless the appropriation type is RDTEN, then the BLI and PE fields are the same.
(4) Enter **PE.** Enter Program Element (PE) information as text/numerals.
(5) Enter estimated cost value for applicable FYXX and To Complete (Then Year Dollars) columns, if necessary.
(6) If funds extend beyond the 10th fiscal year column on the CBA, it is necessary to calculate and enter a de-escalated cost estimate in the To Complete (Constant Year Dollars) column (green cells). Consult current Navy FMB guidance to determine appropriate escalation factors.

NOTE: Lines cannot be edited after adding, so verify data entry.

(7) Click **Add**

NOTE: Repeat the above steps for additional funding lines as appropriate.
NOTE: The totals for each fiscal year must be the same in the **Investment Cost Tab** and the **Appropriation Tab**. If the totals are not the same, an error message will be displayed.

(8) Identify any error messages that remain in Appropriations Tab of the CBA and locate which rows have a total(s) that do not match. Address errors for applicable FYXX, To complete (Then Year Dollars), and To complete (Constant Year Dollars) columns by adjusting values in either Investment Cost Tab or Appropriations Tab so the subtotal rows contain accurate estimates and are equal. The error message will disappear when the Investment Costs Tab and the Appropriation Tab match. The user cannot go to the next tab (AFOM) until errors are corrected.
(9) Review each cell box to verify each section is completed.
(10) Click the green **Save** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button, this will delete the unsaved data that was entered and the user can enter the correct data.

3.5.3.3 Projected Savings and Cost Avoidance Tab

NOTE: This section can only be calculated if a baseline comparison is possible. If a new system is proposed by the ship change, no data is entered and the tab is saved.
NOTE: Savings should be represented by positive values in this section. Errors will occur if negative values are used.

(1) Provide estimated cost value for **Development Phase** rows in applicable **FYXX** and **To Complete (Then Year $)** columns.

- Enter **Direct**
- Enter **Additional TOC Elements**

- Observe the subtotal for **Direct** and **Additional TOC Elements** are calculated in **Development Phase.**

(2) Provide estimated cost value for **Production Phase** row in applicable **FYXX** and **To Complete (Then Year $)** columns.

- Enter **Recurring**
- Enter **Non-Recurring**
- Enter **Additional TOC Elements**
- Observe the subtotal for **Recurring, Non-Recurring** and **Additional TOC Elements** are calculated in **Production Phase.**

(3) Enter estimated cost value for **Operating & Support** row in applicable **FYXX** and **To Complete (Then Year $)** columns.

- Enter **Unit Level Consumption** cost
- Enter **Depot Maintenance** cost
- Enter **Contractor Support** cost
- Enter **Sustaining Support** cost
- Enter **Indirect Support** cost
- Enter **Other** cost
- Enter **O Level ($K/man-year)** rate
- Enter **I Level ($K/man-year)** rate

(4) Enter estimated cost value for **MILPERS Workload Production (Man-years)** subsection in applicable **FYXX** and **To Complete (Then Year $)** columns.

NOTE: Personnel man-years are limited to two decimal places. (i.e., 0.75)

- Enter **Organizational Level Personnel** man-years
- Observe **Operating & Support O-Level/Mission Personnel** is calculated using the **O- Level ($K/man-year)** rate.
- Enter **Intermediate Maintenance** man-years
- Observe **Operating & Support Intermediate Maintenance** is calculated using the **I-Level ($K/man-year)** rate.

(5) Observe **Projected Savings and Cost Avoidance** final calculation.
(6) Identify and address any errors that may exist in **Projected Savings and Cost Avoidance Tab**.
(7) Review each cell box to verify each section is completed.
(8) Click the green **Save** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button, this will delete the unsaved data that was entered and the user can enter the correct data.

3.5.3.4 Installation Fielding Plan Tab

NOTE: Total Production Units procured must be equal to the total number of installations. An error message will appear if **Total Installations** does not equal **Total Production Units** and the SCD cannot be saved.
NOTE: Changes proposed for incremental installation must show total installations planned in each increment by fiscal year for each applicable single hull or site.

(1) Enter estimated values for **Total Production Units** in applicable **Prior**, **FYXX** or **To Complete (Then Year $)** columns representing the number of units to be installed in each FY.
(2) Applicable ships identified in the Header Tab will be listed in the **Installation Fielding Plan Data** column.

NOTE: For Condition Based Maintenance SCD where there is not a year by year fielding plan, use the **To Complete (Then Year $)** field to account for the eventual installations.

(3) For each **Ship – SHIP NAME – HULL #** listed, enter values in **Prior**, **FYXX** or **To Complete (Then Year $)** columns as required.
(4) Repeat step (3) for each ship listed.

NOTE: **Ship Total Installations** is a calculation row that calculates the sum of **Ship Quantity** units.

(5) For each **Site – SITE NAME** listed, enter values in **Prior**, **FYXX** and **To Complete (Then Year $)** columns as required.
(6) Repeat step (5) for each site listed.

NOTE: **Site Total Installations** is a calculation row that calculates the sum of **Site Quantity** units.
NOTE: **Total Installations** is a calculation row that calculates the sum of **Ship Quantity** units and **Site Quantity** units.

(7) Identify and address any errors that may exist in **Installation Fielding Plan** Tab. **Total Installations** must equal **Total Production Units** entered.
(8) Review the cell boxes to verify this section is completed.
(9) Click the green **SAVE** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button, this will delete the unsaved data that was entered and the user can enter the correct data.

3.5.4 Submitter Review and Submission

When the SCD is being initiated in Phase III, and all mandatory and organizational entries are complete and supporting documentation is attached, the Initiator can forward the SCD to the Submitter. Once the SCD is forwarded to the submitter, only the submitter or a User assigned "edit" rights can modify the SCD. At this point, all viewing rights of the CBA except the

Installation Fielding Plan are limited to the Submitter and any User assigned either edit or comment rights by the Submitter.

If the SCD is being submitted into Phase III/IIa from a Phase I or Phase II SCD, skip the first three steps listed below.

1) From any tab on the SCD, at the top of the tab page, click on the green **SUBMIT** button.
2) An automated email notification will be sent to the selected Submitter.
3) The SCD will be removed from the Initiator's **Initiation My Action List**.
4) The SCD will appear in the Submitter's **Phase III Pending Submission My Action List**.
5) The Submitter reviews the SCD and validates all information has been correctly entered and may take the following actions in support of the review and validation:
   - Modify any field except the Phase entry and the CTN.
   - Assign all or any portion of the SCD to a user for Edit or Comment
   - Cancel the SCD

6) Once the Submitter is satisfied, the SCD is submitted into the Review process.
7) The SCD is removed from the Submitter's **Phase III Pending Submission - My Action List**.
8) An automated email notification is sent to the TAT CM.
9) While the SCD is in TAT Review, all Tabs of the SCD can be assigned back for edit or comment to the Submitter by the TAT CM.
10) While the SCD is in SPM Review, CBA Review, AFOM Review, Resource Sponsor Review and Voting Board, the SCD section in review can be assigned back to the Submitter for Edit or Comment by the review CM.
11) If the SCD is approved by the Voting Board, the following actions occur:
    - CBA appropriation data is entered into the Modernization Plan automatically.
    - An automated email notification is sent to the Submitter.
    - SCD is sent to the Submitter's **Phase IV Pending Submission - My Action List** and the SCD can be updated based on the results of the preliminary design and development engineering.
    - NDE NM must be updated with approved hull applicability and scheduling.

12) If the SCD is disapproved by the Voting Board, the following actions occurs:
    - The SCD is placed in Inactive status and archived in EP.
    - If the SCD was previously approved, the Modernization Plan is updated to remove the SCD funding.
    - If the SCD was previously approved, NDE NM must be updated to remove the hull applicability and scheduling.

4.0 Other EP Software Processes

4.1 Comments

Additional details to support any section of the SCD may be documented in the Comments section.

(1) Select the SCD from **My Action List.**
(2) Click on the **Comments Tab.**
(3) Select the SCD comment topic area applicable as follows:
- **General SCD Comments** - These are general comments in regards to the SCD.
- **Header Data Comments -** These are comments related to the Header Data of the SCD.
- **Technical Comments -** These are comments related to the Technical Data of the SCD.
- **AFOM Comments -** These are comments related to the AFOM Data of the SCD.
- **Submitter Comments -** These are comments made by the submitter in regards to the SCD.
- **Other Comments -** This area is for comments that do not fall into any of the existing categories.
- **Resource Sponsor Comments -**These are comments related to the Resource Sponsor data of the SCD.
- **Vote Comments -** These are comments related to the Voting of the SCD.
- **Assignment Comments -** These are comments related to the Assignment of the SCD.
- **CBA Comments -** These are comments related to the CBA data of the SCD.

(4) Click on **Add Topic**.
(5) Enter topic title in the text box and click on **Add**.
(6) Observe new topic in **Topic List**.
(7) Click on the topic title.
(8) Select **Add Comments**.
(9) Enter comments in text block.
(10) Select **Add**.
(11) Observe topic entry with Author, Author Role and Comments has been added to the SCD.
(12) To exit the Comment Tab, select another tab or new menu item.

4.2 Attachments

Additional details to support any section of the SCD may be attached to the SCD. The following files types are allowed: MS Project, Publisher, Word, Excel, PPT, Visio, Adobe Acrobat PDF files (i.e., .PPT, .DOC, .XLS, .PDF, .MPP, .VSD, .PUB). Maximum file size is 10MB per Attachment with a maximum of 50MB per SCD.

(1) Select the SCD from **My Action List**.
(2) Click on the **Attachments Tab.**
(3) Enter a **Document Title** in the text block.
(4) Enter a **Document Description** in the text block.
(5) Click on **Browse** button to search for the file to be uploaded.
(6) Once the file is located, click on the **Open** button.
(7) Observe the file location is entered in **Attachment** text box.
(8) Click on green **Upload** button.
(9) Observe the item is in the attachment list.
(10) Select the item to open and verify it is attached and viewable.

(11) To exit the Comment Tab, select another tab or new menu item.

4.3 Assignments

The assign-out capability is role dependent and can be accessed from My Action List. During the initiation phase, the Initiator, as well as the Submitter, has the full assign-out capability for Comment and/or Edit of a specific SCD.

4.3.1 Initiator/Submitter Assignments

For Initiator assignment, the SCD must be in the My Action List under **Initiation.** For Submitter assignment, the SCD is in My Action List under **Submitter**. The initiator/submitter may assign out individual tabs or the entire SCD to any user in the assignee list for comment or editing.

(1) From the **My Action List**, scroll down to the CBA section to the SCD for assignment.
(2) Click on **Assign,** the screen will refresh and bring up the **Assign SCD XXXX** window.
(3) Click on **Add Assignees** and the screen will refresh and bring up **Add Assignees** window.
(4) At **Assignment Type: Section And Action** drop down menu, select one of the following:

- **AFOM - Edit**
- **AFOM - Comment**
- **Appropriation Program Element Funding Plan - Comment**
- **Appropriation Program Element Funding Plan - Edit**
- **CBA (All) - Edit**
- **CBA (All) - Comment**
- **Entire SCD - Edit**
- **Entire SCD - Comment**
- **Header - Edit**
- **Header - Comment**
- **Installation Fielding Plan - Edit**
- **Installation Fielding Plan - Comment**
- **Investment Cost - Edit**
- **Investment Cost – Comment**
- **Projected Savings and Costs - Edit**
- **Projected Savings and Costs – Comment**
- **Technical Data - Edit**
- **Technical Data – Comment**

(5) The screen will refresh, observe **Assignment Type: Required Roles: Anyone**.
(6) The initiator may assign the all or any part of the SCD to the submitter prior to forwarding it. To assign the SCD to the submitter for review and update, perform the following:

- Under **Find Assignees:** select **Assign To Submitter *Submitter Name***.
- Scroll to the top and click the green **Apply** button.
- The screen will refresh displaying the **Assignees** with the **Section** and **Type** noted.

- In the **Select** column, select the assignee check box for comments.
- Enter appropriate comments in the **Comments** text box.
- Click on **Apply To Selected Assignees.**
- The screen will refresh displaying the **Assignees** with the **Comments** noted.
- Under **Requires Change,** select **No.** (The **Yes** selection is used by the Decision Review process for documenting First Pass Yield failures and is not applicable at this point in the process).
- Click on **Apply To Selected Assignees.**

(7) To assign the SCD to an Any Reviewer for edit or review, under **Find Assignees:**
- Select **Search For Assignees.**

NOTE: The **Role Filter** does not work at this time and is TBA in an upcoming future EP release.

- Enter a last name in **Last Name Filter** text box.
- Under the **Search Results:** click on **Find.**
- The screen will refresh with a list of AFOM Reviewers based on the filter in **Search Results:**
- Select the check box for the assignee in the **Select** column.
- Scroll to the top and click the green **Apply** button.
- The screen will refresh displaying the **Assignees** with the **Section** and **Type** noted.
- In the **Select** column, select the assignee check box for comments.
- Enter appropriate comments in the **Comments** text box.
- Click on **Apply To Selected Assignees**
- The screen will refresh displaying the **Assignees** with the **Comments** noted.

(8) Click on the green **Assign** button.
(9) Observe the **Assignment Complete** message, click on **OK.**
(10) The screen will refresh and return to My Action list.
(11) Observe the SCD is listed under **SCDs Assigned Out**.

4.3.2 Assignment Rollback

If the assignee has not provided a response in a reasonable time, the SCD can be rolled back to the assignment originator.

(1) Scroll down to the **SCDs Assigned Out** section of **My Action List**.
(2) At the SCD item, click on **Rollback.**
(3) Observe the SCD is returned to the role function section of My Action List (TAT for TAT CM, CBA for CBA CM, etc.).

4.4 Clone an SCD

Since separate SCDs must be created for Surface Ships and Carriers, it may be more efficient to create an SCD for one enterprise then clone it so the data does not have be re-entered. Use the following steps to clone an SCD.

(1) Select and SCD that is in Initiation or Pending Submission.
(2) Select the **Header** Tab.
(3) Scroll to the **Manage SCD Linkage**.
(4) If there are any linked SCDs, remove them from the list.
(5) Scroll to the bottom of the **Header** tab.
(6) Click on green **Clone SCD** button.
(7) New SCD will open up with a red banner at the top of the **Header** tab stating **SCD 9999 Successfully Cloned**.
(8) **Applicable Classes, Ships and Sites**: A SCD must have at least one Ship Class and one Hull selected. Carriers and Surface Ships will not be included on the same SCD. If there is a corresponding shore site receiving the SC, each applicable shore site must be identified. The information selected in this block is also populated in the CBA Fielding Plan Tab.

- Click on **Select Classes, Ships** box to open Classes, Ships menu.
- Highlight the applicable Class in the **Classes** window. To select multiple ship classes, press and hold the CTRL key.
- Once all classes are selected, click on **Select**.
- All the hulls in each class selected will be populated in **Ships** window.

NOTE: New construction hulls are only included if the installations are going to be accomplished with OM-N/OP-N funding or if it is accomplished on an Aircraft Carrier in Refueling Complex Over Haul (RCOH). If the SC applies to SCN ships, document it in the Description of Change in the TAT Tab (forward fit SCD/backfit life cycle)

- Click on the green **Save** button.
- Observe the list of **Selected Sites and Ships** displayed on the left side in blue text. Use the scroll bar to see the full list.
- For individual ships that are not applicable to the SC, click on the ship name to remove it.
- Any ships that are within the five year decommissioning window will be displayed on the right. A SC planned for installation on a ship within five calendar years of the ship's decommissioning have unique requirements, mandated by law, which must be followed before any appropriated funds can be obligated or expended for such purpose. Refer to One Book Section 1-7 for the SECNAV Waiver and Memorandum For the Record (MFR) processes. If a SECNAV waiver or MFR has been approved, select the **SECNAV Waiver Approved** check box and provide amplifying information in the **SECNAV Waiver Approval Information** (200 characters) text block and click on green **Save**.

NOTE: Sites are only selectable if there is a corresponding ship.

- Click on **Select Sites** box to open Sites menu.
- Use the UIC or Site Name to filter the list.
- Click on the check box next to applicable sites that will also receive the ship change.
- Click on the green **SAVE** button.
- Observe the list of **Selected Sites and Ships** displayed on the left side in blue text. Use the scroll bar to scroll to the bottom to see the sites selected.

- Clicking on an individual ship or site will remove the ship or site from the list.

(9) Update **Point of Contact** information.
(10) Once all data elements are complete, click on green **Save SCD** button**.**

NOTE: A red error message will appear at the top of the Header Tab page if any mandatory information is incomplete. Missing information will be annotated in red text as ***Required***.
NOTE: Once the SCD is saved, the initiator may exit the EP software and return later to continue filling out the SCD. The SCD is accessible from **My Action List**.

5.0 Phase IV SCD Modifications

Phase IV modifications to the SCD can only be accomplished when the SCD is located in the Submitter's **My Action List - Submitter Phase IV** section.

(1) Select **My Action List**.
(2) Locate the SCD Number in the **Submitter Phase IV** section.
(3) Click on the SCD Number.
(4) Following below instructions for each change required.
- Adding/Deleting a Class, Hull or Site - Section 5.1
- Installation Fielding Plan Changes - Section 5.2
- Funding Changes - Section 5.3
- Technical Changes - Section 5.4

(5) Once all changes on all tabs are complete, from any Tab, scroll to the top and click on the green **Submit** button to enter the SCD into the Phase IV review process.

5.1 Adding / Deleting a Class, Hull or Site

To add or delete a class, first the Header must be modified to add the class and specific hulls. The **TAT** Tab opens up to add technical information supporting class additions. The **CBA - Installation Fielding Plan** must be modified to add the fielding plan for the new hulls. In addition, there may be funding changes required to the **CBA – Investment Cost** Tab and the **CBA – Appropriations** Tab.

5.1.1 Adding a Class, Hull or Site

To add a Ship Class, Hull or Site, perform the following:

(1) Select the Header Tab.
- Scroll down to **Applicable Classes, Ships and Sites**.
- Click on **Select Classes, Ships** box.
- Highlight the applicable Class to be added in the **Classes** window. To select multiple ship classes, press and hold the CTRL key. This must be done to add a hull too.
- Once all new classes are selected, click on **Select**.
- All the hulls in each class selected will be populated in **Ships** window.

NOTE: New construction hulls are only included if the installations are going to be accomplished with OMN/OPN funding **or** if it is accomplished on an Aircraft Carrier in Refueling Complex Over Haul (RCOH).

- Click on the green **SAVE** button.
- A list of **Selected Sites and Ships** will be displayed on the left side in blue text.
- For individual ships that are not applicable to the SC, click on the ship name to remove it.
- Any ships that are within the five year decommissioning window will be displayed on the right. A SC planned for installation on a ship within five calendar years of the ship's decommissioning have unique requirements, mandated by law, which must be followed before any appropriated funds can be obligated or expended for such purpose. Refer to One Book Section 1-7 for the SECNAV Waiver and Memorandum For the Record (MFR) processes. If a SECNAV waiver or MFR has been approved, select the **SECNAV Waiver Approved** check box and provide amplifying information in the **SECNAV Waiver Approval Information** (200 characters) text block and click on **Save**.
- Click on **Select Sites** box to open Sites menu.
- Use the UIC or Site Name to filter the list.
- Click on the check box next to applicable sites that will also receive the ship change.
- Click on the green **Save** button.
- Observe the list of **Selected Sites and Ships** displayed on the left side in blue text. Use the scroll bar to scroll to the bottom to see the sites selected.
- Scroll to the bottom of the **Header** Tab.
- In the **Submittal Rationale (required):** text box, enter the date and justification for the change.
- Click the green **Save SCD** button to save changes in EP.

(2) Go to Section 5.2 to update the **CBA – Installation Fielding Plan** tab (required). Added hulls and sites will automatically be added to the Installation Fielding Plan.
(3) Go to Section 5.3 to update the **CBA – Investment Cost** Tab and the **CBA – Appropriations** Tab (if required).
(4) Go to Section 5.4 to update the **TAT** Tab (if required). Only applicable if a class has been added or deleted.
(5) Once all changes on all tabs are complete, from any Tab, scroll to the top and click on the green **Submit** to enter the SCD into the Phase IV review process.

5.1.2 Deleting a Ship Class, Hull, or Site

To delete a Ship Class, Hull or Site perform the following:

(1) Select the Header Tab.
- Scroll down to **Applicable Classes, Ships and Sites**:
- A list of **Selected Ships and Sites** will be displayed on the left side in blue text.
- For each ship or site no applicable to the SC, click on the ship or site name to remove it.
- Scroll to the bottom of the **Header** Tab.

- In the **Submittal Rationale (required):** text box, enter the date and justification for the change.
- Click on the green **Save SCD** button.

(2) Go to Section 5.2 to update the **CBA – Installation Fielding Plan** tab (required). Deleted hulls will automatically be removed from the Installation Fielding Plan, so **Total Production Units** will need to be updated.
(3) Go to Section 5.3 to update the **CBA – Investment Cost** Tab and the **CBA – Appropriations** Tab (if required).
(4) Go to Section 5.4 to update the **TAT** Tab (if required). Only applicable if a class has been added or deleted.
(5) Once all changes on all tabs are complete, from any Tab, scroll to the top and click on the green **Submit** to enter the SCD into the Phase IV review process.

5.2 Installation Fielding Plan Changes

To modify the fiscal year a hull already approved for installation, the **CBA Installation Fielding Plan** must be modified. Perform the following steps:

(1) Select the **CBA** Tab.
- Select the Installation Fielding Plan tab.
- If required, modify the Enter estimated values for **Total Production Units** in applicable **Prior**, **FYXX** or **To Complete (Then Year $)** columns representing the number of units to be installed in each FY.
- For each **Ship – Ship Name – Hull #** listed, enter 0 and the new value in **FYXX** or **To Complete (Then Year $)** columns to be modified.
- When all ships have been modified, click the green **Save** button to save changes in EP. If the data entered is incorrect, click the red **Discard Changes** button, this will delete the data that was entered and the user can enter the correct data.
- Go to Section 5.3 to update the **CBA – Investment Cost** Tab and the **CBA – Appropriations** Tab (if required).

(2) Select the **Header** Tab.
- In the **Submittal Rationale (required):** text box, enter the date and justification for the change.
- Click the green **Save SCD** button to save changes in EP.

(3) Once all changes on all tabs are complete, from any Tab, scroll to the top and click on the green **Submit** to enter the SCD into the Phase IV review process.

5.3 Funding Changes

5.3.1 Update CBA Investment Cost Tab

Update the **CBA Investment Cost** tab using the same steps for a Phase III/IIa described in Subsection 3.5.2.1.

5.3.2 Update CBA Appropriations Tab

Update the **CBA Appropriations** tab using the same steps for a Phase III/IIa described in Subsection 3.5.2.2.

5.4 Technical Changes

Changes to the TAT Tab are only allowed when a class or site has been added or deleted. Use the steps for Phase III TAT Tab to update applicable fields. For technical information applicable to other Phase IV SCD changes, provide comments or attachments and reference them in the **Submittal Rationale (required):** text box in the **Header** Tab.

5.5 Incremental Installation

If the requirement for incremental installation is identified post Decision Point 3, perform the following steps:

(1) Update the CBA Installation Fielding Plan (Section 5.2) to show the number of production units that will be delivered to each hull across multiple fiscal years. (i.e., LSD 41: FY 08 – 2 units and FY10 – 2 units).

(2) Go to Section 5.3 to update the **CBA – Investment Cost** Tab and the **CBA – Appropriations** Tab (if required).

(3) Since the TAT Tab will not be open for modification unless a class is added or deleted, attach a Word document with justification for incremental installation and an explanation of how each production unit will be delivered.

(4) Select the **Header** Tab.

- In the **Submittal Rationale (required):** text box, enter the date and justification for the change.
- Click the green **Save SCD** button to save changes in EP.

(5) Once all changes on all tabs are complete, from any Tab, scroll to the top and click on the green **SUBMIT** to enter the SCD into the Phase IV review process.

5.6 Phase IV Review Process

- The SCD is removed from the Submitter's **My Action List - Submitter Phase IV** section.
- The SCD is forwarded as follows depending on the type of change made to the SCD:
  - Adding or deleting a class – TAT, AFOM, CBA, Resource Sponsor, Voting Board
  - Modifying the CBA Installation Fielding Plan – Resource Sponsor, Voting Board

- An automated email notification is sent to the appropriate review CM.
- While the SCD is in TAT Review, all Tabs of the SCD can be assigned back for edit or comment to the Submitter by the TAT CM.
- While the SCD is in SPM Review, CBA Review, AFOM Review, Resource Sponsor Review and Voting Board, the SCD section in review can be assigned back to the Submitter for Edit or Comment by the review CM.

– If the SCD is approved by the Voting Board, the following actions occur:
  - CBA appropriation data is entered into the Modernization Plan automatically.
  - An automated email notification is sent to the Submitter.
  - SCD is sent to the Submitter's **Phase IV Pending Submission - My Action List** and the SCD can be updated based on the results of the preliminary design and development engineering for Phase III submission.
  - NDE NM must be updated with approved hull applicability and scheduling.

– If the SCD is approved by the Voting Board, the following actions occur:
  - CBA Appropriation data is updated in the Modernization Plan.
  - An automated email notification is sent to the Submitter.
  - SCD is sent to the **My Action List - Submitter Phase IV** section.
  - NDE NM must be updated with approved hull applicability and scheduling.

– If the SCD is disapproved by the Voting Board, the previously approved fielding plan remains in effect unless the Voting Board decided to cancel the SCD.

6.0 SCD Cancellation

6.1 Cancel SCD Prior to First Decision Point

The Initiator may delete the SCD prior to forwarding it to the Submitter or the Submitter may cancel it prior to submitting it into the review process. If the SCD has been entered into the review process but has never reached a decision point, the submitter may request the NMP Secretariat (SEA04RP) to reset it back to Pending Submission then cancel it. To cancel a SCD, perform the following steps:

(1) Select the SCD Number from **My Action List – Initiation** or **My Action List** – Initial Phase **Pending Submission**.
(2) Select **Header** Tab and scroll to the bottom.
(3) Click on the red **CANCEL SCD** button.
(4) At the **Alert –Reason for Cancellation** window, enter the reason the SCD is being cancelled.
(5) Click on the green **Cancel SCD** button.
(6) SCD Header Tab will appear with **Name** of person cancelling the SCD, **Date** and **Reason for Cancellation** in red text.

The SCD will be placed in Inactive status. The next time EP software is opened, the SCD will no longer be in **My Action List.**

6.2 Cancel SCD After Any Decision Point

To cancel a SCD after any Decision Point, perform the following steps:

(1) Select the SCD number from **My Action List –** Phase II or Phase III/IIa **Pending Submission**.
(2) Go to the **CBA – Installation Fielding Plan**, and zero (0) out any installations that have not been executed and production units that have not been purchased.

(3) Select **Header** Tab and scroll to the bottom.
(4) Click on the red **CANCEL SCD** button.
(5) At the **Alert –Reason for Cancellation** window, enter the reason the SCD is being cancelled.
(6) Click on the green **Cancel SCD** button.
(7) SCD Header Tab will appear with **Name** of person cancelling the SCD, **Date** and **Reason for Cancellation** in red text.

The SCD will then be submitted into the review process.

- TAT, SPM, AFOM, CBA and Resource Sponsor will each provide a recommendation on the cancellation.
- The Board (O-6, 1 / 2 Star or 3 Star) that approved the SCD at the last phase must approve the cancellation.

Once approved, the SCD will be placed in Inactive Status and will no longer be visible in the submitter's **My Action List.**

> **NOTE:** Ensure NDE NM alteration record hull applicability is updated in accordance with the cancellation.

7.0 Closeout SCD Once Fully Executed

This information is currently being developed.

8.0 Definitions

8.1 General Definitions

Air Systems. Systems, including components supporting generation, distribution and storage of low, medium and high pressure compressed air.

Alteration Figure of Merit (AFOM). The AFOM calculation is defined as the quantitative "Warfighting or Readiness Benefit" assigned to each proposed change. There are two components to the process of assigning AFOMs to each SCD – the annual establishing of weights based on Fleet priorities and the continuous action by respective TYCOMs to assign index values to standardized rating scales that address Suitability (Reliability, Maintainability, Operational Availability, Supportability, Quality of Service (QOS)/Quality of Life (QOL), Safety) and Capability (the scales are named for each of the Naval Capabilities established in the Naval Power 21 Pillars or Naval Capability Packages as noted below.). On an annual basis, on or about October of the fiscal year, weights are assigned to an established hierarchical benefit structure modeled after the Naval Power 21 Operational Architecture and Suitability Structure. Separate from this annual event, TYCOMs continue to review and assign index values to the previously noted standard rating scales for each change as part of the throughput of SCDs. The TYCOM Rating Scale Index Value assignments are entered in NDE and, through an approved and weighted static algorithm based on the above described weighting process, are calculated to

provide an overall AFOM and nested AFOMs which articulate the changes Capability, Suitability and QOS/QOL benefits to the NMP Decision Board members. Every change described on a SCD undergoes at a minimum, a suitability assessment and all HM&E SCDs undergo an additional assessment under the Seabasing Naval Capability Package (Close, Assemble, Employ and Reconstitute Naval Capability).

Certification. Certification is a comprehensive evaluation and the issue of a formal statement confirming the results of an evaluation, and that the evaluation criteria used were correctly applied to the technical and non-technical features and safeguards of hardware, software and people.

Chilled Water. System, including components supporting generation and distribution, which services components requiring fresh water chilled by refrigerant.

Conjunctive Change. A Conjunctive Change is one that is associated with another change in one of the following manners:

Prior – a change which must be accomplished before the base change can be accomplished in order for the changes to operate as designed.

Concurrent – a change which must be accomplished at the same time as the base change in order for the changes to operate as designed.

Subsequent - a change which must be accomplished after the base change is accomplished.

These conjunctive changes may be previously approved, authorized or in development.

Contract Defect. Addresses the correction of defective specifications, unavailable Government Furnished Equipment (GFE), or unavailable Government Furnished Information (GFI). Requires a contract number and Contract Line Item Number (CLIN).

Cost Benefit Analysis (CBA). CBA, also known as BCA, is a systematic quantitative method to compare the costs of implementing a specific project or course of action with the benefits to be gained from implementation. In the NMP process, the CBA is used to compare the Investment Cost of an item to the potential savings or cost avoidance that that same item may provide. It is used in conjunction with the AFOM to provide the Decision Makers with criteria that will help them to decide the relative priority of one ship change with respect to all other ship changes being evaluated.

COTS/NDI. Commercial Off-the-Shelf item or Non Developmental Item.

Damage Control System. System that detects ship damage, and implements and monitors correction procedures.

Electrical (60 Hz). System supplying 60 Hz electrical power including components which support power generation, conversion and distribution.

Electrical (400 Hz). System supplying 400 Hz electrical power including components which support power generation, conversion and distribution.

EMC/EMI. Electromagnetic compatibility and interference control requirements need to be identified as integral to design, analysis, test and certification; and use, or non-use of the RF spectrum. Refer to appropriate MIL-STD-461/464 series and OPNAVINST 2400.20 for guidance on EMC/EMI and RF spectrum management requirements.

Fiber Optic Cable Plant. The Navy has a standard to provide detailed information and guidance to personnel concerned with the installation of fiber optic cable plants. The fiber optic cable plant consists of all the fiber optic cables and the fiber optic interconnection equipment within the ship, including connectors, splices, and interconnection boxes. Refer to MIL-STD-2042B for guidance.

Fire Main. System, including components that support distribution, which draws water from the sea, and services other sea water systems.

FORCEnet. The operational construct and architectural framework for Naval Warfare in the Information Age which integrates warriors, sensors, networks, command and control, platforms and weapons into a networked, distributed combat force, scalable across the spectrum of conflict from seabed to space and sea to land.

Fuel System. System, including components supporting distribution and storage, which supplies fuel for shipboard machinery and vehicles.

HM&E. Hull, Mechanical and Electrical systems and equipment. Comprises all aspects of the ship except Combat Systems (weaponry) and Command, Control, Communications, Computers, Combat Systems [netcentric] and Intelligence (C5I).

HVAC. Climate control including heating, ventilation and air conditioning, and components supporting generation and distribution.

Human Systems Integration.

Manpower/Workload. The minimum quantity and quality manpower required to accomplish 100% of the mission within the scenario defined in the ROC/POE for a given platform or activity consistent with human performance, workload, and safety requirements, and affordability, risk, and reliability constraints. Manpower analysis should be conducted for any planned differences in workload for new systems.

Personnel. The qualitative attributes of the manpower personnel on board filling the manpower requirements. Personnel factors include the knowledge, skills, and abilities, rating structures, physical constraints, and personnel management policies needed to execute required tasks.

Training. Training is the definition of instruction, education, and on the job or team training necessary to provide humans and teams with knowledge and job skills needed to support the system life cycle processes at the specified levels of performance. This includes the

tools, devices (including embedded training systems), training simulators, techniques, procedures, and training materials and technical manuals to be developed and employed to provide training for all required tasks. Appropriate initial and follow on training should be planned and funded prior to system development and identified in appropriate Navy Training System Plan (NTSP).

Human Factors Engineering (HFE). Human factors engineering is defined as the application of human performance principles, models, measurements, and techniques to system design. The goal of human factors engineering is to optimize system performance by taking human physical and cognitive capabilities and limitations into consideration during design. HFE includes human-machine interfaces, ergonomics, usability, design for maintainability and situational awareness.

Habitability. Physical environment and support services that are necessary for meeting and sustaining system performance, avoiding personnel retention problems, maintaining quality of life, and minimizing total system costs.

Environment, Safety and Occupational Health (ESOH). Includes impacts to environment and safety and plans for mitigation of health hazards.

Personnel Survivability. For systems with missions that might expose it to combat threats, personnel survivability includes protection against fratricide, detection, and instantaneous, cumulative, and residual nuclear, biological, and chemical effects; the integrity of the crew compartment; and provisions for rapid egress when the system is severely damaged or destroyed.

Initiator. Any authorized user of NDE. Provides the data input in the SCD at the initial phase.

Integrated Logistics Support (ILS). A disciplined approach to the activities necessary to ensure the effective and economical support of a system or item of equipment for its life cycle. The elements of ILS are design influence, maintenance, manpower and personnel, supply support, support equipment (including test, measurement, and diagnostic equipment), training and training devices, technical data, computer resources support, packaging handling and storage, transportation and transportability, facilities, and standardization and interoperability. All SCDs require an ILS Certification. If a SCD does not affect any ILS, a Certification is still required stating that no ILS Certifications are needed. All ILS Certifications require SPM approval.

Interior Communications (IC). Equipment needed for interior communications within ships and shore facilities. These communications systems include, public address systems, interior telephone systems, alarm systems, engine telegraphs to communicate orders for changes in engine speed from the bridge (ship's command station) to the engine room, certain kinds of ship control and equipment monitoring devices, the ship's gyrocompass, the rudder position indicator, audio-visual equipment for the ship's TV entertainment systems, advanced navigation and various other equipment.

Net Increase. Positive change from existing baseline (Normally indicating addition of weight/load)

Net Decrease. Negative change from existing baseline (Normally indicating removal of weight/load)

Networks. A network is a broad term that can apply to any number of intricately interconnected or intersecting configuration or system of components, and/or multiple-computer interconnections, series of points or nodes interconnected by communication paths. Networks can be described in terms of its general configurations, spatial distance, the type of data transmission technology it possesses, whether it is public or private, and/or by the nature of its connections. (e.g. HM&E Network, C4I Network or Combat Systems Network).

No Net Impact. No change from existing baseline.

Participating Acquisition Resource Manager (PARM). The activity associated with completing the engineering, procurement and identification of life-cycle support for the ship and its associated ship changes.

Planned Maintenance System (PMS). PMS provides each ship with a simple standard means for planning, scheduling, controlling, and performing planned (preventive) maintenance on all equipment. It also includes Inactive Equipment Maintenance.

Potable Water. System supplying treated fresh water suitable for human consumption, including components supporting generation, distribution and storage.

Proposed Military Improvement (PMI). Approved/directed by OPNAV and are intended to increase the ship's ability to meet its Required Operational Capability (ROC) Navy Mission Essential Task List (NMETL) Requirements, or Joint Mission Essential Task List (JMETL) Requirements.

Proposed Survivability Improvement (PSI). Approved/directed by OPNAV, and are intended to reduce the ship's susceptibility to defined threats, or to increase the ability to recover from damage.

Provisioning Technical Documentation (PTD). A listing of various types of data relating to a given system or equipment in a standardized format. PTD is supplied by the manufacturer and used for the identification, selection, and determination of initial requirements and cataloging of support items to be procured through the provisioning process.

Reduction of Total Ownership Costs (R-TOC). These initiatives address longstanding concerns about the adverse impact of defense budgetary and operational trends on force structure and readiness. Department of Defense (DOD) has directed Program Managers to achieve specific R-TOC goals in their programs. ROI and Payback Period will be calculated in NDE using data provided in the CBA tabs.

Restoring Margins. Restoring system capacity (weight and stability elements; electrical system; heating, ventilation and air conditioning; etc).

Sea Basing. Projecting Joint Operational Independence

Sea Shield. Projecting Global Defensive Assurance

Sea Strike. Projecting Precise and Persistent Offensive Power

Software. The programs or instructions that tell a computer what to do. This includes operating system programs, which control the basic functions of the computer system, and applications programs, which enable the computer to produce useful work (e.g., a word processing program).

Scope. Type of change or arrangement variation from the approved class plan.
Internal equipment modification (changes are contained within the boundaries of the individual equipment/system and have limited system ramifications.)

Ship modification (any permanent change in hull, machinery, equipment, or fittings, which involves changes in design, material, quantity, location, or relationship of the component parts of an assembly.)

Site modification. A change installed at a shore site that is directly related to a ship change.

Ships Characteristics Document. CVN 68 CL Carrier Ships Characteristics Document (OPNAVINST C9010.265) describes parameters associated with a ship and its equipment.

Ship's Selected Records (SSR). The documentation providing critical information concerning the maintenance, operation, and configuration of a ship. SSR consists of the following categories: Selected Record Drawings, which illustrate important features, systems, and arrangements applicable to an individual ship; Selected Record Data, which describes arrangements, equipment, systems and procedures essential to the operation and safety of the ship; and Allowance Lists.

Shock Grade (Refer to MIL-STD-901 for detailed definitions)

Shock Grade "A" - Shipboard machinery, structures, systems and equipment whose operation is essential to the safety and continued combat capability of the ship.

Shock Grade "B" - Shipboard machinery, structures, systems and equipment whose operation is not essential to the safety and combat capability of the ship but which could become a hazard to personnel, to grade A items, or to the ship as a whole as a result of exposure to shock.

Shock Grade "C" - Any category not previously defined.

Storage Requirements. Indication whether or not installation of this change will require any use of shipboard stowage.

Submitter. Person responsible and accountable for the all phases of the SCD. They will be the primary point of contact for questions or clarification throughout the process. Subsequent approvals, disapprovals, and notification to complete the next phase of the SCD will be forwarded to this point of contact

SUBSAFE. Submarine Safety Certification which covers the structures, systems and components critical to the watertight integrity of a submarine.

Switchboards. All changes must consider the impact to Combat Systems and Interior Communications switchboards as well as the main and emergency electrical switchboards.

Test Equipment. All equipment required to make a system, support system, sub-system or end item of equipment operational in its intended environment. Support equipment includes portable or transportable devices needed to disassemble, assemble, transport, or adjust systems or equipment. Test equipment consists of any device used to measure, calibrate gauge, test, inspect, diagnose, or otherwise examine materials, supplies and equipment to determine compliance with requirements established in technical documentation.

Technical Manuals (TM). TMs contain the information that the system or equipment user needs in order to operate and maintain the hardware as part of the ship's operational mission. A TM is the data interface between the hardware designer and the hardware user, containing operating instructions, troubleshooting and repair procedures.

Technical Point of Contact. Identifies person with detailed knowledge of change. Does not have to be the warrant holder.

Topside. The surface of a ship's hull above the main deck including antenna arrangement, combat system equipment locations and weapon firing arcs.

Type Commander (TYCOM). Type Commander associated with the change. (i.e., Commander Naval Surface Forces (CNSF) or Commander Naval Air Forces (CNAF)).

Weight and Moment. A change in weight and distribution, that results in changes to ship's center of gravity.

Weapons System. The complete set of interrelating pieces that function together to achieve the goal of destroying a target. The complete description of a weapons system must include all of the means of exchanging information between sub-systems, called communication systems; all means used to locate the target, called sensors; all means used to store, launch and deliver the weapon to the target, called delivery sub-systems; and all means used to inflict damage upon the target, called destruction sub-systems.

8.2 CBA Definitions

The following definitions apply to the line items contained in the CBA tab**:**

Additional TOC Elements. On the CBA Part of Ship Change Cost Savings associated with cost avoidance or reductions in Total Ownership Costs.

Alteration Installation Team (AIT). A Navy team (e.g. military, civilian, or civilian contractor team under the direction of Navy personnel) that is trained and equipped to accomplish specific (permanent or non-standard installation) modernization "changes" to a ship or shore facility. There is a line on the CSW for entering AIT costs in "dollars" rather than "man-days" because the organization hiring the AIT knows the final negotiated cost of the installation and it is not location dependent.

Appropriation (Appn.). An act of Congress that provides Federal agencies with budget authority to be obligated during a specific time-period for the purposes specified in the appropriation act. An appropriation does not represent cash actually set aside in the Treasury. Appropriations are also known as "colors" of money. The program office Business Financial Manager (BFM) can assist in identifying the correct appropriation number. The correct appropriation should be verified using the PBIS Tool. Examples of APPN are OPN, OMN, and RDTEN.

Battle Force Interoperability Studies. On the CBA Investment Cost tab, cost for Battle Force/Expeditionary Strike Force analysis conducted in order to ensure that Fleet requirements for interoperability are achieved.

Budget Line Item (BLI). On the CBA Appropriations tab, the BLI is a lower level sub-component of the Program Element (PE) Number, which identifies the specific end item(s) or service(s) authorized for procurement. The program office Business Financial Manager (BFM) or the OPNAV Resource Sponsor can assist in identifying the correct BLI number. This entry may be text/numerals. The correct BLI should be verified using the PBIS Tool.

Certifications. Example. If a modification impacts the navigation system or navigation data distribution, then a navigation certification (NAVCERT) is required.

Certification Cost. On the CBA Investment Cost tab, the costs associated with conducting the certification process. In Phase III, this is broken down into two sections. In Phase II, the sum of the two sub-sections (ILS Certification and HSI Certification-also defined in this glossary) should be summed together.

Concept Development. On the CBA Investment Cost tab, costs to conduct initial short studies to determine possible alternatives to meet the requirement.

Contractor Support. On the CBA Projected Savings and Cost Avoidance tab, cost savings associated with labor, materials, and depreciable assets used in providing all or part of the logistics support to a defense system, subsystem, or related support equipment.

Depot Maintenance. On the CBA Projected Savings and Cost Avoidance tab, all costs associated with the D-Level maintenance process. Usually includes test and repair facility costs as well as the personnel, equipment, and training associated with maintaining the personnel at the facility.

Design Development. On the CBA Investment Cost tab, the sum of software development and hardware development (defined separately in the glossary).

Design Services Allocation (DSA). On the CBA Investment Cost tab, the costs associated with design and logistics efforts (e.g. ship check, ship installation drawings (SID), ship selected record drawings (SSRD), Configuration Overhaul Planning (COP), etc.)

Distributive Systems Impact. Impact on distributive systems such as electric power, cooling water, chill water, ventilation air supply, etc. should be calculated by the Planning Yard. For internal equipment type changes, the ISEA should calculate the impact on distributed systems. In the CBA Investment Cost tab, all associated costs for review, development, and delivery of system impact.

Documentation (PTD). In most cases, PTD (Provisioning Technical Documentation) will be provided by the activity that purchases the new equipment and no additional costs will be required. The PTD is forwarded to the Navy Supply System to activate supply support. On the CBA Investment Cost tab, this should provide costs associated with the development and delivery of PTD. In addition, provide all costs associated with the development of all Technical Manuals, Allowance Parts Lists (APL), Allowance Equipage Lists (AEL), Preventive Maintenance Costs, Drawings, Specifications, and all software documentation.

EDM/Pre-Production Prototype. In some cases, a prototype or Engineering Design Model (EDM) is desirable for testing prior to full development of a ship change. In the CBA Investment Cost tab, the costs must include the hardware/software and typically travel and on-site (perhaps underway) time for OEM and ISEA as well as Program Office personnel. Also, costs for removal of prototypes from a ship and restoration of the ship to its original configuration must be included in this cost factor.

Facilities. All equipment/personnel/material associated with conducting studies to define facilities or facility improvements, locations, space needs, utilities, environmental, occupational safety and health requirements, real estate requirements and equipment should be captured. Can include such things as: analyzing, making recommendations and reporting on requirements determinations, programming, site surveys, project management plans, facilities/ship design and facility construction (or even Facility Re-Alignment and Closure, new facilities requirements, etc.).

Hardware Costs. Hardware costs are typically divided into four phases. The first is the PARM/ISEA acquisition of very long lead-time centrally procured material for an OPN Alteration. The second is the long lead time material which must be purchased by the installing activity well in advance (6-12 months) of the start of the availability. The third phase is the

material which must be purchased slightly in advance of the availability and finally the last phase is the material which may be purchased after the availability starts. Funding for each phase must be planned. In most cases the last three phases are all purchased by the installing activity which will send a request for funding. Software costs should also be added to hardware costs in this section. Software costs include: funds required to produce media containing the software that is needed for both ships and sites. It should further include the costs of all non-recurring licenses and maintenance agreements necessary to operate and maintain/modify commercial software.

Hardware Development. Hardware development may be done by an ISEA or by an OEM with guidance provided by the ISEA. Funding must include both the actual developing activity and the ISEA acting as the government agent for satisfaction of requirements and QA. This will also include travel and on-site costs for the ISEA or other agents for the government.

H.S.I. Human System Integration is a CBA CSW element that estimates engineering and analysis costs associated with implementing all aspects of the HSI domains to include human factors engineering; manpower; personnel; training; environment, safety and occupational health; habitability and Quality of Life (QOL); and personnel survivability.

HSI Certification. This is the cost element used to estimate the costs of the process for certifying that a ship change meets standardized HSI certification criteria. Unless there is a change in design, the HSI. Certification only needs to be accomplished for the first installation of a ship change. HSI. Certification currently is not developed, it is process pending, and therefore it is unnecessary to enter these costs into the CSW at this time.

ILS Certification. The process for certifying that a ship change meets a standardized logistics readiness certification criteria. ILS Certifications are frequently done by the ISEA. Unless there is a change in design, the ILS cert only has to be done once. The ISEA will provide the cost estimate.

Incidental Material (NSA/I Procured). Ship change material provided to the installing activity other than headquarters centrally procured material (HCPM). NAVICP, DLA, ISEA or Planning Yards may provide this material.

Indirect Support. Costs that can not be "directly" attributable to supporting an end item or service but a relationship can be established which allows the cost to be allocated, attributed, or assigned across the entire quantity of end items or services in some logical fashion.

Installation/Checkout Cost. A sum value that comprises cost estimates for Shipyard (NSA) mandays, Alteration Installation team (AIT) costs, special (support) services and installation location. In the case of software, all cost associated with delivery of the software, as well as crew briefings and installation training should be included.

Installation Materials. Cost of the ship change that consists of INCO, RINCO, and spares normally purchased by the availability contractor (i.e., MSMO contractor)

Intermediate Maintenance (I-Level Maintenance). All costs associated with the I-Level Maintenance Process. Can include studies, equipment, documentation, data, etc.

Labor Rates (for Projected Savings and Cost Avoidance).
I-Level: Labor rate at the Intermediate Level
O-Level: Labor rate at the Organizational Level

Logistics.. In Phase II, the following categories should be summed together and entered as the logistics costs: special tools/test equipment/MAMS, facilities, PHS&T (Special Handling), and support equipment (these items have separate definitions in this glossary). In Phase III, these cost elements are sub-divided under Logistics.

Non-Recurring. A Projected Savings and Cost Avoidance value that is a one-time event or cost.

Operating & Support Costs Savings. Cost savings associated with those resources required to operate and support a system, subsystem, or a major component during its useful life in the operational inventory. All personnel, equipment, supplies, software, services, including contract support, associated with operating, modifying, maintaining, supplying, training, and supporting a defense acquisition program in the DoD inventory. This includes costs directly and indirectly attributable to the specific program. Consists of O-level/mission personnel, unit level consumption, intermediate maintenance, depot maintenance, contractor support, sustaining support, indirect support , and other (items have separate definitions in this glossary).

Organizational Level Personnel. Projected Savings and Cost Avoidance value for personnel who operate at the O-Level.

Other (Operating & Support). Additional costs for Operating and Support not accounted for in O-level mission personnel, unit level consumption, intermediate maintenance, depot maintenance, contractor support, sustaining support, and indirect support. Also includes any recurring costs for commercial software licenses and maintenance agreements.

PBIS (Program Budget and Information System) Tool. A subset copy of the completed Navy PBIS database which is available in NDE and at the FMP website and used to validate financial data such as Appropriation, Resource Sponsor, Budget Submitting Office (B.S.O. a.k.a. Major Claimant), P.E. Number and BLI.

P.E. Number (Program Element Number). The PE Number can be identified by the program office BFM. This entry may be text/numerals but in the context of the Cost Structure Worksheet. Verify this item with the PBIS Tool.

PHS&T (Special Handling) (Packaging, Handling, Shipping and Transportation). All costs associated with reviewing, evaluating, coordinating, providing recommendations and planning the preservation, packaging, handling and transportation of ship, submarine and combat system equipment and support items including rotate-able pools and major spares equipment.

Planning Costs. Includes costs associated with preparing a change package and reviewing it to determine conjunctive impacts, alteration scheduling, availability work packages, AMPS and BRB support, and test memoranda. Example: If a new piece of equipment is to be installed, preliminary ship drawings must be developed and a front-end analysis must be completed. The 'planning' cost would be the cost associated with completing these.

Preliminary Engineering. Preliminary Engineering is typically the engineering done by the ISEA to investigate state of the art technical options, engineering feasibility and cost estimates to proceed with full design development.

Production Phase. The time period during which an end item is produced.

Program Management. It is frequently advantageous for the Program Office to use single points of contact as management agents at field activities as well as other direct support. This may include the ISEA, on-site personnel during installation, and support activities for headquarters program management. This section should include only costs for initial design and development.

Provisioning Technical Documentation (PTD). In most cases PTD will be provided by the activity which purchases the new equipment and no additional costs will be required. The PTD is forwarded to the Navy Supply System to activate supply support. See General Definitions Section 8.1 for additional detail.

Recurring. An cost event which is repeated a number of times.

Ship Class Installation. The number of units installed on an entire class of ships.

Shipyard (NSA) Mandays (Installation/Checkout Cost sub-section): A CBA CSW element which is used for estimating the costs of installing a ship change by the depot activity. These entered mandays are multiplied by the identified installation location's specific manday rate. The Shipyard Mandays number is the amount of mandays to complete the ship change for one ship. Once Shipyard Mandays are entered, an installation location must also be entered in the appropriate cell in order to complete the calculation of manday cost. Ex. An installation will take 15 mandays to complete the change on one ship. 15 should be entered for 'Shipyard (NSA) Mandays' in the appropriate fiscal year.

Shore Support and Spares Installation. The number of units installed ashore plus the number of units provided as spares.

Software Development. Software development may be done by the Software Support Activity at an ISEA or by an OEM in support of equipment. Funding should include both the funds for software development and for the government agent which will act as the verification/QA efforts. Firmware development costs shall be included in software development costs if the firmware is re-programmable on board ship; if firmware must be burned into chips at an industrial facility, it should be treated as hardware. Software development costs should include

not only the cost of developing the software, but also for integrating this software into combat or combat support systems (as applicable), and for integrating the software into any sites (development, testing, certification, maintenance) supporting the system in which the software resides.

Special Services. Costs for unique services, such as special crane lift equipment, diving services and cofferdams, special power, etc.

Sponsor. OPNAV Resource Sponsor that allots a portion of the Navy budget authority (appropriation) to the System Command level for the execution of a program. Verify who the Sponsor is through use of the PBIS Tool.

Stability Analysis and Studies. Required to evaluate system's impact and develop a weight and moment compensation plan. Costs to include weight and moment report and ship inclining where required by the Ship Program Manager.

Support Equipment. Costs to include support equipment (GSE, Aviation Support Equipment, "yellow gear," etc.) required with the system being installed.

Sustaining Support. The costs associated with supporting an end item across its entire life cycle.

System/Equipment Procurement Cost. Consists of activation costs, hardware costs, software costs, installation material, testing (production/post production), HSI (training equipment, etc.), logistics, topside analysis, documentation (PTD), distributed systems impact, interoperability costs, and program management.

Testing. The testing here is only for an EDM and any pre or post installation tests for the prototype, as well as testing related to integration of an element into a combat or combat support system. The Program Office must consider test documentation to support prototype ship installation. Costs of travel for agents to witness and/or perform testing must also be considered.

Topside Analysis/Design. Antenna and other topside equipment installations will frequently require an overall topside analysis to ensure that there is no interference with previously installed systems. For most ship classes the Combat Systems ISEA maintains a topside model. Funding will have to be provided to the ISEA for model updating. Topside Analysis includes location evaluation; combat system, navigation, missile, ordnance, deck operation, and blast and temperature impacts. It also includes creation of a brass model, EMI, RADHAZ and EMC. Certification cost included here are for RCS, shock, and hull (structural and mast vibration). Design costs include topside design documentation to such things as CAM cutouts, RADHAZ, HERO and other modifications and requirements to be incorporated in the alteration installation.

Total Production Units. The total number of units produced on the assembly line. This value should equal the "Ship and Shore Total" for each fiscal year.

Total Ship Testing. Costs for Total Ship Test Plan and testing are required to validate systems functionality and interoperability. Costs include testing of all interfacing systems and cost of personnel to conduct the total systems tests and include travel. NAVSEA 05W4 and PEO IWS will assist in the development of Interoperability Certification costs.

Training/Training Support. A CBA CSW summary level used for estimating the cost of developing a training plan and implementing recommendations for support (e.g. curriculum development; initial, interim, and follow-on training) as a result of the training analyses for a ship change. It consists of schoolhouse modification or new course development and lnstallation training.

Unit Level Consumption. All costs associated with the actual equipment and/or tracking, analyzing or otherwise maintaining data related to the usage, replacement, and operational failure parameters of systems and equipment; usually captured under "Failure, Modes, Effects and Criticality Analysis (FMECA)" studies.

APPENDIX B
PLANNING YARD ASSIGNMENT MATRIX

APPENDIX B
PLANNING YARD ASSIGNMENT MATRIX

SHIP TYPE	SHIP CLASS	PLANNING YARD	SPM*
AFDL	ALL	NORFOLK NAVAL SHIPYARD	PMS470
AGSS	0555	PORTSMOUTH NAVAL SHIPYARD	PMS395
APL	ALL	PUGET SOUND BOSTON DETACH	PMS325
ARDM	ALL	NORFOLK NAVAL SHIPYARD	PMS470
AS	0039	NORFOLK NAVAL SHIPYARD	PMS470
CG	0047	NORTHROP GRUMMAN SHIP BUILDING	PMS400F
CV	0063	PUGET SOUND NAVAL SHIPYARD	PMS312
CVN	0065	NORTHROP GRUMMAN NEWPORT NEWS SHIPBUILDING/ NORTHROP GRUMMAN NEWPORT NEWS SHIPBUILDING(R)	PMS312
CVN	0068	NORFOLK NAVAL SHIPYARD/ NORTHROP GRUMMAN NEWPORT NEWS SHIPBUILDING(R)	PMS312
DDG	0051	BATH IRON WORKS	PMS400F
DSRV	ALL	PORTSMOUTH NAVAL SHIPYARD	PMS395
DSV	ALL	PORTSMOUTH NAVAL SHIPYARD	PMS395
FFG	0007	BATH IRON WORKS	PMS400F
IX	ALL	PUGET SOUND BOSTON DETACH	VARIOUS
LCAC	ALL	PUGET SOUND BOSTON DETACH	PMS377
LCC	0019	PUGET SOUND BOSTON DETACH**	PMS470
LHA	0001	NORFOLK NAVAL SHIPYARD	PMS470
LHD	0001	NORFOLK NAVAL SHIPYARD	PMS470
LPD	0004	PUGET SOUND BOSTON DETACH**	PMS470
LPD	0017	NORTHROP GRUMMAN SHIP BUILDING	PMS470
LSD	ALL	PUGET SOUND BOSTON DETACH**	PMS470
MCM	0001	PUGET SOUND NAVAL SHIPYARD	PMS470

SHIP TYPE	SHIP CLASS	PLANNING YARD	SPM*
NR	0001	ELECTRIC BOAT GROTON	PMS395
PC	ALL	PUGET SOUND BOSTON DETACH**	PMS470
SSBN	0726	ELECTRIC BOAT GROTON/ELECTRIC BOAT GROTON(R)	PMS392
SSN	0021	NORTHROP GRUMMAN NEWPORT NEWS SHIPBUILDING/ELECTRIC BOAT GROTON(R)	PMS392
SSN	0688	NORTHROP GRUMMAN NEWPORT NEWS SHIPBUILDING/ELECTRIC BOAT GROTON(R)	PMS392
SSN	0774	ELECTRIC BOAT GROTON(R)	PMS450
SSGN	0726-0729	ELECTRIC BOAT GROTON(R)	PMS392
TAE	ALL	MILITARY SEALIFT COMMAND	MSC
TAFS	ALL	MILITARY SEALIFT COMMAND	MSC
TAG	ALL	MILITARY SEALIFT COMMAND	MSC
TAGM	0023	MILITARY SEALIFT COMMAND	MSC
TAGM(R)	One Hull	MILITARY SEALIFT COMMAND	PMS325/MSC
TAGOS	ALL	MILITARY SEALIFT COMMAND	MSC
TAGS	ALL	MILITARY SEALIFT COMMAND	MSC
TAH	ALL	MILITARY SEALIFT COMMAND	MSC
TAKE	ALL	MILITARY SEALIFT COMMAND	PMS325/MSC
TAKR	ALL	MILITARY SEALIFT COMMAND	MSC
TAO	ALL	MILITARY SEALIFT COMMAND	MSC
TAOE	ALL	MILITARY SEALIFT COMMAND	MSC
TARC	ALL	MILITARY SEALIFT COMMAND	MSC
TARS	ALL	MILITARY SEALIFT COMMAND	MSC
TATF	ALL	MILITARY SEALIFT COMMAND	MSC
YC	ALL	PUGET SOUND BOSTON DETACH	PMS325
YCF	0014	PUGET SOUND BOSTON DETACH	PMS325

SHIP TYPE	SHIP CLASS	PLANNING YARD	SPM*
YCV	0007	PUGET SOUND BOSTON DETACH	PMS325
YD	ALL	PUGET SOUND BOSTON DETACH	PMS325
YDT	ALL	PUGET SOUND BOSTON DETACH	PMS325
YFB	ALL	PUGET SOUND BOSTON DETACH	PMS325
YFD	ALL	PUGET SOUND BOSTON DETACH	PMS470
YFN	ALL	PUGET SOUND BOSTON DETACH	PMS325
YFNB	ALL	PUGET SOUND BOSTON DETACH	PMS325
YFND	ALL	PUGET SOUND BOSTON DETACH	PMS325
YFNX	ALL	PUGET SOUND BOSTON DETACH	PMS325
YFP	ALL	PUGET SOUND BOSTON DETACH	PMS325
YLC	ALL	PUGET SOUND BOSTON DETACH	PMS325
YNG	ALL	PUGET SOUND BOSTON DETACH	PMS325
YOGN	ALL	PUGET SOUND BOSTON DETACH	PMS325
YON	ALL	PUGET SOUND BOSTON DETACH	PMS325
YOS	ALL	PUGET SOUND BOSTON DETACH	PMS325
YP	ALL	PUGET SOUND BOSTON DETACH	PMS325
YR	ALL	PUGET SOUND BOSTON DETACH	PMS325
YRB	ALL	PUGET SOUND BOSTON DETACH	PMS325
YRBM	ALL	PUGET SOUND BOSTON DETACH	PMS325
YRDH	ALL	PUGET SOUND BOSTON DETACH	PMS325
YRDM	ALL	PUGET SOUND BOSTON DETACH	PMS325
YRR	ALL	PUGET SOUND BOSTON DETACH	PMS325
YSD	ALL	PUGET SOUND BOSTON DETACH	PMS325
YTB	ALL	PUGET SOUND BOSTON DETACH	PMS325
YTL	ALL	PUGET SOUND BOSTON DETACH	PMS325
YTT	ALL	NSWC-CCD LITTLE CREEK	PMS325
YWN	ALL	PUGET SOUND BOSTON DETACH	PMS325

* For all T class ships, SPM for acquisition is PMS325, SPM for life cycle is MSC.

** Effective 1 October 2009, the Planning Yard is Puget Sound Naval Shipyard

APPENDIX C

SHIP SELECTED RECORDS

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SHIP SELECTED RECORDS

C.1 SCOPE

Ship Selected Records (SSRs) comprise hull level system technical documentation, specifically designated by the Chief of Naval Operations (CNO), which is maintained current throughout the life of the ship. SSRs consist of three major categories; Selected Record Drawings (SRDs), Selected Record Data, and Allowance Lists. Each of these major SSR categories contains information of significant value to ships operations, maintenance, modernization, training, and logistics requirements.

This appendix is applicable to other than Reactor Plant SSR requirements. The identification and description of specific SSRs in each category as well as detailed specifications and procedures for other than Reactor Plant SSR maintenance are discussed in Section 3-13 of this manual. Reactor Plant SSR requirements are contained in NAVSEA 0989-LP-043-0000, Commissioned Surface Ships General Reactor Plant Overhaul & Repair Specification.

The Planning Yard (PY) is responsible for all SSRs. It maintains a master file containing a final reproducible copy of SSR and updates the Selected Record Drawings and Data. The PY/Technical Manual Maintenance Activity (TMMA) shall maintain a current list of all SSR Technical Manuals (TMs). The PY/In-Service Engineering Agent (ISEA) shall maintain a current list of all SSR drawings. Naval Inventory Control Point (NAVICP) shall maintain the master file of the allowance lists.

The Naval Supervising Activity (NSA) is responsible for marking-up PY provided SSRs of surface nuclear ships undergoing availabilities to reflect installed configuration changes and all changes reported by forces afloat. This mark-up is provided to the PY who, with the support of the appropriate TMMA/ISEA updates the final reproducible copy and prints and distributes at the End Of Availability (EOA+90 days).

Additions and deletions to the SSR listed herein can only be made with the approval of CNO. Recommendations for additions or deletions to the SSR listings shall be submitted to CNO via the Naval Sea Systems Command (NAVSEA). Upon approval by CNO, NAVSEA will promulgate appropriate changes.

C.2 APPLICABLE DOCUMENTS

MIL-DTL-24784	Manuals, Technical; General Acquisition and Development Requirements
MIL-M-38761/2	Microfilm and Tabulating Cards used for Recording Engineering Drawings and Associated Data
MIL-STD 1916	DOD Preferred Methods for Acceptance of Product
NAVSEA 0902-LP-002-2000	Consolidated Index, Drawing, Conversion
NAVSEA SL105-AA-PRO	Integrated Logistics Overhaul (ILO) Policy and Procedures Manual (010 through 070 Series)

NAVSEA S0000-00-IDX-000/TMINS	Description and Application Guide for NAVSEA Standard Technical Manual Identification Numbering System (TMINS)
NAVSEAINST 4160.3	Technical Manual Management Program (TMMP)
NAVSHIPS 0900-LP-002-2000	Ship Work Breakdown Structure
OPNAVINST 4441.12, Series	Retail Supply Support of Naval Activities and Operating Forces
OPNAVINST 4790.4	Ship's Maintenance and Material Management (3-M) Manual; Promulgation of

Plan for Managing Logistic Technical Data (LTD) Products and Services in Support of NAVSEA Task 145

NAVSEA S9AA0-AB-GOS-010	General Specifications for Overhaul of Surface Ships
T0005-AA-GYD-020/PTII-MAN-	Procedures for Maintaining Non-Reactor Plant
MOD ACT	System Manuals and Equipment/Component Technical Manuals.
T0005-AA-GYD-010/PTI-MAN	Holders (Part I - Responsibilities)
Technical Specification 9090-700	Ships Configuration and Logistics Support Information System.
Technical Specification 9090-800	Selected Record Drawings, Appendix A
Technical Specification 9090-810	Damage Control Drawings Computer Aided Drafting Requirements
Technical Specification 9090-820	Preparation and Revision of Damage Control Books and Diagrams for U.S. Navy Surface Ships; Promulgation of
Technical Specification 9090-821	Preparation and Revision of Damage Control Books and Diagrams for U.S. Navy

C.3 REQUIREMENTS

C.3.1. SELECTED RECORD DRAWINGS (SRDs)

C.3.1.1 General

SRDs consist of important basic hull, mechanical, equipment, and related information about the ship and are selected for their value for operational, maintenance, modernization, training, and consulting purposes to individual ship's forces, Fleet commands, shipyard personnel, PY

personnel, training centers, and other naval activities. The drawings designated as SRDs are to be maintained current and up-to-date throughout the life of the ship.

Appendix A of NAVSEA Technical Specification 9090-800 identifies the hull-level requirements by ship class for the drawings currently designated as SRDs. Recommendations for additions or deletions to the list of SRDs shall be submitted to the CNO via NAVSEA. Upon approval by CNO, NAVSEA will promulgate a change to the specification.

C.3.1.2 Expanded Drawing Baselines

The number of SRDs required for each ship varies with the ship class. The required size of the drawing baseline has been increased for most ships. The PYs will produce the additional drawings on a ship-by-ship basis as tasked by the Ship Program Manager (SPM). The PY shall assume the full maintenance responsibility in accordance with Section 3 of this manual for each ship's total SRD suite upon completion of the expanded baseline. Thereafter, the PY will document configuration changes occurring during the ship's availabilities and operational intervals. For other ships, the maintenance and update action shall be performed in accordance with Section 3 of this manual.

C.3.2. SELECTED RECORD DATA

C.3.2.1 General

Selected Record Data is that important basic technical information relative to certain shipboard arrangements, equipment, and systems under the cognizance of NAVSEA that is selected for its value for operational, maintenance, modernization, training, and consulting purposes, to an individual ship's force, fleet commands, PYs, NSAs, training commands, and other naval activities. The data items designated as Selected Record Data are to be maintained current and up-to-date throughout the life of the ship concerned.

Table C-I is a listing of data currently designated as Selected Record Data. Recommendations for additions or deletions to the List of Selected Record Data shall be submitted to the CNO via NAVSEA. Upon approval by CNO, NAVSEA will promulgate a change to Table C-I.

C.3.2.2 Updating Selected Record Data

The requirements of individual activities relative to maintaining and updating Selected Record Data shall be in accordance with Section 3 of this manual. NAVSEAINST 4160.3 provides NAVSEA policy for the maintenance of NAVSEA TMs. Specific requirements for Selected Record Data are detailed in Table C-I.

TABLE C-I. Selected Record Data.

KEY:
Column 1 - Surface Ships (Non-nuclear powered) Column 2 - Surface Ships (Nuclear powered)

DATA TITLE	1	2
Ship Information Book (SIB) or General Information Book (GIB) or Ship System Manual (SSM) or System Operation and Onboard Maintenance Manual (SOOMM)	X	X
Technical Manuals for Systems (MIL-M-15071 Type III Manuals)	X	X
Damage Control Books and Plates (not applicable to SSN Classes)	X	X
Combat System Technical Operations Manual (CSTOM) (5)	(1)	
Combat System Alignment Manual (CSAM) (4)	X	X
Training Aid Booklet (TAB) or Propulsion Operating Guide (POG)	X	X
Ship's Drawing Index (SDI) or Modified Ship's Drawing Index (MSDI)	X	X
Index of Technical Publications (ITP)	X	X
Engineering Operational Sequencing System (EOSS) (3)	X	
Propulsion Plant Manuals (for 1200 PSI Ships) (3)	X	
Steam and Electric Plant Manuals (for nuclear-powered ships) and TM's IAW NAVSEAINST 9890.29		X
Ship Valves Technical Manual		X
Ship Service Motors and Controllers Technical Manual		X
Technical Manuals for Components in Systems Listed Below:		
Main Steam System		X
Auxiliary Steam System		X
High Pressure Steam System		X
Combat System Operational Sequencing System (CSOSS) (4)	(2)	
Aviation Fuel Operational Sequencing System (AFOSS) (3)	X	X
Cargo Fuel Operational Sequencing System (CFOSS) (3)	X	
Fuel Operational Sequencing System (FOSS) (3)	X	
Sewage Disposal Operational Sequencing System (SDOSS) (3)	X	X
Ballasting Operational Sequencing System (BOSS) (3)	(4)	
Catapult Operational Sequencing System (CATOSS) (3)	(5)	
Weapons Elevator Operational Procedures System (WEOPS) (3)	(6)	
Auxiliary Operational Sequencing System (AUXOSS) (3)	X	X
Condensate System		X
Feed System		X
Main Sea Water Cooling System		X
Auxiliary Sea Water Cooling System		X
Steam Operated Distilling System		X
Hydraulic System (Main, Vital and External)		X
High Pressure Air System		X
60 Hz AC. Power Distribution System		X
Low Pressure Steam Drain System		X
Fresh Water Drain Collection System		X
Steam Plant Control System (including Steam Plant Control Panel and Benchboard)		X

DATA TITLE	1	2
Ships Service Circulating Water System		X
Engine Room Fresh Water Coolant System		X
Ships-Service Power Sources including: SSTGs		X
SSMGs		X
Diesel Generators		X
Batteries		X
Magnetic Material Control Drawing		(3)
Electromagnetic Interference (EMI) Control Booklet		(3)
Hull/Structural Repair Configuration Control Document		(3)
Propulsion Turbines, Reduction Gears, and Associated Control System		X
Main Lube Oil System		X
SSTG Lube Oil System		X
Shaft Lube Oil System		X
Clutch Control Oil System		X
Lube Oil Fill, Transfer and Purification System		X
Propulsion Plant Temperature Monitoring System		X
Propulsion Speed Indicator System		X
Steam Plant Alarm System		X
Steam Plant Salinity Indicator System		X
Electric Propulsion System		X
Air Conditioning System (those portions associated with reactor compartment and other propulsion spaces)		X
Service Air Systems (those portions associated with the Propulsion Plant)		X
Control Air Systems (those portions associated with the Propulsion Plant)		X
Steam Plant Pneumatic Control Air System		X
Emergency Propulsion Motor		X

NOTES:
(1) CG-47, DD-963, and FFG-7 Classes
(2) CG-47, DD-963, and DDG-51 Classes
(3) MCMs and MHCs
(4) LHAs, LHDs, LPDs, and LSDs.
(5) CVs and CVNs
(6) Combatant ships with weapon elevators only

C.3.2.2.1 Numbering of Selected Record Data

NAVSEA TM numbers, revision numbers and change numbers, as applicable, shall be utilized in accordance with NAVSEA S0000-00-IDX-000/TMINS for Selected Record Data. NAVSEA numbers may be obtained from the Naval Sea Data Support Activity (NSDSA). Each volume of a multi-volume document shall be considered as an individual document and numbered accordingly. A unique NAVSEA number shall be assigned, on an individual basis, to each Selected Record Data item listed below:

a. SIB, GIB or System Operation and Onboard Maintenance Manual

b. Technical Manuals for Systems (MIL-DTL-24784) Type III Manuals

c. Damage Control Books and Plates

d. TAB or POG

e. SDI or MSDI

f. ITP

g. Steam and Electrical Plant Manuals (for nuclear powered ships) and TMs

h. Ships Valves Technical Manual

i. Ship Service Motors and Controllers Technical Manual

j. Other Type III System Manuals

C.3.2.2.2 Updating Existing Selected Record Data

The PY will provide the NSA two sets of SSRs (Drawings and Data) reproducibles updated to the authorized EOA configuration, upon request from the NSA/IA at about A-120 days. The NSA is required to mark-up the reproducibles to show changes authorized for installation subsequent to the PY update, data submitted by Ship's Force in the pre-availability package or during the availability, and to incorporate all changes required to interface with other update actions. The NSA will provide one set of marked-up SSRs to the PY and an identical set to the ship as interim SSRs. Between availabilities, the PY will update data masters in accordance with Section 3 of this manual.

Tabular data are to be updated as required. Illustrations are to be updated by overlay or replacement and limited to one text page. Plate diagrams are to be updated as required.

A change is comprised of corrected pages to the basic manual. It consists of information that updates the manual without requiring rewriting or reorganization of the technical content of the basic manual. Changes are to be issued when 25 percent or less of the pages in the document are affected. All changes require change numbers assigned by NSDSA. (see C.3.2.2.1.)

A revision is a subsequent edition of a document which supersedes the preceding edition. A revision shall be issued when more than 25 percent of the pages contained in a document have been changed. A revision shall incorporate all existing changes, and is identified by the TMINS number obtained from the NSDSA. (see C.3.2.2.1 and C.3.2.2.3.)

C.3.2.2.3 New Selected Record Data

When Ship Changes (SCs) have been accomplished that would normally require correction of Selected Record Data as listed in Table C-I, but where these data have not been previously prepared, or where changes to Table C-I are promulgated, the following procedures shall be adhered to:

a. Unless otherwise authorized, where only a class data item exists, the data item will be corrected to reflect specific ship conditions. The data item will be assigned a unique NAVSEA number (see C.3.2.2.1 above) and designated as the Selected Record Data applicable to the subject ship only. Acquisition of the new data item shall be in accordance with NAVSEAINST 4160.3.

b. When a specific Selected Record Data item does not exist, or when such data are missing and not available from the PY, or ship, a new original data item is to be prepared (Type I TMs excepted) by the PY.

c. Whenever the original of a Selected Record Data item (less Type I TMs), because of age, extensive correction, or other reasons, deteriorates, so that legible prints cannot be made, a new data item must be prepared retaining the same NAVSEA number. Problems with Type I TM originals will be processed in accordance with NAVSEAINST 4160.3.

C.3.2.3 Selected Record Data Characteristics

The following paragraphs describe specific Selected Record Data items together with their general updating requirements.

C.3.2.3.1 Ship Information Books (SIBs) and General Information Books (GIBs)

The SIB and its older counterpart, the GIB, provide a source of technical information concerning shipboard arrangements and systems.

a. Updating SIBs/GIBs. The SIB and GIB will be updated after any availability during which SCs are accomplished which affected the system, functions, or procedures therein, in accordance with the following guidelines:

   1. In the event that equal or better information is readily available on board a ship in other SRDs, Selected Record Data, or publications, the information should not be duplicated in the SIB/GIB. Instead, the SIB/GIB should be simply annotated to indicate that a change has been accomplished, and reference the source of updated information.

   2. A shipcheck may be required to verify the accuracy of the SIB/GIB following work performed by an NSA.

b. SIB/GIB for Surface Ships. The SIB for surface ships will normally consist of the following separately bound volumes or portions of volumes. Only those volumes of a ship's SIB/GIB currently provided will be updated as Selected Record Data. No volume of a SIB is to be added or deleted except by direction of NAVSEA.

   1. Volume 1. Hull and Hull Mechanical Systems

   2. Volume 2. Machinery Plant

      Part 1. Propulsion Plant, General Design, and Operating Procedures

      Part 2. Auxiliary Machinery, Piping, Air Conditioning, Ventilation, and Heating Systems

   3. Volume 3. Power and Lighting Systems

      Part 1. General Description and Design Information of Systems

      Part 2. General Description of Electric Equipment and Electrically

Operated Auxiliaries

4. Volume 4. Electronics Systems
5. Volume 5. Interior Communications Systems
   - Part 1. Interior Communications Systems
   - Part 2. Sound-Powered Telephone Systems, Voice Tubes, and Message Passing Facilities
6. Volume 6. Weapons Control Systems
7. Volume 7. Ballasting Systems

C.3.2.3.2 Damage Control Books

Damage Control Books shall be prepared, corrected, and duplicated in accordance with Section 086 of NAVSEA S9AA0-AB-GOS-010 General Specifications for Overhaul of Surface Ships, and NAVSEA Technical Specifications 9090-810, 9090-820 and 9090-821.

C.3.2.3.3 Training Aid Booklets (TABs)

TABs are pocket-sized volumes using functional diagrams and drawings of the ship to depict piping, electrical, and electronic systems. TABs consist of two volumes: (1) Volume 1, Piping Systems, and (2) Volume 2, Electrical and Electronic Systems. TABs are issued to ship's force for pre-commissioning training, for personnel qualification, and for operational reference purposes.

C.3.2.3.4 Propulsion Operating Guide (POG)

POGs are pocket-sized documents providing information in summary form of start-up, normal operations, shut-down, damage/casualty control, and trouble shooting procedures and data for the propulsion plant and major auxiliary systems. They are used for familiarization, training, and operation of the main systems by ship's personnel.

C.3.2.3.5 Technical Manuals (TMs)

TMs separately describe equipment (Type I manuals) and systems (Type II manuals) where such equipment or systems are of sufficient importance and complexity as to require separate documentation.

While TMs are important items of documentation, not all such TMs are considered as SSR. Only those TMs specifically identified in Table C-I fall within the category of documentation identified as SSR. For the methods of documenting and maintaining TMs that do not qualify as SSR refer to Section 6 of this manual.

Unless otherwise directed by the SPM, only those TMs identified as SSR will be routinely updated under Design Services Allocation (DSA) funding. Manuals to be updated will be identified in SC Letters of Authorization (LOAs). Activities concerned should review SC LOAs and advise the SPM of manuals meeting the criteria identified in Table C-I believed to require

updating because of actual or planned accomplishment of SCs and not specifically identified for updating.

When, at any time, a Type I TM is known or suspected to be deficient, the deficiencies should be immediately brought to the attention of NSDSA for initiation of corrective action, in accordance with NAVSEAINST 4160.3.

TMs will be prepared and updated in accordance with NAVSEAINST 4160.3 and the Military Specification used for original preparation.

C.3.2.3.6 Index of Technical Publications (ITP)

The ITP is a guide to facilitate the identification of TMs used onboard a ship. The ITP is tailored to the configuration of a specific ship. It lists TMs needed to operate, maintain, and repair a ship's systems and equipment. It also lists any other general and ship related TMs needed by the crew.

The ITP is produced from the Technical Documentation Management Information System (TDMIS), NAVSEA's automated technical manual management information system. TDMIS is operated and maintained by NSDSA. Requests for copies of the ITP should be forwarded to NSDSA with a copy of the request provided to the Type Commander (TYCOM).

The ITP includes the effective changes and revisions of each publication with the exception of Reactor Plant Manuals. Specific onboard allowances can be found in the "Hull Applicability-Quantity Required" lines. The ITP shall include an introduction describing the contents and instructions on its use. Inquiries concerning requests for copies of ITP reports should be made to NSDSA. At 30 days prior to Fast Cruise, the PY shall provide the ship a copy of the preliminary ITP. At EOA+90 the PY shall provide the ship with a final ITP updated to reflect the ship's post-availability configuration. For a more detailed discussion of the ITP refer to Section 6 of this manual.

C.3.2.3.7 Ship Drawing Index (SDI) and Modified Ship Drawing Index (MSDI)

The SDI and MSDI are lists of ship's drawing and related design reference information compiled in accordance with Section 085 of NAVSEA S9AA0-AB-GOS-010 General Specifications for Overhaul of Surface Ships and recorded on NAVSHIPS Forms 9020/17 and 9029/19 as shown in Figure 4 of OPNAVINST 4790.4. SDIs or portions thereof prepared in Automated Data Processing (ADP) format are to be considered as part of the Master SDI.

A MSDI has been supplied to some ships not originally intended to receive a standard SDI. The MSDI lists only the title, NAVSEA drawing and numbers of applicable drawings revisions. For the purpose of this manual, the terms SDI and MSDI are synonymous.

a. SDI Content. The SDI is a listing of all drawings applicable to the ship including Reactor Plant drawings (see C.3.2.3.7.f.). Working drawings, systems diagrams, SRDs having a NAVSEA drawing number assigned, all manufacturing equipment drawings designated as certification data sheets, equipment drawing lists, and assembly drawings which list detail drawings shall be included in the SDI. Ship Change drawing numbers, Ship Change Number, NAVSEA drawing numbers of drawings used to prove systems and/or equipment

installed or otherwise affected by the overhaul, will be included. SC drawings will not be listed until after the ship change has been accomplished.

b. Updating the SDI. The updated SDI will be provided by the PY to the NSA for correction to reflect subsequent changes through the availability. Since the SDI is the sole source of identification of all drawings applicable to a ship, the NSA and the PY will ensure that all applicable drawings are included in the SDI. Corrections may be made by typewritten mark-up of the SDI pages and/or appropriate correction to SDIs in ADP format. Ships, or other activities updating the SDI during an availability, other than a regular overhaul, will mark-up the appropriate page(s) of the ship's SDI. A marked-up "Ship's Master Copy" of the SDI will be forwarded to the PY with a request for correction and appropriate distribution. Particular attention shall be directed to ensuring the accomplishment and verification of SDI corrections required as a result of equipment and configuration changes accomplished during restricted availabilities, tender availabilities and voyage repairs. The NSAs are responsible for furnishing all new drawing identification arising from work other than authorized SCs, such as vendor drawings for items or material installed as part of the ship availability repair packages. The NSA will mark-up the copy of the SDI to indicate the EOA configuration and deliver it to the PY by EOA. The updated SDI will be returned to the ship within 60 days of receipt.

c. Arrangement and Status of SDI Data. (Not applicable to Part II of nuclear powered surface ship, and AS Tenders with nuclear support facility SDI see C.3.2.3.7.f.). The SDI shall have a TM number assigned in accordance with Section 086 of NAVSEA S9AA0-AB-GOS-010 General Specifications for Overhaul of Surface Ships. Revision control shall be in accordance with NAVSEA S0000-00-IDX-000/TMINS. The title page shall indicate the name of the ship and the hull number. Each page of the SDI shall contain the hull number to which it applies, in accordance with MIL-M-38761/2. Pages of the SDI shall be numbered consecutively. All drawings having the same "S" group or 3-digit Consolidated Index Group (NAVSEA 0902-LP-002-2000) Number of NAVSHIPS 0900-LP-002-2000, as applicable, shall be listed on one or more sheets as necessary, grouped by subject matter and listed consecutively. Where more than one page is required in order to add new drawings under a particular group, the supplemental pages shall be numbered the same as the original page, followed by an alphabetical suffix (e.g., 42a, 42b, 42c, etc.). A notation shall be made at the bottom of each page which has been revised, indicating the revision number and date of revision. Each page of the original SDI shall be stamped "ORIGINAL" in green ink. The SDI shall be marked-up to clearly indicate which drawings are SRDs. SDIs that have not been marked-up in the above manner are to be appropriately annotated by PY prior to the providing to the NSA for the next scheduled availability.

d. Superseding or Modifying Existing Drawings in the SDI. When existing drawings applicable to a ship are superseded by new drawings; or are no longer applicable to the ship, the listing of the cancelled or superseded drawing should be lined out, but not obliterated or rendered illegible. The number of the superseding drawings should be entered in the last column of the SDI, in line with the lined out or superseded drawing. When existing drawings applicable to a ship are modified by new drawings, the new drawings shall be listed in the last column in the SDI in line with the modified existing drawings. For ADP prepared SDIs superseded or cancelled drawings are to be listed in an addendum at the end of SDI.

e. Conversion and Update of SDIs to ADP Format. For those ships having SDI in ADP format, the PY will provide a copy of the SDI in ADP format (access database on CD) to the NSA for correction to reflect changes required to the SDI resulting from work accomplished during the availability, and changes previously accomplished and identified by Ship's Force. After EOA, the corrected SDI will be returned to the PY. Between availabilities, the PY will correct the SDI to reflect changes reported by the ship or other activities when changes are accomplished between availabilities. For those ships not having SDI in ADP format, the NSA will, as directed by the SPM, prepare the SDI in ADP format. Upon completion of the availability, the NSA will transfer the SDI in the new ADP format to the PY. The NSA will also provide a copy of the SDI in ADP format (usually magnetic tape) to the NAVSEA Microfilm Repository, Portsmouth Naval Shipyard.

f. Special SDI Requirements for Nuclear-Powered Ships. Requirements relative to Nuclear-Powered Ships SDI are contained in Section 3 of this manual. For Nuclear Powered Surface Ships, and tenders with nuclear support facilities, the SDI is two parts:

8. Part I - Non-Reactor Plant SDI: Lists all drawings except Reactor Plant systems drawings which are in Part II. In particular, Part I of the SDI does include Reactor Plant Equipment vendor drawings. Part I of the SDI is maintained by the Hull PY.

9. Part II - Reactor Plant Supplement to the SDI (Cumulative Booklet): Lists all Reactor Plant systems drawings. Part II of the SDI is maintained by the Reactor Plant PY in accordance with Section 3 of this manual.

C.3.2.3.8 Ship Service Motors and Controllers Manual (SSMC)

SSMC manuals provide descriptions, troubleshooting procedures, technical data, and scheduled and corrective maintenance procedures for all ship service motors and controllers.

C.3.2.3.9 Ship Valves Technical Manual (SVTM)

The SVTM provides descriptive and maintenance-related information on all labeled non-Reactor Plant valves and selected small piping system components installed in the ship. The associated User Information Manual provides consolidated index cross-reference data to allow the user to locate valves in the SVTM.

C.3.2.3.10 Combat System Technical Operations Manual (CSTOM)

CSTOM TMs will be updated by NSWC, Code 4B00 (non-AEGIS), or Code 4C00 (AEGIS), in response to direct funding by the cognizant SPM. NSAs do not have responsibility for CSTOM maintenance.

C.3.2.3.11 Propulsion Plant Manuals (for 1200 PSI ships)

The NSA is responsible for updating and forwarding preliminary change data to Naval Surface Warfare Center, Carderock Division-Ship Systems Engineering Station (NSWCCD-SSES), who will issue the final change to the Propulsion Plant Manual.

C.3.2.3.12 Engineering Operational Sequencing System (EOSS)

NSWCCD-SSES is responsible for maintaining EOSS documentation under the direction of NAVSEA 04M. EOSS is the single authoritative source of operational and casualty control information relative to surface ship engineering plant operation. EOSS is updated to reflect SC configuration changes to propulsion and support equipments and systems. EOSS includes Engineering Operational Procedures (EOPs), Engineering Operational Casualty Control (EOCC), and operational procedures for selected support systems.

C.3.2.3.13 Combat System Alignment Manual (CSAM)

CSAM TMs will be updated by NSWC, Code 4B00, in response to direct funding by the cognizant SPM. NSAs do not have responsibility for CSAM maintenance.

C.3.2.3.14 Combat System Operational Sequencing System (CSOSS)

NSWC Dahlgren is responsible for maintaining CSOSS documentation under the direction of NAVSEA 05 for non-AEGIS ships and NAVSEA PMS400 for AEGIS ships. NSAs do not have responsibility for CSOSS maintenance.

C.3.2.3.15 Aviation Fuel Operational Sequencing System (AFOSS)

The AFOSS documentation will be updated by NSWCCD-SSES in response to tasking by the SPM. PYs and NSAs do not have responsibility for AFOSS development or maintenance.

C.3.2.3.16 Cargo Fuel Operational Sequencing System (CFOSS)

The CFOSS documentation will be updated by NSWCCD-SSES in response to tasking by the SPM. PYs and NSAs do not have responsibility for CFOSS development or maintenance.

C.3.2.3.17 Fuel Operational Sequencing System (FOSS)

The FOSS documentation will be updated by NSWCCD-SSES in response to tasking by the SPM. PYs and NSAs do not have responsibility for FOSS development or maintenance.

C.3.2.3.18 Sewage Disposal Operational Sequencing System (SDOSS)

The SDOSS documentation will be updated by NSWCCD-SSES in response to tasking by the SPM. PYs and NSAs do not have responsibility for SDOSS development or maintenance.

C.3.2.3.19 Ballasting Operational Sequencing Systems (BOSS)

The BOSS documentation will be updated by NAVSSES in response to tasking by the NAVSEA SPM. PYs and NSAs/IAs do not have responsibility for BOSS development or maintenance.

C.3.2.3.20 Catapult Operational Sequencing System (CATOSS)

The CATOSS documentation will be updated by NAVSSES 9431 in response to tasking by the NAVSEA SPM. PYs and NSAs/ Installation Activities (IAs) do not have responsibility for CATOSS development or maintenance.

C.3.2.3.21 Weapons Elevator Operational Procedures System (WEOPS)

The WEOPS documentation will be updated by NAVSEA 05L4 in response to tasking by the NAVSEA SPM. PYs and NSAs/IAs do not have responsibility for WEOPS development or maintenance.

C.3.2.3.22 Auxiliary Operational Sequencing System (AUXOSS)

The AUXOSS documentation will be updated by NSWCCD-SSES in response to tasking by the NAVSEA SPM. PYs and NSAs/IAs do not have responsibility for AUXOSS development or maintenance

C.3.2.4 Inactive Ship Selected Record Data Preparation

When inactive ships are being reactivated for assignment to the active fleet, the SSRs listed in Table C-I are to be corrected by the activity performing the activation. Such corrections will be a proper charge against Activation Funds.

C.3.2.5 Funding and Expenditures

Corrections to Preventive Maintenance System (PMS) documentation required in accordance with OPNAVINST 4790.4 are not chargeable to DSA. When inactive ships are being reactivated for assignment to the active fleet, the Selected Record Data listed in Table C-I are to be corrected or prepared as appropriate by the activity performing the activation. Such corrections will be a proper charge against Activation Funds.

C.3.3. ALLOWANCE LISTS

C.3.3.1 General

The Shipboard Non-Tactical ADP Program (SNAP) contains the ship's configuration, allowance and onboard inventories in computerized form. The Coordinated Shipboard Allowance List (COSAL) is based upon information contained in the Weapon Systems File (WSF) and maintained and published by Naval Inventory Control Point-Mechanicsburg (NAVICP-M). Within the COSAL, all repair parts and equipage for individual components are listed in Allowance Parts Lists (APLs) or Allowance Equipage Lists (AELs). The quantity of each repair part and/or equipage item authorized to be carried onboard is determined by a computation for each item listed in the Stock Number Sequence List (SNSL). The computed quantities meet the operational endurance requirements specified by OPNAVINST 4441.12 for the type of ship involved.

The publication of an updated COSAL for ships undergoing availabilities is authorized by the TYCOM. Since automated ships maintain all Maintenance and Material Management (3-M) requirements, ships inventory and requisitioning functions in the SNAP database, the COSAL is considered a backup document required in case of catastrophic computer failure.

Ship's configuration records are maintained ashore by the Ship Configuration and Logistics Support Information System (SCLSIS) in accordance with Technical Specification 9090-700. Because configuration determines logistics and allowance support, there is a direct correlation between the data in the configuration database and the data in the WSF and the COSAL. A more

detailed description of SCLSIS and the relationship of SCLSIS with the Fleet Modernization Program (FMP) are found in Technical Specification 9090-700. During a ship's availability, the SPM may authorize the performance of a logistics review to ensure only the appropriate logistics support is onboard by EOA. These reviews are known as Integrated Logistics Overhauls (ILOs) or Integrated Logistics Reviews (ILRs). The procedures for conducting an ILO/ILR are addressed in NAVSEA SL105-AA-PRO-010 through 070 series. One of the products of an ILO/ILR review is an updated SNAP database. An availability that involves a full ILO produces an updated SNAP database and an updated COSAL.

During the operating cycle, the SNAP database is updated once a month by way of an electronic transmission from NAVICP-M to the ship. However, a new COSAL is published only during selected availabilities and only at the direction of the TYCOM.

The SPM is responsible for tasking and funding the PY to perform Configuration Overhaul Planning (COP). COP represents the genesis of configuration record changes that are planned to be made during a ship's availability. COP is submitted to the ship’s Configuration Data Manager (CDM). The CDM uses the planning data as a tool for the quality review of its database, as a data feed to the NSA and ILO site and as a baseline from which the ILO site begins their reviews. COP must not be viewed as a primarily logistics support effort. Proper preparation of COP allows timely Configuration Management. Proper logistics support is directly dependent upon that management. Responsibilities and timeframes for generating COP are addressed in Section 6 of this manual.

The NSA has the responsibility for updating the COSAL. However, this effort is accomplished by the direct interface with the Configuration Data Manager (CDM) and the ILO site doing the logistics review (refer to OPNAVINST 4441.12, NAVSEA SL105-AA-PRO-010 through 070 series, and Section 6 of this manual).

C.3.3.2 COSAL/Configuration Efforts Not Covered Under DSA

The following COSAL maintenance efforts are not authorized under DSA funding.

a. Support of the supply availability material processing points (Shipyard Supply Department, Fleet and Industrial Supply Center (FISC), etc.), which include material handling, necessary supervision, technical assistance, packaging and re-preservation, transportation/per diem, and other necessary material costs (normally Naval Supply Systems Command ((NAVSUP) funded).

b. Shipboard configuration validation assistance services, for installations other than those planned for or installed as part of the overhaul or availability. However, a sample of 10 percent of the Configuration Change Forms (CCFs) submitted by the ILO Teams will be validated by the NSA. If the results of the validation of the CCFs do not comply with MIL-STD-105, then follow-on validation of samples, in accordance with MIL-STD-105 will be chargeable to the appropriate TYCOM.

APPENDIX D

NAVY MODERNIZATION PROCESS BUSINESS RULES

Navy Modernization - Navy Modernization Process Map 22 Aug 06
(Blocks 250, 260, and 270 have been consolidated into Block 265)
Dated: 01 SEP 08

Block	Process Block	Owner	Modified
10	Initiate/Submit Ship Change Document	Bob Stout	02 Feb 06
20	Phase I Technical Assessment	Odell Smith	02 Feb 06
30	Phase I AFOM Review and Assignment	LCDR Gaffe	02 Feb 06
40	Phase I Cost Benefit Analysis Review	Odell Smith	02 Feb 06
50	Resource Sponsor Review of RCP	Bob Stout	02 Feb 06
60	Decision Point 1 - Authorize Fund Preliminary Engineering	Bob Stout	02 Feb 06
70	Input to Modernization Plan (MP)		02 Feb 06
80	MDA Acquisition Milestone A	Bob Stout	02 Feb 06
90	Perform Preliminary Engineering and Update SCD	Paul Horacek	02 Feb 06
100	Phase II Technical Assessment	Paul Horacek	02 Feb 06
110	Phase II AFOM Review and Assignment	LCDR Gaffe	19 Jul 06
120	Phase II Cost Benefit Analysis Review	Odell Smith	02 Feb 06
130	Phase II Resource Sponsor Review of RCP	Odell Smith	02 Feb 06
140	Decision Point 2 - Authorize Fund Design Development	Bob Stout	02 Feb 06
150	Rework	Bob Stout	02 Feb 06
160	MDA Acquisition Milestone B	Bob Stout	02 Feb 06
170	Design and Development	Paul Horacek	02 Feb 06
180	Phase IIa/III Technical Assessment	Paul Horacek	02 Feb 06
190	Phase IIa/III AFOM Calculation	LCDR Gaffe	19 Jul 06
200	Phase IIa/III Cost Benefit Analysis Review	Odell Smith	02 Feb 06
210	Phase IIa/III Resource Sponsor Review of RCP	Odell Smith	02 Feb 06
220	Decision Point 3 - Approval of Funding for Implementation (Procurement and Installation)	Bob Stout	02 Feb 06
230	Phase IIa/III Rework	Bob Stout	02 Feb 06
240	MDA Acquisition Milestone C	Bob Stout	02 Feb 06
245	SCD Requires Modification	Bob Stout	01 Oct 08
250	Authorize and Issue Letter of Authorization (LOA)/Hull Modernization Plan (HMP); Generate/Update 2Ks and Update MMBP/MMEP	LCDR Gaffe	23 Aug 06
265	Hull Installation Readiness and Impact Assessment	Paul Horacek/ Bob Stout	23 Aug 06
270	Authorize Installation	Bob Stout	23 Aug 06
280	Remove SC from LOA	Bob Stout	23 Aug 06
300	Install SC	Bob Stout	23 Aug 06
310	Hotwash Feedback: Cost, CM, Performance, Schedule, ILS from Initial or follow-on Install	Bob Stout	23 Aug 06
320	Continue Installs	Bob Stout	23 Aug 06

330	Close Out SCD	Bob Stout	23 Aug 06

TASK TITLE: 10 – Initiate/Submit Ship Change Document (SCD)

LEAD ORGANIZATION: Type Commander (TYCOM), Program Executive Office (PEO), Participating Acquisition Resource Manager (PARM)/Life Cycle Manager (LCM), Commander, Fleet Forces Command (CFFC)

SUPPORT ORGANIZATIONS: Anyone with Navy Data Environment (NDE) access (Initiator)

GOAL/DESCRIPTION

Enter and validate the minimum required information for a SCD to initiate a Configuration Change for ships and shore facilities. The SCD form is the template vehicle for reviewing data throughout the process. The SCD defined here will provide access to the Alteration Figure of Merit (AFOM), Cost Benefit Analysis (CBA), and Technical Assessment for each configuration change.

SUB TASKS	RESPONSIBILITY
○ Initiate SCD	○ Anyone with NDE access.
○ Submit SCD	○ Authorized Submitter

INPUT

- SCD Template

OUTPUT (DELIVERABLES)

- Submitted SCD
- Required flags set as defined in the business rules below

BUSINESS RULES (CRITERIA)

A. The Initiator shall provide data for all mandatory SCD fields at a minimum prior to submission to the Submitter.
B. The Submitter is responsible, and accountable, for all aspects of the SCD during the entire Navy Modernization Process (NMP).
C. An SCD shall include all applicable planned installations for all ship classes and affected shore facilities (i.e. land based test facilities, training facilities, and facilities that have a change that is functionally equivalent to shipboard configuration).
D. Acquisition Category (ACAT) status and data, including Milestone Decision Authority (MDA), joint (services, North Atlantic Treaty Organization (NATO), etc…) applications will be identified on the SCD. Any existing Department of Defense (DoD) or Secretary of the Navy (SECNAV) acquisition documentation shall be attached to the SCD or indicated as a hyperlink to support reviews.
E. The Initiator must coordinate with the Submitter to determine the beginning phase (I, II, III) in which the SCD will begin prior to initial entry of the SCD into NDE. The Submitter will make the final phase determination based on change maturity level (see the SCD Technical Specification for definition of Phase entry criteria or, for acquisition programs MDA guidance). If the submitter decides to begin the SCD at a different phase than the Initiator has submitted the SCD into NDE, the SCD must be cancelled and a new SCD created. Where applicable, Technology/Software Readiness Levels (TRL/STRL), as defined in DoD 5000.2R, will be used in support of this determination.
F. The Initiator shall recommend a Strike Force Interoperability Category (SFI CAT) IAW definitions provided in Commander United States Fleet Forces Command

(CUSFFC)/CPFINST 4720.3 (Series). Unless the Initiator enters this in the executive summary there is no other place on the SCD to enter the SFI CAT. The Submitter will make the determination and resolve any differences of opinion with the Initiator.

G. The Initiator and the Submitter shall have the ability to review the initiated SCD at any time in the preparation process.
H. This form shall be viewable by any NDE user at any point in the process once submitted.
I. SCD Initiator/Submitter selects one or more of the Naval Capabilities (functional areas) and/or suitability functions that best describe the applicability of the proposed Ship Change (SC) to the Operational Architecture (Naval Capabilities Development Process (NCDP) structure, or other Chief of Naval Operations (CNO) approved Operational Architecture)
    1. Navy Data Environment-Navy Modernization (NDE-NM) will assign or "map" the Submitter selected functions found in the SCD AFOM checklists, into the corresponding functional areas AFOM Benefit Structure (model) noted and Standing Suitability and Capability Rating Scales for TYCOM data entry.
    2. Identify appropriate references to verifiable and authoritative requirements. These include, but are not limited to, hyperlinks and engineering and/or acquisition documents included as attachments such as Capability Definition Documents (CDD).
J. SCD will be completed in accordance with (IAW) Appendix A..
K. The Submitter will either approve and put into NDE officially or disapprove the Configuration Change, sending it to history.
L. The Submitter will ensure there are no duplicate SCDs.
M. Submitter shall be able to recall inactive SC information and import data to a new SCD.
N. Submitter can assign the SCD to anyone holding an NDE account for comment/update. This can be done by section, or the entire SCD can be forwarded.
O. All SCDs shall be assigned a sequential number by the system (NDE) upon being saved by Initiator.
P. Acquisition Programs
    1. For an Acquisition program, Initiator/Submitter shall identify the appropriate ACAT Program Level, the MDA, and Program Manager of Record, cite, attach, or link the Joint Capabilities Identification and Development Systems (JCIDS) requirement document, and other non-Navy Modernization documents affected.
    2. The SCD is not a substitute for the Statutory, Regulatory, and Requirements generation processes required of ACAT programs, abbreviated Acquisition programs, non-Acquisition programs, and rapid deployment capability programs. All documentation, processes and policies identified in DoD 5000 series and SECNAV 5000 series instructions, as well as the JCIDS Instruction shall be met. Where guidance and policy conflict for execution of designated Acquisition Programs, Acquisition and JCIDS policy will take precedent.
    3. To avoid duplication of effort, existing documentation in support of acquisition programs (including, but not limited to, Independent Cost Estimates (ICE), Initial Capability Documents (ICDs), etc…) shall be used to complete the SCD.
    4. An SCD should be initiated and submitted, IAW the NMP, prior to the first Acquisition Milestone or Navy Program Decision Meeting.
    5. SECNAV WAIVER/MFR policy shall be followed when a SCD affects ships within a five year decommissioning window.
Q. Emergent SC:
    1. Those items that require an immediate (30 days or less) installation or reprioritization of tasking and reallocation of resources to support accelerated development and installation.
    2. The Emergent process requires the submission of two documents; a Risk Assessment Form, and a SCD as detailed below:

I. Impact Assessment:

a. Risk Assessment Form IAW Block 265.4. In conjunction with the Impact Assessment, a Phase II or III SCD shall be initiated. The SCD can be submitted as a Non-Permanent Change (NPC) at Phase II for the ships listed on message or as a Phase III listing all ships that this change will be installed on including the ships listed on the message.

b. If the proposed change is not a fix to an existing parent SCD, the Submitter or PARM (as directed by the Submitter) will issue an impact assessment per Business Rule 265.4 as part of the Hull Installation Readiness Assessment.

II. Approval of Impact Assessment:

a. Approving authority reviews and approves/disapproves requirement, which is approval for installation of the emergent ship change. Approval authority is defined in Subsection 3-10.

b. Annotate that the emergent change is a funded execution year item. If the development of and installation of the emergent change will impact the PARM ability to fully field the quantities of a parent capability as approved in SCDs, those SCDs will require modification and review by the appropriate board.

c. All pertinent technical information regarding the emergent SCD shall be included in both the Naval Message impact assessment and the SCD.

d. The RMC/RMMCO shall be included as informational (INFO) addresses on the Impact assessment (if applicable) and approval message.

e. Submitting activity is responsible to coordinate the Technical review on all Emergent changes prior to approving installation; this information will be supplied as part of the associated SCD submission.

f. If approved, the requesting activity can commence installation.

III. SCD:

a. One SCD will be created for all installations (Emergent and non-emergent). If the Emergent SC is approved and the change is applicable to installations other than those identified as Emergent, the SCD will include all platforms/shore sites.

b. Proposed change must meet all certification milestones (e.g. Integrated Logistics Support (ILS), interoperability, Human System Integration (HSI), etc.). The approving authority assumes all technical impacts and associated costs.

3. Emergent NPCs should follow the rules for both Emergent and NPCs.

R. Expedited SC

1. Recommended Expedite SCs will consist of items that the Initiator requests to be accomplished in an accelerated manner within the NMP. Initiator/Submitter shall provide justification for expedite recommendation in the Description and Impact blocks of the SCD. Expedited SCs are those deemed by the Initiator/Submitter as requiring introduction into the Fleet in an accelerated manner.
2. The definition of the Expedite process is the SCD is moved to the top of the queue for appropriate review teams throughout the NMP. Normal NMP time lines are still applicable.
3. Check Expedite on SCD form.

S. NPC

1. Any change that is not intended to remain a permanent part of the ship's configuration (Software or Hardware) for the purposes of:

I. Testing and evaluation

II. Demonstrating a new or improved capability for the fleet

2. Funding for a NPC may or may not be provided by modernization funds. Funding must be identified in the CBA. Funding for removal of the NPC must also be identified on the CBA.
3. A NPC, once installed, can remain onboard for no longer than twelve (12) months or one deployment cycle.
4. Submit NPC SCD with "Non-Permanent" Block checked on the SCD. The SCD can be submitted as either a Phase I or Phase II SCD (see the SCD Technical Specification for definition of Phase entry criteria).
5. Provide cost data as outlined on the form for all applicable ships listed on the SCD.
6. No AFOM rating scale inputs are required; TYCOM Platform Change Coordinator may provide comments and will indicate "NPC" as a default in the AFOM process.
7. Decision boards will approve/disapprove the installation of the change on the hulls indicated on the SCD.
8. Upon completion of the test period, the SCD Submitter will choose one of the following options and provide the required information to complete the NPC:
   I. NPC is to be removed, enter the following data into the Phase III NPC SCD:
      a. Tests results
      b. Actual Costs
      c. Actual Date Removed
   II. NPC testing completed and want to stay on ship and/or install on other ships, submit a Phase III SCD through normal NMP:
      a. Assign classes and hulls for Program of Record (POR) installations to SCD.
      b. Expand on Executive Summary, Description of Change, Impact if not Accomplished and all Distributive Systems impacts if needed for mature design information and mature impacts based upon a successful installation and tests. Should include test results.
      c. Provide AFOM rating scale inputs.
      d. Provide complete cost data as outlined in CBA form.
      e. Submit SCD into the review process for NMP approval/disapproval to procure and install change.
         i. If disapproved the board will require the NPC form be resubmitted with removal information.
9. If more time to evaluate the NPC is needed, a request shall be sent to TYCOM for approval.

T. Capability/Program SCD, utilizing Parent/Child methodology, definition;
1. Submit total program "parent" SCD at entry into Phase I for approval in normal NMP.
   I. Parent SCD will provide a top level document that defines the planned capabilities on applicable ships during a given time period.
      a. SCD delineates change strategy to include planned improvements with notional definitions of capabilities/functionality.
      b. The "parent" SCD will provide the total program cost and merit of a planned capability (including: warfare capability, evolutionary acquisition, spiral development, or life cycle support).
      c. The Parent SCD will follow the last Child SCD through the NMP Phases, including Closeout.
2. The "child" SCD will provide a specific capability, functionality, or improvement within the scope of the parent.
3. A child SCD will decrement the funding line of the parent SCD. This action is currently being accomplished manually.
4. Parent/Child SCD will fall into one of the following categories:

a. Capability SCD
- Describes an over-arching capability
- Contains the funding for all assigned System and Modification SCDs
- Entered at Phase 1 and remains there until all assigned System SCDs are closed

b. System SCD
- Defines basic system that delivers capability of the Capability SCD.
- Installs the initial iteration of a system (HW/SW)
- Receives funding from a Capability SCD and/or directly from the NMP
- Enters at appropriate Phase

c. Modification SCD
- Does not add capability to basic system capability
- Installs updates to the parent System
- Receives funding from the parent System SCD and/or can be directly from the NMP
- Enters at a Phase appropriate to the maturity of the change

d. Software SCD
- Defines a software version for equipment in a Parent SCD
- Generally enters at Phase 3
- Patch level must be defined at Phase 4

U. Incremental installation of a SCD:

1. Definitions and Boundaries
   I. An increment of a SCD is a finite, definable, bounded portion of the total scope of work required to fully accomplish a single ship change. Increments are not to denote different versions of the same system. Each version should have its own unique ship change and associated fielding plan developed and approved. Increments shall not be used deliver phased or partial installation of a single production unit.
   II. Incremental delivery of a SCD may apply to all SCD types.
2. Review Requirements
   I. The decision to increment a SCD must go through a technical review to ensure all technical, operability and logistical issues are considered. If the SCD is not yet past DP 3, the proposed incremental installation shall be documented in the description of change and reviewed during the tat review process. If the SCD is past DP 3, the proposed incrementation shall be submitted via LAR and reviewed by the technical community.
   II. Following technical approval, the proposed incremental installation schedule and funding profile shall be reviewed and concurred on by the resource sponsor and then voted on by the appropriate Decision Board. If the SCD is not yet past DP 3, the fielding plan shall reflect the installs required on each hull in each fiscal year. If the SCD is past DP 3, upon technical approval of the LAR (see above), the submitter shall revise the description of change to reflect incremental installation and attach the LAR. The submitter shall also revise the CBA fielding plan and CBA worksheet to reflect the proposed incrementation schedule and funding profile, if required, and resubmit for review and vote via the phase IV process.
   III. If the SCD is not approved for incremental installation, the SCD will be returned to the submitter for rework and resubmission.

NOTES/QUESTIONS

TASK TITLE: 20 – Phase I Technical Assessment

LEAD ORGANIZATION: Core TAT - (PEO Ship & PEO Carriers)

SUPPORT ORGANIZATIONS: PARM, SYSCOM, PEO, ISEA

GOAL/DESCRIPTION

Review inputs for completeness and technical feasibility. The review process will not include any subjective opinion of merit and all candidates for change shall receive fair, unbiased assessments by the 'Entitled' TAT.

SUB TASKS	RESPONSIBILITY
BLOCK 20.1 ○ Determine Core TAT Lead ○ Distribute change to Core TAT Lead ○ Assign due date for reviews	○ TAT Change Manager (TAT CM)
BLOCK 20.2 ○ Assess the description, justification, feasibility and impacts of proposed change ○ *Assign Developing Activity as required (if not provided by Submitter) ○ Distribute change to Virtual TAT (Technical Warrant Holders (TWHs) and Planning Yard are considered part of the Virtual TAT) as appropriate ○ Communicate with Submitter to resolve issues if necessary ○ Make assessment to proceed to Phase II or IIa ○ Identify existing changes that may be superseded or impacted ○ Make and document recommendation. Forward SCD Phase I and technical recommendation to TAT CM for forwarding to SPM	○ Core TAT Lead ○ TAT CM *Included in Baseline
BLOCK 20.3 ○ Communicate with Submitter to resolve issues if necessary ○ Return the change to Submitter for Editing (if required) ○ or Forward change with recommendation to the SPM	○ TAT CM
BLOCK20.4 ○ SPM provides recommendation and comments	○ SPM
BLOCK20.5 and 20.6 ○ Forward to AFOM and CBA and feedback recommendations to TAT CM	○ SPM

INPUT

- SCD
- Technical documentation to support assessment

OUTPUT (DELIVERABLES)

- Completed Technical Section of SCD Phase I
- TAT CM comments (Core and Virtual TAT comments will also be viewable in EP software (SW))
- Phase II or IIa
- Point of Contact (POC) Notifications

BUSINESS RULES (CRITERIA)

A. Virtual TAT member from each organization is responsible for distribution and correlating responses of appropriate technical authorities. Virtual TAT member will respond back to Core TAT lead with one consolidated input.

B. NAVSEA 05W will validate SFI CAT assignments IAW CUSFFC/CPFINST 4720.3 (Series) and if in disagreement shall dialogue with the Submitter in order to ensure that the correct category is assigned.

C. Core TAT lead will review, consolidate, (any Virtual TAT comments) and forward to TAT CM.

D. TAT CM will provide consolidated comments not later than (NLT) 5 working days, and forward to SPM.

E. SPM Recommendation should be provided within 2 working days. SPM has 2 options in Phase I: Yes, recommended; or No, not recommended (requires comments). Both options are forwarded to CBA/AFOM for review.

F. Any negative recommendation must include a justification.

G. Due to limited engineering requirements and limited impacts to existing equipments and the ships, some changes may be permitted to proceed to Phase IIa vice Phase II. In order to determine if there is sufficient reason to proceed to Phase IIa, the Core TAT must consider the scope of the change and the following guidelines:

1. If the scope of the change is Internal Equipment Modification, all of the following criteria must be met:
   - I. The change can be accomplished without changing an interface external to the equipment or system.
   - II. The change is made within the equipment or system.
   - III. The change does not negatively impact Strike Force Interoperability (SFI).
   - IV. The change does not negatively impact shipboard distributive systems (i.e. water, ventilation, electrical, power, damage control, Fire Fighting, Fire Protection, etc.), Ship Selected Records (SSRs) or interfacing equipment or systems, compartmental arrangement records or Damage Control records.
2. If the scope of the change is Ship Modification, all of the following criteria must be met:
   - I. The change does not negatively impact SFI.
   - II. The change does not negatively impact ship's stability records (weight & moment).
   - III. The change does not negatively impact or alter the 3-dimensional footprint of the equipment being replaced.
   - IV. The change does not negatively impact shipboard distributive systems (i.e. water, ventilation, electrical, power, damage control, Fire Fighting, Fire Protection, etc.), SSRs or interfacing equipment or systems; compartmental arrangement records or Damage Control records.

V. The change does not impact manning levels.

VI. If all of the guidelines for a particular scope listed above are met, the TAT may recommend proceeding to Phase IIa.

VII. If the Phase I O-6 Board determines Phase IIa is allowed, then the Phase IIa documentation must be completed before going to Decision Point (DP) 3.

H. TAT CM can assign the SCD back to the submitter for correction.

I. Unresolved issues will be noted in the Technical review comments and forwarded for incorporation in the next Phase.

J. TAT will identify changes that may supersede or be redundant with an existing change. Should the SPM require additional clarification, endorsement will not be forwarded prior to attempting to issue a resolution via the TAT Lead.

TASK TITLE: 30 – Phase I AFOM Review and Assignment

LEAD ORGANIZATION: CNAF, CNSF, NETWARCOM (AFOM Process Owner)

SUPPORT ORGANIZATIONS: CFFC (N8)

GOAL/DESCRIPTION

The AFOM numerically translates stakeholder (TYCOM and OPNAV) interpretations of SEAPOWER 21 (SP-21) Navy War Fighting and Readiness Priorities into a quantitative output that provides NMP Decision Board voters with a decision aid that quantifies the war fighting relevance and benefit of each proposed SC as it applies to one or more platform types. The overall AFOM score will support the calculation of the Modernization Plan (MP) Priority Index Value (P-value).

SUB TASKS	RESPONSIBILITY
○ Review of individual SCDs by the cognizant TYCOM and assignment of standard rating scale index values to one or more of the SP-21 capability and suitability AFOM attributes to indicate "how much" the proposed change will benefit the priorities assigned in the model	○ TYCOM AFOM Change Coordinator
○ TYCOM(s) enters index values and supporting qualitative comments into NDE-NM based on internal staff and other Subject Matter Expert (SME) inputs (including external sources) regarding the level of benefit provided	○ TYCOM AFOM Change Coordinator
○ TYCOM AFOM Change Coordinator electronically signs the SCD concurring with the Index values and comments in NDE-NM; including a recommendation for approval/disapproval	○ TYCOM AFOM Change Coordinator/C4I TYCOM AFOM Change Coordinator
○ Algorithm calculates Total AFOM and AFOM scores vs. each SP-21 Pillar as well as Quality of Service (QOS)/Quality of Life (QOL)	○ NAVSEA 04RP

INPUT

- ○ SCD
- ○ Static 3 Star weights in the NDE-NM AFOM Benefit Structure (updated annually per the Merit Assignment Process discussed earlier)

OUTPUT (DELIVERABLES)

- ○ SCD and Recommended Change Package (RCP) AFOM percentile scores
  - Output format is a percentile score on a scale of 1-100 e.g.: "35th" with the following default outputs on the SCD and RCP:
  - Overall AFOM with the following sub categories of the overall AFOM displayed:

- Capability AFOM
- Suitability AFOM
- Sea Base
- Sea Strike
- Sea Shield
- ForceNet
- QOS)/QOL

- Qualitative comments and a Recommendation for Approval/Disapproval

- Electronic "signature" in the AFOM section of the SCD authenticating concurrence with the AFOM scores, comments and approval/disapproval recommendation

BUSINESS RULES (CRITERIA)

The AFOM assignment process has a recommended completion window of 7 working days, measured from time of receipt of the SCD by the TYCOM AFOM Change Coordinator to submission of rating scale index values in NDE.

A. If the SCD does not apply to one or more Pillars noted above, "N/A" or "-" will be displayed in those particular SCD/RCP fields.
   1. Or, Reject for re-work with appropriate comments.
   2. Note: An AFOM of "0" indicates that insufficient data was available for the TYCOM to complete an assessment.

B. SCD(s) routed to cognizant TYCOM AFOM Change Coordinator based on platform type and category. The AFOM change coordinator will specifically:
   1. Review the SCD for accuracy regarding mapping to the Capability and Suitability rating scales noted earlier and detailed below and alter the mapping as required; NDE must notify the Submitter of any changes made to functional areas or suitability attributes selected on the SCD.
   2. Examine the SCD to ensure validated and authoritative requirements are noted or referenced.
   3. Canvass appropriate SMEs internal and external to the TYCOM for input via an assign (to a reviewer) feature in the NDE-NM SCD.
   4. Review SME inputs.
   5. Enter Index values into NDE along with comments and recommendation for approval/disapproval.

C. NDE-NM will electronically route the SCD to the cognizant TYCOM AFOM Change Coordinator using the following rules:
   1. HM&E: Appropriate Platform TYCOM (Surface or Air).
   2. Command, Control, Communications, Computers, Collaboration, and Intelligence (C5I): Appropriate Platform TYCOM (Surface or Air), info NETWARCOM.
   3. Cross-Platform C5I: NETWARCOM; info Platform TYCOM(s).
   4. Cross-Platform HM&E: CFFC N43.

D. TYCOMs will validate Naval Capabilities mapping upon receipt of each SCD. If mapping changes are made by the TYCOM AFOM Change Coordinator, NDE will notify the Submitter that changes were made. A comments block will be available with the notification message for the TYCOM to enter any comments/rationale for the change.
   1. At least one Naval Capability under the Capability Benefit must be checked for the Submitter to proceed with NDE processing of the SCD.
   2. All SCDs will be assessed vs. the Suitability matrix in the AFOM benefit structure to receive a mandatory Suitability Assessment by the TYCOM.
   3. HM&E SCs will also receive a minimum default classification under the SEA Base Pillar.

4. Training systems will be assigned to the capability or capabilities that the proposed SCD supports.
5. Medical SCs will be assigned by default to the SEA Base Pillar under the appropriate logistics or medical capability.

E. The TYCOMs will establish, via internal administrative and procedural processes, applicable rating criteria, standardized SME Reading and Review Lists and Rating Guidelines; they will use applicable and existing data sources and databases to conduct the SME review. This process is handled offline of NDE.

F. Once staff or other inputs are collected, the index values will be manually entered by TYCOMs into NDE using standing AFOM Benefit Structure Suitability and Capability Rating Scales that reside in NDE. These scales will be accessible (write permission) by the TYCOMs only with the following exceptions:
   1. Statutory (defined by law or directive) SCs and NPCs will not require rating scale access or TYCOM inputs (no AFOM is assigned in these specific cases).
   2. "Parent" SCDs that describe an overall capability where a material solution is not developed shall have a maximum AFOM assigned. Subsequent "child" SCDs that delineate the material solution will have AFOM assigned per the Assign AFOM process. Statutory requirements, selected on the SCD via the requirements checklist, will be assigned a default Maximum Overall AFOM (100th) and a statutory (S) identifier. The Maximum AFOM SCD will not be included in the Phase population or raw score calculations to avoid numerical perturbations (low Percentile scores) in the percentile calculations.
   3. A maximum AFOM percentile score will be assigned by NDE-NM when two conditions are met: an SCD is defined as a "Parent" SCD, and an ACAT box is checked by the Submitter. Appropriate references to acquisition documentation must be identified as discussed earlier. SCDs that are "Parent" ACAT will not be included as part of the Phase population calculations for AFOM.
   4. The SEA 04RP Process Administrator will have access to the rating scale inputs for administrative corrections as required and dictated by the appropriate TYCOM.

G. AFOM calculation methodology:
   1. AFOM is calculated by TYCOM assignment of Index rating scale values, which articulate an improvement or degradation to a war-fighting requirement/gap, existing ship, capability or system, to the weighted AFOM benefit structure if the change is installed. The index value is an integer that serves as a standard rating scale, defined in the range from 0-70 as follows:

      70-Significant Improvement
      60- Moderate Improvement
      50-Marginal Improvement
      40-No Change
      30-Marginal Degradation
      20-Moderate Degradation
      10-Significant Degradation
      0-Insufficient Information

   2. Index values have underlying weights that are multiplied by all elements in the benefit structure and summed to provide an overall raw score. Each SCDs raw AFOM score is divided by the highest raw score in the Phase Population to create a normalized raw or "Percentile score" as noted earlier.
   3. NDE will calculate the AFOM Percentile using SCs in "like" phases of development, e.g. a Phase I SC Overall AFOM Percentile score would be calculated only against the population of SCDs that were in Phase I development and so forth.

4. SCDs categorized as “Emergent” will have an AFOM assigned.
5. If an SCD is applicable to multiple platforms, an AFOM will be calculated and displayed for each platform type.

H. Selectable Views in the SCD and RCP will include:
1. TYCOM AFOM Change Coordinator AFOM Comments block for a summary narrative.
2. RCP-only: Drill-downs/Pull-downs to allow viewing of the TYCOM index rating values for each of the AFOM Benefit Structure attributes along with SME comments (if provided or forwarded by the TYCOM AFOM Change Coordinator).

I. Recommend approval/disapproval selection menu for TYCOM AFOM Change Coordinator use as described above.

TASK TITLE: 30.1- Annual Merit Assessment Event

LEAD ORGANIZATION: CNAF, CNSF, NETWARCOM (NNWC)

SUPPORT ORGANIZATIONS: CFFC N8, OPNAV N4/N6/N7/N8, NAVSEA 04RP

GOAL/DESCRIPTION

Develop and update the annual weighting (prioritization) of a static, numerical model residing in NDE-NM that reflects the consensus of priorities derived via the NCDP.

SUB TASKS	RESPONSIBILITY
○ Conduct annual AFOM Process review and validation	○ CNSF/CNAF/NNWC (Process Owner)
○ Lead an annual Mission Capability Package (MCP) Health Assessment to establish and update the AFOM model weights	○ Lead TYCOM
○ Provide CNO approved Integrated Capabilities Plan (ICP) (or its equivalent) when requested by Lead TYCOM	○ CFFC N8
○ Perform MCP Health assessment and provide numerical scores for each MCP	○ TYCOM N8s
○ Using Process Owner-approved software tools, generate the AFOM model weights (priorities)	○ NAVSEA 04RP
○ Update resulting AFOM model weights in NDE NM	○ NAVSEA 04RP

INPUT

- CNO-approved SP 21 Pillars and Mission Capability Areas from the NCDP
- CFFC N8 and TYCOM/OPNAV "Platform Wholeness" Assessment of Navy Wide Priorities and Defense Planning Guidance for validation and update of AFOM process

Note: The annual MCP Health Assessment establishes weights associated with the SP-21-based numerical model resident in NDE-NM. The weights reflect a consensus of priorities developed via the NCDP.

OUTPUT (DELIVERABLES)

- Annual O-6 Board Voter Feedback
- Annual CFFC N8-originated proposed MCP Health Assessment
- Static 3 Star Weights in NDE NM AFOM Benefit Structure

BUSINESS RULES (CRITERIA)

CFFC N8 NMP Interface Responsibilities:

A. Assimilation, articulation, and dissemination of Integrated, Navy-Wide, War Fighting Priorities for Navy Modernization NMP Decision Board Members.
B. Periodic review and as-required updates to the AFOM process, ensuring relevance to, and alignment with CNO Guidance, Navy Wide priorities and Defense Planning Guidance.
C. Supports development and update of the Static 3 Star weights into the NDE-NM AFOM Benefit Structure (model) (reviewed annually) as follows:

1. The AFOM Benefit Structure (model) will mirror the CNO approved SP 21 Pillar and Mission Capability Package Structures (also known as Functional Areas).
2. Process Owner approved software tools will be used to generate the weights during the process; these tools will be a stand-alone and will not require an NDE interface at this time.
3. CFFC N8 will articulate Navy-Wide Requirements via an annual proposed MCP Health assessment that reflects Numbered Fleet "gaps" in requirements, war fighting capability as well as other readiness and sustainability priorities. CFFC N8 will complete and distribute this annual MCP Health assessment to NAVSEA 04RP.
   I. NAVSEA 04RP will collect and enter the MCP Health assessment results into the software tool(s) to calculate and distribute the resultant weights into the NDE-NM AFOM model.
   II. The weights will be visible only to the SEA 04RP Process Administrator, the CFFC N8 and O-6, 1&2-Star and 3 Star Board Members.

D. The development and update of Static 3 Star Weights for the AFOM Benefit Structure process has a threshold completion of two (2) months.

E. AFOM model weights will remain effective for one year, unless changes are required based on CNO or CFFC direction.
   1. AFOMs will be recalculated for SCDs in Phase I and II review if weights change during the annual MCP Health assessment process. SCDs in Phase IIa or III review will not receive recalculated AFOMs unless directed by the 3 Star Board.

The AFOM Process Owner(s) are the TYCOMs. A "lead" TYCOM will be chosen on a rotating basis from CNSF, CNAF and NNWC to periodically review and update the overall AFOM process, including software tools, assessment processes and other AFOM specific functions. CFFC N8 will provide a representative to ensure connectivity and relevancy with the NCDP.

<u>The AFOM Process Administrator is NAVSEA 04RP:</u>

F. Development, updates and validation of standard numerical models for AFOM calculation within NDE-NM.

G. Assists CFFC N8 with distribution and collection of MCP Health assessment and other administrative functions including entry of the resultant priorities into Process Owner-approved software analysis tools and the NDE-NM AFOM model.

TASK TITLE: 40 – Phase I Cost Benefit Analysis (CBA) Review

LEAD ORGANIZATION: CBA CM Activity

SUPPORT ORGANIZATIONS: SPM, PARM

GOAL/DESCRIPTION

Review preliminary CBA of a SC in the Concept Development ("Preliminary Analysis") Phase in order to ensure sufficient SC cost/benefit information has been provided to support the Decision Board in making their "approval/disapproval" decision.

SUB TASKS	RESPONSIBILITY
○ Assign the appropriate CBA Reviewers to review SCD	○ CBA Coordinator (SEA 04RP)
○ Conduct CBA review IAW CBA checklist	○ CBA Reviewers
○ Provide comments to Submitter as required	○ CBA Reviewers
○ Review and respond to CBA Reviewer comments	○ Submitter
○ Forward RCP package to Resource Sponsor	

INPUT

- CBA Cost Structure Worksheet (CSW) of the SCD Phase I

OUTPUT (DELIVERABLES)

- Completed and reviewed CBA CSW

BUSINESS RULES (CRITERIA)

A. NAVSEA 05C will provide updated escalation index tables (matrix of financial information (look up table) in NDE for current FY) from FMB, annually or as required. Made available to Submitters for their use in completing escalation calculations.

B. Developmental items may have an Impact Factor of +/- 40% confidence level. Greater confidence for repeat changes, COTS solutions and Technology turnover with respect to spiral development.

C. CBA Review Process: See CBA checklist and CBA portion of the SCD Technical Specification for Details on reviewing responsibility and guidelines for review. This is Appendix A of the Surface Ships and Carriers EP for Modernization Management and Operations Manual.

NOTES/QUESTIONS:

A proposal was made to separate the CBA and AFOM process rework cycles. Currently those two processes operate in parallel and rework for each of these sub-processes must be accomplished prior to the SCD moving to the "Resource Sponsor" step. Currently the Submitter can't do the rework step until the AFOM is complete. A recommendation has been submitted to allow the AFOM and CBA to be separated so that the CBA rework step can be accomplished independent of the AFOM review. This will be worked separately, but in parallel to one another. They should be updated independently of the status of one another.

TASK TITLE: 50 – Resource Sponsor Review of RCP

LEAD ORGANIZATION: Resource Sponsor

SUPPORT ORGANIZATIONS: SCD Submitter

GOAL/DESCRIPTION

Assemble RCP, a summary report from the SCD with full funding identified, for submittal to the Decision Boards for review.

SUB TASKS	RESPONSIBILITY
○ Review and respond to Resource Sponsor comments ○ Identify funding sources from SCD Header Data inputs including appropriate trade-offs from the FMP as required. Verify funding is executable within budget controls ○ Pass to queue for DP 1	○ Submitter ○ Resource Sponsor – Program Alts

INPUT

- SCD with AFOM, Technical Assessment, and CBA information with comments

OUTPUT (DELIVERABLES)

- RCP with annotated funding sources with identified Trade-offs from the FMP, as required

BUSINESS RULES (CRITERIA)

A. The RCP will be extracted from the SCD and placed into the queue for DP 1 voting by the Resource Sponsor within two working days of receipt.

B. Any required Trade-offs may come from the MP within the Resource Sponsor's code, following the prioritization within the MP. Resource Sponsor must coordinate any changes with the SCD Submitter. Two (2) levels of indenture are required for editing CBA during Resource Sponsor review of RCP phase.

C. For new SCDs requiring execution year funds, Resource Sponsor must coordinate with the Budget Submitting Office and SCD Submitters prior to recommending Trade-offs. Any affected SCD will be updated to reflect designated adjustments within 10 working days from resolution.

D. For SCD(s) in execution year (beyond DP 3) if a reallocation of resources is required, the Budget Submitting Office must coordinate with the Resource Sponsor and appropriate Approval Authority. SCDs will be updated to reflect designated adjustments within 10 working days from resolution.

E. If RCP without identified funding is approved by the Decision Board, it will be returned to the Resource Sponsor. The Resource Sponsor has five (5) working days to identify offsets to the MP to fund SC (adjustments which include any SCD Post DP 3 should only be selected when there is no other alternative available).

   1. Any required Trade-offs may come from the MP, but Resource Sponsor shall adhere to Modernization prioritization

2. Any Prior/Concurrent SCDs associated with an SCD being recommended for removal from the MP must be reviewed by the Decision Board members to determine if the Prior/Concurrent SCD(s) should proceed on their own, or be removed from the MP.
3. Resource Sponsor shall re-submit RCP to Decision Board with recommended options for funding.
4. If an agreement cannot be reached within two votes on adjustments to MP, RCP shall be discussed at the O-6 Board VTC for adjudication prior to voting for the final time. If an agreement cannot be reached there, RCP shall be sent to the next higher board for adjudication.
5. Emergent
   I. If the RCP is in support of an Emergent SC, the resource sponsor must validate funding availability prior to submission of the RCP to the Decision Board.

TASK TITLE: 60 – DP 1 (Approve Funding for Preliminary Engineering)

LEAD ORGANIZATION: CFFC, TYCOM, Office of the Chief of Naval Operations (OPNAV)

SUPPORT ORGANIZATIONS: Decision Boards (O-6, 1&2 Star, 3 Star)

GOAL/DESCRIPTION

DP 1 creates a MP with recommended full funding. Full funding identified will be submitted to the budget process to execute the Modernization Plan. Make adjustments to the MP predicated upon feedback from any point in Phase II/IIa requiring a change in Cost, Schedule, Performance, Applicability, or any combination therein.

SUB TASKS	RESPONSIBILITY
O-6 Decision Board (<$50M Total Program Value) ○ Board disapproves SCD, placing in inactive status in NDE ○ Send back to Submitter for re-work ○ Approve SCD within threshold for inclusion in (or for Trade-offs removal from) the MP. If >$50 Million, endorse and send forward ○ Concur with proposed recommended funding ○ Send back RCPs to Resource Sponsor to re-identify funding source	○ Board Members
1&2 Star Decision Board ($50M and <$200M Total Program Value) ○ Endorse/override O-6 level RCP decisions ○ Send back to Submitter for re-work ○ Board authorizes placing SCD in inactive status ○ Approve SCD within threshold for inclusion in the MP. If >$200 Million, endorse and send forward ○ Concur with proposed recommended funding ○ Send back RCPs to Resource Sponsor to re-identify funding source	○ Board Members
3 Star Decision Board ($200M and above Total Program Value) ○ Endorse/override O-6 and 1&2 Star level SCD decisions ○ Send back to Submitter for re-work ○ Approve SCD for inclusion in the MP ○ Board authorizes placing any SCD in active/inactive status (inactive status places the SCD in "History") ○ Concur with proposed recommended funding • If non-concurrence send back RCPs to Resource Sponsor to re-identify funding source ○ Recommend MP to CNO	○ Board Members

INPUT

○ Completed RCP with validated funding Sources

- Completed RCP without validated funding requirements to be voted on merit.
- RCP with annotated funding sources and identified Trade-offs (based on priority) from the FMP, as required.

OUTPUT (DELIVERABLES)

O-6 Decision Board

- All approved RCPs:
  - SCDs are placed in the MP
  - Proposed recommended funding
  - Recommendation to expedite
  - Recommendation to go to Phase II, IIa, or III
  - Recommendations for 1&2 Star and 3 Star level RCPs
- Send back to Submitter for re-work
- All Disapproved RCPs:
  - Placing disapproved SCD in Inactive status
  - Recommendations for 1&2 Star and 3 Star level RCPs

1&2 Star Decision Board

- All approved RCPs:
  - SCDs are placed in the MP
  - Proposed recommended funding
  - Recommendation to expedite
  - Recommendation to go to Phase II, IIa, or III
  - Recommendations for 3 Star level RCPs
- Send back to Submitter for re-work
- All Disapproved RCPs:
  - Placing disapproved SCD in Inactive status
  - Recommendations for 3 Star level RCPs

3 Star Decision Board

- All approved RCPs:
  - SCDs are placed in the MP
  - Approve funding
  - Approve expedite
    - Approve go to Phase II, IIa, or III
  - Approved MP
- Send back to Submitter for re-work
- All Disapproved RCPs:
  - Placing disapproved SCD in Inactive status

BUSINESS RULES (CRITERIA)

General Rules that apply to all Boards

A. Board decisions are made based on a unanimous vote for the O-6 Board only. Upon completion of the voting by all responsible stakeholders, if the results of Tally Vote indicate a non-unanimous total, then voting will be reset and the RCP will immediately be sent back to the board for a re-vote. There will only be 1 re-vote allowed. If a unanimous vote is not reached after 1 re-vote, the RCP will be sent to the next higher board for resolution/adjudication. NOTE: Does not apply to C4I SFI CAT 1 and 2 SCDs.

B. The vote is based on the Entire RCP, if a member of the board wants to change the Scope/Fielding Plan, it must be sent back to the Submitter for re-work/re-submission.

C. A "Yes" vote with comments that change the scope or applicability of the SCD is not permitted.
D. Voters for each RCP are determined based on individual voter "Swim Lanes"/functional responsibilities.
E. All SCDs approved by the appropriate Board, based on dollar threshold, will be added to the MP.
F. The MP will be reviewed by the 1 & 2 Star, and 3 Star Boards for Concurrence/Approval.
G. All SCs will be forwarded to the next level board for concurrence/adjudication.
H. The Submitter will be advised of final DP 1 disposition.
I. For Acquisition Programs the Submitter, Program Manager of Record, and MDA will be notified of any decision not recommending to be included in the MP.
   1. The Acquisition Program Manager will engage the appropriate Decision Board members to resolve issues associated with a not recommended SC vote.
   2. Should resolution be achieved, the Acquisition Program Manager will engage the OPNAV Voting Member to re-initiate DP 1 Vote.
   3. Should resolution not be achieved, the Navy Modernization recommendation with Decision Board comments will be forwarded to MDA for consideration at the appropriate Acquisition Milestone or decision. Ultimate authority of Acquisition Programs shall be retained by the MDA.
J. A SCD that is in an inactive status may only be brought back into the NMP by a Resource Sponsor or TYCOM active voting member. It will be brought back to the DP Decision Board that placed the SCD into an inactive status. (contact NDE administrator for process).
K. A SCD can only be re-activated and voted upon an additional two times, after which it will be placed in a permanent inactive status. (Inactive status can remain inactive in history in NDE).

O-6 Decision Board

L. Shall meet continuously on a virtual basis and consider all RCPs. For items that are outside of their fiscal threshold (<$50M total program value) they make recommendations to higher Boards.
   1. Concur or non-concur with recommendation to expedite.
   2. Concur or non-concur with recommendation to go to the appropriate Phase.
   3. The voting process should be achieved within the following timelines:
      I. 5 working days to vote.
      II. 5 working days (per iteration) to adjudicate funding issues (associated with Funding Concurrence - resource identification). If Resource Sponsor fails to provide acceptable Trade-Off, within 3 iterations, the Board has the authority to approve the SCD and forward to the next higher board for concurrence with no funding identified.

1&2 Star Decision Board

M. Will meet quarterly and prior to 3 Star Board, to review MP and to consider forwarded RCPs that fall within their monetary threshold (> $50M and < $200M total program costs).
N. Concur or non-concur with recommendation to expedite.
O. Concur or non-concur with recommendation to go to the appropriate Phase.
P. The voting process should be achieved within the following timelines:
   1. 20 working days to vote.
   2. 5 working days (per iteration) to adjudicate funding issues (associated with Funding Concurrence - resource identification). If the Resource Sponsor fails to provide

acceptable Trade-Off, within 3 iterations, the Board has the authority to approve the SCD and forward to the next higher board for concurrence with no funding identified.

3 Star Decision Board

Q. Will meet Quarterly to review MP and vote on forwarded RCPs that fall within their monetary threshold ($200M and above total program costs).
R. Approve/disapprove 1&2 recommendation.
S. The voting process should be achieved within the following timelines:
   1. 60 working days to vote.
   2. 5 working days to adjudicate funding issues (associated with Funding Concurrence - resource identification). If the Resource Sponsor fails to provide acceptable Trade-Offs, the Board has the authority to approve the SCD.
T. Will submit an annual MP to OPNAV.

NOTES/QUESTIONS

TASK TITLE: 70 – Input to Modernization Plan

LEAD ORGANIZATION: OPNAV N7

SUPPORT ORGANIZATIONS: Decision Boards (O-6, 1&2 Star, 3 Star), SEA 04

GOAL/DESCRIPTION

Develop and maintain a current and comprehensive prioritized MP to fulfill Navy requirements.

SUB TASKS	RESPONSIBILITY
○ Incorporate approved changes into the MP via the EP	○ Fleet, OPNAV
○ Add Fielding Plan into NDE-NM	○ Fleet/SPM/PARM

INPUT

- Decision Board Decisions

OUTPUT (DELIVERABLES)

- Comprehensive Prioritized MP
- Fielding plan into NDE-NM

BUSINESS RULES (CRITERIA)

A. Approved changes will have the funding profile entered into NDE-MP and the fielding plan entered into NDE-NM.
B. Individual and related changes in the MP will be updated after DPs 2 and 3 to reflect any differences as the SCD matures.
C. Those SCDs that were inactivated and traded off need to be removed from the Mod Plan.
D. The Mod plan is fixed after DP 3 until the appropriate Decision board authorizes any proposed changes.

NOTES/QUESTIONS

TASK TITLE: 80 – MDA Acquisition Milestone A (ACAT)

LEAD ORGANIZATION: PARM, LCM

SUPPORT ORGANIZATIONS: Applicable DASN, PEO,

GOAL/DESCRIPTION

Execute an Acquisition Program Milestone Decision for an Acquisition Program considered under the NMP as a SCD.

SUB TASKS	RESPONSIBILITY
○ An SCD meeting the requirements of DOD 5000/SECNAV Instruction 5000.2B for designation as an Acquisition Program will be managed IAW Applicable Acquisition Program Regulations and Instructions	○ Acquisition Program Manager of Record and Submitter

INPUT

- DP 1 recommendation for the SCD to be included in the MP

OUTPUT (DELIVERABLES)

- MDA Acquisition Decision Memorandum and approval to enter System Design and Development Phase of an Acquisition program documented in NDE

BUSINESS RULES (CRITERIA)

A. The SCD is not a substitute for the Statutory, Regulatory, and Requirements generation processes required of ACAT programs, abbreviated Acquisition programs, non-Acquisition programs, and rapid deployment capability programs. All Documentation, processes and policies identified in DoD 5000 series and SECNAV 5000 series instructions, as well as the Joint Capabilities Identification and Development System (JCIDS) Instruction shall be met. Navy Modernization policies, requirements and procedures shall also be met IAW the JFMM, and Surface Ships and Carriers EP for Modernization Management and Operations Manual. Where guidance and policy conflict for execution of designated Acquisition Programs, Acquisition and JCIDS policy will take precedent.

NOTES/QUESTIONS

- Identify MDA format for inclusion in SCD/NDE

TASK TITLE: 90 – Perform Preliminary Engineering and Update SCD

LEAD ORGANIZATION: PARM, TYCOM

SUPPORT ORGANIZATIONS: SYSCOM, PEO, ISEA

GOAL/DESCRIPTION

Perform preliminary engineering required to complete all applicable fields for the Phase II SCD.

SUB TASKS	RESPONSIBILITY
○ Develop sketches and calculations as appropriate ○ Complete the appropriate fields in the SCD ○ Provide substantiation of checked fields ○ Draft Technical Data Package(TDP) Draft preliminary installation instruction (if required for NPCs)	○ Developing Activity

INPUT

- Approved SCD Phase I or a completed SCD Phase II (if entering NMP in Phase II)

OUTPUT (DELIVERABLES)

- Completed Phase II SCD IAW Appendix A
- NPC documents (if applicable)
- Sketches and calculations as appropriate
- Automatic Notifications

BUSINESS RULES (CRITERIA)

A. Developing Activity will utilize internal processes to complete preliminary engineering and provide SCD Phase II to the Submitter.
B. Identify requirements for Low Rate Initial Production Units to be installed in Phase III for approval by Decision Boards (if required).

TASK TITLE: 100 – Phase II Technical Assessment

LEAD ORGANIZATION: Core TAT - (PEO Ship & PEO Carriers)

SUPPORT ORGANIZATIONS: PARM, SYSCOM, PEO, ISEA

GOAL/DESCRIPTION

Review preliminary system/equipment specifications, as contained in Phase II SCD, and provide recommendations from TAT and SPM. The review process shall ensure that a SCD receives fair, unbiased assessments by the 'Entitled' TAT on technical feasibility.

SUB TASKS	RESPONSIBILITY
BLOCK 100.1 ○ TAT CM will distribute change to Core TAT Lead ○ Assign Core TAT Lead ○ Assign due date for review	○ TAT CM
BLOCK 100.2 ○ Distribute change to appropriate Virtual TAT (Technical Warrant Holders (TWHs) and Planning Yard are considered part of the Virtual TAT) as appropriate ○ Assess the description, feasibility and impacts of proposed change and incorporate Virtual TAT comments ○ Communicate with SCD POCs to resolve issues if necessary ○ Identify and verify all Prior/Concurrent relationships and existing changes that may be superseded/impacted ○ Review and provide assessment to TAT CM ○ Determine if supporting documentation is required to complete evaluation	○ Core TAT Lead
BLOCK 100.3 ○ Review/resolve issues ○ Return SCD to the submitter to make corrections (if required) ○ Schedule CCB as required	○ TAT CM
BLOCK 100.4 ○ Conduct CCB as necessary ○ Determine and document recommendation ○ Forward recommendation to SPM	○ CCB Chairman/TAT CM
BLOCK 100.5 ○ May return SCD Phase II to TAT CM for resolution of issues ○ Recommendations are recorded and SCD is forwarded to AFOM/CBA	○ SPM

INPUT

- Supporting documentation as required, including technical documentation
- SCD Phase II
- POC Notifications

OUTPUT (DELIVERABLES)

- TAT CM comments (Core and Virtual TAT comments will also be viewable in EP SW)
- SPM reviewed and provided independent recommendation
- Technical review will include the following information:
  - Prototype required
  - Prior/Concurrent changes identified
  - Activity identified to develop Phase III SCD
  - Supporting documentation required
  - Superseded or redundant change
  - FORCENET compliant

BUSINESS RULES (CRITERIA)

A. Virtual TAT member from each organization is responsible for distribution and correlating responses of appropriate technical authorities. Virtual TAT member will respond back to Core TAT lead with one consolidated input.
B. NAVSEA 05W will validate SFI CAT assignments IAW CUSFFC/CPFINST 4720.3 (Series) and if in disagreement shall dialogue with the Submitter in order to ensure that the correct category is assigned.
C. Should the SPM require additional clarification, endorsement will not be forwarded prior to attempting issue resolution via TAT CM.
D. TAT processes will be accomplished as documented in the Surface Ships and Carriers EP for Modernization Management and Operations Manual.
E. Unresolved issues will be noted in the Technical assessment comments and forwarded to the next step in the NMP.
F. Core TAT lead will review, consolidate, (any Virtual TAT comments) and forward to TAT CM.
G. TAT CM will consolidate comments from the Core and Virtual TAT NLT 45 working days and forward to SPM.

TASK TITLE: 110 – Phase II AFOM Review and Assignment

LEAD ORGANIZATION: CFFC (N8) AFOM Process Manager

SUPPORT ORGANIZATIONS: CNAF, CNSF, NETWARCOM, OPNAV N4/N8

GOAL/DESCRIPTION

Translate subjective stakeholder (TYCOM and OPNAV) opinions regarding SP-21 Navy War Fighting and Readiness Priorities into a quantitative output that provides NMP Decision Board voters visibility to the war fighting relevance and benefit of each proposed SC as it applies to one or more platform types.

SUB TASKS	RESPONSIBILITY
○ Review of individual SCDs by the cognizant TYCOM and assignment of rating scale values to one or more of the SP-21 attributes to indicate "how much" the proposed change will benefit the priorities assigned in the model	○ TYCOM AFOM Change Coordinator
○ TYCOM(s) enters index values based on internal staff and other SME inputs	○ TYCOM AFOM Change Coordinator
○ TYCOM AFOM Change Coordinator electronically approves/signs the SCD concurring with the Index values in NDE-NM	○ TYCOM AFOM Change Coordinator
○ Algorithm calculates Total AFOM and AFOM scores by SP-21 Pillar	○ NAVSEA 04RP

INPUT

- Static 3 Star weights in the NDE-NM AFOM Benefit Structure (reviewed annually).
- Phase II SCD
  - Completed SPM recommendation
  - Mapped by one or more of the 61 Naval Capabilities or Functional Areas
  - Appropriate links and engineering and/or acquisition documents included as attachments
- SCD attributes mapped via NDE into SP-21 Structure per AFOM Benefit Structure (see Process maps) and Standing Suitability and Capability Rating Scales for TYCOM data entry. This mapping will occur based on Submitter inputs to the SCD using the Naval Capabilities Checklist provided in the SCD AFOM section

OUTPUT (DELIVERABLES)

- Electronically signed SCD with AFOM Assigned and initial AFOM Percentile score
  - Format is a raw score and a percentile scale of 1-100 (Identifier from SCD) e.g.: "35th" with following default outputs on RCP:
    - An AFOM of "0" indicates that insufficient data was available for the TYCOM to complete an assessment
  - Overall AFOM with the following sub categories of the overall AFOM displayed:
    - Capability AFOM
    - Suitability AFOM
    - Sea Base

- Sea Strike
- Sea Shield
- ForceNet
- QOS/QOL

- Or, recommend Re-Work with appropriate comments

BUSINESS RULES (CRITERIA)

The AFOM assignment process has a recommended completion window of 7 working days, measured from time of receipt of the SCD by the TYCOM AFOM Change Coordinator to submission of rating scale index values in NDE.

A. If the SCD does not apply to one or more Pillars noted above, "N/A" or "-" will be displayed in those particular SCD/RCP fields.
   1. Or, Reject for re-work with appropriate comments.
   2. Note: An AFOM of "0" indicates that insufficient data was available for the TYCOM to complete an assessment.

B. SCD(s) routed to cognizant TYCOM AFOM Change Coordinator based on platform type and category. The AFOM change coordinator will specifically:
   1. Review the SCD for accuracy regarding mapping to the Capability and Suitability rating scales noted earlier and detailed below and alter the mapping as required; NDE must notify the Submitter of any changes made to functional areas or suitability attributes selected on the SCD.
   2. Examine the SCD to ensure validated and authoritative requirements are noted or referenced.
   3. Canvass appropriate SMEs internal and external to the TYCOM for input via an assign (to a reviewer) feature in the NDE-NM SCD.
   4. Review SME inputs.
   5. Enter Index values into NDE along with comments and recommendation for approval/disapproval.

C. NDE-NM will electronically route the SCD to the cognizant TYCOM AFOM Change Coordinator using the following rules:
   1. HM&E: Appropriate Platform TYCOM (Surface or Air).
   2. Command, Control, Communications, Computers, Collaboration, and Intelligence (C5I): Appropriate Platform TYCOM (Surface or Air), info NETWARCOM.
   3. Cross-Platform C5I: NETWARCOM; info Platform TYCOM(s).
   4. Cross-Platform HM&E: CFFC N43.

D. TYCOMs will validate Naval Capabilities mapping upon receipt of each SCD. If mapping changes are made by the TYCOM AFOM Change Coordinator, NDE will notify the Submitter that changes were made. A comments block will be available with the notification message for the TYCOM to enter any comments/rationale for the change.
   1. At least one Naval Capability under the Capability Benefit must be checked for the Submitter to proceed with NDE processing of the SCD.
   2. All SCDs will be assessed vs. the Suitability matrix in the AFOM benefit structure to receive a mandatory Suitability Assessment by the TYCOM.
   3. HM&E SCs will also receive a minimum default classification under the SEA Base Pillar.
   4. Training systems will be assigned to the capability or capabilities that the proposed SCD supports.
   5. Medical SCs will be assigned by default to the SEA Base Pillar under the appropriate logistics or medical capability.

E. The TYCOMs will establish, via internal administrative and procedural processes, applicable rating criteria, standardized SME Reading and Review Lists and Rating Guidelines; they will use applicable and existing data sources and databases to conduct the SME review. This process is handled offline of NDE.

F. Once staff or other inputs are collected, the index values will be manually entered by TYCOMs into NDE using standing AFOM Benefit Structure Suitability and Capability Rating Scales that reside in NDE. These scales will be accessible (write permission) by the TYCOMs only with the following exceptions:
   1. Statutory (defined by law or directive) SCs and NPCs will not require rating scale access or TYCOM inputs (no AFOM is assigned in these specific cases).
   2. "Parent" SCDs that describe an overall capability where a material solution is not developed shall have a maximum AFOM assigned. Subsequent "child" SCDs that delineate the material solution will have AFOM assigned per the Assign AFOM process. Statutory requirements, selected on the SCD via the requirements checklist, will be assigned a default Maximum Overall AFOM (100th) and a statutory (S) identifier. The Maximum AFOM SCD will not be included in the Phase population or raw score calculations to avoid numerical perturbations (low Percentile scores) in the percentile calculations.
   3. A maximum AFOM percentile score will be assigned by NDE-NM when two conditions are met: an SCD is defined as a "Parent" SCD, and an ACAT box is checked by the Submitter. Appropriate references to acquisition documentation must be identified as discussed earlier. SCDs that are "Parent" ACAT will not be included as part of the Phase population calculations for AFOM.
   4. The SEA 04RP Process Administrator will have access to the rating scale inputs for administrative corrections as required and dictated by the appropriate TYCOM.

G. AFOM calculation methodology:
   1. AFOM is calculated by TYCOM assignment of Index rating scale values, which articulate an improvement or degradation to a war-fighting requirement/gap, existing ship, capability or system, to the weighted AFOM benefit structure if the change is installed. The index value is an integer that serves as a standard rating scale, defined in the range from 0-70 as follows:

      70-Significant Improvement
      60- Moderate Improvement
      50-Marginal Improvement
      40-No Change
      30-Marginal Degradation
      20-Moderate Degradation
      10-Significant Degradation
      0-Insufficient Information

   2. Index values have underlying weights that are multiplied by all elements in the benefit structure and summed to provide an overall raw score. Each SCDs raw AFOM score is divided by the highest raw score in the Phase Population to create a normalized raw or "Percentile score" as noted earlier.
   3. NDE will calculate the AFOM Percentile using SCs in "like" phases of development, e.g. a Phase I SC Overall AFOM Percentile score would be calculated only against the population of SCDs that were in Phase I development and so forth.
   4. SCDs categorized as "Emergent" will have an AFOM assigned.
   5. If an SCD is applicable to multiple platforms, an AFOM will be calculated and displayed for each platform type.

H. Selectable Views in the SCD and RCP will include:

1. TYCOM AFOM Change Coordinator AFOM Comments block for a summary narrative.
2. RCP-only: Drill-downs/Pull-downs to allow viewing of the TYCOM index rating values for each of the AFOM Benefit Structure attributes along with SME comments (if provided or forwarded by the TYCOM AFOM Change Coordinator).

I. Recommend approval/disapproval selection menu for TYCOM AFOM Change Coordinator use as described above.

TASK TITLE: 110.1 - Annual Merit Assessment Event

LEAD ORGANIZATION: CNAF, CNSF, NETWARCOM (NNWC)

SUPPORT ORGANIZATIONS: CFFC N8, OPNAV N4/N6/N7/N8, NAVSEA 04RP

GOAL/DESCRIPTION

Develop and update the annual weighting (prioritization) of a static, numerical model residing in NDE-NM that reflects the consensus of priorities derived via the NCDP.

SUB TASKS	RESPONSIBILITY
○ AFOM Process review and validation	○ CNSF/CNAF/NNWC (Process Owner)
○ Update/Validate AFOM Benefit Structure to mirror SP 21 Pillar and Mission Capability or Functional Areas	○ CFFC N8
○ Originate a proposed annual MAQ using NCDP outputs	○ CFFC N8
○ Using Process Owner-approved software tools, generate the AFOM model weights (priorities)	○ NAVSEA 04RP
○ Update resulting AFOM model weights in NDE NM	○ NAVSEA 04RP

INPUT

- CNO-approved SP 21 Pillars and Mission Capability Areas from the NCDP
- CFFC N8 and TYCOM/OPNAV "Platform Wholeness" Assessment of Navy Wide Priorities and Defense Planning Guidance for validation and update of AFOM process

Note: A MAQ is a questionnaire that reflects the SP-21 Pillar and Capability Structure along with other readiness and sustainability attributes. The MAQ allows the CFFC N8, OPNAV N7 and the TYCOMs to articulate their interpretations of the Navy's priorities and articulate an overall consensus that can be translated into a numerical model residing in NDE-NM.

OUTPUT (DELIVERABLES)

- Annual CFFC N8-originated proposed MAQ
- Static 3 Star weights in NDE NM AFOM Benefit Structure

BUSINESS RULES (CRITERIA)

<u>CFFC N8 EP Interface Responsibilities:</u>

A. Assimilation, articulation, and dissemination of Integrated, Navy-Wide, War Fighting Priorities for NMP Decision Board Members.

B. Periodic review and as-required updates to the AFOM process, ensuring relevance to, and alignment with CNO Guidance, Navy Wide priorities and Defense Planning Guidance.

C. Supports development and update of the Static 3 Star weights into the NDE-NM AFOM Benefit Structure (model) (reviewed annually) as follows:

   1. The AFOM Benefit Structure (model) will mirror the CNO approved SP 21 Pillar and Mission Capability Package Structures (also known as Functional Areas)
   2. Process Owner approved software tools will be used to generate the weights during the process; these tools will be a stand-alone and will not require an NDE interface at this time.

3. CFFC N8 will articulate Navy-Wide Requirements via an annual proposed MAQ that reflects Numbered Fleet "gaps" in requirements, war fighting capability as well as other readiness and sustainability priorities. CFFC N8 will complete and distribute this annual proposed MAQ to NAVSEA 04RP.
   I. NAVSEA 04RP will collect and enter the resultant MAQ(s) into the software tool(s) to calculate and distribute the resultant weights into the NDE-NM AFOM model.
   II. The weights will be visible only to the SEA 04RP Process Administrator, the CFFC N8 and O-6, 1&2-Star and 3 Star Board Members.

D. The development and update of Static 3 Star weights for the AFOM Benefit Structure process has a threshold completion of two (2) months.

E. AFOM model weights will remain effective for one year, unless changes are required based on CNO or CFFC direction.
   1. AFOMs will be recalculated for SCDs in Phase I and II review if weights change during the annual Merit Assignment process. SCDs in Phase IIa or III review will not receive recalculated AFOMs unless directed by the 3 Star Board.

The AFOM Process Owner(s) are the TYCOMs. A "lead" TYCOM will be chosen on a rotating basis from CNSF, CNAF and NNWC to periodically review and update the overall AFOM process, including software tools, assessment processes and other AFOM specific functions. CFFC N8 will provide a representative to ensure connectivity and relevancy with the NCDP.

<u>The AFOM Process Administrator is NAVSEA 04RP:</u>

F. Development, updates and validation of standard numerical models for AFOM calculation within NDE-NM.

G. Assists CFFC N8 with distribution and collection of MAQs and other administrative functions including entry of the resultant priorities into Process Owner-approved software analysis tools and the NDE-NM AFOM model.

TASK TITLE: 120 – Phase II CBA Review

LEAD ORGANIZATION: NAVSEA 04RP

SUPPORT ORGANIZATIONS: SPM, PARM

GOAL/DESCRIPTION

Perform Review CBA CSW of a SC in the Detailed Design Phase in order to provide ensure sufficient alteration SC cost/benefit information has been provided to support the Phase II Decision Board in making their "approval/disapproval" decision.

SUB TASKS	RESPONSIBILITY
○ Assign the appropriate CBA Reviewers to review SCD	○ CBA Coordinator (SEA 04RP)
○ Conduct CBA review IAW the CBA checklist	○ CBA Reviewers
○ Provide Comments to Submitter as required	○ CBA Reviewers
○ Review and respond to CBA Reviewer Comments	○ Submitter
○ Forward RCP package to Resource Sponsor	

INPUT

- CBA Cost Structure Worksheet (CSW) of the SCD Phase II with Technical Assessment, and AFOM data attached

OUTPUT (DELIVERABLES)

- Completed and reviewed CBA CSW
- Cost feedback for RCP; i.e., ROI, NPV, Pay Back Period, Life-cycle Costs and Cost savings/Avoidance

BUSINESS RULES (CRITERIA)

A. NAVSEA 05C will provide updated escalation index tables (matrix of financial information (look up table) in NDE for current FY) from FMB, annually or as required. Made available to Submitters for their use in completing escalation calculations.
B. Captured sunk costs from the previous phase(s) as appropriate will be recorded in the CBA worksheet prior to proceeding to the DP.
C. Document Basis and assumptions used in development of Cost Estimates in NDE
D. Expectation for the fidelity of the cost estimate in Phase II is +/- 25% for developmental items. Greater confidence can be expected for repeat changes, ACAT programs, COTS solutions and Technology turnover with respect to spiral development.
E. CBA Review Process: See CBA checklist and CBA Tech Spec for details on reviewing responsibility and guidelines for review. This is Appendix A of the Surface Ships and Carriers EP for Modernization Management and Operations Manual.

TASK TITLE: 130 – Resource Sponsor Review of RCP

LEAD ORGANIZATION: NAVSEA 04RP

SUPPORT ORGANIZATIONS: SCD Submitter, OPNAV

GOAL/DESCRIPTION

Assemble RCP, a summary report from the SCD with full funding identified, for submittal to the Decision Boards for review.

SUB TASKS	RESPONSIBILITY
○ Compile results from SCD initial review for: • Technical Assessment • AFOM Assignment • Cost Data	○ SEA 04RP
○ Identify funding sources from SCD Header Data inputs including appropriate trade-offs from the FMP as required. Verify funding is executable within budget controls.	○ Resource Sponsor(s)
○ Pass to queue for DP 2	○ NAVSEA 04RP

INPUT

○ SCD with results from AFOM, Technical Assessment and CBA information with comments

OUTPUT (DELIVERABLES)

○ RCP with annotated funding sources with identified Trade-offs from the FMP, as required

BUSINESS RULES (CRITERIA)

A. The RCP will be extracted from the SCD and placed into the queue for DP 2 by SEA 04RP within two working days of receipt.
B. Any required Trade-offs may be recommended to come from the MP within the Resource Sponsor's code for out years, following the prioritization within the MP. Resource Sponsor must coordinate any changes with SCD Submitter.
C. For new SCDs requiring execution year funds, Resource Sponsor must coordinate with Budget Submitting Office and SCD Submitters prior to recommending Trade-offs. Any affected SCD will be updated to reflect designated adjustments within 10 working days from resolution.
D. For SCD(s) in execution year (beyond DP 3) if a reallocation of resources is required, the Budget Submitting Office must coordinate with the Resource Sponsor and appropriate Approval Authority. SCDs will be updated to reflect designated adjustments within 10 working days from resolution.
E. All sources of Trade-off funding must be identified, with associated impacts, in the Resource Sponsor comment block.
F. If RCP without identified funding is returned from Decision Board with recommendation to proceed due to merit, Resource Sponsor has five working days to identify offsets to the MP to fund SC (adjustments which include any SCD Post DP 3 should only be selected when there is no other alternative available).
   1. Any required Trade-offs may come from the MP, but Resource Sponsor shall adhere to Modernization prioritization.

2. Any Prior or Concurrent SCDs associated with an SCD being recommended for removal from the MP must be reviewed by the Decision Board members to determine if the prior or concurrent SCD(s) should proceed on their own, or be removed from the MP.
3. Resource Sponsor shall re-submit RCP to Decision Board for re-vote on merit (for comparison of recommendations for offsets to the MP).
4. If an agreement cannot be reached within two votes on adjustments to MP, RCP shall be sent to the O-6 Board VTC for adjudication. If an agreement cannot be reached there, RCP shall be sent to the next higher board for adjudication.
5. Emergent
   I. If the RCP is in support of an Emergent SC, the resource sponsor must validate funding availability prior to submission of the RCP to the Decision Board.

TASK TITLE: 140 – DP 2 Authorize Fund Design Development

LEAD ORGANIZATION: OPNAV, FLEET

SUPPORT ORGANIZATIONS: O-6, 1&2-Star Board and 3 Star Board

GOAL/DESCRIPTION

DP 2 modifies the MP with recommended full funding. Full funding identified will be submitted to the budget process to execute the MP. Make adjustments to the MP predicated upon feedback from any point in Phase III requiring a change in Cost, Schedule, Performance, Applicability, or any combination therein.

SUB TASKS	RESPONSIBILITY
O-6 Decision Board (<$50M Total Program Value) ○ Board disapproves SCD, placing in inactive status in NDE ○ Send back to Submitter for re-work ○ Approve SCD within threshold for inclusion in (or for Trade-offs removal from) the MP. If >$50 Million, endorse and send forward ○ Concur with proposed recommended funding ○ Send back RCPs to Resource Sponsor to re-identify funding source	○ Board Members
1&2 Star Decision Board ($50M and <$200M Total Program Value) ○ Endorse/override O-6 level RCP decisions ○ Send back to Submitter for re-work ○ Board authorizes placing SCD in inactive status ○ Approve SCD within threshold for inclusion in the MP. If >$200 Million, endorse and send forward. ○ Concur with proposed recommended funding. ○ Send back RCPs to Resource Sponsor to re-identify funding source.	○ Board Members
3 Star Decision Board ($200M and above Total Program Value) ○ Endorse/override O-6 and 1&2 Star level SCD decisions ○ Send back to Submitter for re-work ○ Approve SCD for inclusion in the MP ○ Board authorizes placing any SCD in active/inactive status (inactive status places the SCD in "History") ○ Concur with proposed recommended funding • If non-concurrence send back RCPs to Resource Sponsor to re-identify funding source ○ Recommend MP to CNO	○ Board Members

INPUT

- ○ Completed Phase II RCP with validated funding Sources
- ○ Completed Phase II RCP without validated funding requirements to be voted on merit
- ○ RCP with annotated funding sources and identified Trade-offs (based on priority) from the FMP, as required

OUTPUT (DELIVERABLES)

- Update MP (Block 70)

O-6 Decision Board

- All approved RCPs:
  - SCDs are placed in the MP
  - Proposed recommended funding
  - Recommendation to expedite
  - Recommendation to go to Phase III
  - Recommendations for 1&2 Star and 3 Star level RCPs
- Send back to Submitter for re-work
- All Disapproved RCPs:
  - Placing disapproved SCD in Inactive status
  - Recommendations for 1&2 Star and 3 Star level RCPs

1&2 Star Decision Board

- All approved RCPs:
  - SCDs are placed in the MP
  - Proposed recommended funding
  - Recommendation to expedite
  - Recommendation to go to Phase III
  - Recommendations for 3 Star level RCPs
- Send back to Submitter for re-work
- All Disapproved RCPs:
  - Placing disapproved SCD in Inactive status
  - Recommendations for 3 Star level RCPs

3 Star Decision Board

- All approved RCPs:
  - SCDs are placed in the MP
  - Approve funding
  - Approve expedite
    - Approve go to Phase III
  - Approved MP
- Send back to Submitter for re-work
- All Disapproved RCPs:
  - Placing disapproved SCD in Inactive status

BUSINESS RULES (CRITERIA)

General Rules that apply to all Boards

A. Board decisions are made based on a unanimous vote for the O-6 Board only. Upon completion of the voting by all responsible stakeholders, if the results of tally vote indicates a non-unanimous total, then voting will be reset and the RCP will immediately be sent back to the board for a re-vote. There will only be 1 re-vote allowed. If a unanimous vote is not reached after 1 re-vote, the RCP will be sent to the next higher board for resolution/adjudication. NOTE: Does not apply to C4I SFI CAT 1 and 2 SCDs.

B. The vote is based on the entire RCP, if a member of the board wants to change the Scope/Fielding Plan, it must be sent back to the Submitter for re-work/re-submission.

C. A “Yes” vote with comments that change the scope or applicability of the SCD is not permitted.

D. Voters for each RCP are determined based on individual voter "Swim Lanes"/functional responsibilities.
E. All SCDs approved by the appropriate Board, based on dollar threshold, will be added to the MP.
F. The MP will be reviewed by the 1 & 2 Star, and 3 Star Boards for Concurrence/Approval.
G. All SCs will be forwarded to the next level board for concurrence/adjudication.
H. The Submitter will be advised of final DP 2 disposition.
I. For Acquisition Programs the Submitter, Program Manager of Record, and MDA will be notified of any decision not recommending to be included in the MP.
   1. The Acquisition Program Manager will engage the appropriate Decision Board members to resolve issues associated with a not recommended SC vote.
   2. Should resolution be achieved, Acquisition Program Manager will engage the OPNAV Voting Member to re-initiate DP 2 vote.
   3. Should resolution not be achieved, the Navy Modernization recommendation with Decision Board comments will be forwarded to MDA for consideration at the appropriate Acquisition Milestone or decision. Ultimate authority of Acquisition Programs shall be retained by the MDA.
J. A SCD that is in an inactive status may only be brought back into the NMP by a Resource Sponsor or TYCOM active voting member. It will be brought back to the DP Decision Board that placed the SCD into an inactive status. (contact NDE administrator for process).
K. A SCD can only be re-activated and voted upon an additional two times, after which it will be placed in a permanent inactive status. (Inactive status can remain inactive in history in NDE).
L. Once a FP has been approved by the Decision Boards, it will remain in effect until the Decision Board has voted to change it. Pulling a SCD back for re-vote or re-work does not negate a previous Decision Board vote.

O-6 Decision Board

M. Shall meet continuously on a virtual basis and consider all RCPs. For items that are outside of their fiscal threshold (<$50M total program value) they make recommendations to higher Boards.
   1. All members have the opportunity to vote on all RCPs.
   2. Concur or non-concur with recommendation to expedite.
   3. Concur or non-concur with recommendation to go to the appropriate Phase.
   4. The voting process should be achieved within the following timelines:
      I. 5 working days to vote.
      II. 5 working days (per iteration) to adjudicate funding issues (associated with Funding Concurrence - resource identification). If Resource Sponsor fails to provide acceptable Trade-Off, within 3 iterations, the Board has the authority to approve IAW the SCD and forward to the next higher board for concurrence with no funding identified.

1&2 Star Decision Board

A. Will meet quarterly and prior to 3 Star Board, to review MP and to consider forwarded RCPs that fall within their monetary threshold ($50M and < $200M total program costs)
B. Concur or non-concur with recommendation to expedite.
C. Concur or non-concur with recommendation to go to the appropriate Phase.
D. The voting process Should be achieved within the following timelines:
   1. 20 working days to vote.

2. 5 working days (per iteration) to adjudicate funding issues (associated with Funding Concurrence - resource identification). If the Resource Sponsor fails to provide acceptable Trade-Off, within 3 iterations, the board has the authority to approve IAW the SCD and forward to the next higher board for concurrence with no funding identified.

3 Star Decision Board

A. Will meet quarterly to review MP and vote on forwarded RCPs that fall within their monetary threshold ($200M and above total program costs).
B. Approve/disapprove 1&2 recommendation.
C. The voting process Should be achieved within the following timelines:
   1. 60 working days to vote.
   2. 5 working days to adjudicate funding issues (associated with Funding Concurrence - resource identification). If the Resource Sponsor fails to provide acceptable Trade-Offs, the Board has the authority to approve IAW the SCD.
D. Will submit an annual MP to OPNAV.

NOTES/QUESTIONS

- SCD fielding plan for installations must stay within FMP established milestones, or have appropriate impact assessment/approvals to install

TASK TITLE: 150 – Phase II Rework

LEAD ORGANIZATION: PARM, LCM

SUPPORT ORGANIZATIONS: SCD Submitter, Decision Boards

GOAL/DESCRIPTION

To clarify/provide additional or revised SCD data to respond to questions or concerns from the Decision Board(s).

SUB TASKS	RESPONSIBILITY
○ Identify SCD issues that need to be resolved	○ Functional Groups (TAT/AFOM/CBA) ○ O-6, 1&2 Star and 3 Star Decision Boards
○ Assign back to the Submitter to correct minor issues	○ Functional Groups (TAT/AFOM/CBA)
○ Correct/provide requested SCD data	○ Submitter/Initiator

INPUT

- Required unclear, missing/incorrect data from Decision Boards

OUTPUT (DELIVERABLES)

- Revised SCD for resubmission

BUSINESS RULES (CRITERIA)

A. Request for rework will be sent back to the Submitter for adjudication of issues. A functional group(s) can not adjudicate the correction and resubmit back into the phase.
B. Submitter shall provide a revised SCD to the NMP for reconsideration at the appropriate DP.
C. In the course of re-working a SCD, the Submitter determines that the SC is no longer in the best interest of the Navy to accomplish and want it moved to an inactive status. They will resubmit a revised SCD, and shall provide a response to the appropriate Decision Board with a justification for the recommendation in the description block of the SCD.
D. Technical Assessment, AFOM and CBA will be updated with the revised SCD information, as required, and must be re-reviewed by the appropriate functional group(s) (i.e. TAT, AFOM, CBA, or any combination) prior to being presented to the Decision Board.

NOTES/QUESTIONS

TASK TITLE: 160 - Acquisition Milestone B (ACAT)

LEAD ORGANIZATION: PARM, LCM

SUPPORT ORGANIZATIONS: Applicable DASN, PEO

GOAL/DESCRIPTION

Execute an Acquisition Program Milestone Decision for an Acquisition Program considered under the NMP as a SCD.

SUB TASKS	RESPONSIBILITY
○ An SCD meeting the requirements of DOD 5000/SECNAV Instruction 5000.2B for designation as an Acquisition Program will be managed IAW Applicable Acquisition Program Regulations and Instructions	○ Acquisition Program Manager of Record and Submitter

INPUT

- Statutory and regulatory documentation for Acquisition programs IAW DOD 5000/SECNAV 5000 Series Instructions as required by the MDA
- DP 2 recommendation for the SCD from the EP
- Resource Sponsor full funding commitment for System Development and Demonstration

OUTPUT (DELIVERABLES)

- MDA Acquisition Decision Memorandum and approval to enter System Development and Demonstration Phase of an Acquisition program documented in NDE
- Approval for Final Design Development
- Recommendation for Full Rate Production

BUSINESS RULES (CRITERIA)

A. The SCD is not a substitute for the Statutory, Regulatory, and Requirements generation processes required of ACAT programs, abbreviated Acquisition programs, non-Acquisition programs, and rapid deployment capability programs. All Documentation, processes and policies identified in DoD 5000 series and SECNAV 5000 series instructions, as well as the Joint Capabilities Identification and Development System (JCIDS) Instruction shall be met. Navy Modernization policies, requirements and procedures shall also be met IAW the JFMM, and FMP Manuals. Where guidance and policy conflict for execution of designated Acquisition Programs, Acquisition And JCIDS policy will take precedent.

B. An SCD should be initiated and submitted, IAW the NMP, prior to the first Acquisition Milestone or Navy Program Decision Meeting.

C. For an Acquisition program, Initiator/Submitter shall identify the appropriate ACAT Program Level, the MDA, and Program Manager of Record, cite the JCIDS requirement document, and other Non-Navy Modernization activities affected.

NOTES/QUESTIONS

- Identify MDA format for inclusion in SCD/NDE

TASK TITLE: 170 – Design and Development

LEAD ORGANIZATION: PARM, TYCOM, TAT

SUPPORT ORGANIZATIONS: PARM, SYSCOM, PEO, ISEA, Planning Yard

GOAL/DESCRIPTION

Complete engineering, design and development of system/equipment specifications to produce design specifications.

SUB TASKS	RESPONSIBILITY
BLOCK 170.1 – 170.3 (Provide the following as required) ○ Develop supporting documentation. (TDP, ICD, Topside/EMI/RCS studies, etc) ○ Develop equipment specification ○ Determine applicable ship/class/site unique characteristics ○ Develop class/system integration requirements ○ Determine Flight unique characteristics. ○ POA&M is required for equipment development ○ Complete SCD	○ PARM/TYCOM/SPM

INPUT

- Approved Phase I SCD (if for a Phase IIa) or approved Phase II SCD or an initiated Phase III SCD (if entering NMP for the first time in Phase III)
- Other Supporting Documentations

OUTPUT (DELIVERABLES)

- SCD Phase IIa or Phase III and supporting documentation as required

BUSINESS RULES (CRITERIA)

A. The Submitter will assign the Developing activity to develop Phase IIa or Phase III SCD as required.
B. Submitter/PARM/TYCOM will utilize internal processes to complete engineering & design development and provide a SCD to the appropriate TAT CM.

TASK TITLE: 180 – Phase IIa/III Technical Assessment

LEAD ORGANIZATION: Core TAT - (PEO Ship & PEO Carriers)

SUPPORT ORGANIZATIONS: PARM, SYSCOM, PEO, ISEA

GOAL/DESCRIPTION

Review Phase II(a) and Phase III SCD and provide recommendations to the SPM. The review process will not include any subjective opinion of merit and all SCs shall receive fair, unbiased assessments by the 'Entitled' TAT.

SUB TASKS	RESPONSIBILITY
BLOCK 180.1 ○ Receives Phase IIa or III SCD and supporting documentation (if required). ○ Assign due date for reviews ○ Assign Core TAT Lead ○ Distribute change to Core TAT Lead ○ Distribute change and supporting technical documentation ○ Assign due date for review	○ TAT CM
BLOCK 180.2 through 180.5 ○ Phase IIa or III SCD forwarded to Virtual TAT (TWHs and Planning Yard are considered part of the Virtual TAT) as required ○ Assess the description, feasibility, and impacts of proposed change ○ Communicate with Initiator/Submitter to resolve issues if necessary ○ Identify Prior/Concurrent changes and existing changes that may be superseded/impacted ○ Determine supporting documentation as required ○ Review and provide assessment to TAT CM	○ Core TAT Lead
BLOCK 180.6 ○ Review/resolve issues ○ Schedule change for Configuration Change Board (CCB) as necessary	○ TAT CM
BLOCK 180.7 ○ Conduct CCB ○ Determine and document comments ○ Forward comments to SPM	○ CCB Chairman

BLOCK 180.8 and 180.9 ○ Returns SCD Phase IIa or III to TAT CM for resolution of issues ○ Forwards recommendation to AFOM/CBA	○ SPM

INPUT

- SCD Phase IIa or III and supporting documentation, including technical documentation for assessment

OUTPUT (DELIVERABLES)

- TAT CM review comments (Core and Virtual TAT comments will also be viewable in EP SW)
- SPM endorsed SCD Phase IIa or III with updated Phase II recommendations
- POC Notifications
- Technical review will include the following information:
  - Prototype required
  - Prior/Concurrent changes identified
  - Supporting documentation required
  - Superseded or redundant change
  - ForceNet compliant

BUSINESS RULES (CRITERIA)

A. Virtual TAT member from each organization is responsible for distribution and correlating responses of appropriate technical authorities. Virtual TAT member will respond back to Core TAT lead with one consolidated input.
B. NAVSEA 05w will validate SFI CAT assignments IAW CUSFFC/CPFINST 4720.3 (Series) and if in disagreement shall dialogue with the Submitter/PARM in order to ensure that the correct category is assignedCore TAT lead will review, consolidate, (any Virtual TAT comments) and forward to TAT CM.
C. TAT CM will consolidate comments NLT 60 working days and forward to SPM.
D. Should the SPM require additional clarification, endorsement will not be forwarded prior to attempting to issue resolution via TAT CM.
E. Unresolved issues will be noted in the Technical Assessment comments and forwarded.
F. A threshold goal to conduct the TAT review for Sustainment Type 1 and 2 actions shall be 10 working days once the Core TAT has concurred with the Submitter.

TASK TITLE: 190 – Phase IIa/III AFOM Review and Assignment

LEAD ORGANIZATION: CFFC (N8) AFOM Process Manager

SUPPORT ORGANIZATIONS: CNAF, CNSF, NETWARCOM, OPNAV N4/N8

GOAL/DESCRIPTION

The AFOM numerically translates stakeholder (TYCOM and OPNAV) interpretations of SP-21 Navy War Fighting and Readiness Priorities into a quantitative output that provides NMP Decision Board voters with a decision aid that quantifies the war fighting relevance and benefit of each proposed SC as it applies to one or more platform types. The overall AFOM score will support the calculation of the MP Priority Index Value (P-value).

SUB TASKS	RESPONSIBILITY
○ Review of individual SCDs by the cognizant TYCOM and assignment of standard rating scale index values to one or more of the SP-21 capability and suitability AFOM attributes to indicate "how much" the proposed change will benefit the priorities assigned in the model	○ TYCOM AFOM Change Coordinator
○ TYCOM(s) enters index values and supporting qualitative comments into NDE-NM based on internal staff and other SME inputs (including external sources) regarding the level of benefit provided	○ TYCOM AFOM Change Coordinator
○ TYCOM AFOM Change Coordinator electronically signs the SCD concurring with the Index values and comments in NDE-NM; including a recommendation for approval/disapproval	○ TYCOM AFOM Change Coordinator/C4I
○ Algorithm calculates Total AFOM and AFOM scores vs. each SP-21 Pillar as well as QOS/QOL	○ NAVSEA 04RP

INPUT

- ○ Static 3 Star weights in the NDE-NM AFOM Benefit Structure (updated annually per the Merit Assignment Process discussed earlier)
- ○ Phase IIa or Phase III SCD
  - Completed SPM recommendation
  - Mapped by one or more of the 61 Naval Capabilities or Functional Areas
  - Appropriate links and engineering and/or acquisition documents included as attachments
- ○ SCD attributes mapped via NDE into SP-21 Structure per AFOM Benefit Structure (see Process maps) and Standing Suitability and Capability Rating Scales for TYCOM data entry. This mapping will occur based on Submitter inputs to the SCD using the Naval Capabilities Checklist provided in the SCD AFOM section

OUTPUT (DELIVERABLES)

- SCD and RCP AFOM percentile scores
  - Output format is a percentile score on a scale of 1-100 e.g.: “35th” with the following default outputs on the SCD and RCP
  - Overall AFOM with the following sub categories of the overall AFOM displayed:
    - Capability AFOM
    - Suitability AFOM
    - Sea Base
    - Sea Strike
    - Sea Shield
    - ForceNet
    - QOS/QOL
  - Qualitative comments and a Recommendation for Approval/Disapproval
- Electronic “signature” in the AFOM section of the SCD authenticating concurrence with the AFOM scores, comments and approval/disapproval recommendation

BUSINESS RULES (CRITERIA)

The AFOM assignment process has a recommended completion window of 7 working days, measured from time of receipt of the SCD by the TYCOM AFOM Change Coordinator to submission of rating scale index values in NDE.

A. If the SCD does not apply to one or more Pillars noted above, “N/A” or “-“ will be displayed in those particular SCD/RCP fields.
   or, Reject for Re-Work with appropriate comments
   Note: An AFOM of “0” indicates that insufficient data was available for the TYCOM to complete an assessment.

B. SCD(s) routed to cognizant TYCOM AFOM Change Coordinator based on platform type and category. The AFOM change manager will specifically:
   Review the SCD for accuracy regarding mapping to the Capability and Suitability rating scales noted earlier and detailed below and alter the mapping as required; NDE must notify the Submitter of any changes made to functional areas or suitability attributes selected on the SCD.
   Examine the SCD to ensure validated and authoritative requirements are noted or referenced.
   Canvass appropriate SMEs internal and external to the TYCOM for input via an assign (to a reviewer) feature in the NDE-NM SCD.
   Review SME inputs.
   Enter Index values into NDE along with comments and recommendation for approval/disapproval.

C. NDE-NM will electronically route the SCD to the cognizant TYCOM AFOM Change Coordinator using the following rules:
   HM&E: Appropriate Platform TYCOM (Surface or Air).
   Combat System: Platform TYCOM, info NETWARCOM.
   Cross-Platform C4I: NETWARCOM; info Platform TYCOM(s).
   Cross-Platform HM&E: CFFC N43.

D. TYCOMs will validate Naval Capabilities mapping upon receipt of each SCD. If mapping changes are made by the TYCOM AFOM Change Coordinator, NDE will notify the Submitter that changes were made. A comments block will be available with the notification message for the TYCOM to enter any comments/rationale for the change.

At least one Naval Capability under the Capability Benefit must be checked for the Submitter to proceed with NDE processing of the SCD.

All SCDs will be assessed vs. the Suitability matrix in the AFOM benefit structure to receive a mandatory Suitability Assessment by the TYCOM.

HM&E SCs will also receive a minimum default classification under the SEA Base Pillar.

Training systems will be assigned to the capability or capabilities that the proposed SCD supports.

Medical ship changes will be assigned by default to the SEA Base Pillar under the appropriate logistics or medical capability.

E. The TYCOMs will establish, via internal administrative and procedural processes, applicable rating criteria, standardized SME Reading and Review Lists and Rating Guidelines; they will use applicable and existing data sources and databases to conduct the SME review. This process is handled offline of NDE.

F. Once staff or other inputs are collected, the index values will be manually entered by TYCOMs into NDE using standing AFOM Benefit Structure Suitability and Capability Rating Scales that reside in NDE. These scales will be accessible (write permission) by the TYCOMs only with the following exceptions:

Statutory (defined by law or directive) SCs and NPCs will not require rating scale access or TYCOM inputs (no AFOM is assigned in these specific cases).

"Parent" SCDs that describe an overall capability where a material solution is not developed shall have a maximum AFOM assigned. Subsequent "child" SCDs that delineate the material solution will have AFOM assigned per the Assign AFOM process. Statutory requirements, selected on the SCD via the Requirements checklist, will be assigned a default Maximum Overall AFOM (100th) and a statutory (S) identifier; the Maximum AFOM SCD will not be included in the Phase population or raw score calculations to avoid numerical perturbations (low Percentile scores) in the percentile calculations;

A maximum AFOM percentile score will be assigned by NDE-NM when two conditions are met: an SCD is defined as a "Parent" SCD, and an ACAT box is checked by the Submitter. Appropriate references to acquisition documentation must be identified as discussed earlier. SCDs that are "Parent" ACAT will not be included as part of the Phase population calculations for AFOM.

The SEA 04RP Process Administrator will have access to the rating scale inputs for administrative corrections as required and dictated by the appropriate TYCOM.

G. AFOM calculation methodology:

AFOM is calculated by TYCOM assignment of Index rating scale values, which articulate an improvement or degradation to a war fighting requirement/gap, existing ship, capability or system, to the weighted AFOM benefit structure if the change is installed. The index value is an integer that serves as a standard rating scale, defined in the range from 0-70 as follows:

70-Significant Improvement
60- Moderate Improvement
50-Marginal Improvement
40-No Change
30-Marginal Degradation
20-Moderate Degradation
10-Significant Degradation
0-Insufficient Information

Index values have underlying weights that are multiplied by all elements in the benefit structure and summed to provide an overall raw score. Each SCDs raw AFOM score is divided by the highest raw score in the Phase Population to create a normalized raw or "Percentile score" as noted earlier.

NDE will calculate the AFOM Percentile using SCs in "like" phases of development e.g. a Phase I SC Overall AFOM Percentile score would be calculated only against the population of SCDs that were in Phase I development and so forth.

SCDs categorized as "Emergent" will have an AFOM assigned.

If an SCD is applicable to multiple platforms, an AFOM will be calculated and displayed for each platform type.

H. Selectable Views in the SCD and RCP will include:
TYCOM AFOM Change Coordinator AFOM Comments block for a summary narrative
RCP-only: Drill-downs/Pull-downs to allow viewing of the TYCOM index rating values for each of the AFOM Benefit Structure attributes along with SME comments (if provided or forwarded by the TYCOM AFOM Change Coordinator).

I. Recommend approval/disapproval selection menu for TYCOM AFOM Change Coordinator use as described above.

<u>The AFOM Process Manager provides oversight for:</u>

J. Assimilation, articulation, and dissemination of Integrated, Navy-Wide, War Fighting Priorities for Navy Modernization NMP Decision Board Members.
K. Development and updates of standard numerical models for AFOM calculation.
L. Periodic review of the AFOM process to ensure relevance to, and alignment with, Navy Wide priorities and Defense Planning Guidance.
M. Integration, alignment and cross-process methodology and tool sharing (e.g. SEA ENTERPRISE, TECH processes, NCDP, TMA/TMI, etc).

TASK TITLE: 190.1- Annual Merit Assessment Event

LEAD ORGANIZATION: CNAF, CNSF, NETWARCOM (NNWC)

SUPPORT ORGANIZATIONS: CFFC N8, OPNAV N4/N6/N7/N8, NAVSEA 04RP

GOAL/DESCRIPTION

Develop and update the annual weighting (prioritization) of a static, numerical model residing in NDE-NM that reflects the consensus of priorities derived via the NCDP.

SUB TASKS	RESPONSIBILITY
○ AFOM Process review and validation	○ CNSF/CNAF/NNWC (Process Owner)
○ Update/Validate AFOM Benefit Structure to mirror Sea Power 21 (SP 21) Pillar and Mission Capability or Functional Areas	○ CFFC N8
○ Originate a proposed annual MAQ using NCDP outputs	○ CFFC N8
○ Using Process Owner-approved software tools, generate the AFOM model weights (priorities)	○ NAVSEA 04RP
○ Update resulting AFOM model weights in NDE NM	○ NAVSEA 04RP

INPUT

- CNO-approved SP 21 Pillars and Mission Capability Areas from the NCDP
- CFFC N8 and TYCOM/OPNAV "Platform Wholeness" Assessment of Navy Wide Priorities and Defense Planning Guidance for validation and update of AFOM process

Note: A MAQ is a questionnaire that reflects the SP-21 Pillar and Capability Structure along with other readiness and sustainability attributes. The MAQ allows the CFFC N8, OPNAV N7 and the TYCOMs to articulate their interpretations of the Navy's priorities and articulate an overall consensus that can be translated into a numerical model residing in NDE-NM.

OUTPUT (DELIVERABLES)

- Annual CFFC N8-originated proposed MAQ
- Static 3 Star weights in NDE NM AFOM Benefit Structure

BUSINESS RULES (CRITERIA)

<u>CFFC N8 EP Interface Responsibilities:</u>

A. Assimilation, articulation, and dissemination of Integrated, Navy-Wide, War Fighting Priorities for NMP Decision Board Members.
B. Periodic review and as-required updates to the AFOM process, ensuring relevance to, and alignment with CNO Guidance, Navy Wide priorities and Defense Planning Guidance
C. Supports development and update of the Static 3 Star weights into the NDE-NM AFOM. Benefit Structure (model) (reviewed annually) as follows:
   The AFOM Benefit Structure (model) will mirror the CNO approved SP 21 Pillar and Mission Capability Package Structures (also known as Functional Areas).
   Process Owner approved software tools will be used to generate the weights during the process; these tools will be a stand-alone and will not require an NDE interface at this time.

CFFC N8 will articulate Navy-Wide Requirements via an annual proposed MAQ that reflects Numbered Fleet "gaps" in requirements, war fighting capability as well as other readiness and sustainability priorities. CFFC N8 will complete and distribute this annual proposed MAQ to NAVSEA 04RP.

NAVSEA 04RP will collect and enter the resultant MAQ(s) into the software tool(s) to calculate and distribute the resultant weights into the NDE-NM AFOM model.

The weights will be visible only to the SEA 04RP Process Administrator, the CFFC N8 and O-6, 1&2-Star and 3 Star Board Members.

D. The development and update of Static 3 Star weights for the AFOM Benefit Structure process has a threshold completion of two (2) months.

E. AFOM model weights will remain effective for one year, unless changes are required based on CNO or CFFC direction.

AFOMs will be recalculated for SCDs in Phase I and II review if weights change during the annual Merit Assignment process. SCDs in Phase IIa or III review will not receive recalculated AFOMs unless directed by the 3 Star Board.

The AFOM Process Owner(s) are the TYCOMs. A "lead" TYCOM will be chosen on a rotating basis from CNSF, CNAF and NNWC to periodically review and update the overall AFOM process, including software tools, assessment processes and other AFOM specific functions. CFFC N8 will provide a representative to ensure connectivity and relevancy with the NCDP.

<u>The AFOM Process Administrator is NAVSEA 04RP:</u>

F. Development, updates and validation of standard numerical models for AFOM calculation within NDE-NM.

G. Assists CFFC N8 with distribution and collection of MAQs and other administrative functions including entry of the resultant priorities into Process Owner-approved software analysis tools and the NDE-NM AFOM model.

TASK TITLE: 200 – Phase IIa/III CBA Review

LEAD ORGANIZATION: NAVSEA 04RP

SUPPORT ORGANIZATIONS: SCD Submitter

GOAL/DESCRIPTION

Review updated CBA of a SC in the Detailed Design Phase in order to ensure the accuracy of the total SC cost estimate in support of the Phase IIa or III Decision Board "approval/disapproval decision.

SUB TASKS	RESPONSIBILITY
○ Assign the appropriate CBA Reviewers to review SCD	○ CBA Coordinator (NAVSEA 04RP)
○ Analysis of CBA data	○ CBA Reviewers
○ Provide Comments to Submitter as required	○ CBA Reviewers
○ Review and respond to CBA Reviewer comments	○ Submitter
○ Forward package to decision board	○ NAVSEA 04RP

INPUT

- SCD Phase III with Technical Assessment, and AFOM data attached

OUTPUT (DELIVERABLES)

- SCD Phase III with inputs from Tech Assessment, AFOM and CBA attached as required
- Cost feedback for RCP; i.e., ROI, NPV, Pay Back Period, Life-cycle Costs and Cost savings/Avoidance
- Sent back to Submitter with comments
- Forward to Decision Board without comments for approval/disapproval

BUSINESS RULES (CRITERIA)

A. Impact Factors +/- 15% confidence level for developmental items. Greater confidence for repeat changes, ACAT milestone "A", COTS solutions and Technology turnover with respect to spiral development.
B. If the Total Cost Estimate increases more than 10% during the current Phase, a revised RCP shall be re-submit for approval at DP 2.
C. NAVSEA 05C will provide updated index tables annually or as required.
D. CBA comments will be returned to the Submitter within seven working days.
E. Submitter shall respond within three working days or SCD will be forwarded without comment.
F. Funding "Approval" Decision updates POM Input to MP.
G. Document Basis of Cost Estimates in NDE in the comments section of the CBA.
H. CBA Review Process: Phase III
The review is performed to ensure the validity of the data contain within the CSW. The following CSW sections will be reviewed: (See Appendix I for details).

General:
Section 1.b – Investment Costs
Section II – Appropriation/Program Element Funding Plan
Section III – Projected Savings and Cost Avoidance
Section IV – Installation Fielding Plan Data

Section III will ONLY be completed if there is a BASELINE comparison for this SC.

TASK TITLE: 210 – Phase IIa/III Resource Sponsor Review of RCP

LEAD ORGANIZATION: NAVSEA 04RP

SUPPORT ORGANIZATIONS: SCD Submitter

GOAL/DESCRIPTION

Assemble RCP, a summary report from the SCD with full funding identified, for submittal to the Decision Boards for review.

SUB TASKS	RESPONSIBILITY
○ Compile results from SCD initial review for: • Technical Assessment • AFOM Assignment • CBA	○ NAVSEA 04RP
○ Identify funding sources from SCD Header Data inputs including appropriate trade-offs from the FMP as required. Verify funding is executable within budget controls	○ Resource Sponsor
○ Pass to queue for DP 3	○ NAVSEA 04RP

INPUT

- ○ RCP with results from AFOM, and Technical Assessment and CBA information with comments
- ○ Resource Sponsor funding assessment's input to RCP
- ○ Returned RCP from Decision Board to Resource Sponsor for identification of adjustments for funding based on merit

OUTPUT (DELIVERABLES)

- ○ Votable RCP with validated funding requirements
- ○ Votable RCP without validated funding requirements to be voted on merit
- ○ RCP with annotated funding sources with identified Trade-offs from the FMP, as required

BUSINESS RULES (CRITERIA)

A. The RCP will be created within NDE-NM with inputs from the SCD and Resource Sponsor funding validation, and placed into the queue for DP 3 within 2 working days of receipt.

B. Any required Trade-offs may come from the MP within the Resource Sponsor's code for out years, following the prioritization within the MP. Resource Sponsor must coordinate any changes with SCD Submitter.

C. For new SCDs requiring execution year funds, Resource Sponsor must coordinate with Budget Submitting Office and SCD Submitters prior to recommending Trade-offs. Any affected SCD will be updated to reflect designated adjustments within 10 working days from resolution.

D. For SCD(s) in execution year (beyond DP 3) if a reallocation of resources is required, the Budget Submitting Office must coordinate with the Resource Sponsor and appropriate Approval Authority. SCDs will be updated to reflect designated adjustments within 10 working days from resolution.

E. All sources of Trade-off funding must be identified, with associated impacts, in the Resource Sponsor comment block.

F. If RCP without identified funding is returned from Decision Board with recommendation to proceed due to merit, Resource Sponsor has five working days to identify offsets to the MP to fund SC (adjustments which include any SCD Post DP 3 should only be selected when there is no other alternative available). Any required Trade-offs may come from the MP, but Resource Sponsor shall adhere to Modernization prioritization. Any Prior/Concurrent SCDs associated with an SCD being recommended for removal from the MP must be reviewed by the Decision Board members to determine if the Prior/Concurrent SCD(s) should proceed on their own, or be removed from the MP. Resource Sponsor shall re-submit RCP to Decision Board for re-vote on merit (for comparison of recommendations for offsets to the MP). If an agreement cannot be reached within two votes on adjustments to MP, RCP shall be sent to the O-6 Board VTC for adjudication. If an agreement cannot be reached there, RCP shall be sent to the next higher board for adjudication.

   Emergent:

   If the RCP is in support of an Emergent SC, the Resource Sponsor must validate funding availability prior to submission of the RCP to the Decision Board.

TASK TITLE: 220 – DP 3 (Approval of Funding for Implementation (Procurement and Installation))

LEAD ORGANIZATION: OPNAV, FLEET

SUPPORT ORGANIZATIONS: O-6, 1&2-Star Board and 3 Star Board

GOAL/DESCRIPTION

DP 3 modifies the MP with recommended full funding. Full funding identified will be submitted to the budget process to execute the MP. Make adjustments to the MP predicated upon feedback from any point in the NMP, post DP 3 requiring a change in Cost, Schedule, Performance, Applicability, or any combination therein, and to update the Ship Material Condition Metrics Model (SMCMM).

SUB TASKS	RESPONSIBILITY
O-6 Decision Board (<$50M Total Program Value) ○ Board disapproves SCD, placing SCD in inactive status in NDE ○ Send back to Submitter for re-work ○ Approve SCD within threshold for inclusion in (or for Trade-offs removal from) the MP. If >$50 Million, endorse and send forward ○ Recommend or concur with proposed recommended funding. • If non-concurrence send back RCPs to Resource Sponsor to re-identify funding source	○ Board Members
1&2 Star Decision Board ($50M and <$200M Total Program Value) ○ Endorse/override O-6 level RCP decisions ○ Send back to Submitter for re-work ○ Board authorizes placing SCD in inactive status ○ Approve SCD within threshold for inclusion in the MP. If >$200 Million, endorse and send forward ○ Recommend or concur with proposed recommended funding ○ If non-concurrence send back RCPs to Resource Sponsor to re-identify funding source	○ Board Members
3 Star Decision Board ($200M and above Total Program Value) ○ Endorse/override O-6 and 1&2 Star level SCD decisions ○ Send back to Submitter for re-work ○ Board authorizes placing SCD in inactive status, placing SCD in "History" ○ Concur with proposed recommended funding • If non-concurrence send back RCPs to Resource Sponsor to re-identify funding source ○ Recommend MP to CNO	○ Board Members

INPUT

○ Phase IIa/III – RCP
○ Completed Phase IIa/III RCP with validated funding requirements
○ Completed Phase IIa/III RCP without validated funding requirements to be voted on merit

- Phase IIa/III RCP with annotated funding sources with identified Trade-offs from the FMP, as required

OUTPUT (DELIVERABLES)

- Updated MP (Block 70)

O-6 Decision Board

- All approved RCPs:
  - SCDs are placed in the MP
  - Proposed recommended funding
  - Recommendation to expedite
  - Recommendations for 1&2 Star and 3 Star level RCPs
- Send back to Submitter for re-work
- All Disapproved RCPs:
  - Placing disapproved SCD in Inactive status
  - Recommendations for 1&2 Star and 3 Star level RCPs

1&2 Star Decision Board

- All approved RCPs:
  - SCDs are placed in the MP
  - Proposed recommended funding
  - Recommendation to expedite
  - Recommendations for 3 Star level RCPs
- Send back to Submitter for re-work
- All Disapproved RCPs:
  - Placing disapproved SCD in Inactive status
  - Recommendations for 3 Star level RCPs

3 Star Decision Board

- All approved RCPs:
  - SCDs are placed in the MP
  - Approve funding
  - Approve expedite
  - Approved MP
- Send back to Submitter for re-work
- All Disapproved RCPs:
  - Placing disapproved SCD in Inactive status

An approved Annual MP

BUSINESS RULES (CRITERIA)

General Rules that apply to all Boards:

A. Board decisions are made based on a unanimous vote for the O-6 Board only. Upon completion of the voting by all responsible stakeholders, if the results of the Tally Vote indicate a non-unanimous total, then voting will be reset and the RCP will immediately be sent back to the board for a re-vote. There will only be 1 re-vote allowed. If a unanimous vote is not reached after 1 re-vote, the RCP will be sent to the next higher board for resolution/adjudication. NOTE: Does not apply to C4I SFI CAT 1 and 2 SCDs.

B. The vote is based on the Entire RCP. If a member of the board wants to change the Scope, it must be sent back to the Submitter for re-work/re-submission.

C. A "Yes" vote with comments that change the scope or applicability of the SCD is not permitted.
D. Voters for each RCP are determined based on individual voter "Swim Lanes"/functional responsibilities.
E. All SCDs approved by the appropriate Board, based on dollar threshold, will be added to the MP.
F. The MP will be reviewed by the 1&2 Star, and 3 Star Boards for Concurrence/Approval.
G. SCs not recommended for approval will be forwarded to the next level board for adjudication.
H. The Submitter will be advised of final DP 3 disposition.
I. For Acquisition Programs the Submitter, Program Manager of Record, and MDA will be notified of any decision not recommending to be included in the MP. The Acquisition Program Manager will engage the appropriate Decision Board members to resolve issues associated with not recommended SCs. Should resolution be achieved, Acquisition Program Manager will engage the OPNAV Voting Member to re-initiate DP 3 Vote. Should resolution not be achieved, the Navy Modernization recommendation with Decision Board comments will be forwarded to MDA for consideration at the appropriate Acquisition Milestone or decision. Ultimate authority of Acquisition Programs shall be retained by the MDA.
J. A SCD that is in an inactive status may only be brought back into the NMP by a Resource Sponsor or TYCOM active voting member. It will be brought back to the DP Decision Board that placed the SCD into an inactive status. (Contact NDE administrator for process).
K. A SCD can only be re-activated and voted upon two times from the initial vote. (Inactive status can remain inactive in history in NDE).
L. Once a FP has been approved by the Decision Boards, it will remain in effect until the Decision Board has voted to change it. Pulling a SCD back for re-vote or re-work does not negate a previous Decision Board vote.

O-6 Decision Board

Shall meet continuously on a virtual basis and consider all RCPs. For items that are outside of their fiscal threshold (<$50M total program value) they make recommendations to higher Boards.

M. All members have the opportunity to vote on all RCPs.
N. Concur or non-concur with recommendation to expedite.
O. Concur or non-concur with recommendation to go to Phase IIa.
P. The voting process will be achieved within the following timelines:
   - 5 working days to vote
   - 5 working days (per iteration) to adjudicate funding issues (associated with Funding Concurrence - resource identification). If the Resource Sponsor fails to provide an acceptable Trade-Off, within 3 iterations, the Board has the authority to approve the SCD and forward to the next higher board for concurrence with no funding identified

1&2 Star Decision Board

Will meet quarterly, prior to 3 Star Board, to review MP and to consider forwarded RCPs that fall within their monetary threshold (> $50 M and < $200M total program costs)

Q. Concur or non-concur with recommendation to expedite.
R. Concur or non-concur with recommendation to go to Phase IIa.
S. The voting process will be achieved within the following timelines:
   - 20 working days to vote

- 5 working days (per iteration) to adjudicate funding issues (associated with Funding Concurrence - resource identification). If the Resource Sponsor fails to provide an acceptable Trade-Off, within 3 iterations, the Board has the authority to approve the SCD and forward to the next higher board for concurrence with no funding identified

3 Star Decision Board

Will meet quarterly to review MP and to consider forwarded RCPs that fall within their monetary threshold ($200M and above total program costs)

T. Approve/disapprove 1&2 recommendation.

U. The voting process will be achieved within the following timelines:
   - 60 working days to vote
   - 5 working days (per iteration) to adjudicate funding issues (associated with Funding Concurrence - resource identification). If the Resource Sponsor fails to provide an acceptable Trade-Offs, the Board has the authority to approve the SCD

V. Shall submit an annual MP.

NOTES/QUESTIONS

- SCD fielding plan for installations must stay within FMP established milestones, or have appropriate impact assessment/approvals to install

TASK TITLE: 230 - Phase IIa/III Rework

LEAD ORGANIZATION: PARM, SPM

SUPPORT ORGANIZATIONS: SCD Submitter, Decision Boards

GOAL/DESCRIPTION

To clarify/provide additional or revised SCD data to respond to questions or concerns from the Decision Board(s).

SUB TASKS	RESPONSIBILITY
○ Identify SCD issues that need to be resolved	○ Functional Groups ○ O-6, 1&2 Star and 3 Star Decision Boards
○ Assign back to the Submitter to correct minor issues	○ Functional Groups (TAT/AFOM/CBA)
○ Correct/provide requested SCD data	○ Submitter/Initiator

INPUT

- Required unclear, missing/incorrect data from Decision Boards

OUTPUT (DELIVERABLES)

- Revised SCD for resubmission

BUSINESS RULES (CRITERIA)

A. Request for rework will be sent back to the Submitter for adjudication of issues. A functional group(s) can not adjudicate the correction and resubmit back into the phase.
B. Submitter shall provide a revised SCD to EP for reconsideration at the appropriate DP.
C. Submitter, if they elect not to resubmit a revised SCD, shall provide a response to the appropriate Decision Board with a justification for the recommendation in the description block of the SCD.
D. Technical Assessment, AFOM and CBA will be updated with the revised SCD information, as required, and must be re-reviewed by the appropriate functional group(s) (i.e. TAT, AFOM, CBA, or any combination) prior to being presented to the Decision Board.

NOTES/QUESTIONS

TASK TITLE: 240 - Acquisition Milestone C (ACAT)

LEAD ORGANIZATION: PARM, SPM

SUPPORT ORGANIZATIONS: Applicable DASN, PEO

GOAL/DESCRIPTION

Execute an Acquisition Program Milestone Decision for an Acquisition Program considered under the NMP as a SCD.

SUB TASKS	RESPONSIBILITY
○ An SCD meeting the requirements of DoD 5000/SECNAV Instruction 5000.2B for designation as an Acquisition Program will be managed IAW applicable Acquisition Program Regulations and Instructions	○ Acquisition Program Manager of Record and Submitter

INPUT

- Statutory and regulatory documentation for Acquisition programs IAW DoD 5000/SECNAV 5000 Series Instructions as required by the MDA
- DP 3 recommendation for the SCD from the NMP
- Resource Sponsor full funding commitment for Production and Deployment, and logistics elements

OUTPUT (DELIVERABLES)

- MDA Acquisition Decision Memorandum and approval to enter Production and Deployment Phase of an Acquisition program documented in NDE and attached to the SCD through CYBERDOCS

BUSINESS RULES (CRITERIA)

A. The SCD is not a substitute for the Statutory, Regulatory, and Requirements generation processes required of ACAT programs, abbreviated Acquisition programs, non-Acquisition programs, and rapid deployment capability programs. All documentation, processes and policies identified in DoD 5000 series and SECNAV 5000 series instructions, as well as the JCIDS instruction shall be met. Navy Modernization policies, requirements and procedures shall also be met IAW the JFMM, and FMP Manuals. Where guidance and policy conflict for execution of designated Acquisition Programs, Acquisition and JCIDS policy will take precedent.

B. A SCD should be initiated and submitted, IAW the NMP, prior to the first Acquisition Milestone or Navy Program Decision meeting.

C. For an Acquisition program, Initiator/Submitter shall identify the appropriate ACAT Program Level, the MDA, and Program Manager of Record, cite the JCIDS requirement document, and other Non- Navy Modernization related activities.

NOTES/QUESTIONS

- Identify MDA format for inclusion in SCD/NDE

TASK TITLE: 245 – SCD Requires Modification

LEAD ORGANIZATION: Submitter/PARM

SUPPORT ORGANIZATIONS:

GOAL/DESCRIPTION

Update post Decision Point 3 (Decision Point 2 for Non-Permanent Change) SCD for changes affecting fielding plan, funding, hull/class applicability, or technical documentation.

SUB TASKS	RESPONSIBILITY
○ Modify the Class/Hull Applicability ○ Modify the CBA Cost Structure Worksheet ○ Modify the CBA Fielding Plan ○ Modify the TAT Tab ○ Attach technical documentation as required ○ Add clarifying comments as required	○ Submitter

INPUT

- DP 3 approved SCD (DP 2 approved for NPC)

OUTPUT (DELIVERABLES)

- Updated SCD

BUSINESS RULES (CRITERIA)

A. Once a SCD had been approved at Decision Point 3 (or DP 2 for NPC), modifications to the SCD must be assessed and approved. The level of review depends on the type of change.
B. Permanent SCDs will be returned to DP 3 for review and approval. NPC SCDs will be returned to DP 2 for review and approval.
C. The previous Decsion Board approval remains valid until the updated SCD has been reviewed and approved.
D. For changes to the installation schedule for a hull or site that crosses a fiscal year, the SCD CBA fielding plan shall be updated. If there are no funding impacts, the SCD is only resubmitted to the Board for decision.
E. For changes to the installation schedule for a hull or site that crosses a fiscal year, the CBA fielding plan and the CBA Cost Structure Worksheet, if there are funding impacts, shall be updated. The SCD is resubmitted to the Resource Sponsor for review and recommendation, then the SCD is forwarded to the Board for decision.
F. For funding changes, the CBA Cost Structure Worksheet shall be updated. The SCD is resubmitted to the Resource Sponsor for review and recommendation, then the SCD is forwarded to the Board for decision.
G. For changes in hull applicability, the SCD Header shall be updated to remove or add hulls as required and the CBA fielding plan shall be updated. If there are no funding impacts, the SCD is only resubmitted to the Board for decision.
H. For changes in class applicability, the SCD Header shall be updated to remove or add classes and hulls as required. The CBA fielding plan and the CBA Cost Structure Worksheet, if there are funding impacts, shall be updated. The SCD is resubmitted to the TAT, AFOM,

CBA and Resource Sponsor for review and recommendation, then the SCD is forwarded to the Board for decision.

I. Significant technical changes to the SCD will require NMP Secretariat reset of the SCD back to the beginning of the previous DP phase to allow the submitter/PARM access to the Technical Assessment Tab data fields for modification.

NOTES/QUESTIONS

TASK TITLE: 250 – Authorize and Issue Letter of Authorization (LOA)/Hull Modernization Plan (HMP) Generate/Update 2K and Update Maintenance and Modernization Business Plan (MMBP)/ Maintenance and Modernization Execution Plan (MMEP)

LEAD ORGANIZATION: SPM

SUPPORT ORGANIZATIONS: SYSCOM, PEO, RMC, PLATFORM TYCOM

GOAL/DESCRIPTION

Develop Hull Modernization Plan (HMP)/Advanced Planning Letter, and associated time-phased Advance Planning HMP (AHMP) and Execution Planning HMP (EHMP) (as applicable), issue Letter of Authorization (LOA), and generate/update 2Ks to reflect decisions made by the appropriate Decision Boards and depicted in the MP.

SUB TASKS	RESPONSIBILITY
○ 250.1 Issue Advance Planning Hull Modernization Plan (AHMP)/ Execution Planning Hull Modernization Plan (EHMP)/Advance Planning Letter	○ SPM (under current process)
○ 250.2 Create/Update the Hull Modernization Plan (HMP)/Letter of Authorization (LOA)	○ SPM/PLATFORM TYCOM (under current process)
○ 250.3 Issue Quarterly Installation Scheduling Message (surface ships only)	○ PLATFORM TYCOM
○ 250.4– Generate/Update 2K	○ RMC (under current manual process) ○ NDE/Integrated Class Maintenance Plan (ICMP) (*future automated capability*)

INPUT

- SCD and specific NDE-NM data elements (covered in BR 250.2), scheduled to an applicable hull as reflected in the MP
- C5I Baseline Status as discussed in BR 250.2 for Strike Force Interoperability (SFI) CAT 1 and 2
- Legacy Alteration (D, K, Engineering Changes) JCF and SAR approval status

OUTPUT (DELIVERABLES)

Time Phased, Critical Milestone based NDE-NM reports:

- AHMP/EHMP (as applicable) and associated Advance Planning Letter
- HMP/LOA (for CNO Availabilities)
- TYCOM Quarterly Installation Scheduling Message (for TYCOM availabilities and windows of opportunity)
- 2Ks

METRICS

- Number of ship changes reaching approved status after A-75 days divided by total number of modernization requirements in the HMP

- Work Package Volatility: Number of items approved by TYCOM after A-75 divided by original A-120 work package requirements plus number of new post A-75 items

BUSINESS RULES (CRITERIA)

A. The Hull Modernization Plan (HMP) is a time-phased planning document for hull-specific Modernization requirements; it is the authoritative input to the Maintenance and Modernization Business Plan (MMBP) (for surface ships only), Maintenance and Modernization Execution Plan (MMEP), SPM Letter(s) of Authorization, and the TYCOM Quarterly Scheduling Message(s) for each affected hull (for surface ships only); it is available as a report from NDE-NM. Time-phased planning and execution HMPs are used as noted below for the following purposes and critical milestone support:

B. The Advance Planning HMP (AHMP) is a planning HMP released in July each year of the hull specific ship changes planned for the year after the next fiscal year (Example: JUL 2006 release is for FY 2008) in support of the A-810 to A-450 rolling HMP NMP milestone (Required for surface ships only).

C. The Execution Planning HMP (EHMP) is an execution-year planning HMP released in March each year of the hull specific ship changes planned for the next execution year plus the first quarter of the next planning year (Example: MAR 2006 release for FY07 and first quarter FY08) in support of MMBP development. It is a snapshot of the current maturity and authorization status and industrial material and man-day estimates for planned ship changes (Required for surface ships only).

D. The Advanced Planning Letter for each availability is provided by the cognizant SPM to the NSA in accordance with Appendix G milestones. The NSA is advised of the SCs that have been Decision Board approved for install during the availability's Fiscal Year to facilitate necessary ship checks and other planning efforts. It also includes assignment of specific responsibilities related to availability planning and execution.

E. The HMP is used to create the hull specific A-360 Critical Milestone LOA, and subsequent change letters at A-180 and A-120 (as required) as well as any follow-on change messages. It is also used to develop the TYCOM Quarterly Scheduling Message for installations planned in other than CNO Availabilities (for surface ships). It is the single, authoritative document for final authorization status for all modernization actions aboard any surface ship.
   1. The HMP supports the Hull Readiness and Impact Assessments discussed in Block 265 by identifying approval or maturity elements that are at risk of completion by the critical milestones discussed in Appendix G.
   2. All NDE-NM users have HMP/AHMP/LOA and Quarterly Scheduling Message data view rights with the exception of sensitive or proprietary financial data.
      a. TYCOM, PARM, SPM and SEA 05W users will have edit rights for specific elements defined in BR 250.1 and 250.2.
      b. RMC users will have comment rights for ship change execution feedback and financial data entry for actual availability and AIT direct costs per Phase V business rules.
   3. The SPM LOA specifies to the NSA the SCs approved to be accomplished during a specific ship CNO availability.

F. Currently, all applicable SCs will be manually entered into the Shore side Current Ships Maintenance Projects (CSMP) for an individual hull's 2K, to account for installation and services request and provide a closed loop mechanism for feedback to reflect SC completion.
   1. *Future enhancement* will include the capability to automatically enter SC completion data for all applicable SCs into the CSMP for individual Hull's, a Master 2K, with associated 2K(s), as required, to account for individual planned actions (i.e., cost,

schedule, performance, CM, ILS, and QA); and provide a closed loop mechanism for feedback to reflect SC completion.

G. HMP/Advance Planning Letters/LOAs will be initiated and updated IAW the Navy Modernization milestones defined per Appendix G of the SSCEPM.

H. 2Ks will be initiated as defined in HMP/LOAs using the following process:

1. LOA/HMP report from NDE NM for the CNO/ Continuous Maintenance Availability (CMAV) Availability periods will be generated and data will be manually loaded into ICMP for creation of Master and applicable associated 2K(s) (for surface ships only). 2Ks will be generated for Carrier availabilities as delineated in the Carrier Team One Availability Work Package (AWP) Desk Guide.
2. *Future Automated capability* will be via data transfer at the Class level from NDE-NM to the ICMP. As a SCD transitions from one Phase to another, data updates will take place between NDE and ICMP to complete all required data fields within the Master and all associated 2K(s). As a SC is scheduled in NDE for installation, the Hull specific 2K(s) will migrate from the ICMP to the appropriate Hull CSMP.

NOTES/QUESTIONS

Carriers are not included in the MMBP, therefore there is no requirement for an AHMP or EHMP to support Carrier availabilities. These reports are still available and may be used as desired.

TASK TITLE: 250.1 – Advance Hull Modernization Plan (AHMP)/Advance Planning Letter/Execution Hull Modernization Plan (EHMP) (required for surface ships, optional for carriers)

LEAD ORGANIZATION: SPM, PLATFORM TYCOM

SUPPORT ORGANIZATIONS: RMC, PARM, ISEA

GOAL/DESCRIPTION

Develop AHMP/EHMP to support SPM development of the HMP/LOA and RMC development of the Maintenance and Modernization Business Plan (MMBP) IAW the JFMM.

SUB TASKS	RESPONSIBILITY
○ Create an annual AHMP/EHMP in support of Advance Planning Letters and the MMBP for each surface ship as noted in Block 250	○ SPM

INPUT

- Modernization Windows and CNO Availability schedules accurately updated in NDE NM by the TYCOM
- Previously issued Advanced Planning Letter/LOAs
- SCs scheduled in NDE NM (including NPCs) by responsible SPMs/PARMs/ISEAs
- Certification statuses updated in AMPS for C5I ship changes

OUTPUT (DELIVERABLES)

- AHMP/EHMP query available to SPM. RMC and other appropriate agencies involved in ship maintenance and modernization

BUSINESS RULES (CRITERIA)

A. The MMBP is developed by the RMC Maintenance Teams IAW the JFMM COMNAVSURFOR NOTICE 4703 Addendum 3 dated 21 APR 05.
B. The Advance Planning HMP (AHMP) is a planning HMP released in July each year of the hull specific ship changes planned for the year after the next fiscal year (Example: JUL 2006 release is for FY 2008) in support of the A-810 to A-450 rolling HMP Navy Modernization milestone.
C. The Execution Planning HMP (EHMP) is an execution-year planning HMP released in March each year of the hull specific ship changes planned for the next execution year plus the first quarter of the next planning year (Example: MAR 2006 release for FY07 and first quarter FY08) in support of MMBP development. It is a snapshot of the current maturity and authorization status and industrial material and man-day estimates for planned ship changes.
D. The AHMP/EHMP is created from the standard NDE-NM HMP Query defined in BR 250.2.
E. *Future Capability* – The AHMP/Advanced Planning Letter will be auto-generated from NDE-NM.
F. Provide the Planning Year AHMP/Advanced Planning Letter NLT 31 March NLT 31 July to the appropriate RMC based on the homeport of each ship.

<u>General:</u>

A. The AHMP/HMP is the ONLY recognized authoritative input to the ship's Maintenance and Modernization Business Plan (MMBP).

B. The Advanced Hull Modernization Plan (AHMP) is created IAW the Navy Modernization milestone charts in Appendix G, prior to scheduled availability and constitutes the authoritative SPM source for advanced planning efforts. It is a snap-shot of the HMP at that milestone point in time.

C. SPM LOAs will be created from an enclosure created automatically from the AHMP/HMP. The format of the enclosure will be a subset of the data fields listed below and is in the following categorized format; the AHMP and HMP are the ONLY source of modernization data permitted for use in the authorization letters from the SPM:
   1. Authorized: Created from HMP Green Zone changes or legacy alterations.
   2. PNA: Yellow and Blue HMP Zone changes or legacy alterations.
   3. Deferred: HMP Gray Zone Items.
   4. The LOA cover letter will be generated and electronically linked to the HMP/AHMP for each hull. Electronic digital signature by the SPM via Public Key Infrastructure (PKI)/Common Access Card (CAC) will constitute SPM approval.
   5. Fields that populate the LOA in each above category are:
      a. ALT Identifier (SCD # or Legacy ALT ID)
      b. Prior or Concurrent SCs or legacy alterations
      c. SC or Alteration Brief Short Title (from SCD or legacy Ship Alteration Record (SAR))

D. All NDE-NM users will have AHMP/HMP view rights.

E. Only TYCOM, SPM and SEA 05W users will have edit rights.

F. PARMs and RMC users will have comment rights in the comments field(s).

TASK TITLE: 250.2 – Create/Update Hull Modernization Plan (HMP)/Letter of Authorization (LOA)

LEAD ORGANIZATION: SPM, PLATFORM TYCOM

SUPPORT ORGANIZATIONS: RMC, PARM, ISEA

GOAL/DESCRIPTION

Develop HMP to support the update of the MMBP and development of the hull specific Critical Milestone LOAs and required change letters as defined in Appendix G and the JFMM as well as TYCOM Quarterly Scheduling Messages.

SUB TASKS	RESPONSIBILITY
○ Create the annual HMP/LOA for each ship at the A-X critical milestones defined in Appendix G and the JFMM	○ SPM/PLATFORM TYCOM

INPUT

- Modernization Windows and CNO availability schedules accurately updated in NDE NM by the PLATFORM TYCOM
- Previously issued HMP/LOAs
- SCs scheduled in NDE NM (including NPCs) by responsible SPMs/PARMs/ISEAs
- C5I Certification statuses updated in AMPS for C5I ship changes
- Material and ILS Certifications available in NDE-NM for each hull

OUTPUT (DELIVERABLES)

- MMBP Inputs, LOAs, Change Letters to LOAs and TYCOM Quarterly Scheduling Messages

BUSINESS RULES (CRITERIA)

A. The MMBP is developed by the RMC Maintenance Teams IAW the JFMM.

B. The HMP is used to create the hull specific A-360 Critical Milestone LOA, and subsequent change letters at A-180 and A-120 as well as any follow-on change messages. It is also used to develop the TYCOM Quarterly Scheduling Message for installations planned in other than CNO Availabilities. It is the single, authoritative document for final authorization status for all modernization actions aboard any surface ship or aircraft carrier.

C. The LOA cover letter will be generated and electronically linked to the HMP/AHMP for each hull. Electronic digital signature by the SPM via PKI/CAC will constitute SPM approval.

D. Fields that populate the LOA in each above category are:
   1. ALT Identifier (SCD # or Legacy ALT ID)
   2. Prior or Concurrent ship changes or legacy alterations
   3. Ship Change or Alteration Brief Short Title (from SCD or legacy ship alteration record (SAR))

E. There are two status categories of SCs on the HMP/LOA: “Authorized” and “PNA”. To be authorized, a SC must satisfy all requirements IAW all Hull Installation Readiness Assessments as defined in BR 265.

F. HMP Format includes the following fields automatically populated/mapped from NDE-NM, AMPS, NTIRA and the NDE Material Module.
   1. Displayed fields are user-selectable and filterable:
      a. ALT Identifier (SCD # or Legacy ALT ID)

b. Prior or Concurrent ship changes or legacy alterations
c. Ship Change or Alteration Brief Short Title (from SCD or legacy ship alteration record (SAR))
d. Developing Activity using NDE-NM SCD Activity Tables
e. Installing Activity: AIT or Industrial
f. Duration in days
g. Accomplishment Start Date
h. Accomplishment End Date
i. Budget Line Item (BLI)
j. Budget Submitting Office (BSO)
k. Entitled Process SCD Status with active link to NDE-NM SCD record for detailed user review:
    i. "Phase I, II or III review"
    ii. "Approved (with date) at DP 1, DP 2 or DP 3" with record date of approval at previous decision point(s)
l. Legacy JCF/SAR approval status
    iii. YES, NO and approval date if YES
m. Ship Installation Drawing (SID) status code ("C" for class specific; "H" for hull specific)
n. Integrated Logistics Support (ILS) status code
o. ESWBS and SWLIN
p. Material Status Code
q. SPM Authorization (Program and Joint funding Ship Changes);TYCOM Concurrence (Fleet Ship Changes): AUTHORIZED (A), PLANNED BUT NOT AUTHORIZED (PNA), or TBD
r. C5I Baseline Status for SFI CAT 1 and 2 Ship Changes (B: Baseline Decision Board Approved; I: Initial Baseline Review)
s. For CAT 1 and 2 C5I: WSI2T and WSERB Certifications provided from SCD in NDE-NM with YES/NO status
t. 7 Critical Milestones completion status from ONE Book Appendix G
u. FLAG: EMERGENT
v. FLAG: AT RISK TO BREACH A-120 Critical Milestone
w. FLAG: AT RISK TO BREACH A-75 Critical Milestone
x. Comments field with up to 100 word entry (entire entry as pop-up)

2. The HMP will group ship changes/alterations in the following color-coded scheme:
    a. Green: Program and Fleet Ship Changes Ready for Installation grouped for execution for the following availability types:
        i. SRA (with dates)
        ii. Window of Opportunity (WOO) (with dates)
        iii. CMAV (with dates)
        iv. DEPLOYMENT IMAV (EMERGENT FLAG SET ONLY) (no dates for classification purposes)
        v. "Ready for installation" is defined as SCs or Legacy alterations meeting ALL of the following:
            1. Duration can be accomplished in listed Accomplishment Start and End Dates
            2. Approved at DP3 (DP2 for NPC)
            3. Hull specific SIDs Approved
            4. ILS Certified (SPM)
            5. For C5I CAT 1 and 2 Items: Approved as BRB as status code "B"

6. Material Status code of ???
7. All applicable SEA 05W Certifications YES
8. SPM (Program/Joint) or TYCOM (Fleet) Authorization: A
9. Prior or concurrent ship changes meeting all of the above a-h criteria

b. Yellow: Program and Fleet Ship Changes Awaiting Maturity
   i. "Awaiting Maturity" is defined as ship changes or Legacy alteration in the following status:
      1. Duration can be accomplished in listed Accomplishment Start and End Dates
      2. Approved at DP 3 (DP 2 for NPC)
      3. Class Specific SIDS complete ("C"); Hull specific SIDs in progress with expected approval date (from SCD or SAR) outside of A-120
      4. ILS Certification in progress with expected approval date (from SCD or SAR) outside of A-120
      5. For C5I CAT 1 and 2 Items: Approved as BRB as status code "B"
      6. Material Status: Delivery date coincides on or before Accomplishment Start Dates
      7. All applicable SEA 05W Certifications anticipated completion on or before A-150
      8. SPM (Program/Joint) or TYCOM (Fleet) Authorization: PNA
      9. Prior or concurrent ship changes meeting all of the above a-h criteria

c. Red: Program and Fleet Ship Changes At Impact of Critical Milestone Breach (A-120 or A-75) or accomplishment in Jeopardy:
   i. Defined as ANY or ALL of the following:
      1. Duration CANNOT be accomplished in listed Accomplishment Start and End Dates
      2. Approval at DP 3 (DP 2 for NPC) CANNOT occur by A-120/A-75 under notional NMP process timelines for review and approval
      3. Hull specific SIDs in progress with expected approval date (from SCD or SAR) INSIDE of A-120 Critical Milestone
      4. ILS Certification in progress with expected approval date (from SCD or SAR) INSIDE of A-120
      5. For C5I CAT 1 and 2 Items: NOT approved as BRB as status code "B"
      6. Material Status: Delivery dates occur AFTER Accomplishment Start Dates
      7. All applicable SEA 05W Certifications anticipated completion INSIDE of A-120 Critical Milestone
      8. SPM (Program/Joint) or TYCOM (Fleet) Authorization: PNA
      9. Prior or concurrent ship changes meeting all of the above a-h criteria
   ii. FLAG: BREACH TO TBD (A-75 or A-120) Critical Milestone set to YES

d. Blue: "Alterations DP3 (or DP2 for NPC) approved and Mature AFTER A-75 Critical Milestone (aka Late Adds)
   i. TYCOM and SPM Authorization to AUTHORIZED (A) required to move to Green Zone
   ii. Reason code drop down in Comment Field:
      1. EMERGENT Requirement (EMERGENT Flag must be set to YES)
      2. Others? (TBD)

e. Gray: "Deferred or Previously Scheduled in FY"
   i. Reason Code Drop down in Comments:

1. Cancelled (removed from Modernization Plan or dropped from C5I Approved Baseline)
2. Disapproved at DP 2 or DP 3

f. White: "Permanent Ship Changes approved at DP 1 or DP 2" (Permanent Only): Grouped by Decision Point with Current NMP Review Status:
   i. Phase I, II Submittal Review, SPM Review, AFOM, CBA Review
   ii. Resource Sponsor Review or Voting

g. Purple: Ship Changes that are completed/installed:
   i. Completion date
   ii. Action button: Automated generation and update of hull CSMP via automated 2K selection in Purple Zone menu
   iii. Action Button: Automated generation of CK
   iv. Action Button: Automated Update to CDMD-OA

G. Automated Notification to SCD Submitter to update cost and other Phase IV/V NMP data as defined in business rules for same.

NOTES/QUESTIONS

Special Note for Carriers:
The A-360 LOA shall include all SCs which have been APPROVED by the Decision Boards for installation during the Fiscal Year which includes the CNO availability. The HMP may be used as an input, however for visibility of all planned SCs the LOA shall also include approved SCs that have not yet been scheduled in NDE-NM. LOA changes will be handled through the Modernization Readiness Assessment (MRA) process documented in the Carrier Team One IPT4ACM Desk Guide. The MRA process satisfies the requirements of BR 265 and uses a color scheme equivalent to the HMP color scheme described above.

TASK TITLE: 250.3– Issue Quarterly Installation Scheduling Message (surface ships only)

LEAD ORGANIZATION: PLATFORM TYCOM

SUPPORT ORGANIZATIONS: SPM, RMC, PARM, ISEA, Planning Yard

GOAL/DESCRIPTION

Develop Quarterly Installation Scheduling Message for CMAVs 60 days prior to the beginning of the quarter and issue 30 days prior to the beginning of the quarter.

SUB TASKS	RESPONSIBILITY
○ Generate and issue Quarterly Installation Scheduling Message	○ PLATFORM TYCOM

INPUT

- SCs approved at DP 2 for NPC installations or DP 3 (Phase IIa/III) for permanent installations
- Ship availability schedules updated in NDE NM by PLATFORM TYCOM
- SCs scheduled in NDE NM by responsible SPMs/PARMs/ISEAs
- HMP/LOA
- Hull Readiness Assessment

OUTPUT (DELIVERABLES)

- Quarterly Installation Scheduling Message

BUSINESS RULES (CRITERIA)

Condition for inclusion in the Quarterly Installation Scheduling Message is a SC must satisfy all requirements IAW all Hull Readiness Assessments as defined in BR 265.

TASK TITLE: 250.4 – Generate/Update 2K

LEAD ORGANIZATION: SPM, PARM, PLATFORM TYCOM

SUPPORT ORGANIZATIONS: RMC, ISEA

GOAL/DESCRIPTION

2Ks will be generated after DP 2 for NPCs and DP 3 (Phase IIa/III) for permanent SCs. *Future enhancement:* 2Ks will be auto-generated when minimum fields of the SCD have been completed.

SUB TASKS

SUB TASKS	RESPONSIBILITY
○ Manual Process: • 2Ks will be initiated as defined in HMP/LOAs ○ Automated Process (*future enhancement*): • 2Ks will be initiated into the ICMP and updated to reflect all planned installations for the applicable Hull(s)	○ RMC ○ NDE/ICMP/CSMP

INPUT

- ○ Approved SCD
- ○ *Future enhancement* will be:
  - Minimum Data field requirements to generate a 2K for all applicable installations as identified in the SCD

OUTPUT (DELIVERABLES)

- ○ 2K to support installation of each SC in the ICMP

BUSINESS RULES (CRITERIA)

A. Navy policy (OPNAV 4790.4D (3M Manual) and CNSFNOTE 4700) instructions state that "all off-ship activity maintenance and modernization work (work assigned a TYCOM Screening Code of 1, 2 and 3) will be documented by a 2K."

B. The requirement to document completion 2K's is contained in NAVSEAINST 4790.8B section 3.4.6.

C. Upon issuance of the HMP/LOA, initiation and update of Master with associated 2K(s) will be generated. As HMP/LOAs are updated, corresponding 2K(s) shall be initiated/updated (as applicable) to reflect all planned installations for the appropriate Hull addressed in the letter. The 2K initiation/update process will be accomplished in a manual manner until such time as the NDE/ICMP automated process has been established. Upon integration of the two databases, business rule D will be invoked. 2Ks will be generated for Carrier availabilities as delineated in the Carrier Team One Availability Work Package (AWP) Desk Guide.

D. In the interim, OPNAV 4790 CK(s) must be manually generated.
E. *Future Enhancement*: A Master 2K, which provides the description/identification of a SC, will be generated and associated 2Ks will be generated for the following specific categories (as applicable):
   1. Information related to estimated cost for installation.
   2. Estimated installation schedule.
   3. Planned installation and checkout testing pass/fail criteria.
   4. Planned Quality Assurance requirements to support installation.
   5. Planned ILS deliverables prior to initial installation as identified in ILS Certifications.
   6. Planned configuration to be installed as identified in OPNAV 4790 CK to include Hardware, Software, and Firmware (as applicable).
   7. Impact Assessments as defined by the Hull Installation Readiness Assessment (BR 265)
   8. Once Master 2K has been closed, ICMP will update NDE with completion data, including "actual" cost data.
   9. Upon completion of all CNO/CMAV(s) Availabilities for a given Ship, ICMP will generate a report of all open 2K(s) (by SCD number) within 5 working days.
   10. A 2K will be generated and updated as sections of the SCD are updated, through SC maturity (primarily in Phases III and IV), (*Future enhancement*; data will be pushed automatically from NDE to ICMP/CSMP for updates to the 2K as part of the Automated NDE/ICMP Capability).

NOTES/QUESTIONS

TASK TITLE: 265 - Hull Installation Readiness and Impact Assessment

LEAD ORGANIZATION: SPM, SYSCOM, FLT COMMANDER, PLATFORM TYCOM, PARM, LCM

SUPPORT ORGANIZATIONS: Applicable DASN, PEO

GOAL/DESCRIPTION

Complete all required design, procurement of material, pre-installation testing, and obtain all required certifications/impact assessment(s) prior to final installation. Evaluate maturity of an installation and determine if the SC is ready for installation. Perform an impact assessment for SCs that have not achieved maturity IAW the Navy Modernization milestone charts in Appendix G to determine whether or not to proceed with installation planning.

SUB TASKS	RESPONSIBILITY
○ 265.1 Installation Procurement, Design and Advanced Planning	○ PARM
○ 265.1A Schedule SCD in NM	○ PARM
○ 265.1B CNO Availability Late Add	○ PARM, SPM and PLATFORM TYCOM
○ 265.2 Hull Installation Readiness Review	○ SPM and TYCOM for HM&E SCs
○ 265.3 Installation Maturity Determination	○ SPM and SYSCOM for C5I SCs
○ 265.4 Hull Installation Impact Assessment	○ SPM
○ 265.5 Operational Impact/Readiness Determination	○ PLATFORM TYCOM
○ 265.xx (Future Enhancement) Generate Readiness Assessment Form	

INPUT

- SCs approved at DP 2 for NPC installations or DP 3 (Phase IIa/III) for permanent installations
- AHMP/HMP/LOA
- Completed readiness assessment form (*Future Enhancement)*
- Documentation of completed milestones entered in appropriate authoritative data sources
- Installation impact(s), if any

OUTPUT (DELIVERABLES)

Installation recommendation based on maturity and installation impact.

BUSINESS RULES (CRITERIA)

Defined in Sub Task 265.1-265.5.

NOTES/QUESTIONS

TASK TITLE: 265.1 - Installation Procurement, Design and Advance Planning

LEAD ORGANIZATION: PARM, SPM, SYSCOM, PLATFORM TYCOM

SUPPORT ORGANIZATIONS: PEO, ISEA, Planning Yard, NSA

GOAL/DESCRIPTION

Develop ship specific documentation as required to install the SC on a specific ship; to include development of SIDs, ILS, procurement of material, installation POA&M and tasking of advance planning.

SUB TASKS	RESPONSIBILITY
○ SCD scheduled in NDE NM by A-180 (A-75 for ST 1 and ST 2) (265.1A)	○ PARM/SPM/SYSCOM
○ CNO Availability Late Add Process, if required (265.1B)	○ PARM/SPM/PLATFORM TYCOM
○ Complete Design Requirements	○ PARM/SPM/SYSCOM
○ Drawing Development	○ PARM/SPM/SYSCOM
○ Material Procurement	○ PARM/LCM/SPM
○ Advance Planning	○ PARM/SPM/NSA
○ Determine whether SIDs are required to install the SC	○ PARM/PLATFORM TYCOM
○ Prepare SIDs for use by the SC installer	○ Design Activity
○ Shipcheck	○ Planning Yard
○ Fund procurement of Material IAW the Navy Modernization milestones	○ Applicable OPNAV sponsor
○ Identify Material that are/with:	○ PARM/LCM/SPM/PLATFORM TYCOM
• All Headquarters System Command (HSC) Material	• Planning/Executing Yard
• Non-Standard	• ISEA
• Procurement Lead Time greater than 90 Days	• AIT
• Unit price greater than $5,000	• Other Designated Agent
• Logistically significant	
• Shock and/or vibration qualified items	
• Federal Supply System Managed Material (Navy/DLA)	
• Large quantities of Non-Logistically Significant	
▪ Raw Material for fabrication	
▪ Shop Stores/Shipyard Stock	
• Items requiring visibility for configuration tracking	
• SUBSAFE/Level 1 material for Submarines and Carriers	
• Material with design unique to the SC	
• Material with a history of procurement	

problems • Acquisition Advice Code J and Z material • Software • Firmware ○ Enter Material into NDE-NM Material List ○ Estimated Costs (Based on costs of material entered in NDE-NM Material List) ○ Procure HCPM • Push HSC Material ○ Procure Non-HSC Material ○ Requisition Non-HSC Material ○ Material Receipt Documented ○ Actual Costs (Enter into NDE-NM Material List) ○ For SFI Category 1 and 2 SCs, establish the SC in the ship's Baseline in accordance with the established FFC/CPF 4720.3 Series	○ PARM/SPM/SCD Submitter ○ SCD Submitter ○ Headquarters Systems Command ○ NAVICP/DLA/Installing Activity/NSA ○ NSA/Executing Activity ○ NSA/Executing Activity ○ SCD Submitter ○ PARM/CPF/NETWARCOM/SEA 05W/SPAWAR

INPUT

- SCs approved at DP 2 for NPC installations or DP 3 (Phase IIa/III) for permanent installations
- Equipment level drawings
- Any required shipboard surveys, studies or ship check data
- Documentation and Class Baseline drawings from scoping ship checks
- Technical Data, including; equipment outline drawings, Tech Manuals, vendor drawings, power requirements, weight & moment, HVAC requirements, shock/vibration, location requirements, auxiliary systems requirements, Software Description Documentation, Preliminary ICDs and external system interfaces
- Identification of equipment internals requiring modification or replacement
- Integration requirements (to include any Prior/Concurrent SCs and Legacy Alts)

OUTPUT (DELIVERABLES)

- Status of Design Requirements, Drawing Development, and Material Procure to support Hull Installation Readiness Assessment
- SID(s)
- Electronic Material List when required
- Work specifications, job summaries and cost estimates
- Updated planning 2K/CK data with final Production Representative information, within ICMP and CDMD-OA
- Finalized scope of changes required for specific installation
- Approved drawings including completed SIDs, and/or Interface Control Drawings, and/or production drawings

Phase IV

- Material list by installation
- Material removal list by installation
- NSN/RIC for new equipment

- Actual material procurement costs

Phase V

- As installed material configuration
- Actual installation costs
- Disposition of removed material

BUSINESS RULES (CRITERIA)

A. SCDs shall be scheduled in NDE NM after the first decision point based on the approved SCD Fielding Plan. If the SCD is not scheduled by A-180 (or A-75 for ST 1 and ST 2 SCDs), the PARM will submit a Late Add request to the PLATFORM TYCOM IAW Section 7.
B. Software/Hardware/Firmware changes, as a result of design completion, will be identified and/or refined to reflect production configuration.
C. Conduct ship checks, as required, to clarify extent of shipboard modification and/or to define detailed requirements for all shipboard interfaces.
D. Drawings, change instructions, material procurement and logistics will be developed or accomplished as required utilizing internal processes.
E. If the scope of the SC affects only internal modifications to the equipment, SIDs are not required.
F. SCs that do not require SIDs can proceed directly to the 'Procure Material/Software' stage.
G. Equipment level drawings should be developed to ensure that all technical requirements are identified.
H. SCs that require shipboard modifications will have SIDs prepared and/or approved by the Planning yard to provide detail instructions for execution of the changes required to the ship itself.
I. Planning Yard approves all required SIDs and obtains any supplemental technical approvals required.
J. Distribution of final approved SIDs will be made IAW the Navy Modernization milestone charts in Appendix G.
K. Upon completion of review by NAVSEA, Planning Yard will incorporate comments and approve final SIDs. PARM/LCM, or their designated representatives, will approve System/Equipment level drawings.
L. The SCD Submitter shall ensure that material (including preliminary planned, planned, actual and Best Estimated Delivery Dates (BEDD)) is entered into NDE-NM beginning with NMP Phase II and Phase III SCDs, as data becomes available thru design maturity to facilitate accurate configuration identification, cost estimating and accounting.
M. If complete material requirements, for a hull specific installation are not documented in the NDE-NM Material List by Block 265.3 Maturity Assessment, a Hull Installation Impact Assessment IAW Business Rule Block 265.4 will be provided for consideration by the Fleet Commander and applicable TYCOM. SCD will not be authorized to transition to NMP Phase V installation.
N. All Material managers shall report availability/procurement information via NDE-NM.
O. All material shall be available by the availability start date. If material is not available, a later material availability milestone must be specifically negotiated by the Submitter, SPMs and Ships' Maintenance Team as part of the RMC/Executing Activity.
P. The following items may be listed on the SCD; however identified so that a material forecast is not generated: Strategic Systems Program Alterations (SPALTS) GSA Material Nuclear propulsion or associated nuclear support material and Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) procured material.

Q. All Level 1 material will be forecast regardless of quantity, price, or special circumstances for both Carriers and Submarines.

TASK TITLE: 265.1B - CNO Availablity Late Add Process

LEAD ORGANIZATION: PEO, SYSCOM, TYCOM

SUPPORT ORGANIZATIONS: FLEET COMMANDER, ISEA, Planning Yards, Technical Authorities, PARM, SPM

GOAL/DESCRIPTION

Add ship changes to the CNO Availability after A-180 (after A-75 for SCs designated as ST1 or ST2).

SUB TASKS	RESPONSIBILITY
○ NSA Intergration and Impact Analysis Plan	○ PEO/PARM/RMC
○ Message requesting installation submitted to Platform TYCOM	○ PEO/PARM/ SYSCOM
○ Impact assessment of integration, cost and schedule of adding new SC to the availability	○ TYCOM/RMC
○ Recommendation forwarded to CNSF	○ TYCOM
○ Approval/disapproval provided via message or email	○ LEAD TYCOM

INPUT

- SCs approved at DP 2 for NPC installations or DP 3 (Phase IIa/III) for permanent installations
- Ship availability schedules updated in NDE NM by PLATFORM TYCOM
- SCs scheduled in NDE NM by responsible SPMs/PARMs/ISEAs
- HMP/LOA

OUTPUT (DELIVERABLES)

- TYCOM approval message to add SC to the LOA
- TYCOM disapproval message deferring the SC installation

BUSINESS RULES (CRITERIA)

A. Gather all technical documentation
B. Request RMC provide NSA Integration and Impact Analysis Plan which shall address the following:
   a. Contractor critical path planning and integration of change
   b. Material status
   c. Expected premiums
   d. Impact to pro-rated costs
   e. Training and testing impacts
   f. Impact to the MMBP
C. Submit message to TYCOM requesting to add ship change to the availability. Include the following information:
   a. SCD CTN and status
   b. SIDS status and approval date or ECD
   c. ILS Certification status and approval date or ECD
   d. C5IMP Baseline status (SFI CAT 1 and 2). ECCB risk form number if applicable.
   e. Method of installation, either AIT or Industrial

f. Industrial contractor/AIT man-days req: (If AIT, reflect both industrial ktr support services required and ait man-days discretely)
g. Duration of the installation (number of days on the ship).
h. Availability of material not locally procured by the installation activity.
i. Availability and estimate of cost for locally procured material.
j. Justification
k. NSA Integration and Impact Analysis from the RMC
l. Include a statement that the PEO/PARM will assume any costs incurred by on an itemized cost accounting.

D. TYCOM assesses the request and verifies cost and schedule impacts with the NSA.
E. TYCOM forwards an endorsement to Lead TYCOM.
F. Lead TYCOM approves or disapproves the request.

NOTES/QUESTIONS

TASK TITLE: 265.2 - Hull Installation Readiness Review

LEAD ORGANIZATION: PEO, SPM, SYSCOM, TYCOM

SUPPORT ORGANIZATIONS: FLEET COMMANDER, ISEA, Planning Yards, Technical Authorities, PARM

GOAL/DESCRIPTION

Conduct a hull installation readiness review by verifying status of installation readiness to include; status of pre-installation testing, status of certifications and identify conjunctive SCs.

SUB TASKS	RESPONSIBILITY
○ Update status of installation readiness	○ PEO/PARM/SPM/SYSCOM

INPUT

- Completed readiness applicability matrix (currently manual process, *Future Capability* is an automated form)
- SC approved at DP 2 for NPC installations or DP 3 (Phase IIa/III) for permanent installations
- AHMP/HMP/LOA
- Documentation of completed milestones entered in appropriate authoritative data sources
- Software/Firmware version number (to the patch level) is identified in the ILS certification document

OUTPUT (DELIVERABLES)

- Completed hull readiness review identifying any outstanding maturity issues from all assessors

BUSINESS RULES (CRITERIA)

G. Gather all technical documentation.
H. Ensure all material has been procured and is available for installation.
I. Ensure all pre-installation testing has been accomplished.
J. Ensure all certifications have been completed as identified in the SCD.

NOTES/QUESTIONS

TASK TITLE: 265.3 – Installation Maturity Determination

LEAD ORGANIZATION: SPM, SYSCOM

SUPPORT ORGANIZATIONS: FLEET COMMANDER, TYCOM, ISEA, Planning Yards, Technical Authorities, PARM

GOAL/DESCRIPTION

Evaluate results of installation readiness review. Determine if change is fully mature and ready for installation aboard a specific hull. Items that are fully ready will proceed directly to Operational Impact Assessment. Items that are not fully mature will be allowed to complete maturity up until the milestones identified IAW Navy Modernization milestone charts in Appendix G. If a proposed change is not mature IAW Navy Modernization milestone charts in Appendix G, it will undergo an impact assessment to determine whether the impacts associated with proceeding forward are acceptable. In cases where a SC is dependent on other SC(s) due to conjunctivity, interoperability, or certification testing, the individual SC can not proceed as mature until all associated SCs have been evaluated as mature.

SUB TASKS	RESPONSIBILITY
○ Evaluate Maturity Status	○ SPM and TYCOM for HM&E SCs ○ SPM and SYSCOM for C5I SCs

INPUT

- Completed Hull Readiness review identifying any outstanding maturity issues from all assessors

OUTPUT (DELIVERABLES)

- SC maturity determination.
  - If mature
    - SFI CAT 1 or 2, proceed to Operational Impact/Readiness Determination.
    - For all other SFI categories
      - Issue Updated LOA/Quarterly Scheduling Message IAW Block 250
      - Proceed to installation
  - If not mature,
    - If prior to the impact assessment submission milestone dates in Appendix G, the PARM may continue to achieve maturity
    - If the impact assessment milestone date IAW Appendix G has passed, the SC will be evaluated under the impact assessment process

BUSINESS RULES (CRITERIA)

A. The assessors shall include TYCOM, SYSCOMs, and SPMs. Each of the above named assessors will incorporate the inputs from their organizations various sub-assessors and provide a consolidated recommendation. Generally, any negative recommendation from any sub-assessor shall be considered an “at impact” SC.
   1. If any of the assessors identifies impact and recommends against installation, the installation on that hull shall be marked as “at impact”.
   2. If no assessor identifies an impact, the installation shall be marked as “fully mature”.

B. SCs identified as “fully mature” will proceed to Operational Impact Assessment.

C. SCs that have reached the Impact Assessment milestones listed in Appendix G, and are not mature, will undergo an impact assessment.

NOTES/QUESTIONS

TASK TITLE: 265.4 - Hull Installation Impact Assessment

LEAD ORGANIZATION: PARM, SPM, SYSCOM, Technical Authorities

SUPPORT ORGANIZATIONS: PEO, ISEA, TYCOM, NSA

GOAL/DESCRIPTION

Assess and evaluate the impact of a proposed installation on a specific hull when maturity criteria have not been met IAW Appendix G Navy Modernization milestones. Provide a complete evaluation to include technical shortfalls, costs, and operational impacts and provide an impact recommendation for the installation approval authority.

SUB TASKS	RESPONSIBILITY
○ Provide Installation Impact Assessment ○ Evaluate Impact Assessment and provide recommendation	○ PARM/SPM/PEO ○ SPM for HM&E SCs, SEA 05W for C5I SFI CAT 1 and 2 SCs

INPUT

- SCs approved at DP 2 for NPC installations or DP 3 (Phase IIa/III) for permanent installations
- HMP/LOA
- Documentation of completed milestones entered in appropriate authoritative data sources
- Maturity decision
- Impact(s), if any, assessed by technical authorities
- Failure to successfully complete HSI Certification for SCs with significant impact to Sailor Performance - (*Future Enhancement*)
- Warfare System Integration and Interoperability Test Results
- The availability of newer software or firmware under spiral development that is certified in all respects for installation with a ship change and can be authorized for installation
  - For SFI Categories 1 and 2, an electronic risk form must be submitted to SEA 05W to obtain appropriate Fleet Commander approval. Additionally, an ILS revision may be requested by A-90 and approved by A-60, as long as the change does not provide new capability. After A-60, PARMS may only use the Emergent Change Process as defined in Section 3 of the One Book. ***Again consider I-60 for availability lengths greater than 6 months in duration.
  - For SFI Categories 3 and 4 an electronic risk form must be submitted to SEA 04RPL to obtain appropriate Fleet Commander approval. Additionally, an ILS revision may be requested by A-90 and approved by A-60, as long as the change does not provide new capability. After A-60, PARMS may only use the Emergent Change Process as defined in Section 3 of the One Book. ***Again consider I-60 for availability lengths greater than 6 months in duration.
  - The Emergent Change Process will not normally apply to CAT 3 and 4 systems unless justification can be provided that the change directly impacts mission capability or is a safety item. In most cases CAT 3 and 4 changes shall be rescheduled for a ship's next availability.

OUTPUT (DELIVERABLES)

- Risk Assessment Form in accordance with Block 265.4 or Late Add message as applicable
  - Hull-specific SC with impact areas clearly identified and assessed

- Impact of installation postponement or cancellation
- Impact mitigation plan

○ Updated LOA

BUSINESS RULES (CRITERIA)

A. Provide impact/benefit analysis of continuing to plan and install the change with identified impact(s). The technical, operational, and programmatic impacts impacts must be clearly identified for use by the operational forces to make a quality impact-based decision.

B. For HM&E SCs, SPM will coordinate with individual Submitter(s), SYSCOM(s), PLATFORM TYCOM(s), and FLEET COMMANDER(s) to determine the acceptance of impact(s) and provide a recommendation for SCs that are not fully mature. SEA 05W and SPM will perform this function for C5I SCs.

NOTES/QUESTIONS

TASK TITLE: 265.5 - Operational Impact/Readiness Determination

LEAD ORGANIZATION: FLEET COMMANDER, TYCOMs

SUPPORT ORGANIZATIONS: SPM, SYSCOMs, PEOs, NUMBERED FLEET CDRs, Carrier Strike Group (CSG), Expeditionary Strike Group (ESG)

GOAL/DESCRIPTION

Determine the operational impacts (if any) associated with the installation of a SC on a specific hull. Weigh the impact versus the operational requirements of executing the SC. Operational forces provide an operation impact recommendation to support Approval Authority installation authorization. Approval Authority for C5I SCs will be the appropriate Fleet Commander for NDE-AMPS SFI Categories 1 and 2.

SUB TASKS	RESPONSIBILITY
○ Evaluate Operational Impact of installation	○ CSG/ESG/NUMBERED FLEET/TYCOMS/FLEET CDRS

INPUT

- ○ Ship operational schedule
- ○ Completed assessments from block 265
  - SC maturity determination
  - Hull-specific SC with impact areas clearly identified and assessed
  - Impact of installation postponement or cancellation
  - Impact mitigation plan

OUTPUT (DELIVERABLES)

- ○ Installation Recommendation
- ○ For C5I SFI CAT 1 and 2
  - Endorsement from Platform TYCOM
  - Endorsements from ESG/CSG staff
  - Endorsements from Numbered Fleet staff

BUSINESS RULES (CRITERIA)

A. The appropriate Operational Commander shall review the inputs and make a recommendation either for or against the installation and submit to the appropriate Fleet Commander.

NOTES/QUESTIONS

TASK TITLE: 265.xx – (*Future Enhancement*) Generate Readiness Assessment Form

LEAD ORGANIZATION: PARM

SUPPORT ORGANIZATIONS: SYSCOM, PEO, PLATFORM TYCOM, SPM

GOAL/DESCRIPTION

Formally propose an installation for hull readiness assessment and installation authorization.

SUB TASKS	RESPONSIBILITY
○ Complete electronic readiness assessment form and submit for review	○ PARM
○ Augment form responses with data from authoritative data sources	○ NDE/SYSCOMs/PARMs/SPM

INPUT

- ○ Hull installation plan in NDE-NM (hull, installation dates, duration)
  - Specific SW version proposed for installation must be included within the NM plan
- ○ Hull installation maturity information from NDE-NM (SC approval, status of installation drawings, status of ILS certification)
- ○ Requirement for and status of IT certifications (DITSCAP, PPL/SSIL)
- ○ Requirement for and status of Initial Platform Certification Decision (IPCD) from NDE-AMPS
- ○ Conjunctive changes from NDE-NM and NDE-AMPS
- ○ Hull Modernization window from NDE-NM
- ○ Current assigned Strike Group from NDE-AMPS
- ○ Requirement for and status of Weapon System Explosive Safety Decision Board approval from NDE-AMPS
- ○ SECNAV waiver required based on position within the 5-year DECOM window and other criteria
- ○ Interoperability impacts from and to other systems
- ○ Programmatic and operational impact if system not installed (not required, but should be provided for systems known to have significant impact)
- ○ Additional outstanding certifications

OUTPUT (DELIVERABLES)

- ○ Completed Readiness Applicability Matrix.

METRICS

- ○ None

BUSINESS RULES (CRITERIA)

A. Once the Program Manager, Installing Activity, or SPM schedules a change in NDE-NM, a Readiness Assessment Form (RAF) template is automatically generated containing applicable data from authoritative data sources, such as the SCD, NDE-NM, the modernization plan, and NDE-AMPS.

B. The program office completes the RAF, supplying all information not provided automatically by the data sources. Once completed, the program office officially submits the RAF for assessment and processing.

TASK TITLE: 270 – Authorize Installation

LEAD ORGANIZATION: FLEET COMMANDER, PLATFORM TYCOM

SUPPORT ORGANIZATIONS: PLATFORM TYCOM, SPM, PARM

GOAL/DESCRIPTION

Authorize the installation of an SC on a specific hull based upon the installation readiness assessment, installation impact assessment (as applicable), and operational impact. After authorization, installation can be moved to the authorized portion of the HMP/LOA. If an installation is disapproved, that item shall be removed from the HMP/LOA. If the disapproval will cause a change in the SCD funding profile, the PARM must update the SCD and resubmit it to the boards for approval.

SUB TASKS	RESPONSIBILITY
○ Installation decision	○ Approval Authority

INPUT

- ○ Installation recommendation
- ○ Endorsements from ESG/CSG staff
- ○ Endorsements from Numbered Fleet staff
- ○ For C5I SFI CAT 1 and 2, endorsement from Platform TYCOM

OUTPUT (DELIVERABLES)

- ○ Approval for installation
  - Update of HMP/LOA
- ○ Disapproval of installation and removal
- ○ Issue Updated LOA/Quarterly Scheduling Message IAW Block 250

BUSINESS RULES (CRITERIA)

A. Installation Approval authority is the Platform TYCOM for all SCs.
   1. Installations that are fully mature will normally be approved. Only urgent operational requirements will result in the disapproval of a fully mature already planned installation.
   2. Approval/disapproval of impact changes will be based on a careful consideration of operational concerns, technical impact s, schedule issues, and programmatic concerns.

B. Installations that are approved shall be moved to the “Authorized” section of the HMP/LOA.

C. Installations that are disapproved shall be removed from the HMP/LOA.

NOTES/QUESTIONS

TASK TITLE: 280 – Remove SC from LOA

LEAD ORGANIZATION: SPM, SCD Submitter, PARM, TYCOM

SUPPORT ORGANIZATIONS: FLEET COMMANDER, SYSCOM

GOAL/DESCRIPTION

Update HMP, Letter of Authorization and Fielding Plan (if required) and reschedule in NDE-NM.

SUB TASKS	RESPONSIBILITY
○ Update Mod Plan (if required) ○ SC rescheduling in NDE-NM ○ Update HMP/LOA/Quarterly Installation Scheduling Message (QISM)	○ SPM/PARM/Submitter ○ TYCOM/PARM/Submitter ○ SPM/TYCOM

INPUT

- Disapproval and/or deferral of Installation

OUTPUT (DELIVERABLES)

- Updated HMP/LOA
- Updated SCD for submission to the O-6 Board at DP 3 (if required IAW the Fielding Plan change process in section 3 of the One Book)

BUSINESS RULES (CRITERIA)

A. Installations that are disapproved shall be removed from the HMP/LOA IAW Block 250
B. SCD Submitter must update Fielding Plan.

TASK TITLE: 300 – Install SC

LEAD ORGANIZATION: TYCOM, Executing Activity, RMC, NSA

SUPPORT ORGANIZATIONS: PARM/LCM or designated agent (ISEA, AIT, etc), SPM, RMMCO, CDM, Ship, SYSCOM

GOAL/DESCRIPTION

Complete installation and testing IAW drawings and other technical guidance and deliver all Integrated Logistic Support (ILS) products.

SUB TASKS	RESPONSIBILITY
○ SC Check in (for AIT installs)	○ RMC/NSA (delegated to RMMCO)/AIT
○ Installation of SC • Provide government oversight of AIT (as required) • Provide RMC/NSA Installation Progress Reports	○ Executing Activity • RMC/NSA/SYSCOM • Exec Activity/RMC/NSA/ CDM/AIT (providing input to NSA)
○ Testing of SC	○ As assigned in Test Plan
○ Delivery of ILS	○ RMMCO /NSA (NSA provides IAF and associated ILS products)
○ Validation of installation and ILS delivery • Final SSRs and SRDs typically delivered 3 months post-install	○ RMMCO /NSA (NSA provides IAF and associated ILS products)
○ Release completion message ○ ILS Verification Report	○ Ship

INPUT

- ○ Authorized SC and supporting documentation to support installation and checkout of specific installations
- ○ Installation Readiness Assessment
- ○ Installation POA&M and MOA (for AIT jobs)
- ○ Installation QA Plan
- ○ CDMD-OA COP Data submission
- ○ ILS Certification Sheets
- ○ PY Approved Drawings and ship-specific Bill of Material (BOM)

OUTPUT (DELIVERABLES)

- ○ Installed SC
- ○ Completion Reports (IAW NAVSEAINST 4790.14 series, JFMM, Appendix H, and One Book, Section 6)
- ○ Completion message
- ○ Closed out 4790/2Ks and 4790/CKs (IAW NAVSEAINST 4790.8 series)

BUSINESS RULES (CRITERIA)

A. Complete check in, installation, testing, and validation in accordance with documentation via established internal process for executing activity and NSA.

B. PARMs shall obtain completion costs for AITs and update return costs into the CBA.

NOTES/QUESTIONS

TASK TITLE: 310 – Hotwash Feedback: Cost, CM, Performance, Schedule, ILS from Initial or follow-on Install

LEAD ORGANIZATION: RMC, NSA

SUPPORT ORGANIZATIONS: SPM, PARM/LCM or designated agent, TYCOM

GOAL/DESCRIPTION

Provide feedback data to support future installation decisions and (if necessary) revise portions of the SC.

SUB TASKS	RESPONSIBILITY
○ Provide feedback. • Cost • Configuration Management (CM) • Schedule • Testing/Integrated Logistics support (ILS) • Technical Feedback • Schedule (Completion Date) • System Performance/QA	○ RMC/NSA ○ PARM (for AIT Costs) ○ Installing Activity ○ Ship ○ TYCOM

INPUT

- ○ Completed Installation
- ○ Completion Report (IAW NAVSEAINST 4790.14 series, JFMM, Appendix H, and One Book Section 6)
- ○ Closed out 4790/2Ks and 4790/CKs (IAW NAVSEAINST 4790.8 series)
- ○ Closed out RMMCO check-out form for AITs

OUTPUT (DELIVERABLES)

- ○ Completed SC with actual Return Cost, CM and Testing/ILS
- ○ NSA EOA/EOI Reports
- ○ Ship ILSMT Minutes/Action Items

BUSINESS RULES (CRITERIA)

A. Collect SC installation completion data and checkout information after each installation.
   1. Legacy FMP process/procedures will be followed until the Entitled Process (EP) software can support this requirement in an electronic environment.
   2. 4790/2Ks and CKs will provide information to various databases (i.e. NDE, CDMD-OA, ICMP, etc.) via a “Closed Loop” process in the future state.

B. Return Costs
   1. Return Costs (labor and material) will be provided via the Completion Report. The execution return costs will be used to adjust the MP if required.
   2. PARM shall provide Return Costs (labor and material) and ensure data is recorded in the appropriate fields in the CBA by the Submitter or designated activity (until the software is able to accomplish this automatically).

C. Configuration Management
   1. During planning, the PARM/LCM or designated agent (i.e. ISEA/AIT/PY) will have submitted to the Configuration Data Manager (CDM) CDMD-OA workfiles for each SC IAW Navy Modernization Milestones in Appendix G. These workfiles combined with

additional data provided by the Planning Yard will be reviewed and processed into the ship's database as Configuration Overhaul Planning (COP) data by the CDM.

2. Actual Material utilized shall be reported back to NDE-NM.
3. Upon installation completion, the PARM/LCM or designated agent (i.e. ISEA/AIT/PY) shall submit to the CDM, CDMD-OA end of installation workfiles updating the COP record into CDMD-OA, providing any additional data in accordance with Technical Specification 9090.700 series.
   a. Completion of the installation and accuracy of the reported configuration will be verified by the NSA/CDM and will be checked against the CDMD-OA record and corrected/updated as necessary prior to closing the SC COP file. Discrepancies will be identified, communicated back to the ISEA and quality metrics maintained. Upon completion of the installation and site validation by the CDM or designated homeport CDM On-Site Representative, the installation status code and validation will be updated in CDMD-OA.

D. Schedule (Completion)
   1. The actual completion date of the SC shall be entered into the appropriate fields in NDE-NM by the installing activity. For CNO availabilities, the completion date of the availability may be used as the SC completion date.
   2. When a Completion Report for a SC is received, unless the NSA has verified that all required ILS is completely delivered and all testing is complete, the SPM or designated activity shall place the SC in status "R" (Installed – Testing/ILS not verified) in NDE-NM.

E. Testing/ILS
   1. Once the NSA/SPM has verified that all required ILS has been delivered to the ship and all testing is complete, the SC may be placed in status "C" (Complete) in NDE-NM.
   2. Outstanding testing/ILS shall be tracked by the SPM or designated activity until delivery is confirmed. Monthly messages from the PARM are required providing status of outstanding testing/ILS until delivery is confirmed. ILS issues will also be tracked as ILSMT action items and/or in the EOA/EOI reporting structure.

F. Technical Feedback
   1. Document that the SC has passed all installation tests and performs as documented.
   2. Liaison Action Requests (LARs) processed during planning and execution of the SC shall be attached to the SC in the SCD module and should be evaluated for possible application on future installs, and to document any technical, logistics, or other issues which arose with the SC. (*Future enhancement*)
   3. If a SC is only partially accomplished for some reason, a meaningful description of the additional effort required to complete the installation will be provided in the Completion Report. This information may necessitate that the remaining work be scheduled for a later availability. If completion of the SC requires a re-allocation of funding or an action during a later fiscal year, the fielding plan and/or CBA shall be modified by revising and resubmitting the SCD. The SC shall remain in status "A" (active) for the subject hull (with appropriate comments in NDE) until the SC is completed for that hull.

NOTES/QUESTIONS

TASK TITLE: 320 - Continue Installs

LEAD ORGANIZATION: SPM, PARM/LCM or Designated Agent, Decision Boards

SUPPORT ORGANIZATIONS: RMC/NSA, TYCOM, CDM, Planning Yard

GOAL/DESCRIPTION

Using feedback information from completed installs, determine impact on follow-on installs

SUB TASKS	RESPONSIBILITY
○ Assess impact based on information from initial/follow-on installation	○ SPM/PARM/RMC
○ Decide whether to adjust follow-on installation plan	○ SPM/PARM/RMC/ Decision Boards
○ If required, refine CBA estimates	○ Planning Yard/PARM/ Decision Boards

INPUT

- Updated Cost, Configuration Management (CM), Integrated Logistics Support (ILS), Technical, Material, and Schedule data from initial and/or follow-on installation
- LARs or other design configuration changes/updates
- Ships Superintendent reports
- Completion Reports
- Ships Situation Reports

OUTPUT (DELIVERABLES)

- PARM/Resource Sponsor dialog on whether to continue follow-on installs (if required)
- If necessary, revised Ship Change (SC) to reflect changes to cost, material, fielding plan, etc

BUSINESS RULES (CRITERIA)

A. Evaluate installation impact to follow-on planned installs.

B. Return Cost Evaluation - The PARM shall review return cost and other data and determine if projected cost for remaining installations will be impacted. If any changes are required to the fielding plan, they will be reported to the decision board.

C. Technical/Other Issues

1. Technical, ILS, CM, or other issues may require evaluation by the SPM, PARM, or TYCOM to determine if a program review is required. Any recommendation to stop follow-on installations must be evaluated and decided on by the appropriate Decision Board.
2. If the SC is superseded prior to completion of all planned installs, then actions must be taken to remove funding for the balance of the Fielding Plan from the Mod Plan, as applicable.

NOTES/QUESTIONS

TASK TITLE: 330 –Close Out SCD

LEAD ORGANIZATION: SPM, TYCOM, PARM/LCM or designated agent

SUPPORT ORGANIZATIONS: Resource Sponsor

GOAL/DESCRIPTION

Verify all planned installations of the Ship Change (SC) have been completed.

SUB TASKS	RESPONSIBILITY
○ Determine that all planned installations have been completed	○ TYCOM/PARM

INPUT

- ○ Mature SC and supporting installation completion documentation

OUTPUT (DELIVERABLES)

- ○ Determination that all planned installations are complete
- ○ Close out of SCD in the MP

BUSINESS RULES (CRITERIA)

A. Review all planned installations against all installations reported complete.
B. Verify all ILS completed and delivered on all installs.
C. If all planned installations are completed and ILS delivered, then the SCD can be closed out.
D. Update SCD and MP to reflect installation completion on all planned hulls.

NOTES/QUESTIONS

ACRONYMS AND DEFINITIONS

Acronym	Definition
2K	OPNAV 4790/2K Ship's Maintenance Form
3-M	Maintenance and Material Management
A&I	Alteration and Improvement
AAMC	Army Aviation Material Command
AAAV	Amphibious Attack and Assault Vehicles
AAC	Acquisition Advice Codes
AAP	Allowance Appendix Page
ACAT	Acquisition Category
ACCMP	Aircraft Carrier Class Maintenance Plan
ACL	Allowance Components List
ACO	Administrative Contracting Officer
ACP	Allowance Control Panel
ADOCS	Automated Deep Operations Coordination System
AEL	Allowance Equipage List
AER	Alteration Equivalent to Repair
AFATDS	Advanced Field Artillery Tactical Data System
AFOM	Alteration Figure of Merit
AFOSS	Aviation Fuel Operational Sequencing System
AG	Activity Group
AHMP	Advance Planning Hull Modernization Plan
AIM	Authoring Instructional Materials
AIPS	Alteration Installation Planning System
AIS	Automated Information System
AIT	Alteration Installation Team
ALSP	Acquisition Logistics Support Plan
AML	Alteration Material List
AMPS	Afloat Master Planning System
AMT	Amalgamated Military/Technical
AP	Acquisition Plan
APN	Aircraft Procurement, Navy
ASC	Alteration Status Code
ASI	Automated Shore Interface
ASN	Assistant Secretary of the Navy
ATAC	Army Tank-Automotive Center
ATC	Approval to Connect
ATE	Automatic Test Equipment
ATIS	Advanced Technical Information Support
ATO	Authorization to Operate
ATR	Above Threshold Reprogramming
ATRC	Aegis Training and Readiness Center
AUTODOC	Automated Document Processing System
AUXOSS	Auxiliary Operational Sequencing System
AWP	Availability Work Package
BCA	Business Case Analysis
BEDD	Best Estimated Delivery Date

Acronym	Definition
BEDDRMKS	Best Estimated Delivery Date Remarks
BFI	Battle Force Interoperability
BITE	Built-In Test Equipment
BLI	Budget Line Item
BMD	Ballistic Missile Defense
BOM	Bill of Material
BOSS	Ballasting Operational Sequencing System
BRT	Barrier Removal Team
BSO	Budget Submitting Office
BTR	Below Threshold Reprogramming
C2PC	Command and Control Personal Computer
C4I	Command, Control, Communications, Computers and Intelligence
C4ISR	Command, Control, Communications, Computer, Intelligence, Surveillance and Reconnaissance
C5ISR	Command, Control, Communication, Computers, Collaboration and Intelligence Surveillance and Reconnaissance
C5I	Command, Control, Communications, Computers, Combat Systems and Intelligence
C5IMP	Command, Control, Communication, Computers, Combat Systems and Intelligence Master Plan
CAC	Common Access Card
CAE	Component Acquisition Executive
CAGE	Contractor And Government Entity
CALICO	Carrier Availability Logistics Integration Coordinator
CALSTD	Calibration Standard
CAT	Category 12
CATOSS	Catapult Operational Sequencing System
CBA	Cost Benefit Analysis
CBM	Condition-Based Maintenance
CC	Change Coordinator
CCB	Configuration Control Board
CCOP	Cytological Carry Onboard Program
CCOS	Compartment Closeout Schedule
CDD	Capability Definition Document
CDM	Configuration Data Manager
CDMD-OA	Configuration Data Managers Database-Open Architecture
CDR	Commander
CDRL	Contract Data Requirements List
CD-ROM	Compact Disk - Read Only Memory
CFC	Candidate for Change
CFE	Contractor Furnished Equipment
CFFC	Commander, Fleet Forces Command
CFOSS	Cargo Fuel Operational Sequencing System
CIL	Capitol Investment for labor
CIWS	Close In Weapons System
CJCSM	Chairman of the Joints Chief of Staff Memorandum
CK	OPNAV 4790/CK Ship’s Configuration Change Forms
CLASSRON	

Acronym	Definition
CLASSON	Class Squadron
CM	Configuration Management
CMAV	Continuous Maintenance Availability
CMP	Class Maintenance Plan
CMRS	Calibration Measurement Requirements Summary
CND	Computer Network Defense
CNAF	Commander, Naval Air Forces
CNNWC	Commander Naval Network Warfare Command
CNO	Chief of Naval Operations
CNSF	Commander Naval Surface Forces
CNSFNOTE	
COB	Close of Business
COG	Cognizance
COH	Complex Overhaul
COMM	Commercial
COMNAVSEASYSCOM	Commander Naval Sea Systems Command
COMNAVAIRFORCE	Commander Naval Air Forces
COMNAVSURFLANTINST	Commander, Naval Surface Force, US Atlantic Fleet Instruction
COMNAVSURFOR	Commander, Naval Surface Forces
COMNAVSURFPACINST	Commander, Naval Surface Force, US Pacific Fleet Instruction
COMPACFLT	Commander, Pacific Fleet
COMPTUEX	Composite Unit Training Exercise
COMSUBFOR	Commander, Submarine Forces
COMUSFLTFORCOM	Commander US Fleet Forces Command
CONUS	Continental US
COP	Configuration Overhaul Planning
COR	Culture of Readiness
COSAL	Coordinated Shipboard Allowance List
COTS	Commercial Off the Shelf
CPA	Carrier Planning Activity
CPAM	CNO Program Analysis Memorandum
CPD	Capabilities Production Document
CPF	COMPACFLT/Commander, U.S. Pacific Fleet
CPFINST	
CPM	Centrally Provided Material
CQR	Configuration Quality Review
CRA	Continuing Resolution Authority
CRL	Calibration Requirements List
CS	Combat Systems
CSA	Configuration Status Accounting
CSG	Carrier Strike Group
CSMP	Current Ship Maintenance Project/Plan
CSOSS	Combat Systems Operational Sequencing System
CSTOM	Combat System Technical Operations Manual
CUSFFC	Commander, United States Fleet Forces Command
CSW	Cost Structure Worksheet
CTN	Change Tracking Number
CV	Multi-purpose aircraft carrier

Acronym	Definition
CVN	Multi-purpose aircraft carrier (nuclear propulsion)
CWP	Cumbersome Work Practices
DA	Design Agent
DAA	Designated Approving Authority
DAASC	Defense Automated Addressing Service Center
DASN	Deputy Assistant Secretary of the Navy
DBR	Database Reconciliation
DCMS	Director, Communications Security Material System
DET	Detachment
DFSC	Defense Fuel Supply Center
DGSIT	Deploying Group Systems Integration Testing
DIRSSP	Director, Strategic Systems Programs
DISC	Defense Industrial Supply Center
DITSCAP	Defense Information Technology Security Certification and Accreditation Process
DLA	Defense Logistics Agency
DLR	Depot Level Repairable
DMI	Depot Maintenance Interservice
DMSMS	Diminishing Manufacturing Sources and Material Shortages
DoD	Department of Defense
DoDAAC	Department of Defense Activity address Code
DoDI	Department of Defense Instruction
DON	Department of the Navy
DOP	Designated Overhaul Point
DP	Decision Point
DSA	Design Services Allocation
DSC	Defense Supply Centers
DSCC	Defense Supply Center- Richmond
DSCP	Defense Supply Center Philadelphia
DSCR	Defense Supply Center-Columbus
DSN	Defense Switched Network
EA	Engineering Agent
EC	Engineering Change
EC	Escrow Change
eCCB	electronic Configuration Control Board
ECD	Estimated Completion Date
ECM	Engineering Configuration Manager
ECP	Engineering Change Proposal
EDFP	Engineering Data for Provisioning
EDSRA	Extended Dry-docking Selected Restricted Availability
EFR	Equipment Facility Requirements
EHMP	Execution Planning Hull Modernization Plan
EIC	Equipment Identification Code
EMC	Electromagnetic Compatibility
EMI	Electromagnetic Interference
EMX	
EOA	End of Availability
EOI	End of Installation

Acronym	Definition
EOP	Engineering Operational Procedures
EP	Entitled Process
EQU	Equipment
ERM	Engineering for Reduced Maintenance
ESG	Expeditionary Strike Group
ESWBS	Expanded Ship Work Breakdown Structure
ETD	Effective Transfer Date
EY	Executing Yard
FAD	Financial Accounting Document
FC	Field Change
FD	Funding Document
FICI	First in Class Installation
FIFO	First In, First Out
FISC	Fleet and Industrial Supply Center
FLIS	Federal Logistics Information Service
FLTCDR	Fleet Commander
FLTMOD	Fleet Modernization
FMA	Fleet Maintenance Activities
FMB	Financial Management of Budgets
FMP	Fleet Modernization Program
FMPMIS	Fleet Modernization Program Management Information System
FMS	Foreign Military Sales
FOSS	Fuel Operational Sequencing System
FP	Fielding Plan
FRE	Final Review Estimates
FRP	Full Rate Production/Fleet Response Plan
FRTP	Fleet Response Training Plan
FSS	Federal Supply System
FTTD	Fleet Tailored Technical Data
FW	Firmware
FY	Fiscal Year
FYDP	Future Year Defense Plan
GBL	Government Bill of Lading
GCCS-J	Global Command and Control System-Joint
GCCS-M	Global Command and Control System - Maritime
GDAPL	General Distribution Allowance Parts List
GFE	Government Furnished Equipment
GFM	Government Furnished Material
GPETE	General Purpose Electronic Test Equipment
GPS	Global Positioning System
GSA	General Services Administration
GUI	Graphical User Interface
HAT	HSI Assessment Team
HAZMAT	Hazardous Material
HCM	Headquarters Claimant Module
HCPM	Headquarters Centrally Provided Material
HDBK	Handbook
HEDRS	Hull Mechanical and Electrical Equipment Data Research System

Acronym	Definition
HME&O	Hull, Mechanical, Electrical, and Ordnance (equipment)
HM&E	Hull, Mechanical and Electrical
HMP	Hull Modernization Plan
HSC	Hardware Systems Command
HSC	Hierarchical Structure Code
HSI	Human System Integration
HVAC	Heating, Ventilation and Air Conditioning
HW	Hardware
I&C	Installation and Checkout
IA	Installation Activity
IAF	Installation Activity Furnished0
IAPM	Installing Activity Provided Material
IATC	Interim Authority to Connect
IATO	Interim Authority to Operate
IAVA	Information Assurance and Vulnerability Assessment
IAVB	Information Assurance Vulnerability Bulletin
IAVM	Information Assurance and Vulnerability Management
IAW	In Accordance With
IBOM	Installation Bill of Material
IC	Interior Communications
ICAPS	Interactive Computer-Aided Provisioning System
ICD	Initial Capability Documents
ICD	Interface Control Drawing
ICD	Installation Control Drawing
ICMP	Integrated Class Maintenance Plan
ICP	Integrated Capabilities Plan
ICP	Inventory Control Point
IDIQ	Indefinite Delivery/Indefinite Quantity
IFF	Identification Friend or Foe
I Level	Intermediate Level
ILO	Integrated Logistics Overhaul
ILR	Integrated Logistics Review
ILS	Integrated Logistics Support
ILSMT	Integrated Logistics Support Management Team
ILSP	Integrated Logistics Support Plan
IMA	Intermediate Maintenance Activity
IMAV	Intermediate Maintenance Availability
IMI	Intermediate Modulation Interference
IMM	Integrated Materiel Manager
IMPAC	Integrated Modernization Planning for Aircraft Carriers
IOC	Initial Operational Capability
IPCD	Initial Platform Certification Decision
IPT4ACM	
IRD	Interface Required
ISC	Installation Status Code
ISEA	In-Service Engineering Agent
ISIC	Immediate Superior in Command
ISIL	Interim Support Items List

Acronym	Definition
ISNS	Integrated Shipboard Network System
ISS	Interim Supply Support
ITP	Index of Technical Publication
IWAR	Integrated Warfare Architecture Review
IWS	Integrated Warfare Systems
JCIDS	Joint Capabilities Identification and Development Systems
JDM	Joint Depot Maintenance
JFMM	Joint Fleet Maintenance Manual
JITS	Just-In-Time Support
JTFEX	Joint Task Force Exercise
JTF-GNO	Joint Task Force – Global Network Operations
KTR	
LACR	Legacy Alteration Change Request
LADD	Latest Acceptable Delivery Date
LAN	Local Area Network
LAR	Liaison Action Record
LASE	Logistic Asset support Estimate
LCAC	Landing Craft Air Cushion
LCG	Longitudinal Center of Gravity
LCM	Life Cycle Manager
LCU	Landing Craft Utility
LEM	Logistics Element Manager
LESA	Logistics Element Support Activity
LF	Landing Force
LHA1	
LLTM	Long Lead Time Material
LOA	Letter of Authorization
LOEP	List of Effective Pages
LPM	Locally Provided Material
LRIP	Low Rate Initial Production
LRP	Logistics Review Process
LSM	Logistically Significant Material
LSSC	Logistic Support Status Code
MACHALT	Machinery Alteration
MAM	Maintenance Assistance Module
MAMS	Material Acquisition Management System
MAQ	Merit Assessment Questionnaire
MCP	Mission Capability Package
MDA	Milestone Decision Authority
MDS	Miscellaneous Documentation Services
METCAL	Metrology and Calibration
METRL	Metrology Requirements List
MFOM	Maintenance Figure of Merit
MFR	Memorandum for the Record
MILCON	Military Construction
MILR	Modernization In Lieu of Repair
MIL-SPEC	Military Specification
MILSTRAP	Military Standard Transaction Reporting and Accounting

Acronym	Definition
	Procedures
MILSTRIP	Military Standard Requisitioning and Issue Procedure
MIP	Maintenance Index Page
MMBP	Maintenance and Modernization Business Plan
MMEP	Modernization Execution Plan
MML	Material Management List
MOA	Memorandum of Agreement
MP	Modernization Plan
MP&T	Manpower, Personnel and Training
MPM	Maintenance Program Manager
MPO	Major Project Office
MRA	Modernization Readiness Assessment
MRC	Maintenance Requirements Card
MS	Maintenance Standard
MS	Milestone
MSC	Commander, Military Sealift Command
MSC	Maintenance Support Center
MSD	Material Support Date
MSMO	Multi Ship Multi Option
MTA	Modernization Through Attrition
MTE	Mechanical Test Equipment
MTIS	Material Turned Into Stores
MTLID	Material Identification
NADOC	Naval Aviation Depot Operations Center
NATEC	Naval Air Technical Data and Engineering Service Command
NAVAIR	Naval Air Systems Command
NAVCOMPT	Office of the Comptroller of the Navy
NAVICP	Naval Inventory Control Point
NAVICP-M	Naval Inventory Control Point–Mechanicsburg
NAVICP-P	Naval Inventory Control Point-Philadelphia
NAVSEA	Naval Sea Systems Command
NAVSEA 05	Naval Sea Systems Command, Integrated Warfare Systems Directorate
NAVSEA 08	Naval Sea Systems Command, Deputy Command for Nuclear Propulsion
NAVSEAINST	Naval Sea Systems Command Instruction
NAVSUP	Naval Supply Command
NCA	Naval Calibration Activity
NCDOC	Navy Cyber Defense Operations Command
NCDP	Naval Capabilities Development Process
NCE	Navy Calibration Equipment
NCMC	NNFE C5I Modernization Conference
NCR	No Calibration Required
NCTSI	Naval Center for Tactical Systems Interoperability
NDE	Navy Data Environment
NDE-AMPS	NDE Afloat Master Planning System
NDE-EP	Navy Data Environment-Entitled Process
NDE-ILS/ML	Navy Data Environment–ILS/Master List

Acronym	Definition
NDE-NM	Navy Data Environment – Navy Modernization
NDE-SIDE	NDE-SPAWAR Integrated Data Environment
NDI	Non-Developmental Item
NEMAIS	Navy Enterprise Maintenance Automated Information System
NETWARCOM	Naval Network Warfare Command
NICN	Navy Item Control Number
NLT	No Later Than
NMCI	Navy Marine Corps Internet
NMP	Navy Modernization Process
NNPI	Navy Nuclear Propulsion Information
NNWC	Naval Network Warfare Command
NOFORN	No Foreign Access
NPC	Non Permanent Change
NSA	Naval Supervising Activity
NSDSA	Naval Systems Data Support Activity
NSLC	Naval Supply Logistics Command
NSN	National Stock Number
NSTS	NAVSEA Technical Specification
NSWC	Naval Surface Warfare Center
NSWCCD-SSES	Naval Surface Warfare Center, Carderock Division-Ship Systems Engineering Station
NSWC-IHD Det	Naval Surface Warfare Center, Indian Head Division, Detachment
NSY	Naval Shipyard
NTCSS	Naval Tactical Command Support System
NTIRA	Navy Tool for Interoperability and Risk Assessment
NTSP	Navy Training System Plan
NWCF	Navy Working Capital Fund
NWSCP	Naval Warfare System Certification Policy
O&MN	Operations & Maintenance, Navy
OA	Open Architecture
OBRP	On Board Repair Part
OC-ALC	Oklahoma City Air Logistics Center, Tinker AFB, OK
OCRS	Online Compliance Reporting System
OG-ALC	Ogden Air Logistics Center, Hill AFB, UT
O-Level	Organizational Level
OMMS-NG	Organizational Maintenance Management System - Next Generation
OMB	Office of Management and Budget
OMN	Operations and Maintenance, Navy
OPN	Other Procurement, Navy
OPNAV	Office of the Chief of Naval Operations
ORD	Operational Requirements Document
ORDALT	Ordinance Alteration
OSD	Office of the Secretary of Defense
OSI	Operating Space Item
OSS	Operational Sequencing System
OTA	Operational Test Agency
OTP	Overhaul Training Plan

Acronym	Definition
P-VALVE	Priority Index Value
PA	Proposed Alteration
PAFOS	Provisioning, Allowance and Fitting Out Support
PAL	Preliminary Allowance List
PARM	Participating Acquisition Resource Manager
PARTS	Program Support Data Automated Reporting and Tracking System
PBL	Performance Based Logistics
PC	Personal Computer
PCB	Printed Circuit Board
PCD	Production Cutoff Date
PCO	Procurement Contracting Officer
PD	Project Directive
PDA	Personal Digital Assistant
PDF	Portable Document Format
PDSS	Post Deployment Software Support
PE	Program Element
PEO	Program Executive Office
PGM	Program Manager
PHD NSWC	Naval Surface Warfare Center, Port Hueneme Divison
PHIBRON-MEU	Amphibious Squadron – Marine Expeditionary Unit
PHS&T	Packaging, Handling, Storage and Transportation
PICO	Pre-Installation Check Out
PIO	Provisioned Item Order
PIR	Preliminary Installation Report
PKI	Public Key Infrastructure
PLGR	Precision Lightweight GPS Reciever
PLT	Procurement Lead Time
PM	Program Manager
PMA	Program Management Activity
PMI	Proposed Military Improvement
PMICS	Push Material Inventory Control System
PMP	Proposed Modernization Plan
PMS	Planned Maintenance System
PNA	Plan Not Authorized
POA&M	Plan of Action and Milestone
POC	Point of Contact
POC	Preliminary Operational Capability
POG	Propulsion Operating Guide
POM	Program Objectives Memorandum
POR	Program of Record
PPBE	Planning, Programming, Budgeting and Execution
PPIL	
PPL	Provisioning Parts List
PPL	Preferred Parts List
PPR	Planned Program Requirement
PPS	Post-Production Support
PR	Procurement Request
PRC	Project Review Conference

Acronym	Definition
PRE	Preliminary Review Estimate
PRISM	Program Requirements Interface System Module
PSD	Program Support Data
PSI	Proposed Survivability Improvement
PSL	Program Support Line
PTL	Procurement Lead Time
PTD	Provisioning Technical Documentation
PY	Planning Yard
QA	Quality Assurance
QISM	Quarterly Installation Scheduling Message
QFD	Quarterly Forecast Demand
QOL	Quality of Life
QOS	Quality of Service
R&D	Research and Development
RAD	Revised Alternative Dataflow
RADHAZ	Radiation Hazard
RCM	Reliability Centered Maintenance
RCOH	Refueling Complex Overhaul
RCP	Recommended Change Package
RCS	RADAR Cross Section
RD&A	Research, Development and Acquisition
RDA	Research, Development and Acquisition
RDTEN	Research, Development, Test & Evaluation, Navy
RF	Radio Frequency
RFM	Resource Financial Manager
RFT	Ready for Training
RHIB	Rigid Hull Inflatable Boat
RIC	Repairable Identification Code
RIN	Record Identification Number
RMA	Reliability, Maintainability and Availability
RMC	Regional Maintenance Center
RMMCO	Regional Maintenance and Modernization Coordination Office
RMV	Removal
ROH	Regular Overhaul
ROI	Return on Investment
ROM	Rough Order of Magnitude
RPPY	Reactor Plant Planning Yard
RRMP	Ready Resource Material Program
RS	Resource Sponsor
S&TE	Support and Test Equipment
SA-ALC	San Antonio Air Logistics Center, Kelley AFB, Texas
SAG	Sub-Activity Group
SAP	Security Assistance Program
SAR	Ship Alteration Record
SARP	Ship Change and Repair Package
SC	Ship Change
SCD	Ship Change Document
SCLSI	Ship Configuration and Logistics Support Information

Acronym	Definition
SCLSIS	Ship Configuration and Logistics Support Information System
SCMS	Ships Communication Material Security
SCN	Shipbuilding and Conversion, Navy
SCN	Specification Change Notice
SCP	System Calibration Procedure
SDI	Ship Drawing Index
SDM	Ships Design Manager
SDR	Supply Discrepancy Report
SECNAV	Secretary of the Navy
SFI	Strike Force Interoperability
SFL	Separate Funding Line
SGML	Standard General Markup Language
SHIPALT	Ship Alterations
SHIPMAIN	Ship Maintenance and Modernization
SID	Ship Change Installation Drawing
SIGSEC	Signal Security
SM-ALC	Sacremento Air Logistics enter, McClellan AFB, CA
SMCMM	Ship Material Condition Metrics Model
SME	Subject Matter Expert
SMIC	Special Material Identification Code
SOA	Start of Availability
SOB	Start of Business
SOI	Start of Installation
SOP	Standard Operating Pocedures
SP-21	SEAPOWER 21
SPALTS	Strategic Systems Programs Alterations
SPAWAR	Space and Naval Warfare Systems Command
SPETE	Special Purpose Electronic Test Equipment
SPIDER	Space and Naval Warfare Systems Command PEO Integrated Data Environment and Repository
SPM	Ship Program Manger
SPP	Sponsors Program Proposal
SPR	Special Program Requirements
SRD	Selected Record Drawings
SRF	Ship Repair Facility
SSAA	System Security Authorization Agreement
SSCEPM	Surface Ship and Carrier Entitled Process for Modernization
SSIL	Significant Supply Items List
SSPO	Strategic Systems Project Office
SSR	Ship Selected Record
ST-1	Sustainment Type 1
ST-2	Sustainment Type 2
STRL	Software Technology Readiness Level
STARS	Standard Accounting Reporting System
SUBMEPP	Submarine Maintenance, Engineering, Planning and Procurement
SUBSAFE	Submarine Safety Certification Program
SUPSHIP	Supervisors of Shipbuilding, Conversion and Repair
SW	Software

Acronym	Definition
SWD	Software Delivery
SYSCOM	System Command
T&E	Test & Evaluation
TA	Technical Authority
TAB	Training Aid Booklet
TAC	Transportation Account Code
TAMS	Type Commander alteration Management System
TAMS	Test and Monitoring System
TAT	Technical Assessment Team
TAT CM	Technical Assessment Team Change Manager
TBD	To Be Determined
TBU	Test Bed Validation
TCD	Target Completion Date
TCG	Transverse Center of Gravity
TD	Training Device
TDA	Technical Design Agent
TDMIS	Technical Data Management Information System
TDP	Technical Data Package
TEMPEST	
TI	Technical Instruction
TM	Technical Manual
TMAPS	Technical Manual Application System
TMAR	Technical Manual Analysis Report
TMCR	Technical Manual Contract Requirements
TMDE	Test, Measurement and Diagnostic Equipment
TMIN	Technical Manual Identification Number
TMMA	Technical Manual Maintenance Activity
TMMP	Technical Manual Management Program
TMO	Technical Manual Outfitting
TMSR	Technical Manual Contract Seatask Requirements
TNICN	Temporary Navy Item Control Number
TOA	Toatal Obligation Authority
TO&E	
TOB	Technical Operating Budget
TPs	Teleprocessed Reports
TPSs	Test Program Sets
TPU	Total Production Units
TRL	Technology Readiness Level
TRPPM	Training Planning Process Methodology
TSA	Technical Support Activity
TSP	Troubled Systems Process
TTMID	Temporary Tracking Material Identification
TVD	Technical Variance Documentation
TW	Trident Warrior
TWH	Technical Warrant Holder
TYCOM	Type Commander
UIC	Unit Identification Code
ULSS	User's Logistics Support Summary

Acronym	Definition
UMMIPS	Uniform Material Movement and Issue Priority System
USMC	United States Marine Corps
VA	Veterans Administration
VALAID	Validation Aid
VCG	Vertical Center of Gravity
VDD	Version Description Document
Vol ID	Volume Identification
VTC	Video Teleconference
W&M	Weight and Movement
WAF	Work Aithorization Forms
WEOSS	Weapons Elevator Operational Sequencing System
WIP	Warfighting Improvement Plan
WIPT	Working Level Integrated Product Team
WIPE	WIP Engineering
WLES	Waterfron Liason Engineering Services
WOO	Window of Opportunity
WPIC	Work Package Integration Conference
WPN	Weapons Procurement, Navy
WSERB	Weapon Systems Explosive Safety Review Board
WSF	Weapon Systems File
WSI2T	Warfare System Integration and Interoperability Test
WSWG	Weapon System Working Group
X-RIC	Pseudo-Repairable Identification Code

Glossary

Hull Modernization Plan (HMP). The HMP is the sole, time-phased planning document for hull-specific Modernization requirements; it is the authoritative input to the Maintenance and Modernization Business Plan (MMBP), SPM Letter(s) of Authorization and the TYCOM Quarterly Installation Scheduling Message(s) for each affected hull; it is available as a report from NDE-NM. The HMP is used to create the hull specific A-360 Critical Milestone LOA, and subsequent change letters at A-180 and A-120 as well as any follow-on change messages. It is also used to develop the TYCOM Quarterly Installation Scheduling Message for installations planned in other than CNO Availabilities. It is the single, authoritative document for final authorization status for all modernization actions aboard any surface ship or aircraft carrier.

High Shock items. Equipment susceptible to shock, anything that could disable the ship if it breaks (due to roll and pitch of the ship)

Logistically Significant Material. Material that has or requires development of; Allowance Parts List (APL), Repairable Identification Code (RIC), Training, Planned Maintenance System (PMS), Technical Manuals, Test Equipment, or Provisioning Technical Documentation (PTD).

Alteration Figure of Merit (AFOM). The AFOM calculation is defined as the quantitative "Warfighting or Readiness Benefit" assigned to each proposed change. There are two components to the process of assigning AFOMs to each SCD; the annual establishing of weights based on Fleet priorities and the continuous action by respective TYCOMs to assign index values to standardized rating scales that address Suitability (Reliability, Maintainability, Operational Availability, Supportability, Quality of Service (QOS)/Quality of Life (QOL), Safety) and Capability (the scales are named for each of the Naval Capabilities established in the Naval Power 21 Pillars or Naval Capability Packages as noted below.) . On an annual basis, on or about October of the fiscal year, weights are assigned to an established hierarchical benefit structure modeled after the Naval Power 21 Operational Architecture and Suitability Structure, as described in the business rules below. Separate from this annual event, TYCOMs continue to review and assign index values to the previously noted standard rating scales for each change as part of the throughput of SCDs. The TYCOM Rating Scale Index Value assignments are entered in NDE and, through an approved and weighted static algorithm based on the above described weighting process, are calculated to provide an overall AFOM and nested AFOMs which articulate the changes Capability, Suitability and QOS/QOL benefits to the SHIPMAIN Decision Board members. Note that every change described on a SCD undergoes at a minimum, a suitability Assessment and all HM&E SCDs undergo an additional assessment under the SEA Basing Naval Capability Package (Close, Assemble Employ and Reconstitute Naval Capability).

Conjunctive Change. A Conjunctive Change is one that must be accomplished prior to or with another SC for the system/equipment to operate as designed.

Advance Hull Modernization Plan (AHMP). The AHMP is a planning HMP released in July each year of the hull specific ship changes planned for the year after the next fiscal year (Example: JUL 2006 release is for FY 2008) in support of the A-810 to A-450 rolling HMP Entitled Process milestone.

Cost Benefit Analysis (CBA). CBA a.k.a. BCA is a systematic quantitative method to compare the costs of implementing a specific project or course of action with the benefits to be gained from implementation. In the SHIPMAIN process the CBA is used to compare the Investment Cost of an item to the potential savings or cost avoidance that that same item may provide. It is used in conjunction with the AFOM to provide the Decision Makers with criteria that will help them to decide the relative priority of one ship change with respect to all other ship changes being evaluated.

Execution Planning HMP (EHMP). The EHMP is an execution-year planning HMP released in March each year of the hull specific ship changes planned for the next execution year plus the first quarter of the next planning year (MAR 2006 release for FY07 and first quarter FY08) in support of MMBP development. It is a snapshot of the current maturity and authorization status and industrial material and man-day estimates for planned ship changes.

Human Systems Integration.

Manpower/Workload. The minimum quantity and quality manpower required to accomplish 100% of the mission within the scenario defined in the ROC/POE for a given platform or activity consistent with human performance, workload, and safety requirements, and affordability, risk, and reliability constraints. Manpower analysis should be conducted for any planned differences in workload for new systems.

Personnel. The qualitative attributes of the manpower personnel on board filling the manpower requirements. Personnel factors include the knowledge, skills, and abilities, rating structures, physical constraints, and personnel management policies needed to execute required tasks.

Training. Training is the definition of instruction, education, and on the job or team training necessary to provide humans and teams with knowledge and job skills needed to support the system life cycle processes at the specified levels of performance. This includes the tools, devices (including embedded training systems), training simulators, techniques, procedures, and training materials and technical manuals to be developed and employed to provide training for all required tasks. Appropriate initial and follow on training should be planned and funded prior to system development and identified in appropriate Navy Training System Plan (NTSP).

Human Factors Engineering (HFE). Human factors engineering is defined as the application of human performance principles, models, measurements, and techniques to system design. The goal of human factors engineering is to optimize system performance by taking human physical and cognitive capabilities and limitations into consideration during design. HFE includes human-machine interfaces, ergonomics, usability, design for maintainability and situational awareness.

Habitability. Physical environment and support services that are necessary for meeting and sustaining system performance, avoiding personnel retention problems, maintaining quality of life, and minimizing total system costs.

Environment, Safety and Occupational Health (ESOH). Includes impacts to environment and safety and plans for mitigation of health hazards.

Personnel Survivability. For systems with missions that might expose it to combat threats, personnel survivability includes protection against fratricide, detection, and instantaneous, cumulative, and residual nuclear, biological, and chemical effects; the integrity of the crew compartment; and provisions for rapid egress when the system is severely damaged or destroyed.

Initiator. Any authorized user of NDE. Provides the initial data input in the SCD at Phase I.

Integrated Logistics Support (ILS). A disciplined approach to the activities necessary to ensure the effective and economical support of a system or item of equipment for its life cycle. The elements of ILS are, maintenance, manpower and personnel, supply support, support equipment (including test, measurement, and diagnostic equipment), training and training devices, technical data, computer resources support, packaging handling and storage, transportation and transportability and facilities. All SCDs will need to have an ILS Certification. If a SCD does not impact any ILS products, a SPM approved ILS Certification stating that the SCD has No ILS Impact is required.

Long Lead Time (LLT). a procurement lead time greater than 90 days. Procurement is comprised of administrative and manufacturing lead times.

Modernization. Modernization consists of all efforts and costs that lead to changes of an In-Service Surface Ship or Carrier. These changes include upgrades or replacement of existing systems by new systems satisfying new requirements. This includes all product development, procurement, and installation costs as well as costs that are not specific to particular alterations, but are required to execute an acquisition program. Product development costs are generally paid for with RDTEN 6.3 and 6.4 funding. Procurement and installation costs may be paid for with OPN, WPN, APN, SCN or OMN. The domain includes RDTEN and procurement required for developing and upgrading systems. Any nuclear propulsion changes will be excluded from the NMP process.

Participating Manager (PARM). The activity associated with completing the engineering, procurement and identification of life-cycle support for the ship change and its associated ship changes.

Prior/Concurrent/Conjunctive Alts. Any change previously authorized or in development that has a direct impact on the change being approved and must be installed prior to, or concurrently with, the change.

Provisioning Technical Documentation (PTD). A listing of various types of data relating to a given system or equipment in a standardized format. PTD is supplied by the manufacturer and used for the identification, selection, and determination of initial requirements and cataloging of support items to be procured through the provisioning process.

Raw material. Material used to fabricate foundations, paint, brackets, etc… to support equipment installation and requires no follow-on supply support.

Shop Stores/Shipyard Stock. Material commonly carried to support shipyard activities/work (EX: Gloves, Adhesive, Bar/Round Stock, Bolts, Connectors (BNC, wire, box, etc…), Insulation, Nuts, Common Paint, Pipe, Plate). This material will NOT be identified at the individual level, but at a top “Shop Stores” level with cost, on the SCD.

Software. The programs or instructions that tell a computer what to do. This includes operating system programs, which control the basic functions of the computer system (such as Microsoft's Disk Operating System--"MS-DOS" --that controls IBM-compatible PCs) and applications programs, which enable the computer to produce useful work (e.g., a word processing program such as WordPerfect).

Ship’s Selected Records (SSR). The documentation providing critical information concerning the maintenance, operation, and configuration of a ship. SSR consists of the following categories: Selected Record Drawings, which illustrate important features, systems, and arrangements applicable to an individual ship; Selected Record Data, which describes arrangements, equipment, systems and procedures essential to the operation and safety of the ship; and Allowance Lists.

Strike Force Interoperability (SFI) Categories;

Category 1 (CAT 1)

A. Any proposed change that meets any of the below criteria:
   (1) Alters the capability or intra-system interfaces of a system that directly impacts the development of the Common Tactical Picture (CTP).
   (2) Alters an interface between the Weapons Systems and the Command and Control System.

Category 2 (CAT 2)

A. The change does not meet CAT 1 criteria, but alters the capability or intra-system interfaces of a system that:
   (1) Supports development of the Common Operational Picture (COP)
   (2) Resides on or is connected to the Integrated Shipboard Networking System (ISNS) LAN.
   (3) Provides other warfighting capability of particular interest to the FLT CDR.
   (4) Provides essential self-defense capability.
   (5) Interfaces with CAT 1 systems, but is not a CAT 1 change itself.
   (6) Transmits wirelessly in the electromagnetic spectrum.
   (7) Impacts the accuracy of the integrated navigation suite.

Changes to SFI CAT 2 systems that do not affect the capability or interface of the system will generally be maintained as an SFI CAT 3.

Category 3 (CAT 3)

A. Changes to CAT 1 or 2 systems that do not change the item's interoperability and capability. They include:
   (1) Reliability, Maintainability and Availability (RMA) improvements
   (2) Correct parts obsolescence issues
   (3) System specifically designated by the FLT CDR as an SFI CAT 3 level of interest.

Category 4 (CAT 4)

A. Includes HM&E changes and other systems not designated for SFI tracking.

CAT 3 or 4 HM&E systems that directly impact SFI CAT 1 and 2 C5I Systems shall also be assigned SFI CAT 1 or 2 for tracking purposes to indicate relationship to C5I Systems. Examples are ICAN NAV, ICAN Voice, NAVCRIT, NCDS, ICAS, IPDS, etc.

Library and database updates (DAFIF Airways, JNL, SLQ-32) are specifically excluded from C5IMP management unless they potentially impact the interoperability or functionality of a CAT 1 or 2 system.

Submitter. Submitter is responsible and accountable for the all phases of the SCD. They will be the primary point of contact for questions or clarification throughout the process. Subsequent approvals, disapprovals, and notification to complete the next phase of the SCD will be forwarded to this point of contact

Sustainment. Sustainment consists of all efforts required to correct or maintain a system's design capability, maintainability or reparability through internal equipment modifications that do not impact shipboard distributed systems. There are two types of sustainment:

- Type 1 Sustainment (ST1). An internal equipment modification that is a configuration change that provides new functionality but has no impact on ship distributed systems.
- Type 2 Sustainment (ST2). An internal equipment modification that is a configuration change that provides no new functionality, and has no impact on ship distributed systems. For example:
  - System repair action that resolves a reliability issue
  - Corrective maintenance (repair) that results in a requirement to back fit to all systems

Technical Point of Contact. Identifies person with detailed knowledge of change. Does not have to be the warrant holder.

Type Commander (TYCOM). Lead Type Commander associated with the change.

TECHNICAL SPECIFICATION
TITLE: LIAISON ACTION RECORD (LAR)
NO.: TS9090-100A
DATE: JUNE 2002
SUPERSEDES: TS9090-100, dated August 1993

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Commander, Naval Sea Systems Command

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LIAISON ACTION RECORD (LAR)

3.0 SCOPE:

This specification establishes requirements for a formal technical liaison system among SHAPEC Activities, Planning Yards (PYs), Supervisors of Shipbuilding Conversion and Repair (SUPSHIPs), Overhaul Yards, Space and Naval Warfare Systems Command (SPAWAR), Participating Managers (PARMs), Alteration Installation Teams (AITs), Ship Program Managers (SPMs), and other organizations involved in the Ship Alteration (SHIPALT) process.

1.1. APPLICATION:

The technical liaison system described herein shall be used for the following reasons:

a. Technical Information
b. Interpretation of Drawings, Specifications, etc.
c. Material Identification
d. Change Requests
e. Planning Yard approval of Drawings

The primary document to be used in this Liaison System is the Liaison Action Record (LAR); however, it is not the intent of this specification to require the use of LARs where other mechanisms exist such as the direct liaison between the overhauling activity and the PY On Site Representative (OSR).

1.2. CHANGES:

Any changes to SHIPALT drawings which affect, material specifications, pipe stress levels or distribution, system design or operational characteristics/features, component or fitting selection, ratings and MIL-SPECS, structural integrity, power requirements, compartment/topside arrangements or require insertion in drawing for follow on ships are not permitted except where concurred on by the PY. This concurrence can be obtained either via LAR or the OSR process. Where approved changes require the revision of drawings, the appropriate activity will modify these on a priority basis.

This specification does not apply to Nuclear Propulsion Plant matters under the cognizance of NAVSEA 08.

2.0 APPLICABLE DOCUMENTS:

The following documents of the issue in effect on the date specified in the data of the tasking correspondence form a part of this specification.

2.1 SPECIFICATIONS

- 9090-600 SHIP ALTERATION DRAWING PREPARATION
- 9090-500C SHIP ALTERATION RECORD PROCESS

- MIL-HDBK-61 CONFIGURATION MANAGEMENT GUIDANCE

2.2 PUBLICATIONS

- NAVSEA TL 130-AB-PLN-010, Trident System Change Management Plan
- NAVSEA 0902-018-2010, General Overhaul Specifications For Deep Diving SSBN/SSN Submarines
- GSO (NAVSEA S90A-AB-GOS-010/GSO)

3.0 REQUIREMENTS:

Each activity shall designate individuals to act as liaison representatives. The number of liaison representatives shall be limited to that which is absolutely necessary to maintain effective liaison while avoiding duplication of effort. The signature of an assigned liaison representative on a LAR shall signify that the record is an official communication from the activity involved.

Technical liaison services may be requested by the following form of communication.

3.1

A LAR shall be used to request services which are within the Scope of this specification. Each LAR shall be prepared in the standard form described in Figure 1, and meet the legibility requirements of MIL-D-5480 (paragraph 2.1). In addition to identification of the requesting activity, each shall include:

a. An action number as follows

SHIPALT	**HULL**	**SERIALIZATION**
0596/	DDG5/	0001

b. The date of the communication.

c. Complete identification of all references and attachment of enclosures necessary to define the problem. Cost and impact information should not be included in the LAR but should be provided in supplementary documentation.

d. A clear statement of the information or action desired.

e. A specific date when a reply is required. The originator should normally allow the following reply times depending on the Priority of the LAR:

a.	Immediate	3 Working Days
b.	Urgent	5 Working Days
c.	Routine	10 Working Days
d.	Review	60 Working Days (See Tech Spec 9090-310)

f. Additional distribution shall be added to Fig. 1 as necessary to keep concerned parties informed.

g. The installing activity (Navy or Contractor) should include a recommendation for resolving the engineering data problem. The details should include information that can be readily transferred from the LAR to engineering drawings without further need to

shipcheck. This information is to be included in supplementary documentation to the LAR.

3.2.2 Telephone communications may be used to request services considered urgent in nature where written communications will not provide timely support. In such cases the request shall subsequently be made and answered in writing on a serialized LAR. Phonecon memos of record shall be attached to the LAR as a matter of record.

3.2.3 Messages may be used when services or information needed is considered urgent. A LAR action number shall be assigned each correspondence. Messages will be answered within five working days of receipt. Priority messages will be answered within three working days.

3.3 Incoming liaison inquiries should be answered by the date requested. In cases where more time is required, the addressee shall notify the originating activity of the date the answer will be provided particularly when the response will require more than two weeks. In all cases of urgent requests, the originating activity shall be notified of any delay in response immediately.

3.4 Each activity shall maintain a log of incoming and outgoing liaison inquiries and their reply status.

3.5 Each activity shall maintain a file, which contains all information, associated with each answered incoming and outgoing inquiry.

3.6 Each activity shall respond to all LARs by phonecon giving the estimated time to reply if response time will exceed that established in this specification and maintain a record of that communication. This record should contain the date of call, new response date established and persons participating in the conversation. This record shall be kept in the file required by Section 3.5 of this specification.

3.7 Questions regarding SHIPALT technical requirements will be directed to the PY.

3.8 The SPM shall monitor the LAR process by periodically reviewing the response time to LARs.

4. CHANGES AND DEVIATIONS

4.1 Minor waivers and deviations and Class II Engineering changes IAW MIL-HDBK-61 will be approved by installing activities, except for waivers or deviations from non-reactor plant, non-deviation (ND) SSN 688 and SSBN 726 Class drawings or documents.

4.2 DESIGN CHANGES - The PY in the process of developing the detail design shall request approval from the SPM for major/critical deviations or changes that affect the Technical Requirements IAW MIL- HDBK-61. The change approval request is to contain:

4.2.1 Identification of the affected NAVSEA Technical Requirements.

4.2.2 Identification of the affected SHIPALT(s) and drawings.

4.2.3 A brief description of the existing system or area of the ships configuration being impacted.

4.2.4 Reasons why it is not considered feasible or appropriate to accomplish in accordance with the technical requirement(s) for this hull or class. Full technical rationale is required.

4.3 SUBMARINE CHANGES - For SSN 688 and SSBN 726 Classes, all waivers and deviations from non-reactor plant, non-deviation (ND) SHIPALT drawings or documents shall be in accordance with ND drawing procedures for these classes as described in NAVSEA 0902-018-2010, General Overhaul Specifications For Deep Diving SSBN/SSN Submarines and NAVSEA TL 130-AB-PLN-010, Trident System Change Management Plan.

5. QUALITY ASSURANCE

5.1 Each activity using this specification is responsible for compliance with all the requirements of this specification.

5.2 Each activity using this specification may be audited to assure compliance with the requirements of this specification.

LIAISON ACTION RECORD

ACTION NO. _____
DATE _____

From:
To:

Subj:

Ref:

ORIGINATOR CODE APPROVED

Question or Action Required

Reply is Required by_____

COMPLETED BY APPROVED BY (BRANCH HEAD) DATE

TELE. NO. SIGNATURE

Answer or Action Taken

Distribution:

Planning Yard Code_____
NSA Code_____
PEO/SPM_____

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APPENDIX G

NAVY MODERNIZATION PROCESS MILESTONES

	NMP Milestones (Surface) -- see notes				
Item #	Task / Milestone	Responsible Activity	Critical	CNO MSMO	Comments / Remedial Action
1	Establish CNO / CMAV availability schedule	TYCOM		A-720	
2	Decision Point 3 -- Fund Ship Change Modernization Procurement & Installation	OPNAV / FLEET		Varies	Depends on development and procurement timeline requirements. Objective is DP3 approval before A-360.
3	Issue Execution Planning Hull Modernization Plan (EHMP)	SPM		Varies	EHMP issued in March each year to support MMBP development.
4	Issue 2-year rolling Advance Planning Hull Modernization Plan (AHMP)	SPM		Varies	AHMP issued in July each year to support long lead time planning by RMCs.
5	Identification of initial list HCPM for Ship Changes	PARM / Planning Yard		A-660	HCPM - HQ Centrally Procured Material. This should be for the entire ship class. This should include all known requirements.
6	Provide incremental funding for HCPM / LLTM to meet req'd delivery dates	PARM / SPM		A-600	
7	Initiate procurement of HCMP LLTM	PARM / SPM		A-600	
8	PY submit funding request for work assigned	Planning Yard		A-480	
9	Ship Change (SC) design / planning funds provided	NAVSEA / TYCOM		A-420	SPAWAR generally funds in FY prior to execution year.
10	Installation Control Drawing (ICD) delivered to alteration developer / PY	PARM		A-420	
11	Identify drawing development assignments, including class drawings	PARMS / TYCOM / NAVSEA		A-390	Send to RMC and Planning Yard
12	**Issue Initial Letter Of Authorization (including AITs)**	**SPM / TYCOM**	**X**	**A-360**	
13	**Task / Fund SID Development**	**SPM / NSA / AIT Manger / TYCOM / RMC**	**X**	**A-330**	
14	Ship checks completed	Planning Yard		A-270	
15	Provide incremental funds for ordering LLTM for both repair and alt / mod work to meet req'd dates	SYSCOM / TYCOM		A-270	
16	**Issue/ Deliver SIDs to NSA for KTRs and AITs**	**Planning Yard**	**X**	**A-180**	
17	Late Add Impact Assessment	PARM		A-180	Any change to the Fielding Plan in NDE-NM that requires SIDs or impacts ship distributed systems requires sponsoring activity to submit a late add impact assessment
18	Interoperability Impact Assessment	PARM		A-180	Any SFI CAT 1 or 2 change to scheduling in NDE-NM inside A-180 that has not been previously baselined at a NCMC requires the sponsoring activity to submit an eCCB risk form in NDE-AMPS
19	Request availability funding for modernization work	NSA / RMC		A-180	

	NMP Milestones (Surface) -- see notes				
Item #	Task / Milestone	Responsible Activity	Critical	CNO MSMO	Comments / Remedial Action
20	All Modernization Impact Assessments (including waivers) submitted	PARM/SPM/TYCOM		A-175	
21	All Modernization Impact Assessments (including waivers) approved	TYCOM		A-150	
22	**Identification of AIT support requirements and POA&M provided**	**AIT Manager**	**X**	**A-135**	Need to develop a complete requirements list. Needs to be integrated with repair reqmt's by the KTR and presented at the WPER (A-30)
23	**Cert Plan(s) (eg ILS, software etc) approved. Final date for modernization Ship Change (SC) approval except for Sustainment Type 1 (ST1) and Sustainment Type 2 (ST2) SCs. LOA locked with exception of ST1 and ST2 SCs.**	**SPM / PARM / PM**	**X**	**A-120**	SPM approves Hull Certification. All unresolved PNA modernization Ship Changes (SCs), except ST1 and ST2 SCs, are removed from the authorization letter at this date. ST1 and ST2 SCs can be added to the LOA until A-75. Please note: There is an Interim
24	Award AIT contracts for work not being done by prime KTR	AIT Sponsor		A-90	
25	Final date for ST1 and ST2 SCs approval or deferral from the LOA	SPM/PARM/PM		A-75	All unresolved PNA ST1 and ST2 SCs are removed from the authorization letter at this date. Any ST1 and ST2 SCs being added after the A-75 date can only be added to the availability using the late add process.
26	**Provide Availability Funding for Modernization to the RMC**	**SYSCOMS / PEO / TYCOM**	**X**	**A-45**	Includes funding for AIT support services and prorate costs
27	Deliver material (LLTM and kitted materials) to executing activity	Planning Yards / PARM		A-30	
28	Start of availability	Maintenance Team		A-0	

NOTES:

1. Milestones are in days before availability start.

2. Milestones are "not later than" dates linked to the requirements for integrated maintenance and modernization planning for surface ship MSMO CNO availabilities. See JFMM Vol II, Part II, Chapter 2 for non-MSMO milestones and for other MSMO work package milestones.

3. These milestones may be tailored to apply to the unique situations where the dates must be accelerated to meet the contractual process milestones associated with the initial availability of a Multi-Ship / Multi-Option (MSMO) Contract or an availability that must be competed coast-wide. Milestones may also be accelerated when the TYCOM and SPM collaboratively determine this action is prudent to mitigate risk associated with first-ever installation of a SC, first-time SC installation within a specific ship class (First in Class Installation (FICI)), overseas installations, or similar situations where exceptional measures must be taken to manage risk. See Section 1-5 of this Manual for additional information.

4. Milestones written in bold type are critical milestones which are tracked by NMP metrics.

NMP Milestones (Aircraft Carriers)

Item #	Task / Milestone	Responsible Activity	Milestones are in days					
			Critical	PIA/ DPIA	CIA/ WOO	FDNF SRA	RCOH	PSA/SRA
1	Issue Advance Planning Letter (APL)	SPM		approx A-720	N/A	approx A-720	N/A	approx A-720
2	Issue Baseline AWP (for PIAs and DPIAs planned for C+3 months from previous availability)	CPA		approx A-720	incl w/ PIA/ DPIA	approx A-480	A-1440	approx A-720
3	Initial Drawing Shipcheck (approximate)	PY		A-600	incl w/ PIA/ DPIA	A-480	A-1080	A-600
4	Initiate Procurement of LLTM	NSA/PARM		A-600	incl w/ PIA/ DPIA	A-600	A-1080	A-600
5	Populate Baseline Modernization Readiness Assessment (MRA) (no later than)	CPA		A-510	I-360	A-510	A-1440	A-510
6	ICD Delivered to SC developer / PY	PARM		A-420	I-360	A-420	A-780 to A-420	A-420
7	**Issue SC Letter of Authorization (LOA) (no later than)**	**SPM**	**X**	**A-360**	**N/A**	**A-360**	**N/A**	**A-360**
8	Begin Monthly Issuance of MRA (no later than)	CPA		A-360	I-360	A-360	A-540	A-360
9	**Complete SIDs for NSA SCs**	**PY**	**X**	**A-300**	**I-180**	**A-300**	**TBD**	**A-300**
10	Complete/Deliver SIDs for AIT SCs to NSA/PY	AIT		A-210	I-180	A-210	TBD	A-210
11	Conduct Modernization Readiness Assessment #1(MRA1)	NSA/CPA		A-210	as needed	A-210	A-240	A-210
12	Statement of Work due to SRF to support work for AIT and work assigned to SRF			N/A	N/A	A-210	N/A	N/A
13	**Complete/Approve SIDs for AIT SCs**	**PY**	**X**	**A-180**	**I-120**	**A-180**	**I-120**	**A-180**
14	If SC is added to the MP after this date, submit LATE ADD REQUEST to TYCOM	PARM		A-180	I-180	A-180	A-180	A-180
15	Initial Platform Certification Decision (IPCD) for C5I installations	SEA 05W		A-150	TBD	A-150	TBD	A-150

NMP Milestones (Aircraft Carriers)

Item #	Task / Milestone	Responsible Activity	Milestones are in days					
			Critical	PIA/ DPIA	CIA/ WOO	FDNF SRA	RCOH	PSA/SRA
16	Submit ILS Certification to CALICo	PARM		A-150	I-150	A-150	TBD	A-150
17	**Provide POA&M to NSA/TYCOM**	**AIT**	**X**	**A-135**	**I-135**	**A-135**	**A-135**	**A-135**
18	**Complete ILS Certification/Issue ILS Cert Message.** Final date for SC approval except for Sustainment Type 1 (ST1) and Sustainment Type 2 (ST2) SCs.	**SPM**	**X**	**A-120**	**I-120**	**A-120**	**TBD**	**A-120**
19	All Modernization Risk Assessment submitted to TYCOM	PARM		A-120	I-120	A-120	N/A	A-120
20	Conduct Modernization Readiness Assessment #2 (MRA2)	TYCOM/CPA		A-90	as needed	A-90	N/A	A-90
21	Final date for ST1 and ST2 SC approval or deferral from LOA	SPM		A-75	I-75	A-75	A-75	A-75
22	Issue Risk Assessment Message (results of MRA2)	TYCOM		A-60	as needed	A-60	N/A	A-60
23	Ensure COP data is compiled and prepared	PARM		I-60	I-60	I-60	I-60	I-60

TECHNICAL SPECIFICATION
TITLE: ALTERATIONS TO SHIPS ACCOMPLISHED BY ALTERATION INSTALLATION TEAMS
NO.: TS9090-310F
DATE: 1 June 2011

SUPERSEDES: TS9090-310E, dated APRIL 2009

DISTRIBUTION STATEMENT A
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PUBLISHED BY
COMMANDER, NAVAL SEA SYSTEMS COMMAND

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ALTERATIONS/SHIP CHANGES TO SHIPS ACCOMPLISHED BY ALTERATION INSTALLATION TEAMS

1 SCOPE

This specification establishes procedures applicable for all shipboard Alterations/Ship Changes (SCs) accomplished by Alteration Installation Teams (AITs) or any organization that performs the duties or functions of an AIT.

1.1 General

This specification provides requirements for the planning, scheduling, and accomplishment of logistically supported alterations/SCs on active and reserve U.S. Navy ships by AITs and provisions for a Quality Management System (QMS) for accomplishment of such work.

a. Planning

Only alterations and SCs approved by the Navy Modernization Process (NMP), as applicable, will be installed in U.S. Navy ships.

No funds shall be expended for ships scheduled for deactivation within five years without a Secretary of the Navy (SECNAV) waiver or approved Memorandum for Record (MFR). See reference 2.2.3(14).

Note: This paragraph applies only to changes funded outside of Shipbuilding and Conversion, Navy (SCN) accounts. SCN-funded change processing questions should be referred to the respective Ship Acquisition Program Managers (SHAPMs).

b. Scheduling

For submarine Type Commander Alterations (TYCOMALTS) the TYCOM Alteration Management System (TAMS) serves as the official authorization database until the Navy Data Environment (NDE) database can be modified to accommodate TYCOM requirements and Unclassified Navy Nuclear Propulsion Information (UNNPI) data.

OHIO Class Submarines do not use NDE. Configuration is managed in the Submarine Acquisition and Support (SAS) System and uploaded via Configuration Data Managers Database – Open Architecture (CDMD-OA) to the Weapons System File (WSF). Installations are scheduled in the Navy Tool for Interoperability Risk Assessment (NTIRA) / Submarine Modernization and Alteration Requirements Tool (SMART) and the TAMS. Submarine scheduling/programming of Title “K” and “KP” alterations is also accomplished in the NDE program module.

Surface ship and carrier modernization is scheduled in Navy Data Environment-Navy Modernization (NDE-NM). In addition, SCs that are ship modifications (legacy 'K' & ‘D’ SHIPALTs) are scheduled/programmed by the Sponsor in the NDE program module.

For New Construction Carriers, Surface Combatants, and Amphibious Ships, configuration is managed by the respective SHAPMs while the ship is in the SCN Window, from the ship's Delivery to the Obligating Work Limiting Date (OWLD).

The Availability Work Package (AWP) serves as the official authorization database for scheduling and tracking. Configuration is managed and uploaded via CDMD-OA to Enterprise Resource Planning (ERP) by the respective SHAPM's Configuration Data Manager (CDM).

c. Accomplishment

The installation of alterations/SCs are accomplished through established procedures noted in this specification, references 2.2.3(14), and 2.2.2(1).

Note: Milestones within this document are expressed in calendar days for Surface Ships and Carriers and in months for Submarines.

1.2 Definitions

As used in this document, the definitions contained in Appendix G herein apply.

1.3 Applicability

This specification applies to all legacy alterations and SCs accomplished by AITs on U.S. Navy ships, including surface ships, carriers, submarines, and service craft, except as noted in paragraph 1.4.

This NAVSEA Technical Specification (NSTS) cancels and supersedes Technical Specification (TS) 9090-310E.

1.4 Exceptions

This specification does not apply to:

a. Alterations to nuclear components and systems under the cognizance of the Deputy Commander for Nuclear Propulsion (NAVSEA 08).

b. Strategic Systems Program Alterations (SPALTs) issued by the Director, Strategic Systems Programs (DIRSSP).

c. Temporary modifications performed as part of a shipyard availability to support industrial work or associated testing.

d. Temporary Alterations (TEMPALTs) to be accomplished on submarines. References 2.2.3(18)) and 2.2.3(12) provide specific policy and procedures for submarine TEMPALTs.

e. Technical support personnel and certification teams who only provide technical guidance, equipment check-out and grooming or certification of systems or on-site training for Ship’s Force not associated with the accomplishment of an alteration/SC.

f. Technical support personnel for non-invasive installations supporting short term experimentation efforts where desktop/laptop computers are brought aboard and not connected to the network to support clearly defined experimentation objectives for a finite period of time and do not require AITs for installation.

1.5 Roles and Responsibilities

The general roles and responsibilities for the following activities are identified to provide guidance for AIT installations. These roles and responsibilities are further defined throughout this TS and can be refined, if required, in a Memorandum of Agreement (MOA). It is recommended that Headquarters System Commands (HSC)/AIT units that use alternative AIT titles within their organization use the terminology of TS9090-310(Series) in position description/billet assignments of personnel. If alternative titles are used, ensure personnel assigned parallel AIT duties are familiar with TS9090-310(Series) responsibilities. All activities identified in this TS are responsible for entering and maintaining accurate data in NDE.

1.5.1 Naval Supervising Activity/Authority

1. The single naval activity responsible for the integration, oversight, and verification of all work accomplished by all activities (i.e. Naval Shipyards (NSYs), Regional Maintenance Centers (RMCs), Supervisors of Shipbuilding, Conversion, and Repair (SUPSHIPs) contractors, TYCOM sponsored contractors, Fleet Maintenance Activities (FMAs), AITs, and Ship's Force) working within the assigned availability, and which acts as the single point of contact for this work. The Naval Supervising Authority/Activity (NSA) must possess a Naval Sea Systems Command (NAVSEA) Technical Warrant. The NSA will provide the oversight required to ensure that all work in the assigned availability is authorized and completed in compliance with applicable technical requirements and maintenance/modernization policy, and that all work meets schedule, cost, quality, and environmental/safety requirements. In accordance with reference 2.2.2(1) Volume VI, Chapter 43 (Guidance For Enhanced Modernization And Alteration Installation Team Integration During Availabilities) the NSA has overall responsibility for the availability, and possesses the authority to organize, structure, and coordinate all availability execution matters. All other participants will support the NSA in this regard. Specific NSA strategies to accomplish this oversight will vary, however, an integrated planning process, work control process, and ship certification process are essential to the success of the availability.
2. Depending on the complexity of the availability, the NSA responsibilities include but are not limited to:
    a. Coordination with other Maintenance Activities (i.e. NSYs, RMCs, SUPSHIPs, AITs, Ship's Force, and other participating activities) through an authorized MOA.
    b. Act as the single point of contact for the Lead Maintenance Activity (LMA) shipboard personnel and AIT Manager.
    c. Verify completion of work for milestones, key events, end of availability, and availability departure report based on documentation provided by all activities.
    d. Based on the amount of work accomplished, the NSA may also assume the role of LMA.
3. For Chief of Naval Operations (CNO) Availabilities, the NSA will:

a. (NSYs only) Also serve as LMA, when applicable.

b. Participate in selected work definition and planning conferences.

c. Facilitate planning efforts. Ensure detailed planning and integration of the work package is accomplished to provide a schedule that incorporates the work and testing of all organizations involved in the availability. The schedule will address work definition, key events, ship checks, job summaries, material preparations, and strategy preparations. Identify milestones with sufficient detail to measure intermediate progress toward each key event. Ensure orientation briefings and training are conducted as necessary so that personnel understand applicable project processes and requirements. Communicate with the AIT Manager to provide sample documents (Plan of Actions and Milestones (POA&M), MOA, AIT Support Services Request Forms, etc.) in accordance with paragraph 3.6.1.

d. During work execution, review all changes to specifications and work items impacting propulsion plant or designated areas of nuclear powered ships to ensure requirements are met

e. Prior to Fast Cruise, Sea Trials, and availability completion, verify all authorized work has been completed unless waived.

f. Monitor the effectiveness and the quality of AIT Managers' execution of their Quality Assurance (QA) oversight responsibilities. Assess their execution of QA oversight responsibilities and conduct Quality Sampling of AIT performance.

g. Ensure required participants are notified of all applicable Planning Conferences and review meetings to discuss and resolve any issues related to the alteration; (for surface ships) the Work Package Integration Conference (WPIC) and Work Package Execution Review (WPER), (for submarines) NSA Final Planning Meeting/AIT Conference, (for carriers) the Modernization Readiness Assessment (MRA) Conference and/or equivalent New Construction Conferences.

h. Verify the delivery of all required Integrated Logistics Support (ILS) products and report any ILS problems or deficiencies to the appropriate authorities (Ship Program Manager (SPM), TYCOM, Participating Acquisition Resource Manager (PARM), In-Service Engineering Agent (ISEA), Ship's Force). Perform surveillances of installations on a sampling basis and use the sampling evidence to indicate conformance or nonconformance with NAVSEA requirements.

i. Attend AIT In/Out briefs and coordinate with the AIT Manager/AIT On Site Installation Coordinator (AIT OSIC) and Ship's Force to ensure satisfactory completion of alterations

j. Exercise final arbiter for conflict resolution in accordance with reference 2.2.2(1) Volume VI Chapter 43.

k. In cases where the AIT is unable to complete the installation within the availability, the NSA will:

    i. Perform an independent assessment of the impact of the unfinished work.

    ii. Contact Planning Yard (PY), as required, to complete this assessment.

iii. Determine required mitigating actions as appropriate. These may include additional spare parts, installation of temporary valves, etc.

iv. Ensure a Departure From Specification (DFS) is documented, if required.

v. Determine if temporary changes to watch bills, training aid booklets, operating procedures, etc., are required, and ensure required changes are implemented.

vi. Provide a complete package to Ship's Force, the PY, the appropriate TYCOM, and the appropriate Program Executive Officer (PEO) detailing how above items i through v have been adjudicated.

vii. Provide concurrence to the AIT Manager that the availability may complete.

viii. Ensure the AIT Sponsor is involved in this process.

ix. Notify the applicable Program Office and NAVSEA 04 of any AIT work suspension/cancellation.

l. Oversee AIT work on critical systems in accordance with paragraph 3.5.2.

m. The NSA and LMA will jointly prepare a MOA in accordance with reference 2.2.2(1) to clarify the responsibilities of all participating activities involved in the installation of alterations/SCs by AITs for all availabilities.

n. Verify that the AIT has checked in Regional Maintenance and Modernization Coordination Office (RMMCO) prior to commencing work.

1.5.2 Lead Maintenance Activity

The LMA is the single activity responsible for work being accomplished on U.S. Navy ships during any type of availability. In accordance with reference 2.2.2(1) Volume VI, Chapter 43 (Guidance For Enhanced Modernization And Alteration Installation Team Integration During Availabilities) the LMA has overall responsibility for the availability, and possesses the authority to organize, structure, and coordinate all availability execution matters. All other participants will support the LMA in this regard. Specific LMA strategies to accomplish this oversight will vary, however, an integrated planning process, work control process, and ship certification process are essential to the success of the availability.

LMAs responsibilities are:

1. Conduct or attend routine progress review meetings with all assigned activities. Identify and resolve coordination problems and work conflicts. Advise the appropriate alteration/SC sponsors (e.g. NSA, NAVSEA, TYCOM, AIT Sponsor, SPM, etc.) of significant quality, cost, and schedule problems and impacts.

2. (CNO and SCN Availabilities) Coordinate work and testing controls to include Work Authorization Forms (WAFs), tag-outs, and test sequencing.

3. (CNO and SCN Availabilities) Coordinate preparations by assigned activities for all key events (i.e. docking, undocking, hot operations, dock trials, fast cruise, sea trials, etc.) to include verification signature checklists of readiness to start.

4. (CNO and SCN Availabilities) Coordinate crane operations, pier lay-down areas, dry dock work areas, and resolve other real estate conflicts which may impede efficient execution of the availability.
5. (CNO Availabilities only) Provide sea trials agenda with all participating activities input for Ship CO concurrence and TYCOM approval.
6. Integrate the work of all activities. For CNO Availabilities, this includes integrated work and testing schedules. For non-CNO Availabilities, integrated schedules may be used based on the complexity of the work as determined by the LMA. The schedule shall ensure adequate time is provided for crew training.
7. (Submarine CNO Availabilities only) Provide a copy of all DFS to Ship's Force QA Officer and the TYCOM N43 organization.
8. (Submarine CNO Availabilities only) Appoint a Ship Safety Officer to chair the Ship's Safety Council and coordinate work that affects control of a ship's control system.
9. (Submarines only) Provide management oversight of ship safety council in accordance with reference 2.2.3(2).
10. (Submarines only) Coordinate all safety programs (such as sail safety and sail closeout) efforts by assigned activities.
11. For Submarine Safety (SUBSAFE), Deep Submergence System-Scope of Certification (DSS-SOC), and Fly-By-Wire (FBW) work ensure that the MOA identifies the certifying activity.
12. Maintain a list of activities working on the ship. Ensure the list is updated weekly or on an as-needed basis. Ensure activities working on the ship have the proper credentials, work schedule and pedigree (authorized activity) prior to being added on the work authorization list (e.g., SUBSAFE, Scope of Certification (SOC), FBW, radiological, etc.).
13. Track progress of all activities.
14. Provide local points of contact to AIT and OSIC.
15. Attend all production management meetings to communicate/resolve priorities, problems, job interferences, and issues.
16. Participate in critiques and problem investigations (e.g. Trouble Reports) as necessary.
17. Conduct Ship's Force and AIT orientation briefings and training in accordance with this TS and reference 2.2.3(22).
18. The NSA and LMA will jointly prepare a MOA in accordance with reference 2.2.2(1) to clarify the responsibilities of all participating activities involved in the installation of alterations/SCs by AITs for all availabilities.

1.5.3 Ship Acquisition Program Manager (SHAPM)

For New Construction ships, the SHAPM has the programmatic responsibility, accountability, and authority for ship configuration. SHAPM responsibilities include:

1. Fulfill the roles and responsibilities of the TYCOM for configuration control throughout the SCN Window, and be the final authority for the installation of any alteration/SC during the SCN Window.

2. Fulfill the roles and responsibilities of the NSA pertaining to:

    a. All AIT work not tasked to the executing shipyard for industrial work or support items; except in matters of: PSA Executing Shipyard Administering Contracting Officer (ACO) and Technical Warrant Holder responsibilities; environmental, safety; local area AIT training requirements; clearance and visit request distribution to ships and shipyards.

    b. Distribution of ILS products and reporting of any ILS problems or deficiencies to the appropriate authorities.

3. Attend AIT In/Out Briefs and coordinate with the AIT Manager and Ship's Force to ensure satisfactory completion of alterations.

4. Fulfill the roles and responsibilities of the LMA for:

    a. Developing the consolidated Sea Trials agenda with input from all participating activities for ship CO's concurrence.

    b. Checking in and logging all AIT personnel, except those directly contracted or subcontracted by the executing shipyard.

5. Perform the functions of RMMCO including Gatekeeping and Production during the SCN Window.

6. Assume all the roles and responsibilities of the RMC pertaining to AIT management, coordination, integration, scheduling, oversight, reporting, resolution of technical issues and logistics.

7. Provide and manage C5I Surveillance and Reconnaissance (C5ISR) configuration status in accordance with reference 2.2.2(2).

8. Coordinate OWLD extension requests with the appropriate FLTCDR prior to extension taking effect in order to assure alignment with operational considerations.

9. Develop and submit a Completion Report for all availabilities.

10. Develop and deliver a Transfer Book documenting the turnover of life cycle support of new construction ships to the In-Service SPM.

1.5.4 Program Executive Office Submarines (PEO SUBS) Modernization Advance Planning Team (PMAPT)

1.5.4.1 The PEO SUBS Modernization Advance Planning Team (PMAPT)

The PEO SUBS Modernization Advance Planning Team (PMAPT) consists of a core group of representatives from various organizations, with the lead offices at Norfolk Naval Shipyard and Regional Support Group, Groton (due to their close proximity to the submarine PY). The PMAPT develops and submits the Advance Modernization Planning Package (AMPP) at A-10 in accordance with section 3.4.6.

The PMAPT is tasked with Modernization Planning Package Development for submarines including the following:

1. Providing coordination and integration interface between the joint NSA/LMA Project Team and all individual AITs assigned work during the modernization period.
2. Providing the AMPP to the AIT Managers, NSA, and LMA for validation and refinement as applicable to the project's Milestones and Key events.

1.5.4.2 The PEO SUBS LMA/AIT Modernization Coordination and Integration Team

The PEO SUBS LMA/AIT Modernization Coordination and Integration Team consists of representatives at each of the locations where submarine modernization is performed. Their responsibilities, as tasked by PEO SUBS and in accordance with a PEO SUBS/Naval and Private Shipyards/Program Offices MOA, include the following:

1. Provide coordination and integration interface between the joint NSA/LMA Project Team and all individual AITs assigned work during the modernization period.
2. Provide AIT installation planning support to the NSA and LMA to include:
    a. Assisting in organizing, scheduling, and planning AIT integration conferences.
    b. Coordination and schedule support of Pre-Installation Check Out (PICO)/ship checks
    c. Resource support for work schedule integration.
    d. Resource support for logistic requirements.
    e. Resource support for MOAs.
    f. Resource support for Readiness to Start status tracking.
    g. Resource support for service requests and tracking service requests.
    h. Resource support for modernization execution status tracking.
    i. Resource support for Ship's Force to include integration of training plans as provided by the Submarine Learning Center and Program Offices.
    j. Resource support for integrated System Operational Verification Test (SOVT)

k. Resource support to the NSA, LMA, and AIT Managers to fully integrate the AIT schedules in AIM/PSS and/or other master schedules.

l. Provide "Lessons Learned" from previous modernization periods and incorporate into current availability planning and execution.

m. Conduct on-site evaluations and assessments of Submarine Warfare Federated Tactical System (SWFTS) alterations in progress and provide a weekly status report (for all projects currently being supported) to the joint NSA/LMA Project Team, AIT Managers, SPAWAR, and PEO SUBS. This report is the PEO SUBS LMA/AIT Integration and Coordination Representative's independent, objective assessment of the AITs and the support being provided to the AITs. An advance copy of the weekly report will be provided to the individual availability Superintendent(s)/Manager(s) for review prior to distribution.

1.5.5 AIT Sponsor

The AIT Sponsor is the government activity that tasks and funds the AIT Manager. The AIT Sponsor will:

1. Ensure TS9090-310(series) requirements are invoked.
2. Ensure AITs and associated activities are fully funded in a timely manner to support planning requirements and milestones established by references 2.2.2(1), 2.2.3(14), 2.2.3(35) and this TS.
3. Ensure annual quality assessments are performed of AITs by AIT Managers as delineated in paragraph 3.12.2.3.
4. Ensure all work within the SUBSAFE Certification Boundary is performed by a reference 2.2.3(20) activity and that Supervising Authority functions required by reference 2.2.3(9) are performed by a Government Activity identified by reference 2.2.3(20).
5. Ensure all work within FBW Certification Boundary is performed by an activity authorized in accordance with reference 2.2.3(34)
6. Ensure all DSS-SOC work is performed in accordance with reference 2.2.3(1).
7. Ensure AIT Manager requires activity submit a letter to AIT Sponsor certifying that all SUBSAFE boundary work has been identified for their completion before commencement of the actual work in accordance with reference 2.2.3(20).
8. Ensure AIT Installations are funded to the level necessary to ensure all QMS requirements are met.
9. For carriers, submit to TYCOM N432, AIT Manager point of contact, information for each Ship Change Document (SCD) assigned by hull.

1.5.6 AIT Manager

The government activity, ISEA, military person or government civilian tasked and funded by the AIT Sponsor to initiate, fund, plan, coordinate, schedule, manage and oversee the successful accomplishment of the alteration/SC. The AIT Manager will:

1. Ensure that the AIT effort is fully coordinated with the SPM, SHAPM, Life Cycle Manager (LCM), NSA, LMA, TYCOM, and PY, including participation in AIT integration efforts directed by the NSA during the availability advance planning process.
2. Ensure alteration/SC is authorized for installation and is properly scheduled in NDE-NM for surface ships and carriers and in NTIRA for submarines.
3. Follow the impact assessment/risk assessment process when warranted, as outlined in reference 2.2.3(14).
4. When accomplishing a Quick Reaction Alteration (QRA)/Emergent SC in accordance with paragraph 3.2.2.3.1(2), the AIT Manager will begin immediate liaison with the NSA, LMA, and/or RMMCO to facilitate rapid installation completion.
5. Sign MOAs in accordance with paragraph 3.6.1.
6. Identify the AIT and manage AIT funding accordance with paragraph 3.2.1.
7. Ensure the AIT has a designated AIT Lead.
8. Ensure AITs have a QMS plan accepted by NAVSEA 04XQ prior to installation that complies with Appendix C and that proper training, certifications, and QA controls are in place for the work identified.
9. Develop and maintain an AIT Manager's Quality Assurance Program (AMQAP) to ensure AIT compliance with specified technical and quality requirements. Guidelines and provisions for an AMQAP are provided in Appendix D.
10. Review AIT quality trends and take corrective action when negative trends can degrade product quality.
11. Review AIT QA workbook and ensure it is available prior to each installation in accordance with paragraph 3.2.2.1.4.
12. Define AIT support services requirements and provide funding in accordance with paragraphs 3.6.4 and 3.7.
13. Ensure the AIT In-brief is scheduled and conducted in accordance with Appendix E.
14. Provide POA&M to the NSA and LMA in accordance with reference 2.2.2(1), Volume VI, and Chapter 43. The POA&M submittal shall be in accordance with paragraph 3.5.1 and the templates for the submittal are provided in Appendices A and B.
15. Provide information for the creation of a Job Control Number (JCN) by one of the following methods: 1) Coordinate with local RMC to generate a Work Item for Regional Maintenance Automated Information System (RMAIS). 2) For submarines and carriers, provide this information to the TYCOM Representative for loading in RMAIS. 3) For New Construction provide this information to the SHAPM for incorporation into the Availability Work Package (AWP).

16. Ensure an AIT OSIC is assigned to an installation prior to RMMCO Electronic Check-in (A single AIT OSIC may be designated for multiple alterations/SCs). If the OSIC is from a different organization than the AIT Manager, the AIT Manager shall ensure that scope of authority designated to the OSIC is documented via a MOA.

    Note: AITs that do not have an assigned AIT/OSIC will be denied access to the ship.

17. Assign an AIT OSIC for each shift if multiple-shift work is to be accomplished.
18. Use discretion and experience to determine the amount of physical on-the-ship presence that is required of the AIT OSIC based on production work complexity, critical system work, contractor experience, etc. OSIC manning will be discussed during the WPIC and Final Planning Conference, and/or equivalent New Construction Conferences.
19. Verify configuration change data is loaded in CDMD-OA sixty (60) days prior to start of installation and ensure final configuration data is submitted to the LCM/ISEA at installation completion to support CDMD-OA update (see paragraph 3.22). For New Construction ships, configuration change data is provided to the SHAPM's CDM representative who will load it into CDMD-OA.
20. Ensure appropriate Security Clearance information is provided in accordance with paragraph 3.8.
21. Ensure the AIT complies with applicable Occupational Safety and Health Administration (OSHA) Standards and NAVSEA Standard Items (SIs).
22. Identify Critical System work in accordance with paragraph 3.5.2.
23. Ensure electronic check in with RMMCO is accomplished in accordance with paragraph 3.13.
24. Ensure representatives are present at applicable Planning Conferences and review meetings, to discuss and resolve any issues related to the alteration; (for surface ships) the WPIC and WPER, (for submarines) NSA Final Planning Meeting/AIT Conference, (for carriers) the MRA Conference and/or equivalent New Construction Conferences.

    Note: Representatives may opt out of personal attendance if it is cost prohibitive (e.g. held overseas on a deployed unit). Teleconferencing or Video-teleconferencing may be employed, if reasonably available. For New Construction surface ships and carriers, attend PSA Planning Conferences and Work Package Scrubs as required by the SHAPM.

25. (Submarines only) Release readiness to start information in accordance with paragraph 3.18.13.
26. Ensure physical check in with RMMCO is accomplished including submission of required documentation for review and verification.

    Note: Ensure OSIC and AIT Lead attend a physical check-in with the applicable Environmental, Safety, and Occupational Health (ESOH) Office before work commences.

27. Ensure adherence to safety, technical, environmental, and production process requirements. Coordinate with NSA and LMA to determine requirements for local area AIT training requirements, including (but not limited to) Shipyard safety briefings and Work Authorization/Tag Out procedures.
28. Ensure OSIC executes AMQAP on-site as planned.
29. Have AMQAP available for review by NSA when requested.
30. Provide a copy of any surveillance reports or audits conducted to the NSA when requested.
31. Investigate significant problems and submit critique and Trouble Reports in accordance with references 2.2.3(17) and 2.2.3(35). The ship involved, the contractor(s) involved, and the applicable NSA and LMA will be parties to the investigation and will assist in the preparation of the Trouble Report. Implement the corrective actions addressed in the Trouble Report.
32. Review and submit Liaison Action Record (LAR) requests and incorporate into future installs if applicable.
33. Ensure all QMS requirements are met, appropriate quality oversight during installation is provided and qualified/trained personnel are in place to perform requisite technical and quality oversight responsibilities, including in-process monitoring on all shifts conducting work.
34. Ensure proper completion of inspection/installation records by reviewing completed Sections 6 and 7 of the QA Workbook (Section 3.12.1.5).
35. Ensure RMMCO Check-out is completed in accordance with paragraph 3.24.3
36. Upon completion of the installation, report alteration/SC completion in accordance with paragraph 3.24.2, verify delivery of ILS products, show the status of completion of each alteration/SC and list those items authorized but not undertaken to the TYCOM and SPM in accordance with existing instructions. Copies of the completion report will be sent to the NSA, LMA, PY, applicable Squadron/Group Commander, RMC, Submarine Maintenance, Engineering, Planning and Procurement (SUBMEPP), the applicable SPM, the Carrier Planning Activity (CPA) (carriers only), and the Naval Sea Logistics Center (surface ships only).
37. Forward copies of the Alteration/SC Completion Report (ACR) in accordance with paragraph 3.24.2. More than one completion report may be submitted for a single alteration/SC accomplished by multiple AIT activities. However, a single completion report must be issued for each alteration/SC.
38. Upon completion of each installation, ensure that red lined drawings are provided to the ship in accordance with paragraph 3.24 and to the PY in accordance with paragraphs 3.24.4.1 and 3.24.4.2.
39. Support any post-installation lessons learned meetings, including ensuring representation at post-Chief of Naval Operations (CNO) Availability Hot Washes.
40. Perform annual quality assessments in accordance with paragraph 3.12.2.3.

41. Recommend to AIT Sponsor and NAVSEA 04XQ the revoking of QMS acceptances when AITs are not in compliance with this or other invoked specifications.
42. In cases where the AIT is unable to complete the installation within the availability, the AIT Manager will:
    a. Document the amount of work left to be accomplished.
    b. Ensure the SPM, NSA, LMA, Ship CO, and AIT Sponsor have been informed.
    c. Verify and concur in writing that the AIT assessment of the impact of the missing equipment or capability and function is accurate and complete.
    d. Add amplifications or clarifications as appropriate.
    e. Obtain NSA and LMA concurrence that all required mitigating actions and documentations have been performed.
43. Provide Ship's Force/NSA red line drawings in support of tag-out boundary shifts during the installation.
44. Ensure that reference 2.2.3(20) activity submits a letter to the AIT Sponsor certifying that all SUBSAFE boundary work has been identified for their completion before commencement of the actual work.
45. Coordinate any required installation training, testing, and/or SOVT.
46. Ensure all training to be provided at the time of installation has been accomplished in accordance with paragraph 3.21.
47. For work on nuclear powered ships, verify requirements of reference 2.2.3(22) are met.
48. Ensure adherence to PICO requirements

1.5.7 AIT On-Site Installation Coordinator

The AIT OSIC is the government or military employee designated by and acting with the authority of the AIT Manager. The AIT OSIC will:

1. Be assigned and present during each installation, particularly for key/critical milestones and events in accordance with paragraph 3.2.2.2.
2. Maintain an on-site presence as dictated by the scope of work, AIT Manager and as further described in paragraph 3.2.2.2.
3. Have general responsibility for the conduct of the AIT and installation.
4. Attend advance planning meetings at the direction of the AIT Manager.
5. Be knowledgeable of and responsible for AIT adherence to all invoked requirements including safety, environmental, workmanship, quality, technical instructions, and any NSA/LMA MOA in effect with the NSA, LMA and AIT Manager.
6. Verify AIT personnel have required training and personnel/procedural qualifications for processes required for the installation.

7. Assist in providing visit requests and clearance information in accordance with paragraph 3.8.
8. Participate in negotiating and signing MOAs.
9. Coordinate with the AIT Lead, NSA and LMA for all planning and installation issues.
10. Support electronic RMMCO Check-in as designated by the AIT Manager.
11. Support RMMCO/NSA physical check-in.
12. Schedule and conduct ship's in-brief in accordance with Appendix E.
13. Obtain points of contact from the ship and provide AIT points of contact to the ship at the in-brief.
14. Ensure NSA and LMA has contact information for after normal duty hours in the local geographical area.
15. Be the primary point of contact for all matters regarding the AIT installation. Resolve AIT issues, particularly those relating to a stop work order.
16. Support PICO.
17. Execute AMQAP, including performing on-site QA surveillance inspections and audits to ensure AIT compliance with specified technical and quality requirements in accordance with Appendix D.
18. Employ the Corrective Action Request (CAR) Process in accordance with Appendix D.
19. Assist in coordinating work by other activities for associated or conjunctive alterations including the coordination of test/certification plans.
20. Ensure the AIT complies with applicable OSHA standards and NAVSEA SIs.
21. Ensure that proper housekeeping and ESOH requirements are maintained.
22. Ensure that work on a nuclear powered ship is in compliance with references 2.2.3(19), 2.2.3(22), and 2.2.3(33). Notify the NSA and LMA to assist in review of changes to specifications.
23. Ensure AIT contractor is maintaining a QA workbook on site during the installation.
24. Be responsible for verifying AIT accomplishment of Inspection (I) and Verification (V) check points and for conducting and signing Government (G) check points. Receive notifications of and take appropriate corrective action for any AIT QA deficiencies from NSA, LMA or Ship's Force.
25. Provide a periodic task status report to the AIT Manager. Report shall address overall alteration status, AIT progress, problems encountered and lessons learned.
26. Participate in Daily Production and Weekly Progress Meetings to provide updated progress on installations and changes to production schedule.
27. Ensure all requested AIT support services required for the installation have been provided. Ensure AIT support services are coordinated and tracked. Mediate any discrepancies regarding AIT support services in a timely fashion. Report any discrepancies to the AIT Manager.

28. Ensure AIT SUBSAFE work is performed in accordance with references 2.2.3(10) and 2.2.3(20).
29. Ensure AIT FBW work is performed in accordance with reference 2.2.3(34).
30. Keep the NSA, LMA and ship informed of SOVT Testing status. Provide a complete set of test reports to Ship's Force, NSA and LMA at the completion of the alteration/SC testing. Forward certification test results to the AIT Manager as provided by the AIT.
31. Ensure AIT is maintaining red lined mark-ups of all required drawings and documents reflecting all approved changes made during the installation and ensure copies are provided to the ship after installation.
32. Ensure LARs are generated and submitted in accordance with references 2.1.1(1) and 2.2.3(14). Ensure the AIT Manager is aware of any design changes requiring LARs.
33. Present signature verification that marked-up/red lined CDMD-OA workfile for all configuration alterations (adds/deletes/modifications) has been provided to the designated Ship's Force representative or designated NSA representative at RMMCO Check-out in accordance with paragraph 3.24.3.
34. Ensure delivery of ILS Support Documentation to the designated recipients as part of the RMMCO Check-out process in accordance with paragraph 3.23.
35. Ensure any ILS products not provided prior to installation completion are reported/documented.
36. Coordinate and conduct Ship's Force/NSA Out-brief.
37. Provide the draft of the Completion Report Message at the out-brief.
38. Conduct final walk-through with the ship and obtain signatures on the ACR.
39. Conduct RMMCO/NSA Check-out in accordance with paragraph 3.24.3.
40. Return completed ACR to AIT Manager.
41. Ensure all training to be provided at the time of installation in accordance with paragraph 3.21 has been accomplished.
42. Provide red line drawings in support of tag-out boundary shifts during the installation.
43. Ensure the AIT is following its QMS procedures, quality inspection and test plan, applicable safety and environmental compliance requirements and technical instructions.
44. Ensure the QMS, applicable work instructions/procedures, including contractually related procedures requiring acceptance, evidence of required personnel training/qualification, and evidence of required procedure approval/qualification are available upon request by NSA/RMMCO.
45. Attend a physical check-in with the applicable ESOH Office before work commences.
46. In cases where the AIT is comprised of all government personnel and the change is an internal equipment modification where no QA is required, the OSIC and AIT Lead functions can be performed by the OSIC.
47. Sign necessary work completion documents as required by the NSA and/or LMA.

48. Certify integration products that identify and track AIT work at the time of accomplishment as required by the NSA and/or LMA.

1.5.8 AIT Lead

The AIT Lead is the senior member of the AIT. The AIT Lead will report directly to the AIT OSIC, execute contract requirements, and will:

1. Ensure successful execution of the installation as tasked.
2. Ensure the AIT adheres to all aspects of TS9090-310(series) and requirements defined in applicable MOAs, NAVSEA SIs, Work Specification Items and/or NSY Uniform Industrial Process Instruction (UIPI).
3. Attend AIT in-brief and scheduled out-briefs.
4. Sign the ACR once all work has been satisfactorily completed.
5. Attend a physical check-in with the applicable ESOH Office before work commences.

In cases where the AIT is unable to complete the installation within the availability, the AIT Lead will:

1. Inform the OSIC and the NSA as early in the process as possible.
2. Completely describe in writing the extent of the unfinished work including valve numbers, piping, missing wiring, etc. This will usually include "red line" drawings at a minimum.
3. Completely describe in writing the impact of the missing equipment on capability or function if known.

1.5.9 AIT

A unit (military, government activity and/or contractor and subcontractors) under the direction of an AIT Manager/OSIC that is trained and equipped to accomplish specific alterations/SCs on specified ships. The AIT is responsible for the installation, performance and completion of the alteration/SC. The AIT will:

1. Maintain an up-to-date accepted QMS that complies with Appendix C.
2. Perform all work in accordance with the requirements of this TS, NAVSEA SIs, MOA, Work Specification Items, and/or NSY UIPI as applicable.
3. Comply with requirements of reference 2.2.3(10) to ensure that all SUBSAFE work is performed by an activity authorized by reference 2.2.3(20).
4. Ensure all work within the FBW Certification Boundary is performed by an activity authorized in accordance with reference 2.2.3(34).
5. Attend advance planning meetings as tasked (WPIC, WPER, AIT Conference, Final Planning Meeting, etc. or appropriate New Construction Conferences).

6. Provide AIT Manager with a POA&M (in accordance with paragraph 3.6.1 using templates in Appendices A and B) to support development of an integrated schedule in accordance with paragraph 3.6.3.
7. Provide visit clearance information to the ship, TYCOM, NSA, or other appropriate naval activities in accordance with regional procedures.
8. Along with OSIC, accomplish RMMCO Check-in and Ship In-brief.
9. Supply, assemble, and transport all of the material (ex: IAF, CFM) that is not Headquarters Centrally Procured Material (HCPM) for the installation.
10. Receive, inspect, and maintain control of all HCPM provided for the alteration/SC.
11. Provide proper handling and storage of Hazardous Material (HM)/Hazardous Waste HW) during the installation process in accordance with references 2.2.1(2), and 2.2.2(1).
12. Provide all required environmental reports cited in reference 2.2.3(21) to the AIT OSIC who will then provide to the NSA via the environmental coordinator.
13. Witness or conduct PICO of applicable systems in accordance with paragraph 3.6.2.
14. Comply with all NSA, LMA, and regional environmental instructions and procedures.
15. Maintain on-site QA workbook and when requested provide to the NSA and LMA for review.
16. Attend daily/weekly production and progress review meetings as tasked.
17. Report and update installation status, problems encountered and lessons learned to AIT OSIC.
18. Notify AIT OSIC of all instances where the installation cannot be executed in accordance with approved design documentation including as found conditions and instances of delay and disruption.
19. Maintain red lined mark-ups of all required drawings and documents reflecting any changes made during the installation and ensure copies are provided to the AIT Manager after installation in accordance with paragraph 3.24.4.2. .
20. Perform testing as tasked and in accordance with the QA workbook, test procedures, approved drawings, and applicable ship specifications.
21. Provide certification test results to the AIT Manager/OSIC.
22. Along with AIT OSIC, accomplish Ship Out brief and RMMCO/NSA Check-out.
23. The AIT shall be held accountable for a Test and Inspection Plan which meets the requirements of SI 009-04 and amplify that (I), (V) and (G) points are not all inclusive. Any other tests and inspections required by other applicable references will be included in the Test and Inspection Plan as well.

1.5.10 Regional Maintenance and Modernization Coordination Offices (RMMCOs)

A regionally-aligned organization that serves as the initial point of entry for all waterfront related alteration/SC installations performed by AITs. The RMMCO Gatekeeper is designated by and

acting with the authority of the NSA/Norfolk Ship Support Activity (NSSA)/RMC/SHAPM. The RMMCO will:

1. Serve as the control point (i.e. Gatekeeper) for AIT check-in and check-out for all alterations/SCs.
2. Verify alterations/SCs are properly authorized and mature. Liaison with appropriate stakeholders to ensure all alteration/SC maturity and authorization issues are resolved.
3. Operate and maintain the RMMCO website at https://rmmco.navy.mil which allows entry and tracking of alteration/SC installations performed by AITs. This website generates the authorized RMMCO/AIT Installation Check-In/Check-Out Form.
4. Submit the RMMCO Concept of Operations (CONOPS) to NAVSEA 04RP for annual review.
5. Submit RMMCO Form changes to NAVSEA 04RP for review.

Note: **To foster standardization across all regions, if RMMCO personnel are assigned additional NSA responsibilities (i.e. dual-hatted) those responsibilities shall be kept separate from the RMMCO roles and responsibilities.**

1.5.11 Regional Maintenance Centers (RMCs)/Norfolk Ship Support Activity (NSSA)/Ship Repair Facilities (SRF)

Regional Maintenance Centers (RMCs/NSSA/Ship Repair Facilities (SRFs) are responsible for work accomplished by all activities and act as the single point of contact. When not acting as an NSA, these responsibilities include but are not limited to:

1. Broker all Intermediate (I) and Depot (D) level work to assigned shipyards or appropriate activities as applicable.
2. Obtain all NAVSEA Availability Letters of Authorization (LOA)/Hull Modernization Plan (HMP) and monitor the CNO Availabilities in NDE (except submarines).
3. Review all planned alterations/SCs for equipment removal and disposal request by the SPM/PARM (except submarines).
4. Collect lessons learned metrics and schedule post-availability hot washes (except submarines).

   Note: In areas where there is no RMC/NSSA/SRF these responsibilities will be performed by the NSA.

1.5.12 Planning Yard (PY)

The PY is the Ship Class Engineering Design Agent responsible for life cycle and configuration change control to assigned ships. For carriers, PY responsibilities including those listed below are divided among the carrier shipyards in accordance with reference 2.2.3(26). For New Construction ships, the roles and responsibilities of the PY are accomplished by the Building Yard, when tasked. The PY shall:

1. Participate in planning conferences, design reviews, and problem reviews with the SPM, TYCOM, etc.
2. (Carriers and LPD 17 Class only) Maintain and coordinate Fiber Optic Cable Plant (FOCP) path reservation assignments with FOCP ISEA (Naval Surface Warfare Center (NSWC), Dahlgren Division).
3. Provide LAR services, including on-site engineering field services, to NSAs/Installing Activities for clarification of requirements, review and approval of changes.
4. Provide Design Service Allocation (DSA) services including COSAL Overhaul Planning (COP), Bill of Materials (BOM), Ship Selected Record (SSR), Design Change (DC), and Ship Configuration and Logistic Support Information System (SCLSIS) as funded.
5. Maintain a weight control baseline system.
6. Provide configuration control and maintain configuration data.
7. Develop test requirements for complex alterations/SCs when specified in the Ship Alteration Records (SARs)/SCDs
8. Develop, review and approve Ship Installation Drawings (SIDs) as tasked.
9. Provide a complete set of SIDs to the NSA and the ship receiving the alteration/SC.
10. Participate in accomplishing ship checks as tasked.

1.5.13 Configuration Data Manager

The designated activity, assigned by ship class, that has total responsibility for the completeness and accuracy of data within the Ship Configuration and Logistics Support Information System (SCLSIS) database and the Configuration Data Managers Database - Open Architecture (CDMD-OA). The CDM will:

1. Identify and track all configuration changes in accordance with reference 2.1.1(3).
2. Process end-of-installation configuration workfile updates submitted by the applicable ISEA and change the Installation/Alteration Status Codes (ASCs) within 30 days of installation completion.

1.5.14 In-Service Engineering Agent

The ISEA is the activity delegated to perform functions for the overall engineering, test, maintenance and logistics requirements incident to specific operational equipment. The ISEA functions typically include:

1. Providing technical expertise to the NSA, LMA, PY, SPM, TYCOM, and AIT Manager/OSIC as required.
2. Performing ILS planning and installation execution functions as tasked and funded by the PARM/PEO.

3. Coordinating with AIT Manager/OSIC to ensure ILS product turnover is properly documented and any deficiencies are identified to the SPM, NSA, LMA, RMC, Ship CO, Executive Officer (XO), Supply Officer (SUPPO).
4. Provide training of system/equipment as required.
5. Coordinating with the AIT Manager/OSIC to ensure end-of-installation configuration workfile updates are provided to the applicable CDM for processing via the SCLSIS process upon installation completion.
6. Provide Test Procedures to NSA, LMA, TYCOM, AIT Manager and PY as required.
7. Accomplish SOVT/System testing as required.

1.5.15 Immediate Superior In Command

The Immediate Superior In Command (ISIC) is responsible for providing oversight during modernization availabilities for all assigned units. The ISIC will:

1. Prepare the TYCOM LOA for fleet alterations/SCs when this action has been delegated by TYCOM (e.g. as is the case with Surface Ship Class Squadrons (CLASSRONs)) or for New Construction ships, when this action has been delegated by the SHAPM (e.g. LCS).
2. Participate in the availability advance planning process.
3. As required by Higher Authority, maintain the following files: Ready to Start Messages and Naval Message Completion Reports, alteration/SC briefs and other related documentation.

1.5.16 NAVSEA 04RP - Modernization Planning and Sustainability Office

NAVSEA 04RP, the Modernization Planning and Sustainability Office, is responsible to NAVSEA 04 via NAVSEA 04R for revising this TS and for monitoring the effectiveness of the overall AIT program. NAVSEA 04RP will:

1. Maintain direct contact with AIT Subject Matter Experts (SMEs) in the Surface Ship, Carrier, and Submarine communities who perform AIT tasks and who recommend changes to revise TS 9090-310 to improve documenting the AIT process.
2. Ensure TS is written to provide requirements to individuals and activities directly involved in the installation of ship alterations.
3. Serve as the process administrator.
4. Provide Advance Change Notices (ACNs) for process updates prior to releasing each revision.
5. Revise TS by incorporating/adjudicating all changes recommended, discussed, reviewed and approved by the AIT Process SMEs Working Groups (WGs).
6. Prepare and submit draft of TS proposed revisions to SMEs WGs for their review and concurrence.

7. Submit draft approved by SMEs WGs to NAVSEA 04, 04R, and the Navy Modernization Process Team (NMPT) for final approval.
8. Post revisions of TS as Appendix H to NMP-MOM website at https://www.nde.navy.mil.

1.5.17 NAVSEA 04XQ - Quality Programs and Certification Office

NAVSEA 04XQ supports NAVSEA 04RP by providing Quality Policy and Quality Policy oversight for alterations/SCs to ships accomplished by AITs. NAVSEA 04XQ will:

1. Monitor compliance with quality responsibilities of AIT Sponsors, AIT Managers, AIT OSICs and AITs. This will include efforts to develop audit plans and schedule audits of AIT Sponsors and AIT Managers to ensure compliance to TS9090-310(series).
2. Review AIT QMSs for compliance with SI 009-04. AIT changes, other than administrative, to QMS procedures must be resubmitted to NAVSEA 04XQ for acceptance. AITs are required to resubmit their QMS procedures every three years after NAVSEA acceptance letter date, or submit a letter stating they are working to QMS revision date stated in NAVSEA acceptance letter.
3. Maintain list of AIT organizations with NAVSEA Accepted Quality Systems (AQS) in the RMMCO website.

2 REFERENCED DOCUMENTS

The following documents form a part of this TS to the extent specified herein. Use current revision where the version referenced has been superseded.

2.1 Specifications

2.1.1 Naval Sea Systems Command

1. Technical Specification 9090-100 (Series) - Liaison Action Report (LAR).

2. Technical Specification 9090-600 (Series) - Ship Alteration (SHIPALT) Installation Drawing (SID) Preparation.

3. Technical Specification 9090-700 (Series) - Ship Configuration and Logistics Support Information Systems (SCLSIS)

4. NAVSEA Standard Items (SIs) - http://www.sermc.surfor.navy.mil/ssrac1/standard.htm.

2.2 Publications

2.2.1 Chief of Naval Operations

1. OPNAVINST 4790.4 (Series) - Ships Maintenance and Material Management (3M) System Policy – http://doni.daps.dla.mil

2. OPNAVINST 5100.19 - Navy Safety and Occupational Health (SOH)

2.2.2 Commander, U.S. Fleet Forces Command (COMUSFLTFORCOM)/Commander, U.S. Pacific Fleet (COMPACFLT)

1. COMUSFLTFORCOMINST 4790.3 - Joint Fleet Maintenance Manual (JFMM)

2. Commander, U.S. Fleet Forces Command (COMUSFLTFORCOM /Commander U.S. Pacific Fleet (COMPACFLT 4720.3 (Series) - (C5ISR) Modernization Policy

2.2.3 Naval Sea Systems Command (NAVSEA)

1. NAVSEA SS800-AG-MAN-010/P-9290(Series) – System Certification Procedures and Criteria Manual for Deep Submergence Systems

2. NAVSEA 0905-LP-485-6010(Series) – Manual for Control of Testing and Ship Conditions

3. NAVSEA S0400-AD-URM-010(Series) – Tag-out User's Manual (TUM)

4. NAVSEAINST 5400.95(Series) – Naval Shipyard, SUPSHIP and Fleet Engineering and Technical Authority Policy

5. NAVSEA 0948-LP-045-7010(Series) – Material Control Standard Volume 1

6. NAVSEA S9074-AR-GIB-010/278(Series) – Requirements for Fabrication Welding and Inspection, and Casting Inspection and Repair for Machinery, Piping and Pressure Vessels

7. NAVSEA 0900-LP-001-7000(Series) – Fabrication and Inspection of Brazed Piping Systems, w/CHG 1

8. NAVSEA TL855-AA-STD-010(Series) – Naval Shipyard Quality Program Manual

9. NAVSEA 0902-LP-018-2010(Series) – General Overhaul Specifications for Deep Diving Submarines (DDGOS)

10. NAVSEA 0924-LP-062-0010(Series) - Submarine Safety (SUBSAFE) Requirements Manual, Revision C, w/CHGS 1-2

11. NAVSEA S9040-AA-GTP-010(Series) – Shipboard Systems Certification Requirements for Surface Ship Industrial Periods (Non-Nuclear)

12. NAVSEA S9070-AA-MME-010(Series) – Guidance Manual for Temporary Submarine Alterations

13. NAVSEA S9AA-AB-GOS-010(Series) – General Specification for Overhaul of Surface Ships, Including the AEGIS Supplement

14. NAVSEA SL720-AA-MAN-030 – Navy Modernization Process Management Operations Manual (NMP-MOM) –https://www.nde.navy.mil/

15. NAVSEA Standard Items – http://www.sermc.surfor.navy.mil/ssrac1/standard.htm

16. NAVSEA T9066-AA-MAN-010(Series) – Navy Outfitting Program, Policies and Procedures Manual; Volume 1, Other Procurement Navy (OPN)

17. NAVSEAINST 4700.17(Series) – Preparation and Review of Trouble Reports

18. NAVSEAINST 4720.14(Series) – Temporary Alterations to Active Fleet Submarines

19. NAVSEAINST C9210.4(Series) – Changes, Repair and Maintenance to Nuclear Powered Ships

20. NAVSEANOTE 5000(Series) – Activities Authorized to Perform Submarine Safety (SUBSAFE) Work

21. NAVSEA Standard Item 009-02

22. NAVSEAINST 4350.2C - Contract Work Onboard Nuclear-Powered Ships

23. NAVSEA letter 4720 Ser 04X/086 of 22 Apr 2002, – Submarine Non-Nuclear SHIPALT Migration and Pricing Policy

24. NAVSEA T9074-AD-GIB-010/1688 – Requirements for Fabrication, Welding and Inspection of Submarine Structure

25. NAVSEA S0300-B2-MAN-010(Series), SUPSHIP Operations Manual (SOM)

26. NAVSEA SL 130-AF-CCD-10 - Integrated Design and Engineering Activity (IDEA) Operations Manual

27. NAVSEAINST 5400.97 - Virtual SYSCOM Engineering and Technical Authority Policy Concept of Operations for the Fiber Optic Cable Plant (FOCP) In-Service Engineering Agent (ISEA) in Support of Aircraft Carrier FOCP Systems

28. NAVSEA T9410-HD-PRO-010 - OHIO Class (SSBN/SSGN) Command and Control System (CCS) and Non-Propulsion Electronic System (NPES) Alteration Installation Team Standard Operating Procedures

29. DOD-STD-2003 (NAVY) Electrical Plant Installation Standard Methods for Surface Ships and Submarines

30. MIL-STD-1689 Fabrication, Welding and Inspection of Ships Structures

31. MIL-STD-2042 Fiber Optic Cable Topology Installation STD Methods for Naval Ships

32. NAVSEA S9AA0-AB-GOS-020/GSO Supply General Specifications for Overhaul of Surface Ships (GSO) Nuclear Supplement

33. OPNAVINST 4700.7 (Series) – Maintenance Policy for U.S. Navy Ships

34. NAVSEA T9044-AD-MAN-010 Requirements Manual for Submarine Fly-By-Wire Ship Control Systems

35. NAVSEA INST 4790.23 (series), Baseline Project Management Plan

36. NAVSEA T9074-AS-GIB-010 Requirements for Nondestructive Testing Methods

37. NAVSEA T9074-AQ-GIB/248 – Requirements for Welding and Brazing Procedures and Performance Qualifications

38. PEO SHIPS FL – Logistics and Material Support Plan for Aegis Destroyers (DDG 51 Class) Post Shakedown Availabilities

39. PEOTAD/SCN Notice 5223, Serial 4000/595 of 09 June 1998 – DDG 51 Class Shipbuilder Special Studies Procedures

40. SUBSAFEGRAM 87A, Serial 9077/07Q21 of 17 April 2008 – Standard Elements of a Memorandum of Agreement Addressing SUBSAFE Work

3 REQUIREMENTS

This specification outlines the process to be followed for the planning, scheduling and accomplishment of all permanent alterations/SCs and TEMPALTs/Non-Permanent Changes (NPCs), except as defined in paragraph 1.4, to ships by AITs. For the purposes of this document, the AIT process commences with the scheduling of the alteration/SC in NDE-NM. A representative AIT Process Flow Diagram is shown in Figure 3-1. Each block in Figure 3-1 corresponds with a paragraph of text below that delineates the process in that block. For a description of all AIT process flow responsibilities please see Section 3. Sequencing of an individual AIT process flow may vary slightly from the diagram below, based on local NSA and LMA policies, guidance, and other factors.

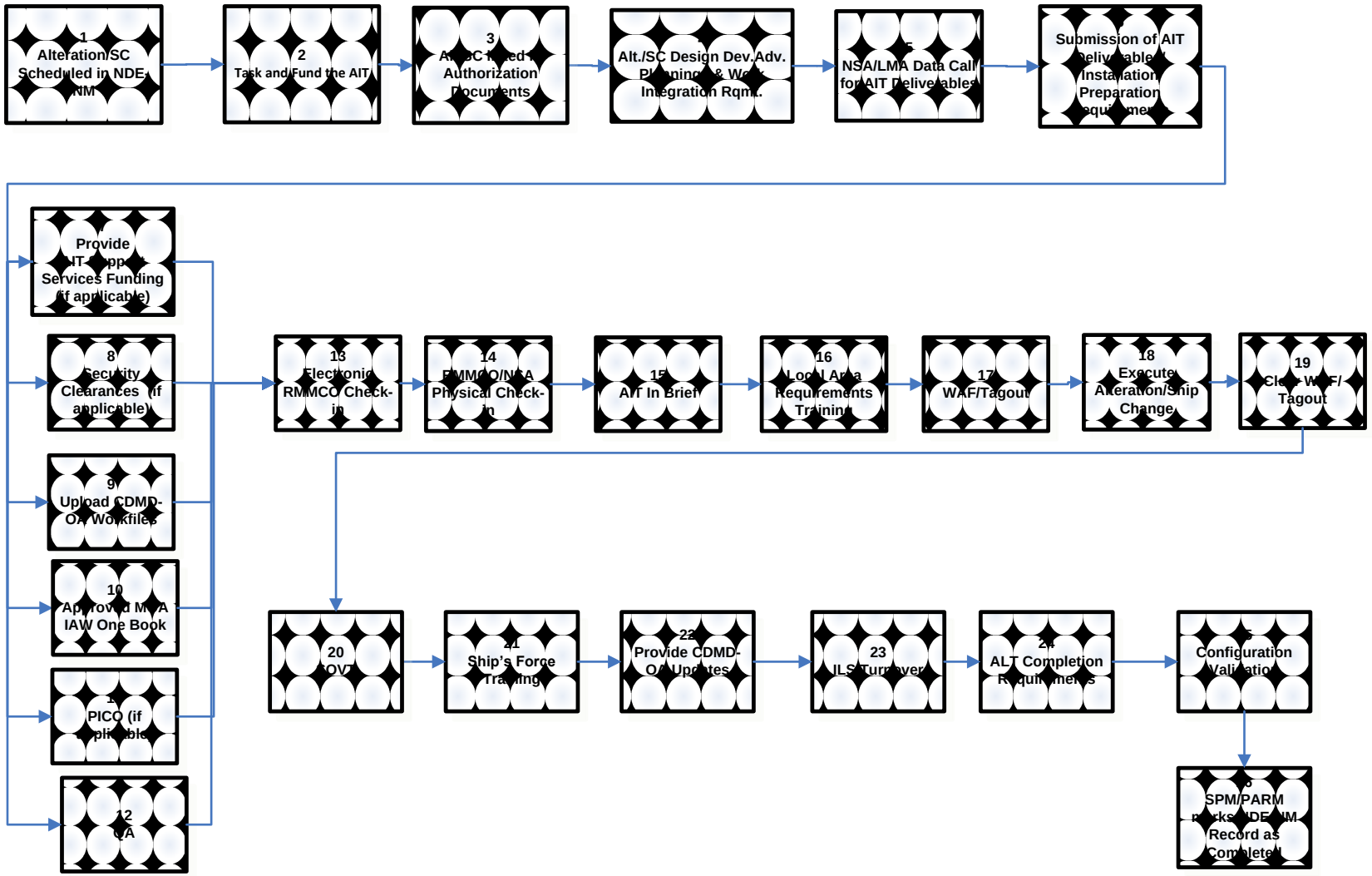

Figure 3-1 AIT Process Flow Diagram

3.1 Alteration/SC Scheduled in NDE-NM

For specific details on scheduling in NDE-NM, see reference 2.2.3(14) Section 3 for Surface Ships and Section 9 for Submarines. NDE-NM Website is https://www.nde.navy.mil.

3.1.1 Alteration/SC Scheduling in NDE-NM

An alteration/SC is scheduled in NDE-NM reflecting planned installation dates. The scheduled alteration/SC may be inside or outside a Modernization Window (MW). Additionally, the scheduled alteration/SC can be in a CNO Availability or a Non-CNO Availability.

For surface ships, the SPM, PARM, ISEA or AIT Manager enters scheduling dates in NDE-NM. For New Construction, SCN-funded alteration/SC scheduling is done with the SHAPM. For submarines, scheduling of Title “K” and “KP” alterations is via the programming in the program module of NDE and NTIRA. Submarine PARMs schedule Engineering Changes (ECs), Field Changes (FCs), Ordnance Alteration s (ORDALTs), Software Delivery (SWD) in NDE and ECs, FCs, and SWD in NTIRA. Submarine TEMPALTs and OPALTs are exempt from this process and are tracked internally by the SPM and TYCOM.

3.1.2 Availability Types

There are two basic types of availabilities – CNO Availabilities (DMP, ROH, EOH, SRA, DSRA, PMA, DPMA, etc.); Non-CNO (TYCOM) Availabilities (CMAV, Window of Opportunity (WOO), DMD, RAV, TAV (Technical Availability), etc.) and New Construction (SCN) Availability (Extended Post Delivery Availability (EPDA), Follow On Availability (FOA), Industrial Post Delivery Availability (IPDA), Post Shakedown Availability (PSA), etc.). For a complete listing of all the different types of availabilities, categorized as CNO and Non-CNO see NDE-NM.

3.1.3 Modernization Window

The MWs are noted in NDE-NM. Any alterations/SC scheduled outside of the MW is a Target Configuration Date (TCD) ”Bust" and will need to follow the TCD Offer Process in accordance with reference 2.2.2(2). The final approval of the TCD Offer is the authorization needed to satisfy RMMCO Check-in. TCDs are required for C5I and Combat System alterations/SCs and are not required for Hull, Mechanical and Electrical (HM&E) alterations/SCs. For New Construction, the MW is from Delivery to TCD or OWLD, whichever comes first. TCD for New Construction occurs 60 days after the completion of PSA.

3.2 Task and Fund the AIT

3.2.1 AIT Sponsor Assigns AIT Manager

The AIT Sponsor shall task the AIT Manager to accomplish a specific alteration/SC. Multiple installing activities or multiple AIT Managers may be required to accomplish a specific

alteration/SC. The AIT Sponsor needs to fund the AIT Manager as soon as funding is available in order to allow for maximum possible planning time, support meeting attendance, material procurement, planning, AIT funding, etc. Ensure reference 2.2.3(10) requirements are invoked for any SUBSAFE boundary work specified in the Ship Alteration (SHIPALT) installation drawings. When SUBSAFE boundary work is identified in the approved SHIPALT drawings, activities listed in reference 2.2.3(20) are required to perform the work and are the only activities authorized to perform the work.

3.2.1.1 Tasking Elements

Tasking for accomplishment of alterations/SCs will authorize procurement of required long lead-time and incidental material and accomplishment of the applicable alteration/SC. The tasking may include design development. Tasking will address the following:

1. The specific alteration/SC(s) covered by the task.
2. The specific applicable hull(s) covered by the task.
3. The type of task (alteration/SC design or accomplishment).
4. Whether NAVSEA 0902-018-2010, NAVSEA S9070-AA-MME-010/-SSN/SSBN, NAVSEA S9AA0-AB-GOS-010/GS or other general specification is invoked for basic guidance for design, installation, material selection, testing and certification requirements, tasking will require the AIT to be in compliance with the requirements of this TS.
5. The SPM point(s) of contact.
6. The equipment/system PARM/ISEA (Naval Air Systems Command (NAVAIR), Naval Sea Systems Command (NAVSEA), Space and Naval Warfare Systems Command (SPAWAR), etc.) point of contact and when certification in accordance with reference 2.2.3(11) is a requirement, the designated Certifying Authority.
7. The AIT Manager and financial points of contact (if other than the PARM/ISEA or the SPM).
8. The applicable Class PY points of contact.
9. Approval requirements for installation design products (SIDs, test procedures, etc.) for installation design tasks.
10. For submarines, whether SUBSAFE work is required and verification the SUBSAFE work is tasked to an activity authorized by reference 2.2.3(20) to perform SUBSAFE work.
11. For submarines, whether FBW work is required and verification that the FBW work is tasked to an activity authorized by reference 2.2.3(34) to perform FBW SCS work.
12. Submittal of AIT quality data analysis to support Sponsor's Annual Quality Assessment Report submittal to NAVSEA 04.
13. Any other financial/status reporting requirements desired of the AIT by the AIT Sponsor.

3.2.2 AIT Manager Tasking

3.2.2.1 AIT Manager Assigns AIT

The make-up and management of the AIT is the responsibility of the AIT Manager tasked to accomplish the alteration/SC. The AIT can be comprised of government, contractor, or military personnel.

3.2.2.1.1 AIT Contract/SOW Preparation

For alterations/SCs accomplished by AIT (using contractor entities), the AIT Manager will have in place the AIT contract in accordance with references 2.2.2(1) Volume VII Chapter 13 Shipboard Contracting Strategy and Utilization and 2.2.3(14) modernization milestones. ASN Memorandum of 27 Mar 2009 provides policy for non-nuclear Navy maintenance and modernization contracting strategy. The contract/Statement of Work (SOW) shall ensure that requirements of this TS are invoked. Contract/SOW tasking shall include support for, but not limited to, ship check, installation execution, procurement of incidental and consumable material, testing, and post-install. To perform an alteration/SC, the AIT Manager will ensure that the selected contractor has a NAVSEA 04XQ accepted QMS, before accomplishment of shipboard industrial work. The AIT Manager will ensure that the contract/SOW identifies all contractor deliverables necessary to facilitate pre-planning, execution and/or completion of alteration/SC. All work practices shall conform to the latest version of reference 2.1.1(4). For SUBSAFE, DSS-SOC, and FBW work to be contracted, the AIT Manager will verify compliance with the requirements of references 2.2.3(10), 2.2.3(20), 2.2.3(1) and 2.2.3(34), respectively.

3.2.2.1.2 AIT Formulation

The make-up of the AIT will be as determined by the AIT Manager based on the skill level requirements of the work to be accomplished and the number of shifts the AIT is planned to work. For those skills that require specific training, qualification and/or certification (welding, electrical connector assembly, SUBSAFE, Signal Security (SIGSEC), Telecommunications and Electrical Machinery Protected from Emanations Security (TEMPEST), PCMS installation, Level 1, fiber optic cable/equipment installation, FBW, etc.), AIT members performing these functions will be fully qualified/certified.

3.2.2.1.3 Transportation and Billeting

The AIT Manager will ensure that the AIT is tasked with transporting AIT personnel, tools, material, and support equipment to and from the installation site. All billet arrangements will be the responsibility of the AIT.

3.2.2.1.4 AIT Quality Assurance Workbook

The AIT Manager must ensure that the selected AIT is tasked to develop a QA Workbook in accordance with paragraph 3.12.1.5 for each installation.

3.2.2.1.5 Participation of Other Activities

At the tasking phase, the AIT Manager will assess the necessity of participation of other activities required for accomplishment of required conjunctive or associated alterations/SCs, or for testing or

certification of equipment or systems associated with the accomplishment of the tasked alterations/SCs. The AIT Manager will coordinate participation of the applicable system/equipment ISEA, PARM, or other designated activity, to ensure responsibilities for work are clearly defined and how certification of the alterations/SCs will be accomplished.

3.2.2.2 AIT Manager Assigns OSIC

For each alteration/SC, the AIT Manager will assign an AIT OSIC. The AIT OSIC will be a government or military employee and will be present during each installation. The AIT OSIC will act with the authority of the AIT Manager.

The AIT OSIC will have general responsibility for the conduct of the installation and will be the point of contact with the ship, AIT Manager, NSA and LMA. The AIT OSIC will be knowledgeable of and responsible for AIT adherence to all invoked requirements including safety, quality plan, technical instructions and, when applicable as identified in the SUPSHIP Operations Manual (SOM), NAVSEA SIs or any NSA MOA in effect with the NSA and AIT Manager.

A single AIT OSIC may be designated for multiple installations dependent upon the complexity of the alterations. If multiple-shift work is to be accomplished, an AIT OSIC for each shift shall be identified. AIT Managers will use their discretion and experience to determine the amount of physical on-the-ship presence required of the AIT OSIC based on production work complexity, critical system work, contractor experience, etc. AIT OSIC manning will be discussed during the WPIC and Final Planning Conference. If off-site at any time, the AIT OSIC must remain on call and be available to respond on-site within two (2) hours of request. Installations that do not have an assigned AIT OSIC, or documented approval from the SPM that an AIT OSIC is not required, will not attempt to accomplish alterations to ships and will be denied access to ships.

3.2.2.3 AIT Manager Conducts Advance Planning

The AIT Manager will initiate a planning strategy for alteration/SC accomplishment as soon as the determination is made to accomplish the alteration/SC by an AIT. This strategy shall incorporate advance planning milestones as dictated by reference 2.2.3(14). For alterations/SCs, the planning schedule will be based on SPM/PY approval of the SAR/SCD, SIDs and ILS certification. In addition, AIT Managers will include as part of their planning strategy the schedule of equipment/kit delivery, availability of AITs, availability of ILS products, test procedures and/or system certifications/SOVT, and the anticipated industrial availability schedules of applicable ships.

3.2.2.3.1 Scheduling and Pre-Installation Coordination Requirements

1. **Routine Scheduling and Coordination:** The AIT Manager will ensure that the alteration/SC is scheduled in accordance with paragraph 3.1.

    a. *During Scheduled CNO Availabilities:* The AIT Manager will ensure the alteration/SC is authorized for accomplishment during a CNO Availability via the SPM's Advance Planning Letter, LOA, MRA, or from the TYCOM Authorization Letter/Message, and NTIRA for submarine ECs/FCs/SW and NDE.

    The AIT Manager will coordinate all planning for the alteration/SC with the NSA and LMA in accordance with paragraph 3.6, including industrial services

support (e.g., crane and rigging services, welding/burning, compressed air). The AIT Manager will keep the ISEA/PARM, TYCOM, SPM, CNO availability planning activity, CDM, PY, LMA, and NSA informed of the AIT's schedule and any schedule changes.

b. *Outside of Scheduled CNO Availabilities:* The AIT Manager will ensure that the alteration/SC is scheduled via the TYCOM quarterly scheduling process. TYCOM authorizes the accomplishment of an alteration/SC scheduled during a Non-CNO Availability via an AIT Installation Scheduling Message. (NTIRA for submarines). The AIT Manager will verify that the alteration/SC is authorized in the TYCOM's AIT Installation Scheduling Message or NTIRA for submarine ECs/FCs/SW and NDE prior to the AIT initiating RMMCO processing..

If a C5I alteration/SC is scheduled outside a MW, the AIT Manager will ensure that a TCD waiver request is submitted in accordance with reference 2.2.2(2). Note that HM&E alterations/SCs do not require a TCD waiver.

Unlike an availability executed in an industrial facility, pierside availabilities generally do not include provision of AIT support services. The AIT Manager/AIT OSIC will ensure that all required support services are provided by the AIT or arranged via third-party providers. The AIT Manager will keep the ISEA/PARM, TYCOM, SPM, CNO Availability planning activity, CDM, PY, LMA, and NSA informed of the AIT's schedule and any schedule changes.

c. *During New Construction SCN Availabilities:* Throughout the New Construction MW, the FLTCDR has operational control (OPCON) of the ship and is responsible for the ship fulfilling its operational requirements. The SHAPM has the responsibility, accountability and authority for the configuration management of the ship. The AIT Manager or designated representative shall present the proposed alteration/SC accomplishment schedule to the SHAPM for coordination and concurrence. Notification for these alterations/SCs will be discussed at the PSA Planning Conference Work Package review or other planning meetings. If authorized for install during the SCN Window (inside or outside of a shipyard availability), the alteration/SC will be incorporated into the AWP for tracking.

Note: The late add and emergent processes are not applicable during New Construction SCN Availabilities. Proposed Late Add installations shall be coordinated directly with the SHAPM.

During SCN shipyard availabilities for any non-SCN funded alteration/SC work, the AIT Manager will coordinate all planning with the ACO in accordance with paragraph 3.6, including industrial support service requirements (e.g., crane and rigging services, welding/burning, compressed air). The AIT Manager shall keep the SHAPM and ACO informed of the AIT's schedule and schedule changes.

When a planned alteration/SC is not required to support a SCN event (Combat System Ship Qualification Trial (CSSQT), Post Delivery Test and Trials (PDT&T), Shock, Development Test/Operational Test (DT/OT), etc.), the installation should be scheduled during a SCN shipyard availability (EPDA, FOA, IPDA, PSA, etc.). For all other AIT work during a SCN shipyard availability, the AIT Manager will coordinate all planning with the SHAPM or SHAPM representative.

During pierside (non-shipyard) availabilities within the SCN MW, the AIT Manager will coordinate all alteration/SC planning with the SHAPM or SHAPM representative. Special consideration is given to alterations/SCs which support the operational requirements of an upcoming SCN event (CSSQT, PDT&T, Shock Quals, DT/OT, etc.). Since pierside availabilities generally do not include provision of AIT industrial support services, the AIT Manager/OSIC shall ensure that all required support services are provided by the AIT or arranged via third party providers. The AIT Manager shall keep the SHAPM or SHAPM representative informed of the AIT's schedule and any schedule changes.

2. **Emergent Alterations/SCs Requirements:** The Emergent Process, as defined by reference 2.2.3(14), applies to alterations/SCs that require immediate installation (30 days or less) and that do not have an approved SCD. When the Emergent Process applies, the AIT manager will utilize reference 2.2.3(14) for the approval process. The AIT Manager will coordinate all planning for Emergent Alterations/SCs with the NSA and LMA as applicable.

3. **Late Add Process:**

   Any alteration/SC added to an availability for installation after reference 2.2.3(14) milestones, is considered a late addition and must either be mature with concurrence from the Platform TYCOM, or have an approved Hull Installation Impact Assessment. See reference 2.2.3(14) for additional details.

3.3 Alteration/SC in Authorization Documents

3.3.1 Alteration/SC Authorization for a CNO Availability

SPM authorization is required for Program Funded Alteration/SC's during a CNO Availability. This is accomplished through the use of LOAs or the MRA process; and programming in the NDE-NM module. For submarines ECs, FCs, and SWD are scheduled in NDE-NM by the PARM and approved for installation in NITRA. ORDALTs are scheduled in NDE-NM by the PARM and authorized via the SPM's LOA. The TYCOM/CLASSRON provides authorization for Fleet funded alteration/SC's in a CNO Availability via message LOAs. CNO Availabilities that are SCN funded (e.g., Submarine EROs, Carrier RCOHs) are subject to SPM authorization processes.

3.3.2 Alteration/SC Authorization Outside a CNO Availability

For Surface Ship Non-CNO Availabilities, the TYCOM provides installation approval for both Fleet and Program authorized alteration/SC's via the TYCOM Quarterly Installation Scheduling message as noted in Section 7-5 of reference 2.2.3(14). The Quarterly Scheduling Message provides guidance for submitting additional alteration/SC's for approval.

For submarines, SPM authorization is required for Program Funded Alterations. The TYCOM provides installation approval for both Program and Fleet Alterations. Fleet Alterations installed by AITs along with Program Alterations are authorized via NTIRA. For submarines ECs, FCs, and ORDALTs are scheduled in NDE-NM by the PARM and approved for installation in NTIRA.

For Carriers, alterations/SCs shall be approved and scheduled in NDE-NM (in agreement with the approved NDE-EP fielding plan) and are tracked through the MRA database. AITs must go through RMMCO to install alterations/SCs outside of CNO Availabilities. Coordination with TYCOM is required. AIT POA&Ms are still required in accordance with reference 2.2.3(14) milestones.

3.3.3 Authorization During a New Construction Availability

For specific details for authorization contact the applicable New Construction SHAPM.

3.4 Alteration/SC Design Development, Advance Planning, & Work Integration Requirements

3.4.1 Alteration/SC Design Ship Check:

A Design Ship Check will be conducted on each hull when the AIT Manager and SPM determine that the technical risk warrants the cost. When a non-PY party is performing the ship check, participation by the PY may be requested by the AIT Manager or directed by the SPM (depending on the complexity of the SC). Funding will be provided by the AIT Manager to the PY. The SPM will be the only activity to task PY efforts, unless otherwise agreed to by the SPM and the AIT Manager. In either case, ship checks must be performed in time to meet milestones specified in references 2.2.3(14) and 2.2.2(1).

3.4.1.1 Scheduling of Alteration/SC Design Ship Checks

Design Ship Checks will be conducted at the convenience of the ship being checked, following the policies of the TYCOM, on a not-to-interfere basis. In preparation for the Design Ship Check, ship availability dates will be coordinated between the activity developing the alteration design and the respective TYCOM or TYCOM designee, employing local coordination policies. AIT Manager will notify applicable ships and NSA of the intent to accomplish the alteration/SC ship check via the port engineer or maintenance ISIC, as applicable.

3.4.1.2 Design Ship Check Security Clearances

Where access is required to secure areas or equipment, the individual Design Ship Check team members requiring such access are required to have the proper level of clearance for access without escort. Whether a ship check is to be accomplished in or out of a scheduled CNO Availability, the AIT Manager/AIT Lead will provide visit clearance information to the ship, TYCOM, and other appropriate Naval activities a minimum of seven (7) days prior to the scheduled ship check date or as established by TYCOM or regional policy. Prior to sending the clearance requests, the AIT Manager/AIT Lead will verify with the ship/ISIC/LMA that ship and/or industrial activity operations will permit completion of ship check requirements during the intended ship check period. If not, it should be re-scheduled.

3.4.1.3 Alterations/SCs Affecting Nuclear Powered Ships

Reference 2.2.3(19) defines propulsion plant and related systems and spaces in nuclear powered ships that require prior NAVSEA approval before modification or change. As it may not always be readily apparent that modifications or changes in nuclear powered ships affect reactor plant operations or personnel safety, it is of the utmost importance that reference 2.2.3(19) be reviewed when developing alterations/SCs that affect nuclear powered ships, to ensure the required reviews and approvals are obtained. NAVSEA, the applicable reactor plant PY, ship-class PY, or nuclear capable shipyard shall be consulted if any uncertainty exists as to the applicability of reference 2.2.3(19). Reactor Plant PY approval will be obtained by the AIT Sponsor before drawings are submitted to ship-class PY for final approval.

Reference 2.2.3(22) provides policy and direction for contracting work onboard nuclear powered ships, including requirements for prior NAVSEA approval before contracting work within spaces specified in reference 2.2.3(19).

3.4.1.4 Fiber Optic Cable Requirements

AIT Managers directing the install of Fiber Optics Systems on ships with centrally managed BOF FOCPs are required to contact the cognizant PY for FOCP path reservation assignments prior to SID development via LAR. If situations arise where deviations from these assignments are necessary a follow-on LAR shall be submitted to the PY to resolve the deviation prior to work being conducted. Resolution of LARs affecting the FOCP will be coordinated between the PY and the FOCP ISEA.

3.4.1.5 Design Ship Check In-Brief

A Design Ship Check in-brief will be conducted upon arrival onboard for appropriate members of Ship's Force, TYCOM, and the PY On-Site Representative (OSR). The briefing will explain the purpose and extent of the planned ship check, and provide an outline of data to be gathered, spaces requiring access, and other relevant information.

3.4.1.6 Design Ship Check Out-Brief

After completion of the Design Ship Check, the team will conduct a Design Ship Check Out-brief for appropriate members of Ship's Force, TYCOM representative, and the PY OSR. This brief will discuss the extent of work required to accomplish the alteration/SC as well as any

ship-provided support requirements. This will include requirements for PICOs, weapons handling, and other relevant information.

3.4.1.7 Design Ship Check Report

The AIT Manager, in coordination with the SPM's designated design agent and/or the PY when tasked and funded, will issue a Ship Check Report to the appropriate offices, including the Ship and NSA (if assigned), within fourteen (14) days after the Design Ship Check is completed. The SPM will be the only activity to task PY efforts, unless otherwise agreed to by the SPM and the AIT Manager.

The Ship Check Report shall include detailed sketches showing location and dimensions of existing equipment and systems, existing component designations/markings (e.g., circuit numbers, valve numbers), and interface(s) with other systems. The Ship Check Report will also include red line as-built mark-ups, when applicable, to reflect the ship's unique configuration to the PY, allowing identification and coordination of interferences/interaction with other alteration/SC designs under development by the PY.

3.4.1.8 Design Ship Checks for New Construction Ships within the SCN Window

The AIT Manager shall notify the SHAPM of the intent to accomplish ship checks. Whenever possible, Design Ship Checks should be accomplished prior to Sailaway. The AIT Manager shall notify the SHAPM of the time and location for all Design Ship Check In Briefs/Out Briefs and ensure that the SHAPM is on distribution for all Ship Check Reports.

3.4.2 Alteration/SC Design Element Review & Approval

All design products not prepared by the ship-class PY shall be reviewed and approved by the applicable PY prior to the initiation of work on any U.S. Navy ship. Unless prior agreement exists, the AIT Sponsor, PARM, SPM, PEO or System Command (SYSCOM) will provide funding for the PY to review non-PY developed design products, including drawings. Products and funding must be provided in time to allow PY to meet Ship Change Installation Drawing (SID) approval milestones as specified in references 2.2.2(1) and 2.2.3(14). The SPM will be the only activity to task PY efforts, unless otherwise agreed to by the SPM and the PARM. AITs without PY approved drawings will not accomplish alterations/SCs to ships without documented approval from proper authority in accordance with reference 2.2.3(14). AITs without PY approved designs or documented approval will be denied access to ships.

3.4.2.1 Ship Installation Drawings (SIDs) Not Developed By Planning Yard

Individual SIDs shall be prepared in accordance with reference 2.1.1(2) for each hull authorized in the tasking documentation, unless development of class-applicable SIDs has been authorized by the SPM and PY. The alteration/SC design that is represented in these drawings will be based on criteria presented in the approved SAR (for SHIPALTs) and approved SCD (for Ship Changes), Technical Data Packages (TDPs) provided by the ISEA/PARM, approved guidance LAR, plan schedule, installation control drawings, lessons learned, design guidance provided by the PY, actual configuration determined during a Design Ship Check of the applicable ship, references 2.2.3(9) and 2.2.3(13) or other general specifications as applicable. The PARM/LCM or their designated representative will approve

System/Equipment level drawings. All SIDs require approval by the applicable PY. To minimize errors or omissions that could hinder timely approval, SIDs shall address the following:

1. Interfaces required to accomplish the alteration/SC (e.g. NAV interface, distributed system interfaces (Heating, Ventilating, and Air Conditioning (HVAC), Power, Chilled Water, FOCP, etc.)).
2. Identify base materials of anything to be welded or brazed.
3. Identify mounting HM requirements to ensure shock and technical requirements are met.
4. When known, specify Navy Stock System (NSN) Standard Material.
5. Identify testing for existing hazardous materials, such as lead, asbestos and Poly Chlorinated Biphenyl (PCBs), in affected systems and components.
6. Arrangement drawings showing location of new equipment within existing space.
7. Critical systems as defined in paragraph 3.5.2.

3.4.2.2 Review and Approval of First-of-Class Alteration/SC Drawings

When specified in the tasking documentation, non-PY developed drawings for the first planned accomplishment of an alteration/SC on a ship class shall be reviewed in coordination with the SPM, PY, Deputy Commander for Integrated Warfare Systems (NAVSEA 05W), NAVSEA Chief Engineer, and the system/equipment LCM. The drawings will be reviewed for technical accuracy, design adequacy and clarity, compliance with applicable design technical requirements (e.g., SIGSEC, TEMPEST, Electromagnetic Compatibility (EMC), Electromagnetic Interference (EMI), Radiation Hazard (RADHAZ), NSV, Electrostatic Discharge (ESD), EMP, Radar Cross Section (RCS), SUBSAFE, FBW, etc.), technical standards [references 2.2.3(29), 2.2.3(30) and 2.2.3(31)], applicable TSs (including Gen Specs for Overhaul and New Construction [references 2.2.3(9), 2.2.3(13) and 2.2.3(32)], and drawing format in accordance with reference 2.1.1(2).

3.4.2.3 Alteration/SC Installation Drawing Submission Requirements

Depending on the PY, the drawings will be submitted either via LAR or transmittal letter and must include the scheduled installation date for the specific hull, two points of contact with corresponding phone numbers and e-mail addresses, and an explanation of type of submittal (i.e., initial review, comment incorporation validation, etc.). When submitted via LAR, the following information must also be included: tasking documentation, supporting calculations (as applicable), Ship Check Report (as defined in paragraph 3.4.1.7), applicable guidance documents (i.e., ICDs, TDPs) provided by the ISEA/PARM, LARs, shock certification documentation, Reactor Plant PY approval documentation, topside arrangement documentation, IC Switchboard ISEA concurrence documentation, etc.).

Except for very large or complex alterations/SCs, the review cycle will be sixty (60) calendar days or less for surface ships and carriers and three (3) months or less for submarines, following PY receipt of drawings and appropriate funding. If the review cannot be completed

within the allotted time, the PY will coordinate the completion date with the SPM and alteration/SC Sponsor.

The requirement to review alteration/SC designs for follow-on ships will be at the discretion of the applicable PY, unless otherwise required by the tasking documentation. A PY review of follow-on SHIPALT/SC designs will usually be required due to significant design differences among ship hulls. The interpretation of the degree of change required to prompt additional design review will be defined by the PY. The PY will, subsequent to the review of the first ship design, advise the AIT Manager if a review of follow-on ship design is considered necessary and under what circumstances.

3.4.2.4 Electronic Equipment Test Procedure/Record Approvals

Equipment-specific test procedures and test record forms for electronic equipment may be required to be approved for work on critical systems or for high visibility programs. The approving activity in these cases shall be the system/equipment LCM (usually the AIT Manager). When an alteration/SC affects interfaces with other systems or equipment via various signal distribution modes, the ISEAs for each impacted system or equipment shall participate in the test procedure approval process.

3.4.2.5 Changes to Approved Alteration/SC Designs

Once SIDs have been approved, only the PY, SPM, or the SPM's designated representative can approve deviations and waivers to the design. In accordance with reference 2.2.3(4) all technical and/or configuration change recommendations to approved SIDs must be submitted to the PY (via LAR or transmittal letter, as applicable) for review and approval prior to implementation of those changes. Approved design changes to alterations/SCs may still require that a DFS be submitted, in accordance with reference 2.2.2(1).

Note: NSA Chief Engineers designated in reference 2.2.3(4) may approve minor deviations and waivers to the design. Acceptance and agreement by the NSA Chief Engineer to assume this responsibility will be documented in the MOA between the AIT(s) and NSA.

3.4.3 Advance Planning & Work Integration

1. In accordance with reference 2.2.2(1) the NSA and LMA are responsible for integration of the AWP. Reference 2.2.2(1), and for submarines reference 2.2.3(35), require all activities participating in an availability to support the NSA, LMA, or PMAPT, as applicable, in advance planning and work package integration.

   For submarines, the PMAPT will initiate contact with the AIT Manager at A-10 months as detailed in paragraph 1.5.4.1.

   For surface ships and carriers, the NSA and LMA are responsible for initial contact with the AIT Manager. Initial contact with the AIT Manager will occur early enough to allow the AIT Manager to develop and submit required deliverables in accordance with milestones for the specific availability type. In the event that the contact does not occur before A-180 (A-225 for Firm Fixed Price Contracts), the AIT Manager should

initiate the contact. At a minimum, AIT Managers will provide Technical Points of Contact to assist the NSA and LMA with advance planning and integration questions, and submit required AIT deliverable items in accordance with paragraphs 3.6 and 3.9.

When an alteration/SC is planned for execution during a Non-CNO Availability or other Window of Opportunity, the AIT Manager will coordinate with the NSA and LMA when the alteration/SC is authorized for installation by the TYCOM and ensure participation in advance planning and work integration as specified by the NSA and LMA.

2. For each authorized alteration/SC, the AIT Manager/AIT OSIC will request a JCN by email from the RMC/Work Broker (the activity charged with entering JCNs into the maintenance database, e.g., CLASSRON, ISIC, or maintenance team), in accordance with paragraph 1.5.6(15). In addition, if the alteration/SC requires industrial support services to be provided, a second JCN for Services must be requested by the AIT Manager and entered by the RMC into the maintenance database. This second JCN will be used to develop a Work Specification Item for the required support services.

Note: For New Construction, a JCN assignment during an SCN availability is only required for alterations that are not SCN funded. A second JCN for support services may not be required, if support services are tasked in the SCN AWP. Contact the respective SHAPM to verify requirements.

3.4.4 Advance Planning Requirements for Nuclear Powered Ships

Reference 2.2.3(33) defines the work in nuclear powered surface ships which must be assigned to nuclear capable activities (e.g., nuclear capable shipyards). Reference 2.2.3(22) defines requirements for the conduct of contract work onboard nuclear powered ships (e.g. the work in nuclear powered ships that need not be assigned to nuclear capable activities). When conducting work in a nuclear powered ship, it may not always be readily apparent that modifications or changes in the nuclear powered ship, affects reactor plant systems, operations, or personnel safety. Therefore it is of the utmost importance that references 2.2.3(19), 2.2.3(33) and the associated requirements in reference 2.2.3(22) be reviewed to ensure that work in a nuclear powered ship is in compliance with these requirements. The AIT Manager is responsible for this review during advance planning for alteration/SC installation.

For contracted work onboard nuclear powered ships, the AIT Manager(s) will ensure that spaces under the cognizance of references 2.2.3(19) and 2.2.3(22) are identified on the submissions provided under paragraph 3.5.1. The NSA will review the submissions to ensure that all spaces listed therein are correctly identified with regards to cognizance of 2.2.3(19) and 2.2.3(22). Incorrect identification of spaces covered by references 2.2.3(19) and 2.2.3(22), or the lack of NAVSEA approval letter accompanying a submission and/or a signed MOA as required by reference 2.2.3(22), is sufficient reason for the NSA to hold or reject the POA&M acceptance. However, the submission may still be used by the NSA for schedule integration and planning purposes pending the receipt of the required additional documentation and final acceptance.

3.4.5 (Submarines) AIT Performed Modernization Advance Planning and Schedule Integration

The submarine modernization planning process is crucial to the success of the NSA/LMA project team and the modernization Program Offices. History has proven that without proper manning, planning and schedule integration well in advance of the execution phase, the risk to the project and modernization programs is high. Submarine modernization performed by AITs can add significant man-days to availability and can require a significant amount of support services to be provided. Full integration and coordination of AITs is crucial to completing availability on time.

Note: NSYs use AIM to plan, track and manage work. References to AIM and associated AIM features (PSS, CU phases, CU assemblies) are not applicable to Fleet Maintenance Activities using other AIS systems.

3.4.6 Submarine Advance Modernization Planning Package (AMPP)

The PMAPT will develop and submit a draft of AMPP at A-10 months to the AIT Managers and assigned NSA, LMA, and the PEO SUBS LMA/AIT Modernization Coordination and Integration Team for validation and refinement, as applicable, to the project's Milestones and Key Events. The AIT Managers, the NSA, LMA, and the PEO SUBS LMA/AIT Modernization Coordination and Integration Team will validate and revise the AMPP and provide the updated Modernization Project Plan (MPP) to the NSA and LMA no later than 6.5 months to support the A-6 months AIT Conference. The products supplied by the PMAPT include, but are not limited to the items shown in Table 3.1.

The assigned NSA and/or LMA may provide additional planning documents/data as well. The AIT Manager will validate and revise the AMPP and any additional planning documents/data from the NSA and provide the updated MPP to the NSA and LMA no later than A-6.5 months to support the A-6 months AIT Conference.

Table 3.1 - Typical Advance Modernization Planning Package (Submarines Only)

Deliverable	Purpose	Requirement
Integrated AIT List with Ship Alterations and EC/FC	Support AIT Conference Planning, generate the Standard MOA Template and support AIM Network Development	NTIRA, the Advance Planning Letter and NDE SHIPALT Programming.
Integrated AIM Modernization Network(s)	Supports advance planning and refinement to support the Milestones and Key events of the project	Validate and Refine the Network(s), Submit to AIT Mangers to support the AIT Conference at A-6
Integrated MS Excel Support Service Matrix. The integrated support service matrix is developed utilizing years of data from major modernization efforts both in CNO and Non-CNO availabilities.	Provide scope of support service plan to the LMA and NSA. Allow required support services contracting actions as needed.	Validate and provide to Code 1200 for budgeting
Recommended Power Isolation Plan	To support Equipment Off-Load and System Readiness to commence industrial efforts.	Validate and refine as required with each AIT.
Combat Systems equipment power restoration plan	Support the integrated AIT Combat Systems Light-Off plan and testing phase.	Validate and refine as required with each AIT.
Work Authorization Form (WAF) Priority List Template *Based on historical data, may not be available for first-time work.	Provide a best practice WAF template as currently known from previous modernization efforts and lessons learned.	Validate and refine as required with each AIT
List of AIT Tests and SWFTS Test interface Matrix	Ensure On-time delivery to AIT Managers at A-10	Validate and refine as required with each AIT
Project Initial Risk Letter	Identify any AIT modernization that could impact the schedule based on past history lessons learned, AIT quality issues and scope of new alterations (first time alterations).	Ensure risk mitigation plans are in place to identify each item. The risk will be tracked at the quarterly Readiness Review.

3.4.6.1 Preparations for the AIT Conference

Upon delivery of the AMPP at A-10, the PEO SUBS LMA/AIT Modernization Coordination and Integration Team will commence planning and integration of all AIT work. Work identified in the AMPP will be aligned to the project's Key Events and Milestones. The objective is to have a draft integrated schedule for review at the A-6 AIT Conference.

The PEO SUBS LMA/AIT Modernization Coordination and Integration Team will review/prepare the following in support of the AIT Conference:

1. Provide standardized MOA template to the AIT Managers.

2. Provide standardized job summaries for all modernization work based on the AMPP.
3. Review most current drawing, material, and ILS status from the quarterly PEO SUBS MIC&R Review.
4. Provide updated AIT installation schedules and validated networks to the AIT Managers as schedules are updated.
5. Develop PICO plan/schedule.
6. Review the RMMCO Web Site and verify all scheduled AITs have a NAVSEA Approved Quality Plan.
7. Prepare and transmit the "AIT Conference Notification and Agenda" Naval Message.
8. Develop the AIT Conference Shipyard Participant List with the Project Superintendent.
9. Finalize LMA work requirements in support of AITs and Critical Systems Work and determine with the LMA management whether the shipyard has the capacity to perform the work.
10. AIT Managers will provide the PEO SUBS LMA/AIT Modernization Coordination and Integration Team a list of Critical Systems Work at A-8 for acceptance.

3.4.6.2 The A-6 AIT Conference

The Scope of the AIT Conference will be driven by the amount of AIT work approved and included in the AMPP. AIT Conferences should be planned over a two (2) day period and include the following topics:

1. Project Superintendent Opening Remarks and expectations/goals.
2. Project schedule overview with Key Events and Milestones.
3. Modernization Package review.
4. Lessons Learned and best practices (from AMPP)
5. AIT AIM Network validation/Refinement.
6. Validation of AIT service requests and contracted work requirements.
7. NSA and LMA discuss their intentions to perform Critical Systems Work previously identified by the AIT Managers at A-8.
8. Review of draft MOAs

3.4.6.3 AIT Conference Follow-up Actions

1. The PEO SUBS LMA/AIT Modernization Coordination and Integration Team continues to refine the AIT products provided by the PMAPT, ensuring the LMA's project schedule is updated and supports the project planning Key Events and Milestones.
2. Integrating the AIT work into the project's Resource Constraint Schedule (RCS) requires joint efforts for planning and validation of the AMPP. Good teaming communication and project goals are essential in development of the AIT integrated

schedule. The following work requirements should be compiled and entered into the AIT integrated schedule by the PEO SUBS LMA/AIT Modernization Coordination and Integration Team based upon validation of the AMPP and results of the AIT Conference:

a. Timeframe for AITs to commence work (if not A-0)

b. Timeframe for AITs to complete approved work, to include all testing and training.

c. Number of shifts required to complete work, to include overtime requirements for support services.

d. Services required to accomplish work, i.e. crane lifts, power, air, lay-down areas, quality control, work requested for LMA to accomplish (all to be identified in the MOA).

e. Space close out schedule to support Habitability Key Event

f. WAF prioritization (validation of the AMPP submittal).

g. Fleet Training (comprised of new system maintenance/operability and crew certification on new combat/communication systems).

h. All other ship's evolutions, certifications and requirements that may impact schedule performance during the availability.

i. Schedule Integration of AIT Work

3. Each AIT assigned will have their key work entered into the project's schedule as a CU phase or CU phase assembly. AIT work will be broken down by primary components and tasks affected to identify interfaces with other maintenance providers.
4. AIT work that is directly tied to shipyard Key Events and/or Milestones (such as EAFW, power restoration, Sail close out/test, etc.) need to be associated with those Key Events and/or Milestones.
5. The LMA will develop additional schedule activities in PSS, or CU phases in AIM, as appropriate, for AIT work that interfaces with other maintenance providers.

3.5 NSA and LMA Data Call for AIT Deliverables

3.5.1 Pre-Installation Coordination Requirements

The NSA and LMA will require the AIT Manager to provide specific information and documentation in support of availability advance planning and the work integration process. AIT submission of required documentation (POA&M) shall be in accordance with the Navy Modernization milestones of reference 2.2.3(14). The NSA and LMA will initiate the request for AIT deliverable items far enough in advance as to allow AITs adequate time to prepare and submit the required items (e.g. NSA and LMA initiate data call at A-180 when AIT submission milestone is A-135). The NSA and/or LMA shall provide, no later than A-180, anavailability Key Event and Milestone schedule for use by the AIT in developing their POA&M. In order to streamline and standardize AIT deliverable documents, the NSA and

LMA data call shall require AIT submissions in a specific format provided in Appendices A and B. Distribution of templates and/or sample documents to AIT Manager will be concurrent with the NSA and LMA data call. Documents commonly required to be submitted in a specified format include MOAs, PICO Requirements, Production and Testing Schedules, POA&M and Industrial Support Service Requests. Each POA&M submittal by an AIT shall consist of the following documents:

1. AIT POA&M Cover Sheet (Microsoft Excel or equivalent template per Appendix B)

2. AIT POA&M Task Details (Microsoft Project or equivalent template and instructions per Appendix B)

3. AIT Support Services Request (Microsoft Work or equivalent template per Appendix A)

NOTE: The Project version of item #2 above includes an export to Excel capability in cases where the NSA/RMC requests an Excel input; however, the Project template is the same for ease of data entry.

NOTE: Item #3 is required for the initial submittal even if no support services are required, but is only required for subsequent revised submittals if support service requirements change.

AIT POA&M shall be submitted to the NSA/RMC at or before A-135 days. If the AIT is not under contract at A-135, then the sponsor or their government designate shall submit a notional POA&M no later than A-135 to be followed by an AIT-produced POA&M as soon as possible after the AIT is under contract.

For Submarines - Configuration Change Processing for OHIO Class Submarines: For OHIO Class Submarines, creation and processing of all planning records and configuration records are performed in the SAS system for nightly replication into CDMD-OA for subsequent upload into the WSF. Reference 2.2.3(28) provides processes and procedures for AITs specific to OHIO Class pre-installation planning and subsequent configuration change reporting.

3.5.1.1 Data Call for AIT Deliverables Outside a CNO Availability

When an alteration/SC is scheduled for execution during a Non-CNO Availability or other Window of Opportunity, the AIT Manager shall initiate contact with the NSA and/or LMA, upon authorization of the alteration/SC by the TYCOM/TYCOM Designee. Submission content requirements will be the same as for a CNO Availability and submissions are due at I-135 (135 days prior to installation start). Unlike an availability executed in an industrial facility, pier side availabilities generally do not include provision of AIT industrial support services. The AIT Manager shall ensure that all required support services are provided by the AIT or arranged via third-party providers.

For submarines, the advance planning process for large modernization packages scheduled for installation during Non-CNO Availabilities is the same as described in paragraph 3.4.3

3.5.2 Installations Impacting Critical Systems or Critical System Boundaries

Critical systems are defined as SUBSAFE, FBW, Level 1, DSS-SOC, P1 & P3A piping systems, A-1, A-2, A-3 pressure vessels (including boilers), and M-1 machinery systems, as defined in technical guidance documents, references 2.2.3(1), 2.2.3(5), 2.2.3(6), 2.2.3(7), 2.2.3(9), 2.2.3(10), 2.2.3(24), and 2.2.3(34).

Critical work consists of production processes such as fit-up/welding, brazing and mechanical joint assembly, documentation of work, and performance of related tests and inspections on critical systems.

The AIT Manager will ensure that work on critical systems, required to support the alteration/SC, is clearly identified on the Production & Testing Schedules, and in the AIT Support Services Request. (if requesting the LMA to perform). The AIT Manager shall identify any critical work and the activity that will be contracted to perform the work (LMA, NAVSEA NOTE 5000 Contractor, other qualified contractor) to the LMA prior to the A-6 Conference. If the LMA performs the critical system work, the AIT Manager will fund the LMA to accomplish production work and related engineering products (including testing) required for any portion of an alteration/SC impacting critical systems boundaries. If the LMA cannot execute the critical work due to resource constraints or other reasons, the NSA and/or LMA may, at their option, contract the critical work to a RMC, obtain the required resources from another LMA, or approve the AIT Manager's assignment of the critical work to a qualified contractor.

For critical work performed by an activity not qualified to perform as a NSA, the NSA shall perform QA oversight in accordance with the requirements of references 2.2.2(1), 2.2.3(8) and 2.2.3(25), as applicable, to ensure compliant production processes, personnel/procedure qualifications, and work documentation and certification. For SUBSAFE and FBW work to be contracted, the NSA and LMA will comply with the requirements of references 2.2.3(10), 2.2.3(20) and 2.2.3(34), respectively.

Note: AITs qualified to perform SUBSAFE work IAW NAVSEA NOTE 5000 are exempt from the requirement to offer SUBSAFE, Level 1, and P1 piping system work to the LMA.

For contracted work aboard nuclear vessels, the AIT Manager will ensure that spaces under the cognizance of references 2.2.3(19) and 2.2.3(22) are identified on the submissions provided under paragraph 3.5.1. The NSA will review the submissions to ensure all spaces listed therein are correctly identified with regards to cognizance of 2.2.3(19) and 2.2.3(22). Incorrect identification of spaces covered by references 2.2.3(19) and 2.2.3(22), or the lack of NAVSEA approval letter accompanying a submission and/or a signed MOA as required by reference 2.2.3(22), is sufficient reason for the NSA to hold or reject the submission. However, the submission may still be used by the NSA for schedule integration and planning purposes pending the receipt of the required additional documentation and final acceptance.

3.6 Submission of AIT Deliverables/Installation Preparation Requirements

The AIT Manager will ensure installation preparation requirements are provided to the NSA and LMA in accordance with references 2.2.2(1) and 2.2.3(35) for Submarines and reference 2.2.3(14) for Surface Ships and Carriers. When applicable, the NSA and/or LMA will then

provide significant installation preparation requirements, including material, team formulation and AIT production schedule to the Master Ship Repair (MSR)/Agreement for Boat Repair (ABR) to allow coordination and integration of the alteration/SC.

3.6.1 Memorandum of Agreement

While NAVSEA TS 9090-310(Series) is written to provide requirements to activities involved in the alteration/SC process, the MOA shall be written to provide specific requirements to each activity involved in accomplishing an alteration/SC.

For Submarines, the standard MOA template of reference 2.2.3(35), with applicable standard enclosures, and reference 2.2.3(40) shall be provided by the NSA to the AIT Manager as part of the AMPP at A-10 months. The AIT Manager shall verify/revise these documents and return to the NSA at A-6.5 months to support the AIT Conference at A-6 months.

For Surface Ships and Carriers, the NSA and LMA will jointly prepare a MOA in accordance with reference 2.2.2(1) to clarify the responsibilities of all participating activities involved in the installation of alterations/SCs by AITs for all availabilities.

NSA and LMA support services and funding requirements to accomplish the responsibilities will be clearly defined in the written MOA, and, when applicable, will be in accordance with reference 2.2.2(1). Some NSAs have developed standard MOA templates for use during their availabilities. The NSA and LMA will provide each AIT Manager with draft MOA containing information and requirements that are applicable to all participating activities in the availability. Each AIT Manager will respond with the specific requirements of their alteration(s), not addressed in the draft MOA. The NSA and LMA will take action to review and deconflict the AIT-specific requirements (with all involved parties, as appropriate), and incorporate them into the final MOA.

The depth of the specific requirements, identified in the MOA, will depend on the complexity of each alteration/SC and the combined Work Package. Participants include, but are not limited to, the AIT, NSA, LMA, LCM, MSR, Ship, and support activities. MOAs shall be approved and signed by all applicable activities prior to the AIT commencing the alteration/SC. The following are sample topics:

1. Funding requirements
2. Meeting attendance
3. NAVSEA SIs that are invoked for the installation
4. Clearly defined Technical Authority responsibilities consistent with references 2.2.3(4) and 2.2.3(27)
5. Clearances and insurance requirements
6. AIT Training requirements (ex. Hot work, RADCON, 6010 Manual)
7. In brief/out brief
8. Tag-out and work control
9. General cleanliness

10. Steam plant cleanliness environmental controls
11. Asbestos control
12. Hazardous Waste (HW) management
13. Heavy Metals Testing, Control and Abatement
14. Painting and adhesive application permit
15. Environmental reporting (e.g. paint, solvent, adhesive, fuel, welding rod usage reports, as per reference 2.1.1(4)
16. Quality Assurance
17. Work certification
18. Ship certification
19. General Safety
20. Nuclear Interface
21. Industrial radiation safety
22. Site-specific EPA HW generator ID number, if using a MSR or ABR to dispose of HW
23. Violations of safety/hazardous materials
24. Diesel engine (50hp or greater) registration/permit

Note: This is not an all-inclusive topic list. The areas that may warrant inclusion in the MOA may vary with each alteration/SC installation.

3.6.2 Pre-Installation Check-Out (PICO) Testing Requirements

When applicable, based on a requirement to conduct PICO testing in accordance with paragraph 3.11, the AIT Manager will ensure that PICO testing requirements are submitted to the coordinating activity (NSA/LMA/ISIC/Ship). Typical PICO requirements include, but are not limited to:

1. Technical Point of Contact and designated testing witnesses
2. Equipment, System, or System Interface to be tested, including required alignment or configuration
3. Applicable test procedures. (If PMS based, list MIPs/MRCs to be demonstrated or standard SUBMEPP Test Procedures. Otherwise, provide basic description of test procedures)
4. Estimated testing duration
5. Force Personnel support requirements (Ship’s Force equipment operators, technicians, etc.)
6. Supporting/interfacing equipment and/or systems requirements
7. Auxiliary Support Services (power, chilled water, A/C, Dry Air, etc.)

8. External service requirements (aircraft, ship's boats, Degaussing or Shipboard Electronics Systems Evaluation Facility (SESEF) facilities, etc.)
9. Special requirements to support testing (At Sea testing, EMCON, rotate and radiate, Personnel Aloft restrictions, etc.)

3.6.3 Production and Post-Installation Testing Schedules

For Submarines, PSS/AIM Production and Test networks shall be provided by the PMAPT to the AIT Manager, NSA and LMA as part of the AMPP at A-10 months. The AIT Manager will verify/revise these documents and return to the NSA, LMA and PMAPT at A-6.5 months to support the AIT Conference at A-6 months.

For Surface Ships and Carriers, Alteration/SC installation production and testing schedules shall be submitted in the format described in paragraph 3.5.1 using the templates provided in Appendices A and B. These schedules will specify the expected start dates and duration (in calendar days) of all AIT shipboard work and post-installation SOVT schedules. Other considerations include items that could impact ship's operations or other work items in the Integrated Production and/or Test Schedules. These include, but are not limited to:

1. AIT manning, planned number of work shifts per day and hours per shift
2. Impacted areas and spaces including required access to secure spaces
3. AIT points of contact
4. Inspection requirements (gas-free, SIGSEC, TEMPEST, weight tests, etc.)
5. Specific equipment, systems, circuits, components, piping or valves which will require isolation, deactivation or removal to accomplish planned work and any associated tag-out processing requirements
6. Work on Critical Systems or Critical System Boundaries
7. Weapons/ordnance handling requirements
8. System certification that could be required/affected by accomplishment of the alteration (Navigation Certification (NAVCERT), SIGSEC, TEMPEST, EMC/EMI/RADHAZ, SUBSAFE, FBW, etc.)
9. Crew training requirements
10. Requirements for special test conditions (Sea Trials/underway testing, satellite access time, cryptographic keying material, etc.)
11. All activities must comply with key event schedules promulgated by the NSA and LMA.

3.6.4 Industrial Support Service Requirements

For Submarines, the Support Services matrix will be provided by the PMAPT to the AIT Manager, NSA and LMA as part of the AMPP at A-10 months. The AIT Manager will

verify/revise these documents and return to the NSA, LMA, and PMAPT at A-6.5 months to support the AIT Conference at A-6 months.

For Surface ships and Carriers, the AIT Manager is responsible for providing advance notification of alteration/SC accomplishment requirements/impacts and making arrangements for industrial support services that will be required to support both the Production and Testing phases of the installation.

Appendix A provides the template for requesting industrial support services. These services may include but are not limited to:

1. Administration support requirements (dedicated telephone service, desk space, etc.)
2. Material delivery and stowage requirements (number of boxes/pallets, special handling [e.g. ESD, SUBSAFE, FBW, magnetic protection], special stowage, lay-down area requirements, etc.)
3. Crane service requirements (capacity, on-load, offload, high reach, etc.)
4. Rigging service requirements
5. Scope of hot work requirements (cutting, welding, brazing, etc.)
6. Fire watches (number of welders working, number and length of shifts, etc.)
7. Access cut requirements
8. Man-aloft requirements
9. Scaffolding and staging requirements
10. Diver and cofferdam requirements
11. Planned handling, use and disposal of identified hazardous materials (e.g. fluorocarbons, paint, welding rods, partially used material, hazardous waste)
12. Specific ventilation/environmental requirements (e.g. special air flow/cooling/heating requirements, protective shelters to be installed)
13. Ship systems service requirements (e.g. power, low or high-pressure air) that may be required to support the accomplishment of the alteration, calibration or certification of the equipment
14. Post-installation testing support requirements
15. Non-Destructive Testing (NDT) requirements
16. NSA turned-in equipment/material disposal requirements
17. Tag Out and Work Control requirements
18. Critical Systems or Critical System Boundaries work requirements
19. NSA QA inspection and verification of AIT Government Inspection points at the request of the AIT Manager.

3.7 Provide AIT Support Services Funding (if Applicable)

The AIT Manager is responsible for providing advance notification of alteration/SC accomplishment requirements/impacts and making arrangements for industrial support services that will be required to support both the Production and Testing phases of the installation. The NSA and/or LMA will provide the AIT Manager a cost estimate for required support services, including applicable prorations for common support service costs, in accordance with reference 2.2.3(14) and 2.2.2(1) milestones (see SUPSHIP SWT 980-01, "Alteration Installation Team Support Service, Provide"). The AIT Manager will ensure that funding for support services during a contracted shipyard availability is provided to the NSA, and/or LMA in accordance with Navy Modernization milestones identified in Appendix G of reference 2.2.3(14) for surface ships and carriers, and no later than 30 days prior to contract award or 90 days prior to the start of availabilities to be accomplished at public shipyards for submarines.

3.8 Security Clearances (if applicable)

The AIT Manager will ensure that Security Clearances are in place and will communicate with the NSA and LMA to ensure local requirements are clearly defined. For CONUS installations, the AIT Manager will ensure that security clearance information for government personnel is submitted in the appropriate Visit Request format. AIT contractor personnel are responsible for providing their own clearance information to the NSA and/or LMA. For OCONUS installations, the AIT Manager will ensure that a Country Clearance Message is issued a minimum of 30 days in advance of the installation start (or 30 days in advance of the CNO Availability start date if the install is taking place within a CNO Availability). Country Clearance Messages guidance is located in DoD 4500-54 (series), Department of Defense Foreign Clearance Manual.

Where access is required to secure areas or equipment, the individual AIT members requiring such access will have the proper level of clearance for access without escort. A minimum of seven (7) working days prior to arrival or as established by TYCOM/Regional policy, the AIT OSIC/AIT Lead will provide a visit request and clearance information for AIT members to the ship, TYCOM, NSA and/or LMA, and any other appropriate Naval activities. In situations requiring a quick response, visit request and security clearance information will be provided as far in advance as possible and by the fastest means practicable. For alterations/SCs being accomplished during contracted shipyard availabilities, the AIT will comply with security requirements of the industrial or naval activity in addition to those required for access to the ship.

3.9 Upload CDMD-OA Workfiles

The AIT Manager will verify that designated Alteration/SC LCM/ISEA pre-loads configuration planning data workfiles via CDMD-OA Database, for CDM review, no later than sixty (60) days prior to Start of Installation (SOI)/Start of Availability (SOA), in accordance with references 2.2.2(1) and 2.2.3(14). Proof of workfile submission to CDMD-OA (i.e., AIT CDMD-OA Verification Report or equivalent) will be required at RMMCO Check-In.

Note: A CDMD-OA query containing the following data elements Ship Hull, Install Date, RIN, RIC, ISC, EFD, EIN, PRID, Summary Title, RECD DATE, ALT TYPE, ALT ID, ALT RIC, ALT RIN and ALT STATUS can be substituted in place of the AIT CDMD-OA Verification Report.

For OHIO Class Submarines (SSBN/SSGN), reporting of completed configuration changes is performed in the SAS system for nightly replication into CDMD-OA for subsequent upload into the WSF. The OHIO Class configuration status reporting process is highly integrated with OHIO Class Intermediate Level (I Level) maintenance processes. AITs will coordinate with the appropriate Trident Maintenance Facility's Maintenance Department - Trident Refit Facility (TRF) Kings Bay or Intermediate Maintenance Faculty (IMF) PACNORWEST for receipt of configuration planning records from LDS in the form of pre-filled OPNAV 4790/CKs. Upon completion of installation, AITs will provide completed 4790/CKs to the requisite Trident Intermediate Facility Maintenance Department for up-line reporting. The OHIO Class (SSBN/SSGN) Command and Control System (CCS) and NPES Installation Standard Operating Procedures, reference 2.2.3(29), provides detailed process explanations, procedures and points of contact.

3.10 Approved MOA In Accordance With NMP-MOM

For Submarines: As discussed in paragraph 3.6.1, the MOA will be provided by the PMAPT to the AIT Manager, NSA and LMA as part of the AMPP at A-10. Availability participants, including AIT Manager/OSIC, will negotiate required changes and indicate concurrence via signature. Copies of the signed MOA will be made available to all members of the AIT. No AIT will be allowed to commence installation of their alteration/SC prior to all required activities/organizations signing the MOA.

For Surface Ships and Carriers: Following the initial review and update of the draft MOA, in accordance with paragraph 3.6.1 the NSA and LMA will adjudicate and incorporate recommended changes, and forward the final MOA for signature. Availability participants, including AIT Manager/OSIC, will indicate concurrence via signature, and copies of the signed MOA will be made available to all members of the AIT. No AIT will be allowed to commence installation of their alteration/SC prior to all required activities/organizations signing the MOA.

3.11 PICO (if applicable)

PICO shall be conducted as determined by the PARM/ISEA when alterations/SCs modify or relocate existing equipment or systems, including modifications that affect existing interfaces between multiple systems, as determined by PARM/ISEA or, when warranted, during Design Ship Check by the PY (see paragraph 3.4.1). For PICOs, TYCOM coordination and approval is required.

PICO is conducted in order to validate the operational status and characteristics of the equipment, systems and interfaces affected by the installation. PICO events support the establishment of clear responsibilities for maintenance and modernization communities. They also serve to identify existing discrepancies which, if uncorrected, could delay or prevent the installation of the alteration/SC, or the post-installation SOVT providing stakeholders with confidence in the post-production System Light Off and SOVT schedules. . Regional

NSAs/LMAs/RMCs may coordinate a consolidated PICO event, as part of the Availability Advance Planning process, led by a locally designated PICO Coordinator. In other instances, PICOs are coordinated directly with Ship's Force by individual AIT Managers.

During the New Construction window, multiple qualification and certification SCN events are occurring. In order to ensure integration with these events, all PICOs will be scheduled through the SHAPM or SHAPM representative. Every effort shall be made to consolidate and eliminate redundancy with duplicate or similar testing and assessments.

As noted in paragraph 3.6.2, the AIT Manager will specify the scope of PICO testing, support requirements (personnel and systems) and a proposed schedule. PICO testing may be based upon Planned Maintenance System (PMS) currently implemented on the ship. Ship's Force will complete PMS-based PICO, witnessed and assisted by the AIT OSIC/AIT Lead, if feasible. Any additional (non-PMS) test requirements/procedures will be provided to the AIT OSIC/AIT Lead by the cognizant Program Office/ISEA/PARM. Responsibility for executing and witnessing non-PMS based PICO testing will be by agreement between Ship's Force and the AIT OSIC/AIT Lead. Regardless of coordination method, required PICO will be completed prior to start of installation, nominally 60-30 days prior to the SOA should the ship's operational schedule and other factors permit.

Within five (5) days of PICO completion, the Ship's Force and AIT OSIC/AIT Lead will jointly produce a PICO completion report. The report will outline SAT or UNSAT performance and will include all known discrepancies which could impact installation or SOVT. If a consolidated PICO event was conducted, the locally designated PICO Coordinator may compile results from multiple PICOs into a consolidated PICO Report. The Ship's Force, LMA, or Maintenance Team in coordination with the ISEA/AIT OSIC/AIT Lead will evaluate discrepancies and identify the recommended activity responsible for corrective action. Ship's Force will ensure repair requirements are documented in the ship's CSMP. The ship will formalize PICO Completion Reports via naval message (see Appendix B for sample) within 14 days (30 days for submarines) of PICO completion. The PICO Completion Report Message shall be addressed to the NSA, LMA, ISIC and TYCOM representatives for record purposes and to other cognizant activities including AIT Sponsors.

3.11.1 Execution

PICO may be coordinated via three methods:

1. Between the AIT Manager and Ship's Force via TYCOM
2. At the discretion of the Regional NSA/LMA/RMC, a consolidated PICO event may be coordinated as part of the Availability Advance Planning process, led by a locally-designated PICO Coordinator.
3. For Surface Ships and Carriers, during the new construction window, multiple qualification and certification SCN events are occurring. In order to ensure integration with these events, all PICOs will be scheduled through the SHAPM or SHAPM representative. Every effort shall be made to consolidate and eliminate redundancy with duplicate or similar testing and assessments.

Regardless of coordination method, all required PICOs shall be completed prior to start of installation.

As noted in paragraph 3.6.2, the AIT Manager shall specify the scope of PICO testing, support requirements and a proposed schedule via the following ways:

1. PMS-Based PICO- The AIT Manager, via TYCOM, may request Ship's Force complete PICO witnessed and assisted by the OSIC/AIT Lead, if feasible. Ship's Force PICO testing shall be limited to current Ship's Force PMS.

2. Non-PMS Based PICO- Any Non-PMS based PICO requirements shall be provided to the OSIC/AIT Lead by the cognizant Program Office/ISEA/PARM in accordance with Appendix G of reference 2.2.3(14). Responsibilities for conducting and witnessing of Non-PMS PICO testing shall be coordinated in advance and documented in a POA&M/MOA.

3.11.2 AIT Manager Responsibilities

AIT Managers are responsible for identifying PICO requirements to the NSA and LMA. This includes:

1. Providing a list of systems planned for PICO
2. Coordinating with the ISEA/SME for development of PICO requirements for targeted systems
3. Providing PICO support and test requirements, as well as the test plan, if required
4. Identifying satellite access, keymat and requirements for interfacing systems
5. Developing cost estimates and funding any required technical support or witnesses for PICO accomplishment
6. Confirming PICO dates with ship/TYCOM and SME
7. Including PICO requirements in pre-installation messages
8. Identifying a SME, if required
9. Finalizing the PICO test plan
10. Conducting a PICO In-Brief, if required
11. Conducting the PICO
12. Generating a PICO completion report message in accordance with Appendix H of reference 2.2.3(14), ensuring ALCON are included. The message will be released by the ship by PICO completion +14 days (+30 days for submarines).

The AIT Manager shall ensure PICO requirements and milestones are coordinated with the NSA, LMA, and ship in accordance with Figure 3-2.

3.11.3 NSA, LMA, and Fleet Responsibilities

The TYCOM or TYCOM-designated representative shall coordinate the PICO test schedule and execution with the NSA, LMA, and ship. For all installations, AIT and Non-AIT, Ship's Force will ensure repair requirements are documented in the ship's CSMP and coordinate

work with the NSA and LMA. Additional reporting requirements for AIT installations can be found in Appendix A.

Figure 3-2 Consolidated PICO Event (Notional Timeline for MSMO CNO Availability)

When	Requirement	Responsibility
A-135	Provide scope of PICO testing requirements to NSA	AIT Manager
A-120	Confirm PICO start date (P-0) and duration; target accomplishment between A-60 and A-30	NSA, AIT Manager and Ship
A-90	Identify ISEA/SME and provide PICO test plan	AIT Managers
P-7	Conduct ship's in-brief, if required	AIT Manager and Ship
P-0	Perform PICO testing	Ship, PARM, SEA,OSIC/AIT Lead or Installing Activities, as required
P+5	PICO results out-briefed	OSIC/AIT Lead, as required
P+14	Document PICO results	OSIC/ AIT Lead as required
A-30	Screen new work and integrate into availability schedule, as applicable	Ship and NSA

3.12 Quality Assurance Provisions

3.12.1 AIT Quality Management System (QMS)

Note: NSYs are under control of NAVSEA 04 and are not required to submit their QMS procedures for NAVSEA acceptance. When accomplishing alterations/SCs as AITs, they shall comply with the requirements of the NSY's QA Policies and Procedures. NSYs performing AIT work at other activities will develop a QA Workbook and the designated AIT Manager will develop a QA oversight plan per guidelines in paragraph 3.12.2.1 and Appendix D.

3.12.1.1 Initial Acceptance

Initial acceptance consists of acceptance by either NAVSEA 04XQ, SUPSHIP or the RMC.

Contractors and government activities performing AIT work will submit their QMS for review and acceptance to NAVSEA 04XQ. The QMS shall comply with the requirements of Appendix C.

RMC, NSSA and SUPSHIP are authorized to review and accept an AIT's QMS. The RMCs will then forward a copy of the acceptance letter to NAVSEA 04XQ for their master files

Note: Master Ship Repair Agreements (MSRA) and ABR contractors - Contractors performing AIT work who are MSRA or ABR Agreement holders are not required to submit their QMS to NAVSEA 04XQ but must maintain a current QMS that has been accepted by the designated RMMCs/SUPSHIPs. On an annual basis, RMCs/SUPSHIPs will provide NAVSEA 04XQ with a listing of their qualified MSRA and ABR contractors.

NAVSEA review of the AIT's documented QMS will include review of quality manual (level I) and supporting implementing procedures (level II) to demonstrate compliance to documented processes required by SI 009-04 (ISO 9001). Work instructions (level III) and process control procedures, while an integral part of the QMS, are not reviewed and accepted by NAVSEA 04X. For AIT work, the supervisor, as identified in SI 009-04, is the AIT Manager, when work is not under the control of SUPSHIP/RMC/NSSA.

3.12.1.2 Revoking of Quality Management System (QMS) Acceptance

The AIT Manager is responsible for reviewing AIT quality trends and taking action when negative trends can degrade product quality. NAVSEA 04XQ has the authority to revoke a QMS acceptance where evidence exists (via audit reports, Trouble Reports, Method D letters, AIT Manager recommendations, AIT Sponsor evaluations, etc) of significant quality issues or non-compliance to the QMS with prior notification to the AIT Sponsor.

3.12.1.3 Quality Management System (QMS) Resubmittal

The QMS requires a one time submittal/acceptance unless the AIT changes or amends the QMS, NAVSEA SIs and/or references change, or AIT's status changes in accordance with NAVSEA SI 009-04.

3.12.1.4 Invoking AIT Quality Management System (QMS)

The AIT Manager will ensure the AITs have a QMS/plan accepted by NAVSEA 04XQ (that complies with Appendix C) prior to installation, and that proper training, certifications and quality assurance/control are in place for the work identified. Upon request by the designated NSA, the AIT will be required to show proof that their QMS has been accepted by NAVSEA 04XQ. Additionally, all other contractually related procedures requiring acceptance shall be available to the NSA prior to the start of ship work when requested.

3.12.1.5 AIT Quality Assurance (QA) Workbook

The AIT Manager must ensure that the selected AIT develops a QA workbook that outlines the scope and process of the installation. In cases where multiple related alterations/SCs are being installed by the same AIT, a single QA workbook covering all alterations/SCs is acceptable providing any unique requirements are clearly identified and addressed. In addition, the QA workbook will outline all personnel requirements and identify procedures

that will be used in accordance with reference 2.1.1(4). The QA workbook must be presented by the AIT to the AIT Manager in advance of the install for satisfactory review and be available onboard the ship during install. Where installations consist of standalone software changes, an AIT QA workbook is not required. The AIT Manager/OSIC/ISEA loading the software must have available the install and test procedure documentation onboard ship and during RMMCO Check-in.

The QA workbook will contain at a minimum, the following sections:

Section 1: Alteration/SC description – a copy of the approved SAR/SCD that describes the scope of the alteration/SC.

Section 2: Personnel – a comprehensive list of all AIT personnel, including subcontractors and temporary employees that will be onboard during the installation. This section must include up-to-date qualifications, certifications and training received that is relevant to the installation and pre-fabrication. Minimum requirements as to required personnel certifications are provided in Appendix C (AIT Quality System Requirements). The AIT shall cross-reference personnel to qualifications and/or certifications.

Section 3: Procedures – Objective Quality Evidence (OQE) is required to show that the AIT is operating under an accepted QMS. The AIT shall list in this section all NAVSEA SIs , approval letters and/or procedures that are relevant to the work being performed. The AIT shall develop all procedures and cross-reference with personnel qualifications that are provided in previous section.

Section 4: Installation POA&M provides a breakdown of AIT work being accomplished in a sequence of events, and provides time requirements. Specific requirements for the POA&M are contained in paragraph 3.6.1. A sample POA&M is provided in Appendix B.

Section 5: Ship Change Installation Drawing (SID) or Install Procedures – For alterations/SCs where SIDs are required, depending on size of SID package, the AIT will enclose a set of SIDs that reflects the latest drawing revisions. If the size of SID package is large, the AIT may include only the list of drawing numbers. For internal equipment modifications, the AIT will include the installation instructions that were developed by PARM/ISEA.

Section 6: Test and Inspection (T&I) Plan – This Section provides a step-by-step outline for accomplishing the work and testing. This ensures that work is accomplished safely, meets the technical specifications, and provides OQE that work has satisfied all requirements. This provides the Inspections, Verification and Government checkpoints (referred to as I, V&G points) that demonstrate AIT has completed all procedures. Any other tests and inspections required by other applicable references shall be included in the T&I Plan.

Section 7: Test and Inspection Records – Includes all forms that will be used to document the T&I performed in Section 6. The AIT Manager will either retain or ensure AITs retain all completed records of this section after installation has been completed.

AIT and Sponsor are required to maintain records of install in accordance with Joint Fleet Maintenance Manual (JFMM) COMFLTFORCOMINST 4790.3 Rev B, Quality Assurance Manual, Page 10.2.2 (2) Level I records. Requirement stated as follows: “Non-Nuclear/Non-Submarine (SUBSAFE) Level I Records will be maintained for a minimum of seven years from the ship’s delivery date for new construction or seven years from the availability

completion date for repairs, overhauls, conversions, etc. Disposition instructions will be requested from NAVSEA 04XQ via the appropriate TYCOM after that time."

Records of Level I work will be retained at the activity (Ship or FMA) for at least three years following the completion of the work. After three years the records may be stored ashore.

3.12.2 Quality Assurance (QA) Oversight

3.12.2.1 Performance Surveillances/Compliance Audits

The NSA and AIT Manager or designated representative will perform process surveillances and product inspections of installations on a sampling basis and will use the sampling evidence to indicate conformance or nonconformance with requirements of the tasking/contract and this specification. NAVSEA 04 is responsible for monitoring compliance with this document at both Command and field activity levels. NAVSEA 04XQ shall audit, on a sampling basis, AIT Sponsors, AIT Managers and NSAs for compliance with the requirements of this document. In addition, the accepted QMS will also be subject to periodic compliance audits to the requirements of Appendix C as directed by NAVSEA 04XQ

3.12.2.2 AIT Manager's Quality Assurance (QA) Program

The AIT Manager will administer the AMQAP outlined in Appendix D to evaluate the effectiveness of the AIT's QMS.

3.12.2.3 Quality Assessment

The AIT Sponsor will ensure an annual quality trend analysis of Fiscal Year (FY) data, for each sponsored AIT is performed, using oversight reports, deficiency reports, departure requests, critiques, customer feedback, etc. to evaluate AIT performance. The AIT Sponsor will report results of this trend analysis including weaknesses identified and actions taken to NAVSEA 04XQ and NAVSEA 04RP by February of the following year.

3.13 Electronic RMMCO Form Submission

3.13.1 General

The RMMCO AIT Check-In/Check-Out application process at https://rmmco.navy.mil/ provides the AIT Manager/AIT OSIC with a tool to initiate the check-in procedures required for the installation of an alteration/SC aboard ship. This application shall be used by the AIT to ensure rapid, problem-free completion of the check-in requirement. RMMCO eCheck-In form shall be initiated by the AIT Manager or AIT OSIC at least 30 days prior to installation start. To conduct the RMMCO Check-in, access to the RMMCO web application must be obtained by requesting access at the website. With website access, follow the steps to submit the RMMCO form. On-line help is available if necessary. Attach applicable documents pertaining to the installation to the RMMCO Form in accordance with paragraph 3.13.2.

3.13.2 Required Documentation for Electronic RMMCO Form Submission

The required documentation for Electronic RMMCO Form Submission is:

1. ILS certification or TYCOM approved ILS Risk Assessment.
2. Itemized inventory list of all ILS products to be provided to the ship (i.e. DD 1149 or equivalent)
3. Proof of work file submission to CDMD-OA (i.e., AIT CDMD-OA Verification Report or equivalent).

3.13.3 Reasons for Placing an Installation on Gatekeeper Hold

During Electronic RMMCO Form Submission, the RMMCO Gatekeeper reviews authoritative data sources, confirms the Alteration/SC is authorized by the SPM or TYCOM and that it has an approved QMS. Alterations/SCs that have not been authorized will be placed on Gatekeeper Hold. Gatekeeper will place Alterations/SCs on Gatekeeper Hold for the following reasons:

1. No Approved SID or SID Waivers. For Surface Ships and Carriers, installation shall not be placed on hold if an emergent approval has been issued in accordance with reference 2.2.3(14)
2. No Approved SAR/SCD/Legacy Alteration. For Surface Ships and Carriers, installation shall not be placed on hold if an emergent approval has been issued in accordance with reference 2.2.3(14).
3. No AIT Lead POC information.
4. No Government OSIC POC information.
5. No Government AIT Manager POC information.
6. No Government Sponsor POC information
7. No Final or Interim certified ILS Certification or TYCOM approved ILS Risk Assessment
8. For CNO Availabilities: No SPM LOA/MRA authorization.
9. AIT QMS has not been accepted by NAVSEA 04XQ.
10. For NON-CNO availabilities: No TYCOM Authorization
11. No approved risk form number from NDE-AMPS or date time group for TCD Waiver
12. No Approved Baseline.
13. No SECNAV DTG or MFR Waiver reference (DECOM)
14. No 2K in CSMP
15. No Accepted Quality S/QA Plan
16. No Country Clearance for out of CONUS visitors
17. CDMD-OA workfiles not submitted
18. ATO/IATO not approved or has no risk waiver.

3.14 RMMCO Physical Check-In

3.14.1 General

The AIT Manager/OSIC/AIT will check-in with the NSA and/or RMMCO prior to reporting to the ship. During check-in, NSA and/or RMMCO (as applicable) will review documentation provided by the AIT Manager/OSIC/AIT.

3.14.2 AIT Installation Package Required for Physical Check-In

RMMCO will require the following AIT installation package for physical check-in:

1. QA workbook prepared in accordance with paragraph 3.12.1.5.
2. Release of all Gatekeeper hold items previously identified.
3. Approved/Signed installation instructions as identified in the QA work book.

3.14.3 RMMCO Check-In Form

Once the AIT installation package is verified, the RMMCO Form will be printed by RMMCO or the NSA and provided to the AIT. This form identifies all items that will require signature verification of accomplishment and/or receipt of the list of ILS deliverables from designated Ship's Force/NSA representatives prior to check out.

3.14.4 AITs Not Meeting Requirements

For AITs not meeting any of the above requirements, the ship will be notified of the deficiencies by email from RMMCO and RMMCO will not allow the installation to commence until resolved.

3.15 AIT In-Brief

The purpose of an in-brief is to provide an overview and objectives of the alteration/SC to be accomplished. The in-brief will outline work to be performed, any critical work to be performed, review the schedule of accomplishment (i.e. POA&M) and identify impacts on the ship, confirm arrangements for requested/required services, review key schedule of events (milestones), establish responsibilities and points of contact, review planned ship's evolutions, and review ILS products and training to be provided. An in-brief will be scheduled and coordinated by the AIT OSIC. It will be conducted after RMMCO Check-in and prior to the initiation of alteration/SC accomplishment as outlined in Appendix E. Whenever possible, for alterations/SCs which impact several systems or spaces or will require more than a week to complete, or will impact critical systems identified in paragraph 3.5.2, the in-brief will be held for key personnel prior to the start of alteration/SC accomplishment.

The following personnel shall be invited to attend the in-brief: applicable Ship's Force personnel and/or designated representative to include but not limited to the following: CO, XO, Ship's Availability Manager, applicable Department Heads and Division Officers,

SUPPO, and Technical/Operator Personnel (i.e. FC, ET, OS, etc). Also invited shall be: TYCOM, Squadron, NSA, LMA, Shipyard Trades Personnel (i.e. Electrical Foreman), Lead Zone Manager (i.e. HM&E, Combat Systems, Engineering), Work Integration Representative, PY On-Site Representatives, RMMCO, Program Manager Representative (PMR), AIT OSICs, and AIT Leads.

Note: AITs that have not held an in-brief shall be denied permission to start installation of an alteration/SC.

3.16 Local Area Requirements Training

AITs are to follow the local area requirements of the industrial facility where the alteration/SC is to take place. This training is commonly conducted prior to badge access being allowed into the industrial facility. Most industrial facilities conduct the training via video. The training may consist of but is not limited to the following areas:

1. PPE Requirements
2. Badge Color Code and areas able to access
3. Requirements for access to Radiological Controlled areas and other controlled areas
4. Radiological Controlled Material handling requirements
5. Overhead Crane movements
6. Vehicle Traffic/Parking
7. Marked areas for walking
8. Alarms/Emergency Reporting Procedures (i.e. what to do, what number to call)
9. Off limit areas
10. Environmental impact
11. Confined Space Requirements
12. Hazardous Materials (HAZMAT) Requirements
13. WAF Requirements
14. Lock Out/Tag Out Requirements
15. Electrical Safety
16. Hot Work and Firewatch requirements
17. Manual for Control of Testing and Ship Conditions (Submarines)
18. Industrial Facility indoctrination.

3.17 Work Authorization Form (WAF)/Tag-Out

During accomplishment of the alteration/SC, various circuits, pipe runs, equipment, etc., may have to be temporarily deactivated or placed in a reduced operating status. The CO's designated representative and assigned NSA, LMA will be notified in writing, using a WAF in accordance with reference 2.2.2(1) of equipment and systems that require isolation to

accomplish the alteration/SC. During availabilities when the NSA and/or LMA is coordinating all WAFs and Tag-outs, this request should be made to the NSA and/or LMA. Notification will be provided prior to initiation of ship work so that tag outs can be accomplished as required by reference 2.2.3(3). Notification will be made at least forty-eight (48) hours prior to required deactivation to ensure proper coordination with other on-going work, or in accordance with local NSA and/or LMA policies. During periods of heavy industrial activity, 48 hour notification may be insufficient to ensure proper coordination and accomplishment of isolation. In these circumstances, notification should be accomplished as early as possible and/or as required by the MOA between NSA, LMA and AITs. AIT members will comply with all the requirements identified in reference 2.2.3(3).

All individuals who perform work onboard Naval Vessels shall be indoctrinated in basic purpose, use and restrictions associated with the Tag-out Users Manual (TUM).

3.18 Execute Alteration/Ship Change

3.18.1 AIT Formulation

The make-up of the AIT will be as determined by the AIT Manager, based on the skill requirements of the work to be accomplished and the number of shifts the AIT is planned to work. Each AIT will be outfitted with all tools and materials required to accomplish the alteration/SC, including (but not limited to) hand tools, PPE, General Purpose Electronic Test Equipment (GPETE), special purpose electronic test equipment, Installation and Check-Out (INCO) spares, and special alignment equipment. For those skills that require specific training, qualification and/or certification (welding, electrical connector assembly, SUBSAFE, SIGSEC, TEMPEST, PCMS installation, Level 1, fiber optic cable/equipment installation, FBW, etc.), AIT members performing these functions shall be fully trained, qualified and certified. Substantiating documents shall be made available for review by the NSA and/or LMA upon request.

3.18.2 Transportation and Billeting

Transport of AIT personnel, tools, material and support equipment to and from the installation site and all billet arrangements shall be the responsibility of the AIT.

3.18.3 Participation of Other Activities

The participation of a system/equipment ISEA, or other activity, which is required for accomplishment of required conjunctive or associated ORDALTs, MACHALTs, FCs, Software Deliveries, etc. shall be coordinated with the AIT Manager and AIT OSIC and documented in a MOA to ensure responsibilities for work are clearly defined and understood. Where an ISEA or other activity is required for testing or certification of equipment/systems associated with the accomplishment of the tasked alterations/SCs, the testing/certification plan will also be coordinated with the AIT Manager and AIT OSIC.

3.18.4 Safety Considerations

3.18.4.1 Risk Assessment, Risk Abatement, and Personal Protective Equipment (PPE)

AIT members will use Operational Risk Management (ORM) or similar Risk Assessment and Abatement of Hazards program to anticipate and mitigate the hazards associated with the task and the potential exposure to dangers in the work environment. Identified/recognized hazards will be abated using the following hierarchy:

1. Employment of Engineering controls
2. Employment of Administrative controls
3. Use of PPE

The appropriate PPE will be worn when there is potential exposure to hazards. As a minimum, Hardhat, Steel Toe Shoes, Safety Glasses and Earplugs shall be with the employee, ready for use, should the hazard arise. AIT personnel shall wear PPE when boarding and when walking around a vessel. AIT personnel shall bring PPE or arrange the acquisition of PPE when visiting sites (such as Warfare Centers, RMCs and Shipyards) where there is a potential for exposure.

3.18.4.2 Fire Protection

In accordance with 29 CFR 1915, Subpart P, each AIT must have a fire safety plan for their employees. This plan must comply with the host employer's fire safety plan.

3.18.4.3 Damage Control, Fire Fighting and Fire Protection Equipment

AIT members shall familiarize themselves with the location and details of all damage control, fire fighting and fire protection equipment and systems (e.g., detection, suppression, equipment stowage).

3.18.5 Housekeeping

The AIT will perform general housekeeping in all impacted areas. At the completion of each shift, each work site shall be broom-cleaned. All trash and debris will be removed from the ship, and all hazardous waste, industrial waste, and/or excess hazardous material will be properly disposed of. The AIT will properly dispose of all installation and associated material and will ensure equipment is protected from contamination and damage during the alteration/SC installation process.

NAVSEA SI 009-06 (Maintaining Protection and Cleanliness from Non-Radioactive Contaminate Producing Operations) and SI 009-07 (Confined Space Entry, Certification, Fire Protection and Housekeeping) provide additional housekeeping requirements. The AIT will also ensure that all hoses, welding leads, temporary ventilation trunks, and other industrial service components and materials are kept clear of water tight doors and hatches or be capable of removal in accordance with reference 2.2.3(2) for submarines. Rigging of temporary service leads and hoses will be kept clear of the decks, on temporary trees or brackets. They

shall be arranged to minimize tripping and other safety hazards and to allow ready access through doors, hatches and passageways.

3.18.6 Material Requirements

All material required to be installed or provided as part of an alteration/SC should be assembled by the AIT for each tasked hull. This material includes all material (HCPM and AIT-procured) required by the installation drawings and all logistic support items required to be turned over to the ship (including special tools/test equipment, interim spares, APLs/Preliminary APLs, maintenance plans, Technical Manuals (TMs), test procedures, Planned Maintenance System (PMS) documents, Maintenance Assistance Modules (MAMs), Operating Space Items (OSI), Material Safety Data Sheets (MSDS), etc.). All ILS requirements will be provided by the End of Installation (EOI) or have an approved waiver and an estimated delivery date.

1. When ordering AIT-procured material (other than shop stores-type material) from the Federal Supply System, the AIT Manager shall first contact the Material Item Manager to determine whether or not the supply activity has pre-staged or reserved material for the applicable alteration/SC.
2. For ease of accomplishment and reduced onboard effort, prefabricated material (foundations, cable/harness assemblies, etc.) should be used to the maximum extent possible.
3. All material in SUBSAFE boundary shall be accompanied with a full set of certification documentation, in accordance with reference 2.2.3(10) to expedite alteration/SC accomplishment.
4. All DSS-SOC material shall be accompanied with a full set of certification documentation in accordance with reference 2.2.3(1) to expedite alteration/SC accomplishment.
5. Each FBW SCS SFCC material shall be accompanied with a Certificate of Conformance (COC) document in accordance with reference 2.2.3(35).
6. All material in the SUBSAFE and FBW boundary (e.g., Level I, etc.), which is temporarily removed as part of a submarine alteration, shall be controlled, stored and protected while removed in accordance with references 2.2.3(5), 2.2.3(10), and 2.2.3(35), as applicable, in order to maintain the SUBSAFE and FBW or Level I certification of the material.
7. All DSS-SOC material shall be controlled and protected in accordance with reference 2.2.3(1)

8. to maintain certification of the material.

3.18.7 Incidental Material

For work to be accomplished by the AIT, the AIT will be responsible for supplying all material that is not HCPM, including incidental/expendable (shop stores) material (e.g. tape, solder, welding rods, paint, fasteners, deck covering, insulation, etc.), required to accomplish the alteration/SC. For industrial support by an activity other than the AIT, the activity providing the industrial services shall be responsible for all incidental/expendable material required to accomplish the industrial support.

3.18.8 Installations in Nuclear Powered Ships

References 2.2.3(19) and 2.2.3(33) define the work in nuclear powered ships which must be assigned to nuclear capable activities (e.g. nuclear capable shipyards). Reference 2.2.3(22) defines requirements for the conduct of contract work onboard nuclear powered ships (e.g. the work in nuclear powered ships that need not be assigned to nuclear capable activities). When conducting work in a nuclear powered ship, it may not always be readily apparent that modifications or changes in the nuclear powered ship, affects reactor plant systems, operations, or personnel safety. Therefore, it is of the utmost importance that reference 2.2.3(19) and the associated requirements in reference 2.2.3(22) be reviewed to ensure that work in a nuclear powered ship is in compliance with these requirements. The AIT OSIC is responsible for this review during execution. The NSA and LMA should be requested to assist in review of changes to specifications during execution to ensure requirements are met.

3.18.9 Workmanship

1. Workmanship and work practices shall meet the requirements of all contract specifications, including applicable NAVSEA SIs or Submarine Maintenance Standards, as invoked.
2. AITs and their subcontractors will be required to accomplish work under an accepted QMS in accordance with paragraph 1.5.16(2). Subcontractors that perform small portions of an installation may use the prime AIT contractor's QMS procedures that are applicable when invoked in a subcontract purchase order. The AIT's QMS will include, or make reference to, procedures that will ensure product conformance. An AIT without an accepted QMS will be denied access to the ship. AIT sponsor/NSA (or PY when tasked) will provide oversight for AIT installations and production milestones (critical path), to ensure conformance to ship specifications and that the installation is accomplished in accordance with design. AIT Sponsor/NSA participation will ensure cradle-to-grave conformance to ship standards throughout the entire AIT installation process. When requested in support of NSA spot-checks conducted in their oversight role, the AIT will provide documentation showing the requirements included in Appendix C are met (i.e., welder qualifications, etc.). The AIT is responsible for the quality of the alteration/SC installation, including subcontractor work, and for ensuring subcontractors adhere to the requirements of this specification. The OSIC will ensure the AIT is following its QMS procedures, quality

inspection and Test Plan (TP), applicable safety and environmental compliance requirements and technical instructions. NSA or Ship's Force shall report all noted AIT QA deficiencies to the OSIC in writing.

3.18.10 Work Affecting Critical Systems or Critical System Boundaries

As noted in paragraph 3.5.2, critical systems are defined as SUBSAFE, FBW, Level 1, DSS-SOC, P1 and P3A piping systems, A-1, A-2, A-3 pressure vessels (including boilers), and M-1 machinery systems, as defined in technical guidance documents, references 2.2.3(1), 2.2.3(5), 2.2.3(6), 2.2.3(7), 2.2.3(9), 2.2.3(10), 2.2.3(24), and 2.2.3(35). If the NSA and LMA exercises their option to approve the AIT Manager's assignment of the work on Critical Systems/Critical System Boundaries to a qualified contractor, the AIT Manager shall ensure that the contractor performing the critical work (as defined in paragraph 3.5.2) has an accepted QMS. For critical work performed by an activity not qualified to perform as a NSA, the NSA shall perform QA oversight in accordance with the requirements of references 2.2.2(1), 2.2.3(8), and 2.2.3(25), as applicable, to ensure compliant production processes, personnel and procedure qualifications, and work documentation and certification. For SUBSAFE, DSS-SOC, and FBW work to be contracted, the NSA and LMA will comply with the requirements of references 2.2.3(1), 2.2.3(10), 2.2.3(20), and 2.2.3(35), respectively.

3.18.11 Status Reports and Meetings

3.18.11.1 Task Status Report

The AIT OSIC will ensure that a periodic Task Status Report is submitted to the AIT Manager. AIT Manager will forward copies to the NSA, LMA, SPM, applicable TYCOMs, LCM, as requested. The form and format of Task Status Reports shall be as specified by the AIT Manager or tasking NSA and/or LMA. For AITs with more than one alteration/SC task from the same AIT Manager, the reports may be combined in the same document, but the data shall be segregated by alteration/SC.

3.18.11.2 Periodic Progress Reports

When invoked, AITs are responsible for complying with the reporting requirements for NAVSEA SIs (for updated production schedules and progress reporting). Additional reporting, for the purposes of work de-confliction and schedule integration, may be required when the NSA implements a Work Package Integration specification in accordance with reference 2.2.2(1), volume VI, chapter 43. When a required periodicity for progress reports is not specified, the NSA, LMA and Ship's designated point of contact shall be informed of the progress on a weekly basis.

3.18.11.3 Periodic Meetings

The NSA and/or LMA may require AIT OSIC/AIT Lead to participate in meetings for the purpose of work coordination and/or progress review. These typically take the form of Daily Production meetings, and Weekly Progress reviews, but local practice shall dictate periodicity and attendance requirements. In the event that regular work coordination meetings are not scheduled, AIT work shall be conducted in accordance with the POA&M/production work

schedule presented at the in-brief. It will be the responsibility of the AIT to execute required work around restrictions that may be imposed due to emergent ship's evolutions. Any changes to the work schedule provided at in-brief shall be reported to the NSA, LMA and Ship's designated point of contact as soon as changes are identified.

3.18.12 Final Housekeeping

After completion of all ship work, the AIT will conduct final housekeeping in all areas involved in the alteration/SC accomplishment. With the exception of cryptographic gear, equipment that is removed as part of the alteration/SC and is to be turned-in for accounting purposes shall be the responsibility of the AIT, although removal may require coordination with the NSA's Government Property Manager. Turn-in of cryptographic equipment will be the responsibility of the ship. The NSA and LMA shall be notified by the AIT of their planned departure from the alteration/SC site. All outstanding discrepancies, environmental reports (paint, solvent, adhesive, welding, fuel, abrasives usage report, etc.) and the corrective POA&M shall be indicated in the completion report. All special badges, passes, check-out forms, dosimeters, etc., shall be turned-in, as required, in accordance with local NSA and/or LMA requirements.

3.18.13 AIT Readiness to Start Message for Submarines

At least seven (7) days prior to the scheduled start of the AIT installation, the AIT Manager will release a "Readiness to Start Message" following the format provided in Appendix B. The AIT Manager will address each area identified in the Readiness to Start Message. The message will reference all pertinent scheduling information and coordination, the industrial level skills required, design readiness, ship requirements, effects of the alteration/SC, ships spaces affected, impacts, and any other information.

3.18.13.1 Design Changes During Installation

If installation cannot be accomplished in accordance with the approved SIDs, proposed changes must be documented via LAR. The LAR must be submitted to and approved by the PY before incorporation of the change can be made onboard ship. Minor changes which can be addressed via red lines to the drawing should be brought to the attention of the OSR to ensure the change does not require a LAR. Any changes, via LAR or red line, need to be annotated as a red line on the drawings and incorporated into the final as-installed drawings per paragraph 3.24.4.

3.19 Clear Work Authorization Form (WAF)/Tag-Out

3.19.1 WAF

Once the alteration/SC is completed, the WAF is signed by the repair activity as work completed and forwarded to Ship's Force for clearing of Tag-Out Record Sheet line items in accordance with reference 2.2.2(1) if a tag-out was required. Once the alteration/SC testing (if there is no formal test program) is complete, the WAF is signed by the repair activity. Following completion of testing and setting of appropriate system status (e.g., clear tags and

perform valve line-ups as appropriate for the situation, setting equipment to certain conditions), the WAF is signed by the repair activity as closed out and forwarded to Ship's Force for review.

The WAF process, administration, form, and instructions are contained in reference 2.2.2(1) Volume IV, Chapter 10.

3.19.2 Tag-Out

Once the alteration/SC is completed, remove danger and caution tags immediately when the situation requiring the tag-out has been corrected and clearing of tags has been authorized.

The tag-out process, requirements, training, and instructions can be found in S0400-AD-URM-010/TUM TAG-OUT USERS MANUAL.

3.20 SOVT

3.20.1 SOVT Requirements

The AIT and/or ISEA will conduct SOVT for the alteration/SC and all equipment directly impacted by accomplishment of the alteration/SC in accordance with the QA Workbook Test and Inspection Plan, approved drawings, test procedures, and applicable ship specifications. Systems shall be subjected to appropriate testing to demonstrate operational acceptability including SIGSEC, TEMPEST, EMC, SUBSAFE, FBW, CPS, etc., as applicable. Such tests will be conducted under conditions simulating normal service conditions as closely as possible. The AIT will also conduct inspection and testing of all systems that have had equipment or machinery removed and reinstalled due to interference in accordance with NAVSEA SI 009-23. Systems and equipment requiring permanent modification or relocation to accommodate the alteration/SC are not to be considered interference but part of the alteration/SC design.

When an alteration/SC is to be accomplished during a CNO Availability, testing requirements shall be submitted to the NSA and LMA NLT A-6.5 for discussion during the AIT Conference (for submarines) and for surface ships and carriers the test requirements shall be submitted to the NSA and LMA no later than as specified in reference 2.2.3(14). The test requirements submittal shall include a list of tests to be conducted including the test procedure identification, expected duration of the tests, Ship's Force personnel support requirements, support systems requirements, and any special requirements (rotate and radiate, active sonar, radio transmission, at-sea test, etc.). This will ensure that testing requirements do not conflict with other on-going ship work or present possible personnel or equipment safety hazards. The NSA and LMA shall be notified prior to conducting any shipboard testing. For submarines all tests shall be authorized and listed on the applicable NSA and/or LMA Test Plan prior to accomplishment. The OSIC will keep the NSA and LMA informed of the status of testing.

An individual alteration/SC will not be considered complete until a SOVT and/or appropriate systems integration testing has been successfully accomplished and witnessed by Ship's Force

and the NSA, LMA. The AIT will maintain completed test reports in the QA Workbook during accomplishment of the alteration/SC testing. The OSIC/AIT Manager/ISEA will provide a complete set of test reports to Ship's Force, NSA and the LMA at the completion of the alteration/SC testing.

3.20.2 SOVT Personnel

Personnel involved with SOVT testing shall comply with all local directives for:

1. Scheduling and Conducting SOVT Testing
2. Security Clearance and Access Requirements
3. Safety and PPE
4. Housekeeping Requirements
5. SOVT is not to be confused with EOA/EOU/Production Completion Date (PCD). Installation teams are accountable and directed to deliver ILS at one of these specific times within the process. SOVT is closeout and system operational verification and testing.

3.21 Ship's Force Training

Training for this shipboard system installation shall be provided as outlined in the approved Navy Training Summary Plan (NTSP) and within the corresponding ILS certification for the alteration/SC. Training for shipboard system installations without a Navy approved NTSP will be delivered in accordance with a Program Office approved Installation Training Package. Actual conduct of the training shall be performed by an activity certified by the Program Office to deliver the approved training package and process. The AIT Manager/OSIC will coordinate accomplishment of any prescribed Alteration/SC training, and verify that it is conducted and documented in strict conformance with section 6-4.7 of reference 2.2.3(14). As part of the alteration/SC process the AIT Manager/OSIC shall complete the Training Verification Statement as part of the ACR, Appendix B.

The following five minimum standards are established for all Post-Installation Training:

1. Advanced planning, coordination and scheduling of training in accordance with ship's preferences
2. Identification of targeted crewmembers, pre-qualified for post-installation training in accordance with FLTMPS criteria.
3. Training follows Program Office approved training package with defined objectives and measured achievement.
4. Training delivered by qualified personnel in accordance with Program Office approved process.
5. Training documented in a comprehensive package of metrics documenting all elements of the training delivered.

3.22 Provide CDMD-OA Updates

Upon installation completion the AIT Manager will ensure the final configuration data is provided to the alteration/SC LCM/ISEA. The alteration/SC LCM/ISEA will update CDMD-OA and forward updated workfiles to the CDM for validation. At the end of installation, the AIT OSIC will provide a copy of the marked-up/red lined CDMD-OA workfile(s) (i.e., AIT CDMD-OA Verification Report or equivalent) for all configuration alterations (adds/deletes/modifications) to the designated Ships Force representative, NSA or SPM designated activity. The CDM will conduct the final validation within 30 days of install completion, and will change the Installation Status Code (ISC) in accordance with reference 2.2.2(1).

For Ohio Class Submarines (SSBN/SSGN), AITs will coordinate with the appropriate TRF for OPNAV 4790/CK processing in accordance with reference 2.2.3(29).

3.23 ILS Turnover

The AIT OSIC is responsible for delivery of all ILS products as outlined in ILS certification (i.e. tech manuals, PMS, Red line Drawings, training, etc.) in accordance with reference 2.2.3(14) to the designated recipient (Ship/NSA or Maintenance Support Center (MSC) for CVNs) by EOA/EOI/PCD as appropriate and shall obtain required signatures verifying delivery, noting any ILS deficiencies, as part of the RMMCO Check-out process. The AIT OSIC is responsible for providing an itemized inventory (i.e. DD 1149) for all deliverables to the ship with a signature from the appropriate Department Head or authorized personnel.

3.24 ALT Completion Requirements

Upon completion of each alteration/SC installation, the AIT Manager/OSIC will ensure the provisions of the following paragraphs are met:

3.24.1 NSA and Ship Out-Brief

An out-brief shall be scheduled and coordinated by the AIT OSIC. The out-brief shall be conducted after completion of the alteration/SC and prior to RMMCO Check-out. Normally the AIT OSIC will obtain the required Ship's Force and NSA verification signatures on the ACR at the out-brief. The AIT OSIC must check out of RMMCO with completed/signed ACR and completed SOVT. The TYCOM, NSA, LMA, RMMCO/ NAVSEA 21 PMR, AIT OSIC, Ships Force and the local PY OSRs (Program Representative and CDM) shall be invited to attend all out-briefs.

3.24.2 Alteration Completion Reporting

3.24.2.1 Alteration/SC Completion Report (ACR)

The AIT OSIC/AIT Lead will fill out the Alteration/SC Completion Report (Appendix B) and obtain signatures on all applicable attachments for each alteration/SC installed. The AIT

OSIC will return the signed ACR to the AIT Manager immediately after alteration completion/RMMCO Check-out.

The AIT Manager will forward copies, in the format requested by the recipients, of the completed and signed ACR with all applicable attachments Appendix B to the SPM, PY, LCM, NSA, Ship, TYCOM, Group Commander, Squadron Commander, ship's CDM (if the PY is not the CDM), and ISEA within twenty (20) days of alteration/SC completion. For alterations/SCs to CVN's, a copy shall also be forwarded to the CPA, Code PMS 312C; for submarines, to SUBMEPP (Code 1800); and for surface ships, to the appropriate RMC. PYs will notify the SPM in the event of non-receipt of an ACR within thirty (30) days of the scheduled completion date initially established in accordance with the provisions of this specification.

For installations accomplished by AITs, completion and submission of the ACR in accordance with this TS fulfills the requirements of reference 2.2.3(21).

3.24.2.2 Naval Message Completion Reporting

The AIT Manager/OSIC will provide the draft of the Completion Report Message at the out-brief. Upon completion of the installation, and within seven (7) days of the out-brief, the ship will send a “joint” naval message reporting completion of the effort, any deficiencies, corrective action plan and comments from the ship’s CO relative to the installation. The message will indicate any system interface not demonstrated during operational certification/testing and include all known discrepancies assigned to the responsible activity (e.g. the ship, the AIT, TYCOM). An alteration/SC completion message is required in addition to the ACR required in paragraph 3.24.2.1. A sample Naval Message Completion Report format is provided in Appendix B. If there are no reported discrepancies, this is the final completion report. In the event that the Naval Message Completion Report lists installation deficiencies, the ship receiving the installation will send a Naval Message Final Completion Report after all deficiencies have been corrected and the ship has accepted the installation as complete.

3.24.3 RMMCO Check Out

Following the alteration/SC completion and outbrief, the AIT OSIC or AIT Lead (Government Only) must check out of RMMCO with. the General Report, completed SOVT/operational test and signed RMMCO Form. RMMCO will review the supplied documentation and make appropriate entries into the RMMCO website to register the completion status.

When the AIT Sponsor funds more than one government activity to accomplish a specific alteration/SC, each activity must check out with RMMCO for their portion/area of responsibility (e.g. industrial work, system testing, ILS, etc.).

3.24.4 Drawing Updates

3.24.4.1 Planning Yard Developed Drawings

The AIT Manager shall provide a redline mark-up of the drawings, copies of the approved LARs, authorized deviations and/or waivers from approved designs, via transmittal letter to

the PY within 20 days of installation completion. A copy of the final transmittal letter, without enclosure, will be provided to the SPM. Transmittal letter to SPM is not applicable to Carriers).

When funded, the PY will update the SIDS using the red lined drawings and approved LARS to document the as-installed configuration. Unless otherwise agreed to by the SPM and AIT Manager, the SPM will be the only activity to task PY drawing revision efforts. If funded, the PY will distribute final drawings to the ship and AIT Manager within 30 days of receipt of the red lines/LAR package.

3.24.4.2 Non-Planning Yard Developed Drawings

The AIT Manager will ensure the approved design drawings, including all deviations/variances approved by the PY, are revised to indicate the actual "as installed" configuration on the ship. Electronic media copies of the as-installed drawings shall be forwarded to the ship class PY via LAR or transmittal letter, as desired by the PY, no later than 30 days after alteration/SC completion. The PY may request the drawings in AutoCAD, PDF or another designated format. A copy of the final transmittal letter, without enclosure, will be sent to the SPM. Transmittal to SPM is not applicable to Carriers).

3.25 Configuration Validation

In accordance with Section 6 of reference 2.2.3(14), the NSA or SPM designated activity will accomplish a physical site validation of each alteration/SC configuration as reported by LCM/ISEA and update the Installation Status Code (ISC) within 30 days of installation completion. CDMD-OA database records will be processed in accordance with reference 2.1.1(3).

3.26 SPM/PARM Marks NDE-NM Record as Completed

The SPM or a designated representative must enter completion data for SHIPALT type Ship Changes (SCs) in NDE-NM as part of the completion process. PARMs will enter completion data for ECs, FCs, ORDALTs, MAs, PRTs, or SWD in NDE-NM. Submarine PARMs will enter completion data for ECs, FCs, ORDALTs, and SWD in NDE-NM and all but ORDALTs in NTIRA. Submarine TEMPALTs and OPALTs are tracked internally by the SPM and TYCOM and are not entered in NDE-NM.

3.26.1 Alteration/SC Completion Reporting in NDE-NM

Upon installation completion, RMMCO Check out, and issuance of the Completion Report and/or Completion Message from the NSA, the SPM, AIT Manager or PARM, as applicable, will enter an ASC of 'R' (Install complete - ILS not verified) and the completion date in the ship's alteration record in NDE-NM. Once the SPM has received either the Alteration Completion Letter or the NSA Completion Message, the ASC will be updated to “C” - (Complete - ILS verified). For submarines, the SPM will enter the "R" and "C" completion data in NDE-NM from completion reports received.

APPENDIX A

AIT SUPPORT SERVICES REQUEST FORM

AIT SUPPORT SERVICES REQUEST FORM

Alteration/Ship Change Information

Ship:
Alt/SC Identifier:
Alt/SC Description:

Support Services Required? ☐ Yes ☐ No

(If No, complete only Alt/SC, Schedule, and POC sections.)

Schedule

Production Start Date	
Production Completion Date	
Testing Start Date	
Testing Completion Date	
Work Hours	
Work Week (e.g. Mon-Fri)	

Points of Contact

	Name	Organization/ Company	Phone	Email
Government Sponsor				
Funding POC				
AIT Manager				
AIT OSIC				
AIT Lead				
Test Coordinator (if other than OSIC)				

Support Services

Service	Qty.	Remarks/Additional Info
Crane Services (# of lifts)		Capacity, on-load, off-load, high reach, etc.
Rigger services (# of man days)		Special requirements (HAZMAT, sensitive equipment, etc.)
Conex Storage (sq. ft.)		Include size, temp services required (electrical power, LP air, phones, etc.)
Office Space/Temp Office trailers		Temp services required (phone/FAX lines, office equipment, custodial services, etc.)
Lay-down Area (sq. ft.)		Special requirements (enclosed, environment controls, power, etc)
Material delivery and storage requirements		Number of boxes/pallets, special handling, special stowage, etc.
Labor (# of mandays)		Describe type of labor requested (i.e. hot work authorization, HAZMAT disposal, etc.)
Critical Systems work (# of mandays)		Describe critical systems work requested for the LMA to perform
Access cut requirements		Location and purpose

SAMPLE

Welding, Burning, Brazing (# of mandays)		Describe scope of hot work requirements
Firewatch (# of mandays)		
Inspection Support (# of mandays)		Gas-free, Signal Security, TEMPEST, weight tests, NDT, etc.
Forklift (# of lifts) (Max lift 2,500 lb.)		
Insulation/Lagging (# of mandays)		
Sandblasting and Painting (# of mandays)		
Deck tile/Formica (# of mandays)		
Sheet metal services (# of mandays)		
Man-aloft requirements (# of lifts/shifts)		
Diver/cofferdam requirements		Number and location of cofferdams required
Equipment/material disposal requirements		Description and number of pieces of equipment/material to be disposed
Material ($)		

Work Scope Space (Compartments/Tanks) Impacted
(Insert additional rows in each table as necessary.)
(A 2D Planning Yard Drawing should be attached if possible)

Space Name	Space No.	Remarks/Additional Info

Equipment Removal
(A 2D Planning Yard Drawing should be attached if possible)

Space Name	Space No.	Equipment	Height/Width/Depth	Weight

SAMPLE

Equipment Install
(A 2D Planning Yard Drawing should be attached if possible)

Space Name	Space No.	Equipment	Height/Width/Depth	Weight

Compressed Air

Space Name	Space No.	Remarks/Additional Info

Supply and Exhaust Ventilation

Space Name	Space No.	Remarks/Additional Info

Lighting

Space Name	Space No.	Remarks/Additional Info

Electrical Power

Space Name	Space No.	Remarks/Additional Info

SAMPLE

Other Requirements

Space Name	Space No.	Remarks/Additional Info

Staging

Space Name	Space No.	Size	Height	Duration	Install Date	Staging Wrap (Y/N)

Rolling Staging

Space Name	Space No.	Width	Depth

Tank Work

Tank No.	Defuel/pump down (Y/N)	Gas-free (Y/N)

Office Space

# of Desks	# of Parking Spaces	Phone/Data/Fax Requirements

Special Tool Requirements

Other Requirements

Test Requirements

Item/Requirement	Remarks/Additional Info
Spaces/Compartments Involved	
Prerequisites (Crew Training, Lower-level Tests)	

SAMPLE

Auxiliary Services (Power, Chill Water, A/C, Dry Air)	
Ship Systems to Support (Radars, SHF)	
External Services (Aircraft, SESEF Range)	
Support Personnel (S/F Operators, MSMO Support)	
Special Conditions (U/W Sea Trials)	
Operational or Safety Limitations (Man Aloft, Launcher Movement, Eng. Plant Configuration)	
Additional Requirements (temporary systems required, etc.)	

Distribution:

AIT Lead or designated person will keep original and make two copies (BSPO and PEPM)

BSPO and PEPM use this form to perform estimates, fund, plan, and develop documentation (e.g. TGI's) for NSA portions of work.

Note: If additional requirements are discovered after final funding, a DR shall be submitted.

SAMPLE

APPENDIX B

MESSAGES, CHECKLISTS, & REPORTS

CONTENTS

Suggested Format for Readiness to Start Naval Message (Subs Only)
Suggested Format for PICO Completion Report Naval Message
Suggested Format for Installation Completion Report Naval Message
AIT POA&M Cover Sheet Template
AIT POA&M Task Detail Template
AIT POA&M Schedule Guide (Instructions)
Alteration Completion Report
Attachment (1) General Report
Attachment (2) Training Verification Statement

(SAMPLE)

SUGGESTED FORMAT FOR READINESS TO START NAVAL MESSAGE (SUBS ONLY)

ADMINISTRATIVE MESSAGE
ROUTINE
R DTG
FM AIT MANAGER//
TO IMMEDIATE SENIOR IN COMMAND//
SHIP/STATION//
INFO TYPE COMMANDER//N4//
GROUP COMMANDER//
NAVAL SUPERVISING ACTIVITY/AUTHORITY (AS APPLICABLE)//
RMMCO//
PLANNING YARD//
SHIP'S CONFIGURATION DATA MANAGER (IF OTHER THAN PLANNING YARD)//
IN-SERVICE ENGINEERING AGENT (ISEA)//
LIFE CYCLE MANAGER (LCM)//
COMNAVSEASYSCOM WASHINGTON DC//04RP/05/PARM/SPM//
PEO (AS APPLICABLE)//
COMSPAWARSYSCOM SAN DIEGO CA////
NAVICP MECHANICSBURG PA//
SUBMEPP PORTSMOUTH NH//1814//
UNCLAS //N04720//
MSGID/GENADMIN/SENDER'S PLAD//
SUBJ/SUBS/SHIP/STATION/ALTERATION TITLE READINESS TO START//
REF/ REFERENCE ALL PREVIOUS APPLICABLE SCHEDULING AND COORDINATION COMMUNICATIONS
POC/NAME/CODE/TELEPHONE/EMAIL//
RMKS/1. ALTERATION INSTALLATION SCHEDULE INFORMATION
2. INDUSTRIAL LEVEL MANPOWER SKILLS AND EQUIPMENT STATUS
3. DESIGN READINESS:
A. ALTERATION/SC APPROVAL DATE: DD MMM YYYY
B. SID APPROVAL DATE: DD MMM YYYY OR ESTIMATED COMPLETION DATES. RED LINE DRAWINGS TO BE PROVIDED TO PLANNING YARD UPON COMPLETION OF WORK. (IF APPLICABLE)
C. ILS CERT DATE: DD MMM YYYY OR WAIVER INFORMATION
4. SHIP SUPPORT REQUIREMENTS (IF NOT ALREADY PROVIDED IN AIT SERVICES REQUEST):
A. REQUEST A SINGLE POINT OF CONTACT ON SHIP.
B. PRODUCTION WORK IMPACT ON SHIPS SCHEDULE AND ROUTINE:
C. HOT WORK REQUIREMENTS:
D. FIRE WATCH REQUIREMENTS:
E. EQUIPMENT STAGING AREA REQUIREMENTS:
F. SHIPS FORCE REQUIREMENTS WHILE CONDUCTING CHECK POINTS AND DURING POST INSTALLATION TEST OUT OF EQUIPMENT:
G. SAFETY/ENVIRONMENTAL REQUIREMENTS:
5. ALTERATION DESCRIPTION AND PURPOSE
6. SPACES AFFECTED: LIST SPACES AFFECTED
7. ESTIMATED START DATE: DD MMM YYYY. ESTIMATED COMPLETION DATE: DD MMM YYYY.
8. IN-BRIEF SCHEDULE
9. CLEARANCE INFORMATION AS APPLICABLE
10. IMPACTS IF IDENTIFIED
11. ANY OTHER APPLICABLE INFORMATION
12. NEGREP ONLY.//
BT

(SAMPLE)

SUGGESTED FORMAT FOR PICO COMPLETION REPORT NAVAL MESSAGE

ADMINISTRATIVE MESSAGE
ROUTINE
R (DTG)
FM SHIP/STATION
TO ISIC
INFO (AS APPLICABLE) TYPE COMMANDER//N43/N6//
COMNAVNETWARCOM NORFOLK VA//C4/FN/RA/OPS//
GROUP COMMANDER/SQUADRON COMMANDER
PLANNING YARD
NAVAL SUPERVISING ACTIVITY/AUTHORITY (AS APPLICABLE)
SHIP'S CONFIGURATION DATA MANAGER (IF OTHER THAN PLANNING YARD)
IN-SERVICE ENGINEERING AGENT (ISEA)
LIFE CYCLE MANAGER (LCM)
COMNAVSEASYSCOM WASHINGTON DC//04M5/05/SPM (PMS400F FOR COMBATANTS, PMS470 FOR AMPHIBS, PMS312 FOR CARRIERS)//
PEO C4I SAN DIEGO CA
COMSPAWARSYSCOM SAN DIEGO CA
SPAWARSYSCEN PACIFIC SAN DIEGO CA
SPAWARSYSCEN ATLANTIC CHARLESTON SC
NAVICP MECHANICSBURG PA//
CLASSRON//SURFACE COORDINATOR// (SURFACE COMBATANTS)
CLASSRON (FOR AMPHIB SHIPS)
SUPSHIPS RMC NEWPORT NEWS VA//1800//(CARRIERS ONLY)
SUBMEPP PORTSMOUTH NH//1800//(SUBMARINE ONLY)
REGIONAL RMMCO OFFICE, AS APPLICABLE
BT
UNCLAS //NO4720//
MSGID/GENADMIN/USS SHIP//
SUBJ/(EQUIPMENT/SYSTEM PRE-INSTALLATION CHECK-OUT ON USS SHIP)
RMKS/
1. THIS IS A JOINT (SHIP)/AIT MESSAGE.
2. (EQUIPMENT/SYSTEM) PRE-INSTALLATION CHECK-OUT (PICO) WAS CONDUCTED ON (COMPLETION DATE) AND ACCEPTED AS OPERATIONAL (WITH/WITHOUT) DISCREPANCIES. (MULTIPLE PICOS CAN BE CONSOLIDATED AND REPORTED IN ONE MESSAGE, AT SHIP'S OPTION.) (LIST ALL KNOWN DISCREPANCIES, RESPONSIBLE ACTIVITY, AND DATE DISCREPANCY WILL BE CORRECTED.)

A. EQUIPMENT/SYSTEM TESTED: (LIST EQUIP/SYSTEM BEING MODIFIED, AND ALTERATION/SCD NUMBER.)

1. WITNESSED BY: (NAME & ACTIVITY)
2. NOTED DISCREPANCIES: (BRIEF DESCRIPTION OF EACH, JOB CONTROL NUMBER (JCN), AND A CASREP NUMBER IF ASSIGNED; OR STATE "NO DISCREPANCIES")
3. ACTIVITY RESPONSIBLE:FOR CORRECTION: (FOR EACH DISCREPANCY)
4. ESTIMATED DATE DISCREPANCY WILL BE CORRECTED: (FOR EACH DISCREPANCY)

B. (FOLLOW FORMAT OF PARA 3.A FOR EACH EQUIP/SYSTEM ON WHICH A PICO WAS CONDUCTED.)

AIT POC (NAME, PHONE NUMBER AND E-MAIL ADDRESS, LIST POCS FOR EACH EQUIP/SYSTEM REPORTED UPON)
COMMANDING OFFICER'S COMMENTS.//
BT
#
NNNN

(SAMPLE)

SUGGESTED FORMAT FOR INSTALLATION COMPLETION REPORT NAVAL MESSAGE

ADMINISTRATIVE MESSAGE
ROUTINE
R (DTG)
FM SHIP/STATION
TO ISIC
INFO TYPE COMMANDER//N4/N6//
GROUP COMMANDER
PLANNING YARD
NAVAL SUPERVISING ACTIVITY/AUTHORITY (AS APPLICABLE)
SHIP'S CONFIGURATION DATA MANAGER (IF OTHER THAN PLANNING YARD)
IN-SERVICE ENGINEERING AGENT (ISEA)
LIFE CYCLE MANAGER (LCM)
COMNAVSEASYSCOM WASHINGTON DC//04/05 /SPM//
PEO (AS APPLICABLE)
PARM (AS APPLICABLE)
NAVICP MECHANICSBURG PA//
CLASSRON//
RMC (AS APPLICABLE)
SUBMEPP PORTSMOUTH NH//1800//(SUBMARINE ONLY)
BT
UNCLAS //NO4720//
MSGID/GENADMIN//
SUBJ/PRELIMINARY/FINAL (SELECT ONE) (EQUIPMENT/SYSTEM) ALTERATION/SC INSTALLATION ON USS (SHIP) COMPLETION REPORT//
REF/A/RMG/SHIP/STATION/DTG//(PRELIMINARY INSTALLATION COMPLETION MSG RPT) (IF NOT PRELIMINARY COMPLETION REPORT)
REF/B/DOC/DATE/SERIAL// (ALTERATION COMPLETION REPORT)(IF NOT PRELIMINARY COMPLETION REPORT)
RMKS/
1. THIS IS A JOINT (SHIP)/AIT MESSAGE (PRELIMINARY COMPLETION REPORT ONLY).
1. THIS IS A FINAL COMPLETION REPORT MESSAGE. (ONLY IF PRELIMINARY COMPLETION REPORT SENT)
2. (EQUIPMENT/SYSTEM) WAS (INSTALLED/MODIFIED/REMOVED) ON (COMPLETION DATE) AND ACCEPTED AS OPERATIONAL WITH THE FOLLOWING DISCREPANCIES:
(LIST ALL KNOWN DISCREPANCIES, RESPONSIBLE ACTIVITY, AND DATE DISCREPANCY WILL BE COMPLETED.) (IF PRELIMINARY REPORT).
2. ALL DISCREPANCIES LISTED IN REFS A AND B CORRECTED/COMPLETED AND RETESTED SAT (IF PRELIMINARY COMPLETION MESSAGE SENT).
FOLLOWING INFORMATION PROVIDED: (ONLY IF PRELIMINARY REPORT NOT SENT)
A. TYPE INSTALLATION:
B. ALTERATION NUMBER:
C. SYSTEM OPERATION VERIFICATION TESTING (SOVT) CONDUCTED.
D. NO CHANGES TO SIDS ARE REQUIRED / SIDS REQUIRE REVISION.
E. REDLINE DWGS HAVE BEEN PROVIDED TO SHIP (IF APPLICABLE)
F. ALTERATION COMPLETION REPORT COMPLETED AND FORWARDED SEPCOR.
G. EQUIPMENT INSTALLED: NOMENCLATURE.
H. ILS STATUS STATEMENT: (SAT/UNSAT, LIST DISCREPENCIES)
I. SUMMARY OF INSTALLATION:
3. INSTALLATION ACTIVITY POC: (NAME, PHONE NUMBER AND E-MAIL ADDRESS).
4. COMMANDING OFFICER'S COMMENTS:
BT

AIT POA&M
COVER SHEET TEMPLATE

AIT POA&M
WorkItem Header Tei

AIT POA&M Task Detail Template

AIT POA&M
Template-2003.mpp

AIT POA&M Scheduling Guide

AIT POA&M
Guidance Ver2.docx

Alteration Completion Report (ACR)

Alteration/Ship Change Information

Alt/SC No.:

Alt/SC Identifier:

Alt/SC Brief:

Alt/SC Accomp Start Date:

Alt/SC Accomp End Date:

Ship Information

Ship Hull No.

Ship Name:

Ship Class:

Planning Yard:

Type Commander:

Squadron/Group

Points of Contact

	Name	Phone	Email	Activity
Ship Program Manager				
Planning Yard				
PARM/ISEA				
AIT Manager				
NSA				

Signatures

	Signature	Name	Dept./Division/ Company	Phone	Date
Ship					
AIT OSIC					
AIT Lead					

These signatures do not indicate the alteration/SC is complete if there are discrepancies noted in the attachments. The ship will not accept the alteration/SC as complete until all discrepancies noted in the attachments are corrected, at which time the ship will accept the alteration/SC as complete by naval message.

SAMPLE

ATTACHMENTS: (Check reports applicable and provided)

☒ 1. General Report (All Installations)
☒ 2. Training Verification (All Installations)
☒ 3. Signed RMMCO Installation Check-In Sheet (All Installations)
☒ 4. DD1149 (Itemized list of ILS Deliverables)
☐ 5. List of ILS Discrepancies (as required)
☐ 6. SIGSEC, TEMPEST Visual Report (if applicable [See NSTISSAM TEMPEST/2-95])
☐ 7. HF Antenna Installation and Impedance Report (cover sheet, if applicable [See NAVSEA S9AA0-AA-SPN-010/GEN-SPEC, Sec 400])
☐ 8. CABLE/CABLEWAY INSPECTION REPORT (if applicable [See NAVSEAINST 9304.1(series)])
☐ 9. CERTIFICATION TEST FINDINGS/REPORT (if applicable [See NAVSEA S9040-AA-GTP-010/SSCR])

Distribution:

Ship

Type Commander

Group Commander

Squadron Commander

PARM

Naval Supervising Activity/Authority (NSA)

Regional Maintenance Center (RMC)

NAVSEA Ship's Program Manager (SPM)

NAVSEA 04

In-Service Engineering Agent (ISEA)

Ship's Configuration Data Manager (CDM)

Planning Yard (PY) (if different than the CDM)

SUBMEPP PORTSMOUTH NH (Code 1800) (Submarines only)

Carrier Planning Activity (PMS312C) (CVNs only)

SURFMEPP Norfolk, VA (Code 21D) (Surface Ships only)

SAMPLE

DATE_____

ALTERATION/SC IDENTIFICATION: _____

(TYPE HULL-CLASS-ALTERATION NUMBER)

SHIP: _____ ALTERATION ACCOMPLISHMENT DATE: _____

(HULL NO./NAME) (FROM - TO)

This report documents the proper installation of the alteration/SC identified above. To ensure conformance with quality standards and installation specifications and procedures, a physical installation ship check was conducted jointly by the NSA, RMC (if applicable), Ship's Force and the Alteration Installation Team (AIT) for completion of the various elements of this report. Non-acceptance of an individual element requires that the Remarks line be filled-in by Ship's Force. The AIT shall provide a Plan of Actions and Milestones (POA&M) for completion or correction of all non-acceptance items within five (5) working days of rejection of the individual element. The POA&M will describe the degree of completion or correction required, lead activity point of contact, and the scheduled completion date. Final completion of discrepancies will be accepted jointly by Ship's Force and the lead Installing Activity (IA).

1. Pre-Installation Check-Out (PICO). A PICO was conducted on existing systems/equipment to verify operational status. Testing was conducted by Ship's Force and witnessed by the AIT. A PICO report was provided by Ship's Force representatives within three (3) working days of PICO completion work.

Ship's Force:			AIT OSIC:		
	Yes	☐		Yes	☐
	No	☐		No	☐
	N/A	☐		N/A	☐

Remarks: _____

_____

2. Physical ship check of completed installation. To ensure conformance with quality standards and procedures, the following elements were ship checked after completion of ship work:

   a. Design conformance. Alteration was accomplished in accordance with the approved alteration drawings provided.

Ship's Force:			AIT OSIC:			NSA:		
	Yes	☐		Yes	☐		Yes	☐
	No	☐		No	☐		No	☐
	N/A	☐		N/A	☐		N/A	☐

Remarks: _____

_____

   b. Equipment access. Access to new and relocated equipment is acceptable for operation and maintenance of the equipment including access to connectors where practicable.

Ship's Force:			AIT OISC:			NSA:		
	Yes	☐		Yes	☐		Yes	☐
	No	☐		No	☐		No	☐
	N/A	☐		N/A	☐		N/A	☐

Remarks: _____

_____

SAMPLE

c. Removal items. In addition to items indicated on removal drawings, piping, cabling, mounts, racks, foundations, pipe/cable hangers, etc., which were made unnecessary or redundant as a result of the accomplishment of the alteration/SC, have been removed and properly discarded.

Ship's Force:	Yes ☐	AIT OSIC:	Yes ☐	NSA:	Yes ☐
	No ☐		No ☐		No ☐
	N/A ☐		N/A ☐		N/A ☐

Remarks: _____

d. Structural installation. All structural work (deck/bulkhead modifications, foundations, etc.) is satisfactory in terms of workmanship, fit, function, preservation and finish.

Ship's Force:	Yes ☐	AIT OSIC:	Yes ☐	NSA:	Yes ☐
	No ☐		No ☐		No ☐
	N/A ☐		N/A ☐		N/A ☐

Remarks: _____

e. Piping installation. All piping work (pipe modifications, valves, pipe fittings, etc.) is satisfactory in terms of workmanship, fit, function, preservation and finish.

Ship's Force:	Yes ☐	AIT OSIC:	Yes ☐	NSA:	Yes ☐
	No ☐		No ☐		No ☐
	N/A ☐		N/A ☐		N/A ☐

Remarks: _____

f. Cabling. Cabling is satisfactory in terms of type, function, workmanship, designation and marking, cable shield grounding, cable entry into equipment, penetrations (including coamings), routing (including avoidance of interferences with equipment or personnel/material movement), acceptable bending radius and finish.

Ship's Force:	Yes ☐	AIT OSIC:	Yes ☐	NSA:	Yes ☐
	No ☐		No ☐		No ☐
	N/A ☐		N/A ☐		N/A ☐

Remarks: _____

g. Cableways. Cableway work (hangers, supports and trunks) is satisfactory in terms of workmanship, clearances, spacing, and new hanger/support installation (when required), fit and finish. New banding has been applied to all new or disturbed hangers.

Ship's Force:	Yes ☐	AIT OSIC:	Yes ☐	NSA	Yes ☐
	No ☐		No ☐		No ☐
	N/A ☐		N/A ☐		N/A ☐

Remarks: _____

SAMPLE

h. Wiring. Wiring is satisfactory in terms of workmanship, designation and marking, terminal lug application (proper type, size, and attachment process [crimp/solder]), sufficient wire length, signal shield terminations, and wire routing within equipment.

Ship's Force:		AIT OSIC:		NSA:	
Yes	☐	Yes	☐	Yes	☐
No	☐	No	☐	No	☐
N/A	☐	N/A	☐	N/A	☐

Remarks: _____

_____

i. Connectors. Connector work is satisfactory in terms of workmanship, connector selection, connector assembly (fully pinned with proper pin type, size, and attachment process [crimp/solder]), sufficient wire length, back shell application (type, assembly, cable shield termination, strain relief, etc.), and accessibility.

Ship's Force:		AIT OSIC:		NSA	
Yes	☐	Yes	☐	Yes	☐
No	☐	No	☐	No	☐
N/A	☐	N/A	☐	N/A	☐

Remarks: _____

_____

j. Grounding and bonding. Grounding and bonding requirements for safety, TEMPEST, and Electromagnetic Interference (EMI)/Intermediate Modulation Interference (IMI)/Radio Frequency Interference (RFI) have been observed and properly applied and grounding and bonding is satisfactory in terms of workmanship, fit, function, preservation and finish.

Ship's Force:		AIT OSIC:		NSA:	
Yes	☐	Yes	☐	Yes	☐
No	☐	No	☐	No	☐
N/A	☐	N/A	☐	N/A	☐

Remarks: _____

_____

k. Labels and label plates. New labels and label plates have been installed where required (piping, valves, equipment, racks, switch/patch boards, panels, connection boxes, etc.). Existing labels and label plates removed or damaged during accomplishment of the alteration and requiring restoration or relocation have been restored. Labels and label plates have been properly applied and are satisfactory in terms of workmanship, type, fit, function and finish.

Ship's Force:		AIT OSIC:		NSA:	
Yes	☐	Yes	☐	Yes	☐
No	☐	No	☐	No	☐
N/A	☐	N/A	☐	N/A	☐

SAMPLE

Remarks: _____

_____

l. Compartment marking. Compartment marking, which was removed or damaged during accomplishment of the alteration and requires restoration or relocation, has been restored in accordance with NAVSEA S9086-CN-STM-020/CH-79 V2 and NAVSEA S9086-RK-STM-010/CH-505. Compartment marking has been properly applied and is satisfactory in terms of workmanship, type, fit, function, and finish.

Ship's Force:		AIT OSIC:		NSA:	
Yes	☐	Yes	☐	Yes	☐
No	☐	No	☐	No	☐
N/A	☐	N/A	☐	N/A	☐

Remarks: _____

_____

m. Impacted equipment condition. Equipment installed or relocated as a result of the alteration accomplishment has been tested and demonstrated to be operational and free from defects. Equipment or components removed and re-installed as interferences are in at least an "as-found" condition. Interference items, which were operational prior to removal, have been tested and demonstrated to be operational and free from defects. (See NAVSEA Standard Item 009-23)

Ship's Force:		AIT OSIC:		NSA:	
Yes	☐	Yes	☐	Yes	☐
No	☐	No	☐	No	☐
N/A	☐	N/A	☐	N/A	☐

Remarks: _____

_____

n. Clean-up. Chips, shavings, refuse, dirt, fluids (including water), and all scrap and other foreign material, including hazardous waste, industrial waste and excess hazardous material produced as a result of the accomplishment of alteration have been removed from spaces and areas impacted by the alteration and properly disposed. Operational spaces, tanks and unoccupied spaces and compartments have been left "broom clean".

Ship's Force:		AIT OISC:	
Yes	☐	Yes	☐
No	☐	No	☐
N/A	☐	N/A	☐

Remarks: _____

_____

3. Correction of Discrepancies (if required). POA&Ms for discrepancies is (are) as follows:

Ship's Force:		AIT OISC:	
Yes	☐	Yes	☐
No	☐	No	☐
N/A	☐	N/A	☐

Remarks: _____

_____

_____

_____

SAMPLE

Ship's Force:	AIT OSIC:_____	NSA_____
Printed Name/Rank_____	Printed Name:_____	Printed Name:_____
Signature:_____	Signature:_____	Signature:_____
Date:_____	Date:_____	Date:_____

SAMPLE

TRAINING VERIFICATION STATEMENT

Ship:

Alt/SC Identifier:

Alt/SC Description:

Alt/SC Start Date:

Alt/SC End Date:

Installing Activity:

1. On-the-job operator and maintenance training has been provided to the ship for equipments installed as part of the above alteration/SC as follows:

Operator Training

Equipment	Name	Signature

Maintenance Training

Equipment	Name	Signature

Ship Integration Training (If Applicable)

Equipment	Name	Signature

SAMPLE

APPENDIX C

ALTERATION INSTALLATION TEAM (AIT) QUALITY MANAGEMENT SYSTEM REQUIREMENTS

ALTERATION INSTALLATION TEAM (AIT) QUALITY MANAGEMENT SYSTEM REQUIREMENTS

The AIT shall provide to NAVSEA 04 and maintain a documented Quality Management System (QMS) to ensure product conformance to contractual/task requirements. The system shall be accepted by NAVSEA 04 and, as a minimum, comply with the requirements of NAVSEA Standard Item (SI) 009-04 and all additional contract/task requirements.

Note: This will provide for the same level of quality assurance required for private sector industrial facilities under Master Ship Repair Agreements (MSRA) and Agreement for Boat Repairs (ABR).

1. General. The AIT shall maintain a QMS that will assure that all supplies, services and workmanship are provided for the accomplishment of alterations/SCs to ships conform to contract or task requirements whether manufactured or provided by the AIT, or procured from contractors or vendors. The QMS shall apply to supplies, services and workmanship provided for the accomplishment of alteration/SC to ships whether the alteration/SC is a permanent change to the ship, an equipment alteration/legacy alteration or a Temporary Alteration (TEMPALT)/Non-Permanent Change (TEMPALT/NPC). The AIT shall perform, or have performed, the inspections and tests required to substantiate product conformance to approved design drawings, specifications, and contract or task requirements and shall also perform, or have performed, all inspections and tests otherwise required by applicable alteration/SC records, installation drawings, contract or tasking documentation. Inspection and Test Plans and records shall be made available upon request by the NSA.

The QMS shall include the following additional requirements, clarifications, and processes:

1.1. Master Test Plans (MTPs). MTPs describe test objectives, the inspections, and tests to be conducted to verify compliance with specifications and operating requirements to verify proper operation of impacted systems, equipment and interfaces after completion of ship work. MTPs shall include or reference Inspection and Test Plans developed to substantiate product conformance to design drawings, specifications, alteration/SC requirements, installation drawings and contractual or task requirements. A MTP shall be prepared for each alteration/SC (permanent or temporary), shall be prescribed by clear, complete and current instructions and shall be developed in conjunction with the Planning Yard (PY), the system/equipment Life Cycle Manager (LCM) and the responsible In-Service Engineering Activity (ISEA). During accomplishment of an alteration/SC, associated MTPs shall be provided to the ship, and designated NSA.

1.2. Test Procedures (TPs). Equipment-unique Inspection and Test Plans shall be obtained from the system/equipment LCM or the responsible ISEA and shall cover in detail the procedures for accomplishment of each of the equipment unique tests required to demonstrate the proper operation of all equipment impacted by accomplishment of the alteration/SC. This includes all equipment that was modified or relocated as a result of the accomplishment of the alteration/SC including testing of all system/components that were removed and reinstalled by the AIT as interference in accordance with NAVSEA SI 009-23. Testing will be adequate to demonstrate compliance with applicable installation certification requirements Signal Security [SIGSEC], TEMPEST, Radiation Hazard [RADHAZ]/Electromagnetic Interference [EMI]/Electromagnetic Compatibility [EMC], SUBSAFE, Submarine FBW, etc.).

1.3. Process Controls. Process control procedures shall be an integral part of the QMS. In addition to process controls that may be required by the alteration/SC record, installation drawing, or contract or tasking documentation, the AIT will provide and maintain such process controls as are necessary to assure the quality of ship work. Process controls shall include the following as applicable:

1.3.1. Design product control procedures. When tasked for design development, the AIT's design product control procedures shall cover:

a. Assignment of responsibility for detailed examination, review, and internal approval authority for AIT design products.

b. Required qualifications of personnel performing detailed examination, review, and approval of AIT design products.

c. Procedural flow of design drawings and other associated documentation.

d. Checklists to be used in the detailed examination and review of design products. The checklists shall specify each examination to be performed to verify conformance of products to the applicable specifications.

e. Method of safeguarding classified information.

f. Methods providing for the prevention and ready detection of discrepancies and for timely and positive corrective action.

g. Method of safe storage of Master File Drawings, reference drawings, and other ship design documentation.

h. Methods providing for controlled issue of design drawing copies, both reproducible and non-reproducible.

i. Method for ensuring that listing of training and personnel qualifications/certifications is maintained and made available upon request by the NSA.

1.3.2. Installation process control procedures. Instructions shall be developed which identify requirements necessary to preclude damage to the ship or injury to personnel during the accomplishment of ship work and technical work documents shall be developed to ensure that the installation is accomplished in accordance with the drawings and other applicable technical specifications. These instructions shall include, but are not limited to:

a. Control of magnetic material

b. Material storage at the work site

c. Storage and use of hazardous materials

d. Fire prevention

e. Sight and hearing protection

f. Material for staging and screening temporary covers and shelters

g. Installation of cofferdams, patches, and shaft wraps

h. Hotwork – Requires the following QQE at check in: NAVSEA approved welding/brazing procedures (approval letters) and NAVSEA approved Non-Destructive Testing (NDT) procedures (approval letters)

i. Uncrating/unpacking of equipment

j. Storage and use of tools and test equipment

k. Protection of pipes, cables, and equipment during ship work

l. System or equipment de-activation/reactivation

m. Control of connector fabrication

n. Critical Systems

o. Workmanship, which includes cleanliness of the ship

1.3.3. NOTES.

a. AITs are required to use a certified marine chemist for entry into confined spaces.

b. NAVSEA 04/RMC acceptance of the quality manual/plan does not constitute approval of individual welding, brazing and NDT procedures. The approval requirements for these procedures are specified in NAVSEA S9074-AQ-GIB-010/248 (Requirements for Welding and Brazing Procedure and Performance Qualification) or NAVSEA T9074-AS-GIB-010/271 (Requirements for Non-Destructive Testing Methods).

c. Submittal of procedures and Process Control Procedures (NAVSEA SI 009-09) invoked by NAVSEA SIs, MIL-STDs, drawings, technical publications, and specifications, although an integral part of the QMS, are to be submitted and approved by the SUPERVISOR independent of the documented QMS submittal.

d. Procedures required to control processes in the Safety and Environmental area, are not required to be submitted as part of the written QMS, but upon request will be submitted to the NSA or LMA Safety Office for review.

1.4. Personnel Certifications. Procedures shall be maintained to assure personnel certifications that may be required to perform ship work, depending on the work to be accomplished. These certifications include, but are not limited to, the following:

a. Hot work.

(1) Competent Person

(2) Firewatch personnel

(3) Tank cleaning personnel

(4) Persons performing hot work

(5) Test personnel qualification

b. Insulation work

c. Fluorocarbon use

d. Electrical/Electronic Connector and Fiber Optic Work

(1) Electrical/Fiber Optic Connector Fabricators

(2) Electrical/Fiber Optic Connector Fabricator Supervisors

(3) Electrical/Fiber Optic Connector Fabrication QA Inspector(s)

e. Accomplishment of Nondestructive Testing (NDT)

f. Painting of Critical Surfaces

g. Entry into Confined Spaces

h. SUBSAFE work

i. Electrostatic Discharge (ESD) Work

j. PCMS Work

k. FBW Work

l. Cable/Wireway Inspector

1.5. Headquarters Centrally Procured Material (HCPM).

1.5.1. Receipt of HCPM. Provide for receipt of HCPM as follows:

a. When the HCPM is received directly, one signed copy of the Shipping Document (DD Form 1348-1) and one signed copy of the Government Bill of Lading (GBL) shall be retained by the AIT.

b. The HCPM shall be inspected immediately upon receipt to verify conformance with description and requirements, verify quantity and check for possible damage.

c. Notify the shipping activity of any damage immediately after inspection. The Headquarters equipment manager and the SPM shall be notified if the damage is more than superficial.

d. If the HCPM is electronics equipment, the AIT shall provide testing and calibration of the equipment to verify that the equipment meets operational specifications.

1.5.2. Records of HCPM. Records of the receipt and disposition of each HCPM item shall be maintained.

1.6. Configuration Status Accounting. Depending on the program, the AIT may be tasked to maintain configuration records of equipment and software so that the ship and equipment managers can maintain configuration control. If configuration status accounting is tasked, the material control process shall provide the following:

1.7. Equipment accounting. For each piece of HCPM equipment (not material), which is intended to be installed aboard ship, that is received, ordered, or fabricated by the AIT, a computerized index of purchase orders, modifications accomplished and final disposition shall be maintained.

1.7.1. Software accounting. For each software item, which is to be installed in shipboard equipment, a computerized index of purchase orders, modifications accomplished and final disposition shall be provided and maintained.

1.7.2. Weight Accounting. Depending on the program and the ship class, the AIT may be tasked to maintain a written record of equipment and material removed (weight and installed location) which are not indicated on removal drawings to allow the ship and equipment managers to maintain an accounting of weight changes on weight critical ships. Generally this includes the removal of unused or dead-ended cables, the removal of unused foundations or the removal of unused equipment with associated cables and foundations when such removal is authorized by the ship and designated NSA and approved by the SPM. The material control process shall provide procedures for weight accounting and reporting to the PY when required.

1.8. Problem Resolution Process Procedures shall be maintained that allow for documentation of actions to resolve any quality problems with installation or work control. The necessary documentation shall be made available to the AIT Manager and applicable NSA.

APPENDIX D

AIT Manager's Quality Assurance Program (AMQAP)

LISTING OF ATTACHMENTS.

(1) Corrective Action Request

(2) Quality Oversight Schedule and Surveillance Plans (Samples Only)

(3) AIT Sponsor/Manager's Annual Quality Assessment Report of AIT Performance (Sample Only)

1. PURPOSE. This Appendix establishes basic guidance for assisting AIT Manager's role in performing Tasking/Contract Administration Quality functions to ensure AIT product quality. The quality program elements are structured to facilitate an AIT Manager's oversight role for processes associated with shipboard alterations accomplished by AITs. This Appendix supports QA oversight requirements set forth by FAR Part 46 – Quality Assurance. The five elements of the AIT Manager Quality Assurance Program (AMQAP) are designed to provide a systematic and uniform program approach for ensuring AIT compliance with requirements. The AMQAP program elements are:

1. AIT Document/Procedure Review
2. Process Surveillance and Product Inspections
3. Quality System Audits
4. Corrective Action
5. Quality Data Evaluation

The AIT Manager and/or designated On-Site Installation Coordinator (OSIC) will develop, apply and maintain an effective program for performing Government Contract QA actions consistent with AMQAP.

2. PROGRAM DIRECTION AND CONTROL.

2.1. AIT Responsibilities. The AIT carries out the obligations as set forth in the terms and conditions of the contract/tasking and in accordance with applicable specifications. The AIT is responsible for controlling product quality, offering for acceptance only those supplies and services that conform to contract requirements and, when required, for maintaining and furnishing objective evidence of this conformance.

2.2. AIT Sponsor Responsibilities. The AIT Sponsor is responsible for ensuring AIT installations are funded to the level necessary to ensure all quality system requirements are met, including AIT Manager/OSIC execution of AMQAP and NSA, LMA quality oversight. Data analysis and metrics resulting from the Quality Data Evaluation element of the AMQAP will support the Sponsor's annual quality trend analysis of sponsored AITs. Submit annual quality assessment reports of FY data, to NAVSEA 04XQ and NAVSEA 04RP by the February following the end of the FY. Attachment C provides a sample form for providing an annual quality assessment report of an AIT's performance.

2.3. AIT Manager / On-Site Installation Coordinator Responsibilities. The AIT Manager/OSIC will determine the type and extent of AMQAP actions to ensure AIT compliance and shall as a minimum implement the requirements of Section 3 of this Appendix. When OSIC functions will be performed by a different organization than the AIT Manager, the AIT Manager shall ensure that the scope of authority assigned to the activity performing the OSIC's functions is

documented via the MOA. The AIT Manager may also task and fund QA program responsibilities to the NSA. This scope of authority shall be documented in the MOA

2.4. Naval Supervising Activity/Authority (NSA) responsibilities. The NSA is the single naval activity responsible for the oversight and verification of work accomplished by all activities working within the assigned availability and is responsible for integrating the planning and execution of work by all involved activities. The NSA is responsible for monitoring the effectiveness of the AIT Manager/OSIC's execution of their QA Program responsibilities. Significant issues and quality trends with AIT quality performance and/or AIT Manager/OSIC's AMQAP monitoring shall be documented. Attachment on page D9 provides an AIT Manager/OSIC's QA Program Action Requests Form for NSA use to document issues with the AIT Manager/OSIC's execution of their AMQAP.

2.5. Compliance. The Government determines if the AIT's performance of work complies with the requirements of the tasking/contract. The tasking/contractual documents must provide the authority to require the AIT to maintain a QMS adequate for the work. To implement this, cognizant Government personnel will determine the effectiveness of the AIT's quality effort, as well as perform the product inspections necessary to ensure AIT's conformance to the specification.

2.6. Personnel Capability Requirements. The AIT Manager/OSIC will ensure the required skills are available to determine acceptability of products produced and services rendered by the AIT. Training must be provided to ensure personnel have the skills, techniques and knowledge necessary to comply with the requirements of this document.

3. ELEMENTS OF AN AIT MANAGER QUALITY ASSURANCE PROGRAM (AMQAP).

3.1. Document/Procedure Review. Document Review is the AMQAP element for verifying that the AIT's documented procedures and technical data comply with contractual/tasking requirements, including latest applicable version of invoked NAVSEA SIs. The AIT Manager/OSIC must review the AIT's procedures in a timely manner and not delay the AIT's performance. This review shall ensure that AIT has developed a specific QA Workbook that identifies installation plan and all applicable inspections and tests needed to ensure product/process quality. When the AIT does not develop required written procedures or fails to correct inadequate procedures previously reported to the AIT, the AIT Manager/OSIC shall initiate corrective action.

3.1.1. The AIT QA Workbook shall be made available to the applicable NSA and/or LMA.

3.2. Process Surveillances and Product Inspections. Process surveillance inspections verify that the AIT is compliant with written quality procedures and that procedures are accomplishing the intended purpose of controlling product/process quality. Product inspections validate product compliance with drawing and specification requirements.

3.2.1. AIT Managers/AIT OSICs are required to develop quality overview plans for use during AIT work performance to ensure AIT compliance with established requirements. The surveillance and inspection plan shall include Government (G) notification points, critical inspection points and those areas to be monitored.

3.2.1.1. Process surveillance inspections shall be scheduled and accomplished frequently by the AIT OSIC to ensure the AIT is compliant with their QMS processes and procedures for accomplishing work. Process surveillance inspection plans shall be developed using process

specific attribute checklists where AIT Manager/OSIC intends to verify compliance. These inspection plans also serve as an inspection record when completed. The attachment on page D-13 provides examples of a surveillance oversight plan and attributes used when conducting surveillances and inspections.

3.2.1.2. Product inspections shall be periodically conducted to verify that the AITs processes and procedures are accomplishing the intended purpose of controlling product/process quality. Product inspections will be performed for critical dimensions and/or attributes requiring additional oversight and are usually defined as a Government inspection point (G point) for AIT contractor work. AIT Managers/OSICs should work with the AIT during the planning phase to identify (via attribute sampling) product characteristics that need verification by the AIT Manager/OSIC to validate product offered by the AIT for acceptance, conforms to contract/tasking technical requirements. Records for documenting product inspections may be part of the AIT inspection and Test Plan or can be developed internally by the AIT Manager/OSIC. The scope and depth of these inspections depend on the complexity and size of the alteration/SC.

3.2.1.3. Flexibility for adjusting frequency of surveillances and inspections will depend on nonconformity rates and problem areas identified, based on AIT's quality history. As a minimum AIT Manager/AIT OSIC surveillance and inspection frequency shall be established for each AIT installation and be identified in the AIT Manager/OSIC's oversight plan.

3.2.1.4. Process and product surveillance and inspection results shall be made available to the applicable NSA/ when requested.

<u>3.3. Quality System Audits</u> Quality system audits are designed to examine and evaluate procedures and processes to determine compliance and measure the effectiveness of the AIT's QMS. The "QMS audit" may be conducted as a single audit or may be combinations of several audits that ensure all major elements of QMS are audited. AIT Managers should conduct quality system audits when selecting new AITs or when quality issues are identified that indicate a breakdown in AIT compliance with quality system requirements.

3.3.1 Documentation of audit results for AIT installs shall be made available to the applicable NSA when requested.

<u>3.4. Corrective Actions.</u> Effective corrective action is one of the most important AMQAP elements as it serves to define methods for requesting action by AIT to act to correct nonconformities and address unplanned events. To achieve systematic assurance of compliance throughout all phases of the AIT's operation, the basic causes of nonconformities must be identified and prompt corrective action taken to correct assignable conditions in order to preclude future nonconformities. The AIT shall be required not only to correct specific nonconformities but also to initiate preventive action to identify and eliminate cause of nonconformities. The AIT Manager/OSIC's use of a Corrective Action Request (CAR) is designed to ensure that AITs address actions needed to support effective corrective and preventive actions. The AIT Manager/OSIC must evaluate effectiveness of an AIT's preventive action to eliminate cause of nonconformities by performing follow-up actions after process change has been implemented. The AIT Manager/OSIC may need to increase oversight inspections until there is assurance that the AIT's corrective action is satisfactory.

3.4.1. For significant ship problems (e.g., problems that affect ship safety, cause significant damage to the ship or its equipment, delay ship deployment or incur substantial cost increase or involve severe personnel injury), AIT Manager/OSIC shall require a critique be conducted inviting participation by the applicable NSA and LMA and a Trouble Report issued, if applicable. Trouble Reports shall be prepared and distributed in accordance with reference 2.2.3(17) Trouble Reports should also identify systemic problems and issues that constitute significant lessons learned for other activities.

3.4.2. CARs should be discussed with AIT management/AIT prior to issuance. An effective follow-up system will be maintained by AIT Manager/OSIC on all CARs to ensure acceptable resolution. Nonconformities shall be assigned one of three levels of severity (Minor, Major and Critical) to distinguish those problems that have the most impact on an activity in accomplishing its mission. Severity levels also help ensure appropriate resources are focused on the most significant problems. When corrective action by an AIT is required, one of the following methods will be implemented by the AIT Manager/OSIC:

3.4.2.1. Minor Nonconformities (Method A). A minor nonconformity is a defect or flaw that will probably not impair the performance or life of a product or result in unsafe conditions for the user. Generally, a minor nonconformity is administrative in nature or can be corrected on the spot; at most, the AIT can be reasonably expected to correct it within one day. Examples of minor nonconformities are nondocking related late reports, repeated housekeeping violations, potential safety discrepancies such as a hot work chit not posted on-site, minor repetitive administrative discrepancies with submittals of work specifications, Process Control Procedures, reports, etc., minor Objective Quality Evidence discrepancies and G-Points called out during normal working hours that are not ready for inspection at the designated time. These minor nonconformities shall be presented to responsible AIT personnel verbally or in writing for correction. Each minor nonconformity will be described in sufficient detail to allow the AIT to understand what contractual/tasking requirement is violated and to take appropriate corrective action. While the AIT is not required to provide a written response, the internal AIT Manager/OSIC's process shall ensure that minor nonconformities are documented, corrected and date verified/cleared. While causal analysis or long term action is not required, the AIT Manager/OSIC shall evaluate Minor nonconformities for trend analysis.

3.4.2.2 Major Nonconformities (Method B). A major nonconformity is a nonconformance that judgment and experience indicate could impair the performance or life of a product or result in hazardous or unsafe conditions for the user. Examples of major nonconformities are late dry-dock related reports, repeated Method A nonconformities in the same area, safety discrepancies that pose an immediate threat or danger, serious injuries to personnel, damage to government property or ship's systems that impact the product or performance, AIT's actions that result in the issuance of a Trouble Report and technical authority violations such as unauthorized substitution of materials or unauthorized changes to ship's systems.

Major quality problems must be investigated to determine scope of the problem, to identify root causes and to take action to correct the assignable causes. When major nonconformities are detected or a trend of recurring minor nonconformities is noted, a CAR shall be initiated citing the specific tasking/contract, specification or AIT procedural requirement violated and a description of the nonconformity, clearly indicating how the requirement was violated. Additionally, the CAR shall include pertinent control information such as: contract or tasking number/job order, ship, appropriate references, originator name and signature, unique serial

number, AIT's corrective action response and preventive action(s) taken to eliminate the causes of potential nonconformities in order to prevent their occurrence, and AIT Manager/OSIC indication of acceptability and signature. An example of a CAR form is provided herein. The CAR shall be forwarded to the appropriate level of the AIT's management for action. The actual time frame for completion of AIT corrective action may vary; however, a prompt response to CARs is required. An interim reply may be acceptable pending AIT's completion of corrective actions. The AIT Manager/OSIC shall review and accept AITs corrective and preventive action.

3.4.2.3. Systemic/Critical Nonconformities (Method C). When the previous methods fail to obtain satisfactory results; or when the severity of the situation warrants, a Method C letter shall be issued from the Quality Assurance Officer/Director/Manager or the appropriate Department Head notifying the AIT's appropriate level of management that a critical or systemic problem exists and immediate management action must be taken to comply with the provisions of the contract/tasking. These problems must be investigated to determine and correct the causes. In addition, when a Method C letter fails to obtain satisfactory results or when the severity of the situation warrants, a second letter (Method D) shall be issued by the CO or the Contracting Officer notifying the AIT's top level of management that a systemic or critical problem exists and that immediate management action must be taken to comply with the provisions of the contract. An electronic or hard copy of each Method C or D letter shall be furnished to the CO and/or Contracting Officer.

3.4.2.4 Systemic/Critical Nonconformities (Method D). When a Method C letter fails to obtain satisfactory results or when the severity of the situation warrants, a Method D letter shall be issued by the CO or the Contracting Officer notifying the AIT's top level of management that a systemic or critical problem exists and that immediate management action must be taken to comply with the provisions of the contract. An electronic or hard copy of each Method D letter shall be furnished to the CO and/or Contracting Officer.

3.5 Quality Data Evaluation. Quality Data Evaluation is the AMQAP element that provides for the collection, evaluation and use of AIT, AIT Manager/OSIC and customer quality data. Quality Data analysis shall be done at least annually using the following quality data:

a. Casualty Reports
b. Trouble Reports
c. CARs
d. AIT Performance Assessment Report data
e. Process and Product Surveillance Inspection results
f. NSA and/or LMA Surveillance Inspection results
g. Quality System Audit results

3.5.1 The results of quality data analysis provide evidence of an AIT's quality performance and assist in determining the effectiveness of an AITs QMS. The AIT Manager/OSIC shall use the results of quality data analysis to adjust the intensity of application of basic elements of the AMQAP.

3.5.2 The results of AIT Manager/OSIC's Quality Data Evaluation will be used for metrics that support the AIT Sponsors' annual AIT quality trend analysis submittal.

3.6 Quality Assurance (QA) Program for Field Activities having AIT Manager/OSIC Responsibilities. Naval activities having AIT Manager responsibilities shall establish an internal audit program that audits AIT Manager/OSIC actions and responsibilities as identified in TS 9090.310 to determine if internal departments are in compliance with this instruction and internal quality related directives and procedures. The Audit shall normally be conducted every 12 months. However, audit periodicity may be extended to 24 months based on satisfactory performance.

4. NAVSEA EVALUATIONS

NAVSEA, at its discretion, will perform periodic evaluations/audits of AIT Sponsors, AIT Managers and AIT OSICs to assess and determine conformance to QA functions and responsibilities.

CORRECTIVE ACTION REQUEST

To: (AIT Activity Name and POC)	From: (AIT Manager/OSIC Activity Name and POC)
SHIP/HULL NUMBER:	REFERENCES:
PROBLEM SEVERITY LEVEL: ☐Critical ☐Major ☐Minor	
CONTRACT/TASKING NUMBER (if applicable):	
SERIAL NUMBER:	
STATEMENT OF NONCONFORMANCE (INCLUDE CONTRACT/SPECIFICATION REQUIREMENTS:	
_____ SIGNATURE OF AIT MANAGER/OSIC	_____ DATE
AIT CORRECTIVE ACTION TAKEN TO CORRECT NONCONFORMANCE:	
IDENTIFICATION OF ROOT CAUSE:	
PREVENTIVE ACTIONS TAKEN TO CORRECT ROOT CAUSE: _____ SIGNATURE OF AIT	_____ DATE
VERIFICATION OF AIT'S RESPONSE: ☐SATISFACTORY ☐UNSATISFACTORY COMMENTS: _____ SIGNATURE OF OSIC	_____ DATE
FOLLOW UP REQUIRED: ☐YES ☐NO RESULTS OF FOLLOW-UP ☐ SATISFACTORY ☐ UNSATISFACTORY _____ SIGNATURE OF AIT MANAGER	_____ DATE

SAMPLE

AIT MANAGER/OSIC QA PROGRAM ACTION REQUEST

(AIT MANAGER/OSIC Activity Name and POC)	(NSA Activity Name and POC)
SERIAL NUMBER AND DATE: (e.g. AIT MANAGER Name – Sequential Number)	REFERENCES:
ITEM CATEGORY: ☐ Non-Conformance ☐ Process Improvement	
SHIP/HULL NUMBER:	

NSA STATEMENT OF NONCONFORMANCE / PROCESS IMPROVEMENT:

AIT MANAGER/OSIC CORRECTIVE ACTION(S) TAKEN TO CORRECT NONCONFORMANCE/PROCESS IMPROVEMENT:

IDENTIFICATION OF ROOT CAUSE (NONCONFORMANCE ITEMS ONLY) :

PREVENTIVE ACTIONS TAKEN TO CORRECT ROOT CAUSE (NONCONFORMANCE ITEMS ONLY):

_____ _____

SIGNATURE OF AIT or AIT MANAGER/OSIC REPRESENTATIVE DATE

VERIFICATION OF AIT MANAGER/OSIC'S RESPONSE:
☐ SATISFACTORY ☐ UNSATISFACTORY

COMMENTS:

_____ _____

SIGNATURE OF REPRESENTATIVE DATE

FOLLOW UP REQUIRED: ☐ YES ☐ NO

RESULTS OF FOLLOW-UP ☐ SATISFACTORY ☐ UNSATISFACTORY

_____ _____

SIGNATURE OF AIT MANAGER/OSIC DATE

*(provide copy to SEA 04XQ marion.b.hall@navy.mil)

SAMPLE

(Sample)

I. Introduction: This Quality Oversight Plan is for AIT Manager or AIT Name oversight actions during installation of alterations/SCs #(_____).

II. References:

a) NAVSEA 0902-018-2010; General Overhaul Specification for Deep Diving Submarines

b) NAVSEA S9073-AM-SBV-010/020; Noise Monitoring of SSN/SSBN Auxiliary Machinery

c) NAVSEA Technical Specification (NSTS) 9090-310(Series)

III. Enclosures:

1. AIT OSIC QA Surveillance Oversight Plan
2. Surveillance Checklist
3. In-Progress Monitoring
4. Work Package Review Record Sheet
5. Housekeeping Record Sheet
6. AIT QA Plan Audit Record
7. Annual Quality Assessment Report of AIT Performance

IV. The AIT Manager (insert name) Government On-Site Installation Coordinator (OSIC) will be responsible for the conduct of the installation and ensuring:

1. The AIT workmanship and work practices meet the requirements of all installation drawings and contract specifications including applicable NAVSEA SI and Submarine Maintenance Standards as invoked/applicable.
2. The AIT performs general housekeeping, including the proper disposal of any hazardous waste, industrial waste or excess hazardous material, in all impacted areas as an on-going part of the alteration accomplishment.
3. After completion of all ship work, the AIT will conduct final housekeeping in all areas involved in the alteration accomplishment.
4. The AIT Team Lead insures that all hoses, welding leads, temporary ventilation trunks, and other material and services shall be kept clear of water tight doors and hatches or be capable of being removed.
5. The AIT shall ensure all removed equipment and associated material is properly disposed of. Additionally, the AIT OSIC/AIT Lead will be responsible for protecting equipment from contamination during the alteration installation process. NAVSEA SI 009-06.
6. Provide on site installation oversight and management for respective installs to include spot-check and surveillance inspections of ongoing and completed work. Establish, witness, and sign-off on government “G” point inspection points in the Test and Inspection Plan. The Quality Overview Schedule provides details on planned audit and surveillance tasks and includes forms used for documentation.

SAMPLE

A. Provide copies of completed surveillances to the NSA when requested.

7. Ensure all members of the AIT comply with all requirements specified in the Tag-out User's Manual (TUM).
8. Ensure tag-out notification is submitted in a timely manner so that tag-outs can be accomplished as required by NAVSEA Instruction S0400-AD-URM-010/TUM(Series), Tag-out Users Manual (TUM). Notification shall be made at least forty-eight (48) hours prior to required deactivation to ensure proper coordination with other on-going work.
9. Act as the central point-of-contact with the ship, NSA, LMA and AIT.
10. Ensure AIT adherence to safety, environmental, quality, and technical requirements.

V. Mitigate AIT issues, particularly those relating to a stop work order.

VI. Testing

1. Ensure the NSA and LMA are notified prior to all testing events
2. Maintain completed test reports during accomplishment of the alteration/SC
3. Provide completed test reports to the NSA, LMA and Ship's Force.

VII. Attend NSA and/or LMA availability production and coordination meetings and all other appropriate meetings, as required.

VIII. Monitor the progress of work against the installation POA&M and provide updated installation progress.

IX. Ensure delivery of all documentation, test reports, ILS products.

1. Upon completion of the alteration, ensure any required on-the-job training of assigned members of the ship's crew is conducted by the AIT.
2. Training will include both operation and maintenance of all new and modified equipment.

X. Resolve quality discrepancies.

XI. Ensure that AIT work responsibilities that involve SUBSAFE work is performed only by a NAVSEA Note 5000 activity.

XII. Ensure that AIT work responsibilities that involve Fly-By-Wire (FBW) is performed in accordance with reference 2.2.3(35).

XIII. Ensure adherence to schedule requirements.

XIV. Ensure the following actions have been completed for alteration/SC #(_____):

1. AC Plant tested in accordance with Section 9590 of reference (a) per alteration/SC instructions.
2. Validate all new equipment meets noise requirements specified in the alteration/SC.
3. Validate Structure Borne Noise Testing is completed for all modified equipment during operations per reference (b).

SAMPLE

4. Validate Isolation System Survey and Housekeeping portion of Topside and Housekeeping Survey for affected areas upon alteration/SC completion per Section 9400-1 of reference (a).
5. Validate completion of Airborne Noise Survey of the affected areas upon alteration/SC completion per Section 9400-1 of reference (a).

(Sample)

SURVEILLANCE TASK	PERIODICITY	RESPONSIBILITY	ACTIONS
Conduct random spot check of an AIT employee performing work on board the ship. Use the Work In-Progress Monitoring surveillance checklist to evaluate process.	Twice per week, for each shift in which work is performed.	AIT Manager, On-Site Installation Coordinator (OSIC) or OSIC Designated Government Employee	Complete surveillance checklist; retain forms on site as OQE; make copies available to LMA or NSA, upon request.
Spot check AIT work packages to ensure scope of work is identified, individual is working within work scope, package contains details of work being performed, current process procedures are being utilized and QA checkpoints incorporated into the process. Use Work Package Review surveillance checklist to evaluate process.	Twice per week rotating through each SHIPALT	AIT Manager, OSIC or OSIC Designated Government Employee	Complete surveillance checklist; retain forms on site as OQE; make copies available to LMA or NSA, upon request.
Conduct random spot check of on board or off-hull AIT work areas for cleanliness, stowage and general housekeeping. Use housekeeping surveillance checklist to evaluate process.	Twice per week	AIT Manager, OSIC or OSIC Designated Government Employee	Complete surveillance checklist; retain forms on site as OQE; make copies available to LMA or NSA, upon request.
Conduct an audit of AIT'S audit and surveillance plan to ensure compliance. Use AIT QA Audit/Surveillance checklist to evaluate process.	Bi-weekly	AIT Manager, OSIC or OSIC Designated Government Employee	Complete surveillance checklist; retain forms on site as OQE; make copies available to LMA or NSA, upon request.
OSIC conduct an audit of completed AIT work packages. Complete work Package Audit Form.	All work packages as they are completed	AIT Manager, OSIC or OSIC Designated Government Employee	Complete surveillance checklist; retain forms on site as OQE; make copies available to LMA or NSA, upon request.

EXAMPLE OF SURVEIILANCE CHECKLIST

Ship Alt Number:	SHIP:	Date:	AIT:	AIT Manager/OSIC:

Attributes: **STRUCTURAL WELDING**	SAT	UNSAT	N/A	Remarks/Correct Action Required
1. Is the welder currently qualified for: a. Process being used? b. Position? c. Electrode and material type?				
2. Does Weld Procedure correspond with work being accomplished?				
3. Has the Weld Procedure been approved by NAVSEA/SUPSHIP or their authorized representative?				
4. Is the Process Control Procedure at the worksite, when required (e.g. critical aluminum welding)?				
5. Does welder have the correct filler material type and size required by procedure?				
6. Does welder have more than one filler material type in his possession that could lead to material mix-up?				
7. Are moisture sensitive covered electrodes (e.g., Mil types 9018, 10018, 11018, 12018, 10018-N1, 410NiMo and E2209-15/16) placed in holding ovens (225-300 degrees) after hermetically sealed container is opened? a. Are returned exposed electrodes exceeding time limit (more than 5 hours) re-baked or placed in holding ovens for at least 8 hours? b. Is the holding oven for other Low Hydrogen covered electrodes maintained at 150-300 Degrees?				
9. Where applicable, did welder ensure that confined space was certified gas free prior to welding?				
10. Did welder ensure that equipment was protected prior to welding?				
11. Was a fire watch in position during welding operations?				
12. Did welder check pre-heat and interpass temperatures for correct temperature required by weld procedure? 13. Does welder have correct temperature sticks or other devices to check base material temperature?				

EXAMPLE OF SURVEIILANCE CHECKLIST

Ship Alt Number:	SHIP:	Date:	AIT:	AIT Manager/OSIC:

Attributes: **STRUCTURAL WELDING**	SAT	UNSAT	N/A	Remarks/Correct Action Required
14. Does welder clean base material to ensure weld is not contaminated with foreign material?				
15. Did welder perform Visual Inspection (VT) of welds? a. Has welder been training to perform workmanship inspection per MIL-STD-1689A?				
16. Were All NDT inspections required by Drawing or Fabrication Specification performed?				
17. Was the NDT inspector qualified for NDT inspections performed?				
18. Was welding and NDT performed documented on a Weld Joint record?				
Note: Source requirements: S9074-AQ-GIB-010/248, and MIL-STD-1689A				

EXAMPLE OF SURVEIILANCE CHECKLIST

Ship Alt Number:	SHIP:	Date:	AIT:	AIT Manager/OSIC:

Attributes: **PIPE WELDING**	SAT	UNSAT	N/A	Remarks/Correct Action Required
1. Is the Work Authorization Form (WAF) at the worksite?				
2. Is the Process Control Procedure, when required, at the worksite?				
3. Is correct Welding Technique Sheet at worksite for materials being welded?				
4. Is correct filler type material and size being used for weld per Weld Technique Sheet?				
5. Is welder 5X visual inspector qualified?				
6. Is welder qualified for weld procedure?				
7. Has the diametrical clearance been checked (P1 maximum clearance .065”)?				
8. Has the socket pipe end clearance (1/16” to 1/8” for new and 1/32” to 1/16” existing been checked? (evidence of a scribe line being used to measure)				
9. Have the items been preheated per the Welding Technique Sheet?				
10. Have Interpass temperatures been taken for multiple pass welds per Weld Technique Sheet? (Check temperature at site of operation before starting the next pass)				
11. When required, has the item been post weld heat treated per the Welding Technique Sheet?				
12. Is pipe socket fillet weld the correct size for Piping Nominal Wall Thickness (Tp)? (Weld size =Tp x 1 ¾ Tp)				
13. Are there any visual discrepancies such as weld spatter, weld undercut and weld slag?				
14. Was NDT performed as required by drawing?				
15. Was the NDT inspector qualified for NDT inspections performed?				
16. Was welding and NDT performed documented on a Weld Joint record?				
Note: Source requirements: S9074-AQ-GIB-010/248, and S9074-AR-GIB-010/278				

EXAMPLE OF SURVEIILANCE CHECKLIST

Ship Alt Number:	SHIP:	Date:	AIT:	AIT Manager/OSIC:

Attributes: **WORK AUTHORIZATION FORM (WAF) and QA Workbook**	SAT	UNSAT	N/A	Remarks/Correct Action Required
1. Is WAF placed in the work authorization signed by Ships Force and other appropriate personnel at worksite?				
2. Did the AIT present proposed tag-out for work on system equipment? a. Are all tags posted properly? b. Does the equipment tagged appear to be in the position indicated on the tag?				
3. Is the work being performed within the scope of WAF?				
4. Are any revisions to WAF reviewed and signed by appropriate personnel?				
5. Is QA workbook on-site and being used to perform work?				
6. Does AIT have correct drawing and revision level for performing the work?				
7. Are in-process steps being followed and appropriate signatures annotated as specified in inspection and test plan?				
8. Has OSIC been notified by AIT for Government G-point inspections in QA Workbook?				
9. Is the AIT worker qualified to perform work and is his qualifications in the QA workbook?				
10. If HAZMAT is being used, is it properly labeled?				
11. Is the worker following safety requirements specified in the work package?				
12. Is the worker observing cautions, warnings and notes, as applicable?				
13. Has the AIT supervisor visited the work site during the shift?				
14. Is the mechanic using good work practices?				
15. Is the mechanic using calibrated measuring and test equipment for product inspections?				
16. Have test requirements to certify work been identified in QA Workbook?				
17. Does the AIT have required test equipment to test work being accomplished? a. Are the test gage ranges appropriate (middle ¾ range of gage) of test pressure being applied? b. Are test gages calibrated?				
18. Do test procedures require that equipment or system be protected from over-pressurization?				
19. Is system tested prior to closing out WAF?				

EXAMPLE OF SURVEIILANCE CHECKLIST

Ship Alt Number:	SHIP:	Date:	AIT:	AIT Manager/OSIC:

Attributes: **ELECTRICAL SAFETY and TAG-OUT**	SAT	UNSAT	N/A	Remarks/Correct Action Required
1. Have all required circuits have been electrically isolated?				
2. Have circuit breakers been locked and tagged out?				
3. Was a voltage tester/voltmeter used to validate equipment was de-energized?				
4. Was ship's duty officer's permission obtained prior to start work?				
5. Are all unused openings in cabinets, boxes, and fittings effectively covered, covers closed, exposed power supplying conducted ends taped, and all conductors protected from contamination?				
6. Are any loose wires properly insulated and identified?				
7. Are electrical storage devices discharged prior to commencing work?				
8. Are metal hand held tools properly covered with electrical insulating material when working near energized circuits?				
9. Are electrical workers wearing appropriate personal protective equipment (safety glasses and electrical hazard safety shoes, etc) ?				
10. Are non-qualified personnel and other personnel not involved with the work are kept a minimum of three feet from the energized circuit?				

SPONSOR SUMMARY PAGE Date:_____

Assessment Period Dates _____

AIT Manager {Government Activity, include POC Name/Title} _____

_____

Sponsor Overall Assessment of AIT (include basis for assessment)

(Name and CAGE Code)

☐ Below Average ☐Average ☐Above Average

Comments:

(Name and CAGE Code)

☐ Below Average ☐Average ☐Above Average

Comments:

(Name and CAGE Code)

☐ Below Average ☐Average ☐Above Average

Comments:

AIT Manager's Oversight Assessments are provided by Enclosures:

Signature:

Name, Organization/Code, Title:

MANAGER SUMMARY PAGE

AIT Manager {Government Activity, include POC Name/Title} _____

_____

Assessment Period Dates _____

AIT Assessed _____

Scope of Work (optional)

Affected Platforms / Class (optional)

Manager' Assessment of AIT ☐ Below Average ☐ Average ☐ Above Average

- Address

  - ❑ Program Weaknesses and Actions Taken to address

  - ❑ Systemic Problems / Concerns

  - ❑ Significant Production Delays Caused By AIT (e.g., rework, material not ordered properly, or staged when required, lack of personnel assigned for work to be accomplished, unqualified personnel or procedures)

Considerations in Developing Assessments

- MOA
  - NSA and/or LMA – QA Support Services Requested in accordance with requirements?

    ☐ YES ☐ NO
  - Agreements Obtained Prior to Installation Start Date?

    ☐ YES ☐ NO

DETAILS:

- Analysis of Deficiency Data Collected

  - Departures / Waivers ☐ YES ☐ NO

    DETAILS:

  - Significant Critiques / Trouble Reports ☐ YES ☐ NO

    DETAILS:

  - Customer Surveys/Feedback ☐ Below Average ☐Average ☐Above Average

    DETAILS:

  - Significant Audit Findings ☐ YES ☐ NO

    DETAILS:

Signature:

Name, Organization/Code, Title:

APPENDIX E

AIT IN-BRIEF

AIT IN-BRIEF

Purpose: The purpose of a AIT in-brief is to provide an overview and objectives of the alteration/SC to be accomplished. The in-brief shall outline PICO deficiencies, work to be performed, review the schedule of accomplishment and identify impacts on the ship, confirm arrangements for requested/required services, establish responsibilities and points of contact, review planned ship's evolutions, and review Integrated Logistics Support (ILS) products and training to be provided.

1. Alteration/Ship Change Overview: The overview provides a description of the alteration/SC purpose and the expected improvements to be provided, areas of the ship impacted by the alteration/SC and additional areas affected by the accomplishment of the alteration/SC and the impact on ship's services.

2. PICO deficiency corrections:

A. The AIT OSIC, Ships Force, NSA and LMA shall discuss and agree who is responsible for correction of each reported PICO deficiency to prevent delays during the installation and the SOVT test procedure.

3. Work to be accomplished::

A. Review of installation drawings

(1) Arrangement drawing(s) indicating equipment to be removed and locations of new, modified, and relocated equipment

(2) System drawing(s) indicating system interconnections and interfaces with ship system interfaces including power and ventilation

(3) Cable and/or pipe runs

B. Review of equipment and materials to be used

(1) Review of equipment and material to be installed

(2) Review of equipment and material to be removed

(3) Review of hazardous materials to be used or removed and handling and disposal procedures

C. Review of ship's systems impacted during alteration/SC accomplishment and duration of impact

D. Review of areas that may have restricted access during alteration/SC accomplishment

(1) Areas where welding is to be accomplished

(2) Areas where hazardous material is to be used or handled

E. Review of applicable process control procedures to be used for fire prevention, hot work, sight and hearing protection, protection of pipes, cables, and equipment during ship work, system or equipment deactivation/reactivation, material storage

at the work site, storage, use and disposal of hazardous materials (including excess and partially used hazardous material and hazardous material removed as part of the accomplishment of the alteration/SC, material for staging and screening, temporary covers and shelters, uncrating/unpacking of equipment, cleanliness of the ship and workmanship.

F. Review of personnel qualification/certifications for work requiring specific qualifications.

4. Schedule of events/Milestones: A detailed review of schedule-of-work and Test Plan (TP) and/or SOVT agenda of all functional items shall be provided during the briefing. Key event checkpoints (e.g. piping flush, hydrostatic testing, cableway and compartment closeout) and system operational testing of all functional items will be provided for Ship's Force witnessing. The material deliveries, required compartment accesses, security requirements, and shift schedules will also be discussed at this time. The schedule information shall include projected start and finish dates, planned shift start time(s), planned testing periods, planned training dates and planned ILS turnover.

5. Planned ship's evolutions: Any special restrictions due to ship's evolutions during the availability (weapon/ordinance loading, ship's receiver/transmitter testing, emergent requirements, other alterations/SCs being accomplished, etc.), which could impact or be impacted by work being performed by the AIT, will also be discussed at this time. It will be the responsibility of the AIT to perform required shipboard work around these restrictions. If restrictions exist which cannot be accommodated by the AIT without jeopardizing scheduled completion date of the alteration/SC or the scheduled departure date of the ship, the AIT will make arrangements with the Naval Supervising Activity/Authority (NSA) for accomplishment of the alteration/SC during a subsequent availability and withdraw from the ship.

6. Confirmation of services: AIT arrangements for crane and/or welding services, special test requirements, fire watches, etc., will also be confirmed at this time. For alterations/SCs being accomplished during CNO Availability, arrangements and associated funding for services included in the contract (if the alteration/SC is to be accomplished at a private activity) (crane services, welding services, special test requirements, fire watches, NSA disposal of turned-in equipment/material, etc.) will also be confirmed at this time.

7. Points-of-contact: The AIT OSIC/AIT Lead shall request the ship to provide a list of all points of-contact for accomplishment of the alteration(s)/SC(s). The points-of contact list will include those technical personnel assigned to work with the AIT and witness testing, the names of those people authorized to sign off the ACR, and the names of personnel authorized to accept delivery of computer tapes and ILS items. For alterations/SCs being accomplished during CNO Availability, the NSA representatives, PY On-Site Representatives (Program Representative and Configuration Data Manager [CDM]), and the Lead Ship Availability Manager from the industrial activity will also be identified. For alterations/SCs being accomplished during a CNO Availability, the AIT OSIC will also identify which AIT member(s) will attend daily progress meetings.

8. Responsibilities: The AIT OSIC will be identified as being responsible for the conduct of the AIT and the person to be contacted in regard to work deficiencies, scheduling problems, or

problems with AIT members. The AIT OSIC shall be accessible to Ship's Force throughout the period(s) the AIT is on board and is responsible for the resolution of identified deficiencies or issues associated with accomplishment of the assigned alteration(s)/SC(s). When work is being accomplished during a CNO Availability, the AIT OSIC shall also be accessible to the NSA and the Lead Ship Availability Manager at all times during period(s) the AIT is on board the ship. The AIT OSIC shall be responsible for reporting any changes in schedule and providing notification to the ship and NSA of upcoming key event checkpoints and testing evolutions. Additionally, if multiple-shift work is to be accomplished, the AIT OSIC(s) for each shift shall be identified.

9. ILS and training to be provided: The AIT Lead/OSIC will review all ILS products and provide a current, approved ILS Certification as well as all training to be provided at the time of installation. All applicable ILS elements listed in the ILS portion of the ACR and any known ILS deficiencies shall be addressed.

APPENDIX F

LIST OF ACRONYMS

LIST OF ACRONYMS

3M	Maintenance and Material Management
A&I	Alteration and Improvement
ABR	Agreement for Boat Repair
ACN	Advanced Change Notice
ACR	Alteration Completion Report
AER	Alteration Equivalent to Repair
AIM-NT	Advanced Industrial Management – Network Technology
AIT	Alteration Installation Team
AIT OSIC	AIT On-Site Installation Coordinator
ALT	Alteration (or change/modification)
AMPP	Advance Modernization Planning Package (Submarines)
AMPS	Afloat Master Planning System
AMQAP	AIT Manager's Quality Assurance Program
AQS	Accepted Quality System
ASC	Alteration Status Code
AWP	Availability Work Package
BOM	Bill of Material
C4I	Command, Control, Communications, Computers, Intelligence
C5IMP	Command & Control, Communications, Computers, Combat Systems Installation Master Plan
C5ISR	Command & Control, Communications, Computers, Combat Systems, Surveillance, Reconnaissance
CAR	Completion Alteration Report / Corrective Action Request
CCB	Configuration Control Board
CDM	Configuration Data Manager
CDMD-OA	Configuration Data Manager Database-Open Architecture
CM	Configuration Management
CMAV	Continuous Maintenance Availability
CNO	Chief of Naval Operations
CO	Commanding Officer
COC	Certificate of Conformance
COH	Complex Overhaul
COMFLTFORCOM	Commander, U.S. Fleet Forces Command
COMNAVSEASYSCOM	Commander Naval Sea Systems Command
COMPACFLT	Commander U.S. Pacific Fleet
CONOPS	Concept of Operations
COP	COSAL Overhaul Planning
CP	Computer Program
CPA	Carrier Planning Activity

CPM	Centrally Provided Material
CSSQT	Combat System Ship Qualification Trial
CU	Component Unit
CUI	Component Unit Identifier
DC	Design Change
DFS	Departure From Specification
DIRSSP	Director, Strategic Systems Programs
DMP	Depot Modernization Period
DPIA	Docking Planned Incremental Availability
DPMA	Docking Phased Maintenance Availability
DSA	Design Service Allocation
DSRA	Docking Selected Restricted Availability
DSS	Deep Submergence System
DSS-SOC	Deep Submergence System - Scope of Certification
DT/OT	Development Test/Operational Test
EA	Equipment Alteration
EC	Engineering Change
ECP	Engineering Change Proposal
EDSRA	Extended Dry-Docking Selected Restricted Availability
EMC	Electromagnetic Compatibility
EMI	Electromagnetic Interference
EMP	Electromagnetic Pulse
EOA	End of Availability
EOH	Engineered Overhaul
EOI	End Of Installation
EPA	Environmental Protection Agency
EPDA	Extended Post Delivery Availability
ERP	Enterprise Resource Planning
ESD	Electrostatic Discharge
ESOH	Environmental, Safety, and Occupational Health
ESRA	Extended Selected Restricted Availability
FBW	Fly-By-Wire
FBW SCS	Fly-By-Wire Ship Control System
FC	Field Change
FCB	Field Change Bulletin
FMA	Fleet Maintenance Activity
FOA	Follow-on Availability
FOCP	Fiber Optic Cable Plant
G	Government

GBL	Government Bill of Lading
GPETE	General Purpose Electronic Test Equipment
HAZMAT	Hazardous/Toxic Material
HCPM	Headquarters Centrally Procured Material
HM	Hazardous Material
HM&E	Hull, Mechanical and Electrical
HMP	Hull Modernization Plan
HSC	Headquarters Systems Command, Hardware Systems Command
HW	Hazardous Waste
HVAC	Heating, Ventilating, and Air Conditioning
IA	Installation Activity / Industrial Activity
ICP	Inventory Control Point
IDEA	Integrated Design and Engineering Activity
ILS	Integrated Logistics Support
IMA	Intermediate Maintenance Activity
IMF	Intermediate Maintenance Facility
INCO	Installation and Checkout
IPDA	Industrial Post Delivery Availability
IR	Installation Report
ISC	Installation Status Code
ISEA	In-Service Engineering Agent
ISRA	Incremental Selected Restricted Availability
ISIC	Immediate Superior In Command
JCN	Job Control Number
JFMM	Joint Fleet Maintenance Manual
LACR	Legacy Alteration Change Request
LAN	Local Area Network
LAR	Liaison Action Record
LAR	Liaison Action Request
LCM	Life Cycle Manager
LMA	Lead Maintenance Activity
LOA	Letter of Authorization
LSI	Local Standard Item
MACHALT	Machinery Alteration
MAM	Maintenance Assistance Module
MFR	Memorandum For Record
MILR	Modernization in Lieu of Repair
MOA	Memorandum of Agreement

MOI	Method of Installation
MPMP	Maintenance Program Master Plan
MPP	Modernization Project Plan
MRA	Modernization Readiness Assessment
MSC	Maintenance Support Center
MSDS	Material Safety Data Sheet
MSR	Master Ship Repair
MSRA	Master Ship Repair Agreement
MTA	Modernization Through Attrition
MTP	Master Test Plan
MW	Modernization Window
NAVAIR	Naval Air Systems Command
NAVCERT	Navigation Certification
NAVSEA	Naval Sea Systems Command
NAVSUP	Naval Supply
NDE	Navy Data Environment
NDE-NM	Navy Data Environment-Navy Modernization
NDT	Non-Destructive Testing
NMP	Navy Modernization Process
NMPT	Navy Modernization Process Team
NMP-MOM	Navy Modernization Process-Management and Operations Manual
NPC	Non-Permanent Change
NPES	Non-Propulsion Electronic System
NSA	Naval Supervising Authority/Activity
NSLC	Naval Sea Logistics Center
NSN	Navy Stock Number
NSSA	Norfolk Ship Support Authority/Activity
NSTS	NAVSEA Technical Specification
NSY	Naval Shipyard
NTIRA	Navy Tool for Interoperability Risk Assessment
NTSP	Navy Training Summary Plan
OPCON	Operational Control
OQE	Objective Quality Evidence
ORDALT	Ordnance Alteration
ORM	Operational Risk Management
OSHA	Occupational Safety and Health Administration
OSIC	On- Site Installation Coordinator
OSR	On -Site Representative
OWLD	Obligating Work Limiting Date
PARM	Participating Acquisition Resource Manager

PC	Permanent Change
PCB	Poly Chlorinated Biphenyl
PCD	Production Completion Date
PCMS	Passive Countermeasure System
PDT&T	Post Delivery Test and Trials
PEO	Program Executive Office, Officer
PIA	Planned Incremental Availability
PICO	Pre-Installation Check Out
PM	Program Manager
PMA	Phased Maintenance Availability
PMAPT	PEO SUBS Modernization Advance Planning Team
PMR	Program Manager Representative
POA&M	Plan of Actions and Milestones
PMS	Planned Maintenance System
PPE	Personal Protective Equipment
PPL	Provisioning Parts List
PRAV	Pierside Restricted Availability
PSA	Post Shakedown Availability
PSAWP	Post Shakedown Availability Work Package
PY	Planning Yard
QA	Quality Assurance
QMS	Quality Management System
QRA	Quick Reaction Alteration
RADHAZ	Radiation Hazard
RAV	Restricted Availability
RCS	Radar Cross Section
RCS	Resource Constraint Schedule
RCOH	Refueling Complex Overhaul
RF	Radio Frequency
RFI	Radio Frequency Interference
RMAIS	Regional Maintenance Automated Information System
RMC	Regional Maintenance Center
RMMCO	Regional Maintenance and Modernization Coordination Office
ROH	Refueling Overhaul
SAR	Ship Alteration Record
SAS	Submarine Acquisition and Support
SC	Ship Change
SCD	Ship Change Document
SCLSIS	Ship Configuration and Logistic Support Information System
SCN	Shipbuilding and Conversion, Navy

SCO	Service Craft Overhaul
SCS	Ship Control System
SECDEF	Secretary of Defense
SECNAV	Secretary of the Navy
SESEF	Shipboard Electronics Systems Evaluation Facility
SFI	Strike Force Interoperability
SHAPM	Ship Acquisition Program Manager
SHIPALT	Ship Alteration
SI	Standard Item
SID	SHIPALT/Ship Change Installation Drawing
SIGSEC	Signal Security (electromagnetic/ RF)
SMART	Submarine Modernization and Alteration Requirements Tool
SME	Subject Matter Expert
SOA	Start of Availability
SOC	Scope of Certification
SOM	Supervisor of Shipbuilding, Conversion and Repair Operations Manual
SOVT	System Operational Verification Testing
SOW	Statement of Work
SPALT	Strategic Systems Program Alteration
SPAWAR	Space and Naval Warfare Systems Command
SPM	Ship Program Manager
SRA	Selected Restricted Availability
SRD	Selected Record Drawing
SRF	Ship Repair Facility
SSBN	Ship, Submersible, Ballistic, Nuclear (submarine)
SSCR	Shipboard Systems Certification Requirements
SSGN	Submersible, Ship, Guided, Nuclear (nuclear powered cruise missile submarine)
SSR	Ship Selected Record
SSRD	Ship Selected Record Drawing
ST	Sustainment Type
SUBMEPP	Submarine Maintenance, Engineering, Planning, and Procurement
SUBSAFE	Submarine Safety
SUPPO	Supply Officer
SUPSHIP	Supervisor of Shipbuilding, Conversion and Repair
SW	Software
SWD	Software Delivery
SWFTS	Submarine Warfare Federated Tactical System (US Navy)
SYSCOM	System Command
T&E	Test and Evalution
T&I	Test and Inspection
TAMS	TYCOM Alteration Management System
TAV	Technical Availability

TCD	Target Configuration Date
TDC	TYCOM Discretionary Change
TDP	Technical Data Package
TEMPALT	Temporary Alteration
TGI	Task Group Instruction
TM	Technical Manual
TEMPEST	Telecommunications and Electrical Machinery Protected from Emanations Security (electric compatibility)
TOA	Type Commander Opportunity Availability
TP	Test Plan / Training Plan
TRF	Trident Refit Facility
TS	Technical Specification
TUM	Tag-out User's Manual
TWD	Technical Work Document
TYCOM	Type Commander
TYCOMALT	Type Commander Alteration
UIPI	Uniform Industrial Process Instruction
UNNPI	Unclassified Naval Nuclear Propulsion Information
USFFC	United States Fleet Forces Command
VR	Voyage Repair
WAF	Work Authorization Form
WBS	Work Breakdown Structure
WG	Working Group
WOO	Windo of Opportunity
WPER	Work Package Execution Review
WPI	Work Package Integration
WPIC	Work Package Integration Conference
WSF	Weapons System File
XO	Executive Officer

APPENDIX G

DEFINITIONS

1. **Accomplishing Activity.** A required field for proper scheduling of alterations/SCs in NDE-NM. The Accomplishing Activity should reflect either the responsible headquarters command or the actual Installing Activity (IA). NDE-NM has activities broken into types. The list of Accomplishing Activity Types is:

- ISEA
- SHIP
- SHIPYARD
- SUPSHIP

The ISEA type is the preferred list of activities and includes government and contractor activities. Any activity missing from the list can be added with a request to the NDE Helpdesk.

2. **Advanced Industrial Management – Network Technology (AIM-NT).** A corporately developed software application specifically tailored to performing AIM planning and execution processes on a large-scale shipyard projects such as ship availabilities. AIM-NT is provided to the Shipyard for use on local Citrix ("legacy") servers featuring Microsoft® Network Technologies. The principal Technical Work Document (TWD) products generated by this software are the Long Form Task Group Instruction (TGI) and the Short Form TGI.**Alteration.** Any change in the hull, machinery, equipment, fittings, computer program and/or interface to external equipment, regardless of whether it involves a change in design, materials, number, location or relationship of an assemblies component parts whether it is undertaken separately from, incidental to or in conjunction with repairs.

3. **Alteration Approval, Technical.** A certification that all requirements necessary for successful alteration installation, operation and support have been met. Requirements include such items as SAR, SIDs, installation funding, removal and system restoration funding (TEMPALTs only), etc. The SPM is the technical approval authority for all Title K, K-P, D and F alterations, Surface Ship NPCs and equipment alterations that may affect ship's power, weight or air conditioning requirements and all Alteration and Improvement (A&I) items. All other types of equipment alterations normally require approval of the PARM.

4. **Alteration Authorization (Legacy FMP).** Authorization that is required prior to the accomplishment of any alteration. Chief of Naval Operations (CNO) authorization is required before military improvement type K-Alts may be installed. The Ship Program Manager (SPM) approves and either the CFFC or TYCOM may authorize or program Title D or F Ship Alteration (SHIPALTs), equipment alterations and A&I items. Alteration Equivalent to Repair (AERs) require that the designated system command, Program Executive Office (PEO) or SPM who exercises technical authority over the affected article approve them for accomplishment. All Command, Control, Communications, Computer, Intelligence and Combat System alterations (C5I) and alterations impacting interoperability must be authorized in accordance with the D-30 process, by the CFFC, before they can be installed, regardless of the type of alteration.

Note: The D30 process only applies to availabilities for those submarines in a Battle Group. All other submarine availabilities are exempt from this D30 process.

5. **Alteration/SC Completion Report.** A mandatory report certifying an alteration's/SC's accomplishment. The cover-page, report distribution requirements and report enclosures are

contained in Appendix B to this specification. This report provides detailed information for use in process improvement design, AIT performance measurement, alteration/SC deficiency tracking, etc.

6. **Alteration Equivalent to a Repair (Legacy FMP).**

a. An AER is a technical alteration, which has one or more of the following attributes:

(1) The use of different material, which has been approved for like or similar use, and such materials are available from standard stock.

(2) The replacement of obsolete, worn-out or damaged parts, assemblies, or equipment, requiring renewal by a more efficient design previously approved by the System Command (SYSCOM), Program Executive Office (PEO) or Ship Program Manager (SPM); providing such replacement does not cause a change to the existing system design and does not affect a change to the systems or equipment normally associated with the military characteristics of the ship. All requirements for ILS will be adhered to for AERs affecting ships configuration and or technical documentation.

(3) The strengthening of parts requires repair or replacement in order to improve the reliability of the parts and unit provided that no other change in design is involved.

(4) Minor modifications involving no significant changes in design or functioning of equipment but considered essential to prevent recurrence of unsatisfactory conditions.

(5) The replacement of parts, assemblies, or equipment with like items of later or more efficient design where it can be demonstrated that the cost of installation and maintenance of the new parts, assemblies or components is less than the cost of maintaining the installed parts, assemblies, or components; and such replacement does not cause a change to the existing system design or impact any external interfaces to the system and does not affect a change to the system or equipment normally associated with the military characteristics of the ship.

b. Only the SYSCOM, PEO or SPM exercising technical control over the article, or the authority to which such technical control has been delegated by that command, shall designate an alteration as a Alteration Equivalent to Repair (AER) and approve it for accomplishment.

c. An AER is approved for accomplishment by a Title "D" or "F" alteration, A&I, Alteration Request (AR) or Letter AER depending on the scope and effects of the change. Such AERs must be approved by NAVSEA and funded for accomplishment by the TYCOM.

7. **Alteration Installation Team (AIT).** A unit (military, government activity or contractor) under the direction of an AIT Manager or designated agent (ISEA, military or government civilian) of the AIT Manager that is trained and equipped to accomplish specific alterations/SCs on specified ships.

8. **Alteration Installation Team (AIT) Activity or AIT Manager.** The government activity, In Service Engineering Agent (ISEA), military person or government civilian tasked and funded by the AIT Sponsor to initiate, plan, coordinate, schedule, manage and oversee the successful accomplishment of the alteration/SC in accordance with legacy FMP/NMP policy and procedures. The AIT Manager will coordinate with the NSA to ensure satisfactory completion

of the Ship Alteration (SHIPALT)/SC installation during CNO availabilities. This coordination does not relieve the AIT manager of any of his/her responsibilities.

9. **Alteration Installation Team Lead.** Senior member of the AIT.

10. **Alteration Installation Team On-Site Installation Coordinator (OSIC).** The AIT OSIC is a government or military employee designated by and acting with the authority of, the AIT Manager. The AIT OSIC is responsible for the conduct of the entire alteration/SC installation and will be the point-of-contact with the ship, AIT Manager and the NSA. The AIT OSIC shall be knowledgeable of and responsible for AIT adherence to all invoked requirements including safety, quality plan, technical instructions and, when applicable, the SUPSHIP Operations Manual (SOM), Appendix 4-E or NSA/AIT Manager MOAs. AITs that do not have an assigned AIT OSIC (or documented approval from the SPM that an AIT OSIC is not required) shall not attempt to accomplish alterations/SCs to ships and will be denied access to ships.

11. **Alteration Installation Team (AIT) Sponsor.** The Systems Command Naval Air (NAVAIR), Naval Supply (NAVSUP), Naval Sea (NAVSEA) or Space and Naval Warfare (SPAWAR), Program Executive Officer (PEO), (including PARM or SPM, Commander Pacific Fleet (COMPACFLT), Commander Submarine Force (COMSUBFOR), TYCOM, Chief of Naval Operations (CNO) or other government activity that tasks and funds the AIT Manager/AIT.

12. **Alteration/Ship Change, Mature.** An alteration/SC that has a reasonable expectation of successful installation, operation, maintenance and interoperability and is fully supported logistically. A mature alteration has a JCF, SAR, SIDs and an approved Integrated Logistics Support (ILS) Certification.

13. **Alteration, Permanent**. Any logistically supported alteration, which is intended to remain on board the ship for more than 1 year or more than 1 operational deployment. These alterations are accomplished as Ship Alterations (SHIPALTs), AERs, TYCOM alterations and other System Commands (SYSCOMs) and TYCOM alterations (e.g. Field Changes [FCs], Engineering Changes [ECs]). For Surface Ships and Carriers, SCs by category of Program or Fleet applies.

14. **Alteration Scheduling**. The act of slating an alteration for installation on a given ship in a specific time-frame. Ship Program Manager (SPMs) schedule all alterations for installation during all Chief of Naval Operations (CNO) Availabilities via the SPM's Availability Advance Planning and Authorization Letters except for Title D and F alterations and AERs and Fleet SCs, which are scheduled by the TYCOM and except for ECs/FCs/SW which are scheduled by the PARMs.

15. **Alteration, Temporary (TEMPALT) (Legacy FMP).** Any alteration that provides given capabilities on a temporary basis (not to exceed one (1) year or one (1) operational deployment in duration). TEMPALTs support Research, Development, Test and Evaluation (RDT&E), exercise or mission requirements. TEMPALTs are reviewed, technically approved by the Ship Program Manager (SPM) and authorized and scheduled for accomplishment by the TYCOM. All TEMPALTs impacting Battle Force interoperability or that are Command, Control, Communications, Computer, Intelligence (C4I) or Combat System related, need to be approved by the CFFC in accordance with the D-30 process, before they can be installed. The Ship Program Manager (SPM) review considers logistic support, safety, technical adequacy, impact on ship stability, operational characteristics, damage control, ship structure, ship services, ship

interfaces and habitability. Integrated Logistics Support (ILS) (final or preliminary) needs to be identified on the TEMPALT authorization letter and provided at time of installation. Alterations which are intended to be installed for a period in excess of one year or for more than one operational deployment are permanent changes to a ship's configuration and shall be accomplished accordingly (see "Alteration, Permanent"). After completion of testing requirements, mission or exercise support requirements or one year, whichever comes first, TEMPALTs must be removed and the ship restored to its previous configuration. The activity sponsoring the accomplishment of the TEMPALT shall be responsible for funding the removal of the TEMPALT and the restoration of the ship.

16. **As-Built.** Drawings prepared or developed by an AIT, approved by the Planning Yard (PY), used for installation, and revised to indicate the actual, as installed, configuration on the ship.

17. **Battle Force Baseline Configuration Alterations/Ship Changes.** All Command, Control, Communications, Computer, Intelligence (C4I) and Combat System Alterations/SCs and alterations/SCs impacting Interoperability, that have been approved by the CFFC for a specific ship in a specific Battle Force, in accordance with the D-30 process. These alterations/SCs should be technically approved by the Ship Program Manager (SPM) and coordinated with the Naval Supervising Activities/Authorities (NSAs), in accordance with this document.

Note: The D30 process only applies to availabilities for those submarines in a Battle Group. All other submarine availabilities are exempt from this D30 process.

18. **Completion Report, Final.** A message report from the ship receiving the alteration/SC identifying that all discrepancies, noted in the Installation Completion Report, have been satisfactorily resolved. This message report is not required if the Installation Completion Report message also served as the Final Completion Report.

19. **Completion Report, Installation.** A mandatory message report from the ship receiving the alteration/SC identifies the successful accomplishment of the alteration/SC. This message will be drafted by the AIT and provided to the ship for concurrence prior to the AIT's final departure. The ship will ensure that all known discrepancies associated with the alteration/SC are fully documented, along with the activity responsible for resolution of each discrepancy and the estimated date of resolution. If no discrepancies exist, this report will also serve as the Final Completion Report.

20. **Cost Benefit Analysis (CBA) (NMP only).** CBA is a systematic quantitative method to compare the costs of implementing a specific project or course of action with the benefits to be gained from implementation. In the NMP process the CBA is used to compare the Investment Cost of an item to the potential savings or cost avoidance that that same item may provide. It is used in conjunction with the AFOM to provide the Decision Makers with criteria that will help them to decide the relative priority of one ship change with respect to all other ship changes being evaluated.

21. **CU Phase.** A CU Phase is the fundamental or "core" unit of work for AIM processes. Each CU Phase is a distinct job that is usually only one of a group of jobs needed to accomplish the work goal(s) set forth in a job summary. Each CU Phase is further broken down into one or more shop tasks needed to accomplish the job. All production work (and other service work) for a project is tracked, managed, and certified at the CU Phase level. The focus on attention for work is always a CU or (CU assembly), and the type of work done on the CU is a described by a

standard work phase. Thus, a unique identification for any job can be created by combining a Component Unit Identifier (CUI) with a standard work item.

22. **Emergent Change (NMP only).** Emergent Ship Changes are those items that require immediate installation (30 days or less) and/or reprioritization of tasking and reallocation of resources to support accelerated development and installation. The emergent change process is only applicable to the following Ship Change criteria:

- Proposed emergent change is funded in the year of execution or offset has been identified and already approved
- Modernization changes to resolve identified safety items
- Need for mission critical capability
- Need to correct critical software, firmware or other deficiencies that degrade designed capability

23. **Equipment Alteration.** Any modification, other than a ship alteration,to the configuration of an equipment or system (including embedded equipment, computer programs and expendable ordnance) after establishment of the product baseline. An Equipment Alteration involves a change in design, type of material, quantity, installed location, logistics, supportability or the relationship of the component parts of an assembly within the ship. Equipment Alterations include the addition, deletion, rework or replacement of parts, assemblies or equipment; or changes in assembly procedures. Alterations to associated computer programs include the incorporation of different computer program versions and approved modifications or corrections to both operational test and maintenance programs. Equipment Alterations are initiated by approved Class I Engineering Change Proposals (ECPs) or Ship Change Document (SCD). Equipment Alterations apply equally to changes installed in delivered systems and equipment, and changes installed in systems and equipment in production to identify differences from an established product baseline. Equipment Alterations may be initiated to correct a design defect, to change equipment operational capability, to eliminate safety hazards, to update obsolete components to change an external interface, or for any combination of these reasons. There are 6 types of Equipment Alterations:

a. Machinery Alteration (MACHALT). A planned change, modification or alteration of any in-service Hull, Mechanical and Electrical (HM&E) equipment when it has been determined by the MACHALT Configuration Control Board that the alteration or modification meets all of the following conditions:

   (1) Can be accomplished without changing an interface external to the equipment or system.

   (2) Are modifications made within the equipment boundary or are a direct replacement of the original equipment system.

   (3) Can be accomplished without the ship being in an industrial activity.

   (4) Will be accomplished individually and not conjunctive with an alteration or other MACHALT.

If power, weight or air conditioning requirements are modified, the modification must be discussed with the appropriate Ship Program Manager (SPM), who will decide whether to proceed with the modification as a MACHALT or a alteration.

b. Ordnance Alteration (ORDALT). An ORDALT is a change made to ordnance equipment or their associated computer programs by the addition, deletion, rework or replacement of parts, assemblies or equipment, or by a change in assembly procedures. Computer Program changes are any changes to maintenance or operational software.

c. Field Change (FC). A mechanical, electronic or electrical change, modification or alteration made to electronic equipment after delivery to the government or installation on-board ship. It includes software changes, which does not impact interfaces to other equipment within the ship, change the footprint, form or fit or change power, weight or air conditioning requirements. If power, weight or air conditioning requirements are modified, the modification must be discussed with the appropriate SPM, who will decide whether to proceed with the modification as a field change or alteration. Field Changes are initiated and approved by the Systems Command and are implemented by Field Change Bulletin (FCB). AIT or Ship's Force can accomplish FCs. For these specific types of alterations, the SPM shall be notified of the approved changes affecting their respective platforms. The SPM shall be periodically advised of installation status and shall be notified of any logistics upgrades, which have been completed as a result of the alteration.

d. Engineering Change (EC). A modification, usually to Under-Sea Warfare (USW) equipment or systems or other equipment groups as designated by the Systems Command, Program Manager (PM), Participating Acquisition Resource Manager (PARM) or Configuration Control Board (CCB).

e. Alteration & Improvement (A&I) Item. (Submarines only) Tests, inspections, and minor alterations to submarines and submarine tenders. No significant Integrated Logistics Support (ILS) impact or significant material is required. A&I items are approved by Naval Sea Systems Command (NAVSEA) and authorized by the TYCOM.

(1) Software Delivery (SWD) Alteration/Ship Change. Any Operational Computer Program change that is not an ORDALT or FC. These programs must satisfy all platform and system certification requirements before they can be installed, or must have interim authority to be used if they have not passed appropriate software certification criteria. Provisioning Parts List (PPL) certification is required if the software is to run on the IT-21 Local Area Network (LAN).

24. **Hardware Systems Commands (HSC).** Commander Naval Sea Systems Command (COMNAVSEASYSCOM) is the lead hardware systems commander for the life cycle management of ships. Commander Naval Air Systems Command (COMNAVAIRSYSCOM) and Commander Space and Naval Warfare Systems Command (COMSPAWARSYSCOM) are also hardware systems commands. They must coordinate with COMNAVSEASYSCOM in the development of technical requirements essential to performing quality maintenance. The HSC provides Naval Supply (NAVSUP) with sufficient, accurate, up-to-date technical information to ensure consistent procurement and control of material that fulfills all technical requirements.

25. **Hull Modernization Plan (HMP) (NMP only).** The HMP is the sole, time-phased planning document for hull-specific Modernization requirements; it is the authoritative input to the Maintenance and Modernization Business Plan (MMBP), SPM Letter(s) of Authorization and the TYCOM Quarterly Installation Scheduling Message(s) for each affected hull; it is available as a report from NDE-NM. The HMP is used to create the hull specific A-360 Critical Milestone LOA, and subsequent change letters at A-180 and A-120 as well as any follow-on change messages. It is also used to develop the TYCOM Quarterly Installation Scheduling Message for installations planned in other than CNO Availabilities. It is the single, authoritative document for final authorization status for all modernization actions aboard any surface ship or aircraft carrier.

26. **Industrial Activity (IA)**. An IA is an activity capable of performing all aspects of work on ships. These activities generally include Naval Bases, Naval Ship Repair Facilities (NSRFs), Fleet Maintenance Activities, Trident Refit Facilities (TRFs), public (Naval) shipyards, and private shipyards, which hold Agreements for Boat Repair (ABR) or Master Ship Repair Agreements (MSRAs) in accordance with the Naval Sea Systems Command (NAVSEA) Supervisor of Shipbuilding, Conversion and Repair (SUPSHIP), USN Operations Manual.

27. **Initiator (NMP only).** Any authorized user of NDE. Provides the initial data input in an SCD or Legacy Alteration Change Request (LACR).

28. **Integrated Logistics Support (ILS) Certification.**

The process by which the SPM validates and certifies that the proper logistics support is in place to support a specific alteration planned for installation. SPM ILS Certification is required as part of the Alteration Approval process, unless a risk impact assessment is approved allowing the installation to precede after the determination is made that not all ILS products will be available at the time of installation.

a. NMP. The ILS Certification process is specified in Section 6-2.2.2 of reference 2.2.3(14).

b. Legacy FMP. The ILS Certification process for legacy alterations (applicable to K, F and A&I alterations) is specified Section 8-1.3.2 and Section 8 Exhibit II of reference 2.2.3(15).

29. **Integrated Logistics Support (ILS) Products.** Configuration and logistics items that impact a ship as a result of the installation of an Alteration/Ship Change (SC). These items include, but are not limited to, an alteration's/SC's ILS Certification, APLs, TMs, OBRPs, MAMs, MIPs/MRCs, CDMD-OA work file, support and test equipment requirements, and training requirements.

30. **Maintenance Program Master Plan (MPMP).** The MPMP provides a general overview of the Program Executive Offices (PEOs) and/or Ship Program Manager's (SPM's) maintenance plan for the ship class. It specifies key elements such as depot-level availability intervals and duration, frequency of intermediate-level availabilities and any special maintenance, maintenance support or infrastructure requirements.

31. **Maintenance Support Center (MSC).** CVN Ship force work center in which ILS products get checked-in and tracked inside and outside CNO availabilities.

32. **Method of Install (MOI).** A required field for properly scheduling of alterations/SCs In NDE-NM.

The list of MOI is as follows:

- TBD-To Be Determined
- IND-Industrial
- AT-AIT Industrial
- AP-AIT Pierside
- MO-Mail Out

Proper use is as follows:

- TBD is the system default setting and needs to be changed to reflect the actual method of installation.
- IND is set by the system when an alteration/SC is programmed in the Program/Execution Module to be installed in a CNO availability by the shipyard or SUPSHIP.
- AT is to be used when an installation is being executed by an Alteration Installation Team (AIT) during a CNO availability
- AP is to be used when an installation is being executed by an AIT during a TYCOM controlled availability (WOO, CMAV etc.)
- MO is to be used when an activity is sending an alteration/SC via mail including electronic delivery methods. The associated accomplishing activity should reflect the sending activity or responsible headquarters command not the ship that is expected to do the installation.
- For those installations that are identified as IND it is recommended that the alteration/SC be programmed first and then scheduled so that the MOI stays as IND.

33. **Modernization Through Attrition/Modernization in Lieu of Repair (MTA/MILR).** (NMP only). Fleet SCs used to facilitate Modernization through Attrition (i.e. SCDs which need to be installed only on an "MTA/MILR" basis, but do involve a change in ship configuration). Approval of the SCD will be based on the technical merit, ROI, AFOM, and total cost of the SC. Installation will be determined by the TYCOM during the execution year.

34. **Naval Supervising Activity/Authority (NSA).** The single Naval Activity charged with the responsibility of oversight of work being accomplished on U.S. Naval ships during any type of availability. The NSA has overall responsibility for integrating the planning and execution of work on Naval Ships by all involved activities. Implementation of an integrated planning, schedule, work control, and ship certification process is essential to a project's success. Effective coordination and oversight must be provided to ensure that all work performed during any availability will allow the NSA to meet the overall project schedule, cost, and quality requirements. NSAs have the authority and responsibility to preclude and/or stop AITs from performing work when they are found to be in non-compliance with this or other invoked specifications.

35. **New Construction: The period of time from Sail-away to the Obligating Work Limiting Date (OWLD) for a Shipbuilding and Conversion, Navy (SCN) surface ship.**

36. **Non-Permanent Change (NPC) (NMP only).** A NPC is defined as a change that will be installed for Test & Evaluation (T&E) purposes and to demonstrate a new or improved capability for the fleet. A NPC may be installed on a specific hull per class, CSG, or ESG. The testing criteria is normally carried out during an at-sea exercise or during an acquisition program's technology demonstration for further development in pursuit of a Permanent Change fielding if the NPC reaches maturity. In some cases, for NPCs installed and demonstrated during a previous exercise, the systems/equipment may need to be installed and additional testing conducted during another exercise to meet the overall criteria for a new capability. Additionally, NPCs can be used to provide an interim capability to support operational and training requirements for Platform TYCOMs, NETWARCOM, Operational Commanders, ISICs, or CFFC when formal justification and approval is provided.

37. **Post Shakedown Availability (PSA). An availability assigned to newly built, activated, or converted ships upon completion of post-delivery shakedown. PSAs will be scheduled to complete no later than the end of the Shipbuilding and Conversion Navy (SCN) obligation work limiting date, which is the date upon which SCN funding and work authority terminates. Work performed shall normally include correction of defects noted during shakedown, correction of deficiencies remaining from the acceptance trials, and performance of class modifications remaining from the new construction activation or conversion period.**

38. **Quality Management System (QMS).** A documented set of rules and procedures, which will assure that all provided supplies and services conform to a prescribed level of quality. For alterations/SCs accomplished on ships, the minimum prescribed level of quality shall be that specified in MSRAs and Agreements for Boat Repair (ABRs) as outlined in Naval Sea Systems Command (NAVSEA) Standard Item 009-04, and Appendix C of this TS.

39. **Quick Reaction Alteration (QRA) (Legacy FMP).** Alterations that are driven by an emergent requirement that requires rapid entry of high priority Secretary of Defense (SECDEF), Secretary of the Navy (SECNAV), Chief of Naval Operations (CNO), national interest items or vital technical changes into Quick Reaction Alterations necessitate rapid Ship Alteration (SHIPALT) development and close coordination between Operations Navy (OPNAV) Resource Sponsors and the Hardware System Command (HSCs).

40. **Red Lines or Red Lined Installation Drawings.** Planning Yard (PY) approved SIDs that have been revised manually (preferably in red ink) by the AIT to reflect all approved deviations and variances of the completed installation.

41. **Regional Maintenance and Modernization Coordination Office (RMMCO).** A Regional Maintenance Center-aligned; Fleet-chartered organization that serves as the primary point of entry for all waterfront related SC and maintenance activities. The RMMCO will serve as the office for AIT check-in and check-out, where applicable. The RMMCO's AIT Check-In/Check-Out application located at https://rmmco.navy.mil provides the AIT OSIC/AIT Lead with a means to initiate the check-in procedures required for the installation of a alteration/SC aboard ship. It also provides a means to measure performance of these installations.

42. **Scheduled/Non-Scheduled Chief of Naval Operations (CNO) Availabilities.** CNO Scheduled availability is a depot level maintenance window that is scheduled by CNO in accordance with the Maintenance Program Master Plan (MPMP) for the ship.

a. CNO Scheduled Maintenance Availabilities greater than 6 months in duration are:

(1) Overhaul. Availability scheduled for accomplishment of industrial maintenance and modernization. Types of Availabilities include:

- Regular Overhaul
- Complex Overhaul (COH)
- Engineered Overhaul (EOH)
- Refueling Overhaul (ROH)
- Refueling Complex Overhaul (RCOH)
- Engineered Refueling Overhaul (ERO)

(2) Other Availabilities. Availability scheduled primarily for industrial maintenance and installation of major, high priority alterations/SCs. Types of these include:

- Depot Modernization Period (DMP)
- Planned Incremental Availability (PIA)
- Docking Planned Incremental Availability (DPIA)

b. CNO Scheduled Maintenance Availabilities less than six months in duration are short, labor-intensive availabilities scheduled for accomplishment of industrial maintenance and modernization. Types of these availabilities include:

- Selected Restricted Availability (SRA)
- Docking SRA (DSRA)
- Phased Maintenance Availability (PMA)
- Docking Phased Maintenance Availability (DPMA)
- Service Craft Overhaul (SCO)
- Extended SRA (ESRA)
- Extended Dry-Docking SRA (EDSRA)
- Incremental SRA (ISRA)
- Extended Refit Period

c. Non-CNO Scheduled Availability. Availability that is not scheduled by CNO. The CFFC/TYCOMs assign and schedule Restricted Availabilities (RAVs), Technical Availabilities (TAVs), TYCOM Opportunity Availability (TOA),Voyage Repair (VR) Availabilities, Continuous Maintenance Availabilities (CMAVs), unscheduled CMAVs, ‘Z’ availabilities and Emergent availabilities.

43. Ship Acquisition Program Manager (SHAPM). The Naval Activity charged with the programmatic responsibility, accountability, and authority for the configuration of new construction ships. Prior to a New Construction Ship's OWLD, the SHAPM (or SHAPM representative) assumes many of the roles and responsibilities fulfilled by other activities during CNO and Non-CNO Availabilities for Active Fleet Units. These responsibilities may include, but are not limited to:

a. Serve as RMMCO Gatekeeper/Production controller, or provide additional support to the FLTCDR RMMCO to help meet additional requirements unique to managing installations aboard SCN ships.

b. Act as the NSA during ship availabilities, within the limits discussed elsewhere in this document.

c. Act as the TYCOM or SPM to determine alterations/SC authorization for installation and promulgate authorization documentation (e.g., TYCOM Authorization message, SPM LOA).

d. Act as the SPM for all FMP/NMP funded C51SR installations and make recommendations to the FLTCDR. Participate in C5IMP and other NCMC related meetings as applicable. Manage C5ISR configuration status for SCN ships via the NDE-AMPS database.

44. **Ship Alteration (SHIPALT)**. Approved permanent change to the configuration of a ship, which is documented as a SAR or SCD, and implemented through the legacy FMP Process. SHIPALTs are classified by the following titles:

a. Title "D" SHIPALT. A Title "D" SHIPALT is an "alteration equivalent to a repair" that is formally approved by Naval Sea Systems Command (NAVSEA) in the form of a SAR. It may require Centrally Provided Material (CPM) and is programmed and funded by the TYCOM. It does not require Headquarters Centrally Provided Material (HCPM). A Title "D" SHIPALT may specify whether it should be accomplished only by a depot level maintenance facility, or if it is within the capabilities of ship's force or Intermediate Maintenance Activity (IMA) to accomplish. A Title "D" SHIPALT shall be issued for all non-Nuclear Alteration Equivalent to Repair (AERs) that require changes to the equipment or system Integrated Logistics Support (ILS).

b. Title "F" SHIPALT. A Title "F" SHIPALT is an "alteration equivalent to a repair" that is formally approved by NAVSEA in the form of a SAR. It does not require CPM and is programmed and funded by the TYCOM. Ship's force or an Intermediate Maintenance Activity (IMA) can accomplish a Title "F" SHIPALT. It is usually limited to the equipment removals or relocations or minor wiring, piping or ducting modifications.

c. Title "K" SHIPALT. A permanent alteration to provide a military characteristic, upgrade existing systems or provide additional capability not previously held by a ship, which affects configuration controlled areas or systems of a ship or which otherwise requires the installation of HCPM. These SHIPALTs are approved for development and authorized for accomplishment by the Chief of Naval Operations (CNO) (military improvements) or the Hardware System Command (HSCs) (non-military improvements). Commander Naval Sea Systems Command (COMNAVSEASYSCOM) provides the technical approval for Title "K" SHIPALTs.

d. Title "K-P" SHIPALT. A Title "K" SHIPALT that is within forces afloat or AIT capability for accomplishment and for which required special program and centrally provided materials are provided as a package by the HSC.

45. **Ship Change (SC)** A Ship Change (SC) **(NMP only)** is a modernization action documented by a Ship Change Document (SCD). There are only two types of Ship Changes (SCs) in the NMP: Program changes and Fleet changes.

- Program changes are programmed for installation by SYSCOMs or PEOs, as well as funded for accomplishment by the SYSCOMs, PEOs or other organizations as agreed upon.
- Fleet changes are programmed for installation by the Fleet (TYCOM), as well as funded for accomplishment by the Fleet or other organizations as agreed upon.

46. **Ship Program Manager (SPM).** The Naval Sea Systems Command (NAVSEA) organization responsible for management of ships' acquisition, overhauls, or repairs.

47. **Submitter (NMP only).** Submitter is responsible and accountable for the all phases of the SCD. They will be the primary point of contact for questions or clarification throughout the process. Subsequent approvals, disapprovals, and notification to complete the next phase of the SCD will be forwarded to this point of contact.

48. **Sustainment Change (NMP only).** Sustainment consists of all efforts required to correct or maintain a system's design capability, maintainability or reparability through internal equipment modifications that do not impact shipboard distributed systems. There are two types of sustainment:

- Sustainment Type 1 (ST 1). An internal equipment modification that is a configuration change that provides new functionality, but has no impact on ship distributed systems.
- Sustainment Type 2 (ST 2). An internal equipment modification that is a configuration change that provides no new functionality and has no impact on ship distributed systems. For example:
    - System repair action that resolves a reliability issue
    - Corrective maintenance (repair) that results in a requirement to back fit all systems

49. **Task.** A task in common usage is usually construed as a way of referring to a job; however, for AIM processes, a Task has a more carefully defined meaning. (For this reason it may be beneficial to refer to AIM Tasks with a capital "T".) An AIM Task is a portion of the work within one CU Phase that requires a specific trade skill. There are usually multiple Tasks (i.e., a Task Group) developed for a CU Phase. See also Work Breakdown Structure (WBS).

- It is interrupted by any other planned work.
- It is associated with a physical location, test boundary, zone, and a single system.
- It supports completion of a distinct phase of work.
- It has its own budget allocation.

50. **Trouble Report.** The trouble report is the vehicle for reporting significant problems to NAVSEA and other activities involved in work performed on Naval ships, carriers and submarines for use in training and improving the weaknesses identified as a result of the problems. NAVSEA Instruction 4700.17(Series) provides requirements for preparing and submitting trouble reports. The AIT Manager should use UIPI 0900-453, Critique and Problem Analysis Matrix Processes; Problem Identification and Investigation or equivalent process when preparing trouble reports.

51. **Type Commander Alterations (TYCOMALTs)/SCD Fleet Change.** TYCOMs are authorized to approve temporary changes to compartments of ships, other than nuclear support facilities or compartments adjacent to ship nuclear support facilities, through use of TYCOMALTs subject to the requirements laid out in COMUSFLTFORCOMINST 4790.3 (Series).

52. **Work Authorization Form (WAF).** A WAF is required to authorize the start of work on all ship systems and equipment by activities other than Ship's Force. Work includes all maintenance repairs or modifications and installation of existing and new systems or removal of temporary support systems and equipment. Additional information is contained in COMUSFLTFORCOMINST 4790.3.

TECHNICAL SPECIFICATION
TITLE: ALTERATIONS TO SHIPS ACCOMPLISHED BY ALTERATION INSTALLATION TEAMS
NO.: TS9090-310F
DATE: 1 June 2011

SUPERSEDES: TS9090-310E, dated APRIL 2009

DISTRIBUTION STATEMENT A
APPROVED FOR PUBLIC RELEASE
DISTRIBUTION UNLIMITED

PUBLISHED BY
COMMANDER, NAVAL SEA SYSTEMS COMMAND

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ALTERATIONS/SHIP CHANGES TO SHIPS ACCOMPLISHED BY ALTERATION INSTALLATION TEAMS

1 SCOPE

This specification establishes procedures applicable for all shipboard Alterations/Ship Changes (SCs) accomplished by Alteration Installation Teams (AITs) or any organization that performs the duties or functions of an AIT.

1.1 General

This specification provides requirements for the planning, scheduling, and accomplishment of logistically supported alterations/SCs on active and reserve U.S. Navy ships by AITs and provisions for a Quality Management System (QMS) for accomplishment of such work.

a. Planning

Only alterations and SCs approved by the Navy Modernization Process (NMP), as applicable, will be installed in U.S. Navy ships.

No funds shall be expended for ships scheduled for deactivation within five years without a Secretary of the Navy (SECNAV) waiver or approved Memorandum for Record (MFR). See reference 2.2.3(14).

Note: This paragraph applies only to changes funded outside of Shipbuilding and Conversion, Navy (SCN) accounts. SCN-funded change processing questions should be referred to the respective Ship Acquisition Program Managers (SHAPMs).

b. Scheduling

For submarine Type Commander Alterations (TYCOMALTS) the TYCOM Alteration Management System (TAMS) serves as the official authorization database until the Navy Data Environment (NDE) database can be modified to accommodate TYCOM requirements and Unclassified Navy Nuclear Propulsion Information (UNNPI) data.

OHIO Class Submarines do not use NDE. Configuration is managed in the Submarine Acquisition and Support (SAS) System and uploaded via Configuration Data Managers Database – Open Architecture (CDMD-OA) to the Weapons System File (WSF). Installations are scheduled in the Navy Tool for Interoperability Risk Assessment (NTIRA) / Submarine Modernization and Alteration Requirements Tool (SMART) and the TAMS. Submarine scheduling/programming of Title “K” and “KP” alterations is also accomplished in the NDE program module.

Surface ship and carrier modernization is scheduled in Navy Data Environment-Navy Modernization (NDE-NM). In addition, SCs that are ship modifications (legacy 'K' & ‘D’ SHIPALTs) are scheduled/programmed by the Sponsor in the NDE program module.

For New Construction Carriers, Surface Combatants, and Amphibious Ships, configuration is managed by the respective SHAPMs while the ship is in the SCN Window, from the ship's Delivery to the Obligating Work Limiting Date (OWLD).

The Availability Work Package (AWP) serves as the official authorization database for scheduling and tracking. Configuration is managed and uploaded via CDMD-OA to Enterprise Resource Planning (ERP) by the respective SHAPM's Configuration Data Manager (CDM).

c. Accomplishment

The installation of alterations/SCs are accomplished through established procedures noted in this specification, references 2.2.3(14), and 2.2.2(1).

Note: Milestones within this document are expressed in calendar days for Surface Ships and Carriers and in months for Submarines.

1.2 Definitions

As used in this document, the definitions contained in Appendix G herein apply.

1.3 Applicability

This specification applies to all legacy alterations and SCs accomplished by AITs on U.S. Navy ships, including surface ships, carriers, submarines, and service craft, except as noted in paragraph 1.4.

This NAVSEA Technical Specification (NSTS) cancels and supersedes Technical Specification (TS) 9090-310E.

1.4 Exceptions

This specification does not apply to:

a. Alterations to nuclear components and systems under the cognizance of the Deputy Commander for Nuclear Propulsion (NAVSEA 08).

b. Strategic Systems Program Alterations (SPALTs) issued by the Director, Strategic Systems Programs (DIRSSP).

c. Temporary modifications performed as part of a shipyard availability to support industrial work or associated testing.

d. Temporary Alterations (TEMPALTs) to be accomplished on submarines. References 2.2.3(18)) and 2.2.3(12) provide specific policy and procedures for submarine TEMPALTs.

e. Technical support personnel and certification teams who only provide technical guidance, equipment check-out and grooming or certification of systems or on-site training for Ship’s Force not associated with the accomplishment of an alteration/SC.

f. Technical support personnel for non-invasive installations supporting short term experimentation efforts where desktop/laptop computers are brought aboard and not connected to the network to support clearly defined experimentation objectives for a finite period of time and do not require AITs for installation.

1.5 Roles and Responsibilities

The general roles and responsibilities for the following activities are identified to provide guidance for AIT installations. These roles and responsibilities are further defined throughout this TS and can be refined, if required, in a Memorandum of Agreement (MOA). It is recommended that Headquarters System Commands (HSC)/AIT units that use alternative AIT titles within their organization use the terminology of TS9090-310(Series) in position description/billet assignments of personnel. If alternative titles are used, ensure personnel assigned parallel AIT duties are familiar with TS9090-310(Series) responsibilities. All activities identified in this TS are responsible for entering and maintaining accurate data in NDE.

1.5.1 Naval Supervising Activity/Authority

1. The single naval activity responsible for the integration, oversight, and verification of all work accomplished by all activities (i.e. Naval Shipyards (NSYs), Regional Maintenance Centers (RMCs), Supervisors of Shipbuilding, Conversion, and Repair (SUPSHIPs) contractors, TYCOM sponsored contractors, Fleet Maintenance Activities (FMAs), AITs, and Ship's Force) working within the assigned availability, and which acts as the single point of contact for this work. The Naval Supervising Authority/Activity (NSA) must possess a Naval Sea Systems Command (NAVSEA) Technical Warrant. The NSA will provide the oversight required to ensure that all work in the assigned availability is authorized and completed in compliance with applicable technical requirements and maintenance/modernization policy, and that all work meets schedule, cost, quality, and environmental/safety requirements. In accordance with reference 2.2.2(1) Volume VI, Chapter 43 (Guidance For Enhanced Modernization And Alteration Installation Team Integration During Availabilities) the NSA has overall responsibility for the availability, and possesses the authority to organize, structure, and coordinate all availability execution matters. All other participants will support the NSA in this regard. Specific NSA strategies to accomplish this oversight will vary, however, an integrated planning process, work control process, and ship certification process are essential to the success of the availability.
2. Depending on the complexity of the availability, the NSA responsibilities include but are not limited to:
    a. Coordination with other Maintenance Activities (i.e. NSYs, RMCs, SUPSHIPs, AITs, Ship's Force, and other participating activities) through an authorized MOA.
    b. Act as the single point of contact for the Lead Maintenance Activity (LMA) shipboard personnel and AIT Manager.
    c. Verify completion of work for milestones, key events, end of availability, and availability departure report based on documentation provided by all activities.
    d. Based on the amount of work accomplished, the NSA may also assume the role of LMA.
3. For Chief of Naval Operations (CNO) Availabilities, the NSA will:

a. (NSYs only) Also serve as LMA, when applicable.

b. Participate in selected work definition and planning conferences.

c. Facilitate planning efforts. Ensure detailed planning and integration of the work package is accomplished to provide a schedule that incorporates the work and testing of all organizations involved in the availability. The schedule will address work definition, key events, ship checks, job summaries, material preparations, and strategy preparations. Identify milestones with sufficient detail to measure intermediate progress toward each key event. Ensure orientation briefings and training are conducted as necessary so that personnel understand applicable project processes and requirements. Communicate with the AIT Manager to provide sample documents (Plan of Actions and Milestones (POA&M), MOA, AIT Support Services Request Forms, etc.) in accordance with paragraph 3.6.1.

d. During work execution, review all changes to specifications and work items impacting propulsion plant or designated areas of nuclear powered ships to ensure requirements are met

e. Prior to Fast Cruise, Sea Trials, and availability completion, verify all authorized work has been completed unless waived.

f. Monitor the effectiveness and the quality of AIT Managers' execution of their Quality Assurance (QA) oversight responsibilities. Assess their execution of QA oversight responsibilities and conduct Quality Sampling of AIT performance.

g. Ensure required participants are notified of all applicable Planning Conferences and review meetings to discuss and resolve any issues related to the alteration; (for surface ships) the Work Package Integration Conference (WPIC) and Work Package Execution Review (WPER), (for submarines) NSA Final Planning Meeting/AIT Conference, (for carriers) the Modernization Readiness Assessment (MRA) Conference and/or equivalent New Construction Conferences.

h. Verify the delivery of all required Integrated Logistics Support (ILS) products and report any ILS problems or deficiencies to the appropriate authorities (Ship Program Manager (SPM), TYCOM, Participating Acquisition Resource Manager (PARM), In-Service Engineering Agent (ISEA), Ship's Force). Perform surveillances of installations on a sampling basis and use the sampling evidence to indicate conformance or nonconformance with NAVSEA requirements.

i. Attend AIT In/Out briefs and coordinate with the AIT Manager/AIT On Site Installation Coordinator (AIT OSIC) and Ship's Force to ensure satisfactory completion of alterations

j. Exercise final arbiter for conflict resolution in accordance with reference 2.2.2(1) Volume VI Chapter 43.

k. In cases where the AIT is unable to complete the installation within the availability, the NSA will:

    i. Perform an independent assessment of the impact of the unfinished work.

    ii. Contact Planning Yard (PY), as required, to complete this assessment.

iii. Determine required mitigating actions as appropriate. These may include additional spare parts, installation of temporary valves, etc.

iv. Ensure a Departure From Specification (DFS) is documented, if required.

v. Determine if temporary changes to watch bills, training aid booklets, operating procedures, etc., are required, and ensure required changes are implemented.

vi. Provide a complete package to Ship's Force, the PY, the appropriate TYCOM, and the appropriate Program Executive Officer (PEO) detailing how above items i through v have been adjudicated.

vii. Provide concurrence to the AIT Manager that the availability may complete.

viii. Ensure the AIT Sponsor is involved in this process.

ix. Notify the applicable Program Office and NAVSEA 04 of any AIT work suspension/cancellation.

l. Oversee AIT work on critical systems in accordance with paragraph 3.5.2.

m. The NSA and LMA will jointly prepare a MOA in accordance with reference 2.2.2(1) to clarify the responsibilities of all participating activities involved in the installation of alterations/SCs by AITs for all availabilities.

n. Verify that the AIT has checked in Regional Maintenance and Modernization Coordination Office (RMMCO) prior to commencing work.

1.5.2 Lead Maintenance Activity

The LMA is the single activity responsible for work being accomplished on U.S. Navy ships during any type of availability. In accordance with reference 2.2.2(1) Volume VI, Chapter 43 (Guidance For Enhanced Modernization And Alteration Installation Team Integration During Availabilities) the LMA has overall responsibility for the availability, and possesses the authority to organize, structure, and coordinate all availability execution matters. All other participants will support the LMA in this regard. Specific LMA strategies to accomplish this oversight will vary, however, an integrated planning process, work control process, and ship certification process are essential to the success of the availability.

LMAs responsibilities are:

1. Conduct or attend routine progress review meetings with all assigned activities. Identify and resolve coordination problems and work conflicts. Advise the appropriate alteration/SC sponsors (e.g. NSA, NAVSEA, TYCOM, AIT Sponsor, SPM, etc.) of significant quality, cost, and schedule problems and impacts.

2. (CNO and SCN Availabilities) Coordinate work and testing controls to include Work Authorization Forms (WAFs), tag-outs, and test sequencing.

3. (CNO and SCN Availabilities) Coordinate preparations by assigned activities for all key events (i.e. docking, undocking, hot operations, dock trials, fast cruise, sea trials, etc.) to include verification signature checklists of readiness to start.

4. (CNO and SCN Availabilities) Coordinate crane operations, pier lay-down areas, dry dock work areas, and resolve other real estate conflicts which may impede efficient execution of the availability.
5. (CNO Availabilities only) Provide sea trials agenda with all participating activities input for Ship CO concurrence and TYCOM approval.
6. Integrate the work of all activities. For CNO Availabilities, this includes integrated work and testing schedules. For non-CNO Availabilities, integrated schedules may be used based on the complexity of the work as determined by the LMA. The schedule shall ensure adequate time is provided for crew training.
7. (Submarine CNO Availabilities only) Provide a copy of all DFS to Ship's Force QA Officer and the TYCOM N43 organization.
8. (Submarine CNO Availabilities only) Appoint a Ship Safety Officer to chair the Ship's Safety Council and coordinate work that affects control of a ship's control system.
9. (Submarines only) Provide management oversight of ship safety council in accordance with reference 2.2.3(2).
10. (Submarines only) Coordinate all safety programs (such as sail safety and sail closeout) efforts by assigned activities.
11. For Submarine Safety (SUBSAFE), Deep Submergence System-Scope of Certification (DSS-SOC), and Fly-By-Wire (FBW) work ensure that the MOA identifies the certifying activity.
12. Maintain a list of activities working on the ship. Ensure the list is updated weekly or on an as-needed basis. Ensure activities working on the ship have the proper credentials, work schedule and pedigree (authorized activity) prior to being added on the work authorization list (e.g., SUBSAFE, Scope of Certification (SOC), FBW, radiological, etc.).
13. Track progress of all activities.
14. Provide local points of contact to AIT and OSIC.
15. Attend all production management meetings to communicate/resolve priorities, problems, job interferences, and issues.
16. Participate in critiques and problem investigations (e.g. Trouble Reports) as necessary.
17. Conduct Ship's Force and AIT orientation briefings and training in accordance with this TS and reference 2.2.3(22).
18. The NSA and LMA will jointly prepare a MOA in accordance with reference 2.2.2(1) to clarify the responsibilities of all participating activities involved in the installation of alterations/SCs by AITs for all availabilities.

1.5.3 Ship Acquisition Program Manager (SHAPM)

For New Construction ships, the SHAPM has the programmatic responsibility, accountability, and authority for ship configuration. SHAPM responsibilities include:

1. Fulfill the roles and responsibilities of the TYCOM for configuration control throughout the SCN Window, and be the final authority for the installation of any alteration/SC during the SCN Window.

2. Fulfill the roles and responsibilities of the NSA pertaining to:

    a. All AIT work not tasked to the executing shipyard for industrial work or support items; except in matters of: PSA Executing Shipyard Administering Contracting Officer (ACO) and Technical Warrant Holder responsibilities; environmental, safety; local area AIT training requirements; clearance and visit request distribution to ships and shipyards.

    b. Distribution of ILS products and reporting of any ILS problems or deficiencies to the appropriate authorities.

3. Attend AIT In/Out Briefs and coordinate with the AIT Manager and Ship's Force to ensure satisfactory completion of alterations.

4. Fulfill the roles and responsibilities of the LMA for:

    a. Developing the consolidated Sea Trials agenda with input from all participating activities for ship CO's concurrence.

    b. Checking in and logging all AIT personnel, except those directly contracted or subcontracted by the executing shipyard.

5. Perform the functions of RMMCO including Gatekeeping and Production during the SCN Window.

6. Assume all the roles and responsibilities of the RMC pertaining to AIT management, coordination, integration, scheduling, oversight, reporting, resolution of technical issues and logistics.

7. Provide and manage C5I Surveillance and Reconnaissance (C5ISR) configuration status in accordance with reference 2.2.2(2).

8. Coordinate OWLD extension requests with the appropriate FLTCDR prior to extension taking effect in order to assure alignment with operational considerations.

9. Develop and submit a Completion Report for all availabilities.

10. Develop and deliver a Transfer Book documenting the turnover of life cycle support of new construction ships to the In-Service SPM.

1.5.4 Program Executive Office Submarines (PEO SUBS) Modernization Advance Planning Team (PMAPT)

1.5.4.1 The PEO SUBS Modernization Advance Planning Team (PMAPT)

The PEO SUBS Modernization Advance Planning Team (PMAPT) consists of a core group of representatives from various organizations, with the lead offices at Norfolk Naval Shipyard and Regional Support Group, Groton (due to their close proximity to the submarine PY). The PMAPT develops and submits the Advance Modernization Planning Package (AMPP) at A-10 in accordance with section 3.4.6.

The PMAPT is tasked with Modernization Planning Package Development for submarines including the following:

1. Providing coordination and integration interface between the joint NSA/LMA Project Team and all individual AITs assigned work during the modernization period.
2. Providing the AMPP to the AIT Managers, NSA, and LMA for validation and refinement as applicable to the project's Milestones and Key events.

1.5.4.2 The PEO SUBS LMA/AIT Modernization Coordination and Integration Team

The PEO SUBS LMA/AIT Modernization Coordination and Integration Team consists of representatives at each of the locations where submarine modernization is performed. Their responsibilities, as tasked by PEO SUBS and in accordance with a PEO SUBS/Naval and Private Shipyards/Program Offices MOA, include the following:

1. Provide coordination and integration interface between the joint NSA/LMA Project Team and all individual AITs assigned work during the modernization period.
2. Provide AIT installation planning support to the NSA and LMA to include:
    a. Assisting in organizing, scheduling, and planning AIT integration conferences.
    b. Coordination and schedule support of Pre-Installation Check Out (PICO)/ship checks
    c. Resource support for work schedule integration.
    d. Resource support for logistic requirements.
    e. Resource support for MOAs.
    f. Resource support for Readiness to Start status tracking.
    g. Resource support for service requests and tracking service requests.
    h. Resource support for modernization execution status tracking.
    i. Resource support for Ship's Force to include integration of training plans as provided by the Submarine Learning Center and Program Offices.
    j. Resource support for integrated System Operational Verification Test (SOVT)

k. Resource support to the NSA, LMA, and AIT Managers to fully integrate the AIT schedules in AIM/PSS and/or other master schedules.

l. Provide "Lessons Learned" from previous modernization periods and incorporate into current availability planning and execution.

m. Conduct on-site evaluations and assessments of Submarine Warfare Federated Tactical System (SWFTS) alterations in progress and provide a weekly status report (for all projects currently being supported) to the joint NSA/LMA Project Team, AIT Managers, SPAWAR, and PEO SUBS. This report is the PEO SUBS LMA/AIT Integration and Coordination Representative's independent, objective assessment of the AITs and the support being provided to the AITs. An advance copy of the weekly report will be provided to the individual availability Superintendent(s)/Manager(s) for review prior to distribution.

1.5.5 AIT Sponsor

The AIT Sponsor is the government activity that tasks and funds the AIT Manager. The AIT Sponsor will:

1. Ensure TS9090-310(series) requirements are invoked.
2. Ensure AITs and associated activities are fully funded in a timely manner to support planning requirements and milestones established by references 2.2.2(1), 2.2.3(14), 2.2.3(35) and this TS.
3. Ensure annual quality assessments are performed of AITs by AIT Managers as delineated in paragraph 3.12.2.3.
4. Ensure all work within the SUBSAFE Certification Boundary is performed by a reference 2.2.3(20) activity and that Supervising Authority functions required by reference 2.2.3(9) are performed by a Government Activity identified by reference 2.2.3(20).
5. Ensure all work within FBW Certification Boundary is performed by an activity authorized in accordance with reference 2.2.3(34)
6. Ensure all DSS-SOC work is performed in accordance with reference 2.2.3(1).
7. Ensure AIT Manager requires activity submit a letter to AIT Sponsor certifying that all SUBSAFE boundary work has been identified for their completion before commencement of the actual work in accordance with reference 2.2.3(20).
8. Ensure AIT Installations are funded to the level necessary to ensure all QMS requirements are met.
9. For carriers, submit to TYCOM N432, AIT Manager point of contact, information for each Ship Change Document (SCD) assigned by hull.

1.5.6 AIT Manager

The government activity, ISEA, military person or government civilian tasked and funded by the AIT Sponsor to initiate, fund, plan, coordinate, schedule, manage and oversee the successful accomplishment of the alteration/SC. The AIT Manager will:

1. Ensure that the AIT effort is fully coordinated with the SPM, SHAPM, Life Cycle Manager (LCM), NSA, LMA, TYCOM, and PY, including participation in AIT integration efforts directed by the NSA during the availability advance planning process.
2. Ensure alteration/SC is authorized for installation and is properly scheduled in NDE-NM for surface ships and carriers and in NTIRA for submarines.
3. Follow the impact assessment/risk assessment process when warranted, as outlined in reference 2.2.3(14).
4. When accomplishing a Quick Reaction Alteration (QRA)/Emergent SC in accordance with paragraph 3.2.2.3.1(2), the AIT Manager will begin immediate liaison with the NSA, LMA, and/or RMMCO to facilitate rapid installation completion.
5. Sign MOAs in accordance with paragraph 3.6.1.
6. Identify the AIT and manage AIT funding accordance with paragraph 3.2.1.
7. Ensure the AIT has a designated AIT Lead.
8. Ensure AITs have a QMS plan accepted by NAVSEA 04XQ prior to installation that complies with Appendix C and that proper training, certifications, and QA controls are in place for the work identified.
9. Develop and maintain an AIT Manager's Quality Assurance Program (AMQAP) to ensure AIT compliance with specified technical and quality requirements. Guidelines and provisions for an AMQAP are provided in Appendix D.
10. Review AIT quality trends and take corrective action when negative trends can degrade product quality.
11. Review AIT QA workbook and ensure it is available prior to each installation in accordance with paragraph 3.2.2.1.4.
12. Define AIT support services requirements and provide funding in accordance with paragraphs 3.6.4 and 3.7.
13. Ensure the AIT In-brief is scheduled and conducted in accordance with Appendix E.
14. Provide POA&M to the NSA and LMA in accordance with reference 2.2.2(1), Volume VI, and Chapter 43. The POA&M submittal shall be in accordance with paragraph 3.5.1 and the templates for the submittal are provided in Appendices A and B.
15. Provide information for the creation of a Job Control Number (JCN) by one of the following methods: 1) Coordinate with local RMC to generate a Work Item for Regional Maintenance Automated Information System (RMAIS). 2) For submarines and carriers, provide this information to the TYCOM Representative for loading in RMAIS. 3) For New Construction provide this information to the SHAPM for incorporation into the Availability Work Package (AWP).

16. Ensure an AIT OSIC is assigned to an installation prior to RMMCO Electronic Check-in (A single AIT OSIC may be designated for multiple alterations/SCs). If the OSIC is from a different organization than the AIT Manager, the AIT Manager shall ensure that scope of authority designated to the OSIC is documented via a MOA.

    Note: AITs that do not have an assigned AIT/OSIC will be denied access to the ship.

17. Assign an AIT OSIC for each shift if multiple-shift work is to be accomplished.
18. Use discretion and experience to determine the amount of physical on-the-ship presence that is required of the AIT OSIC based on production work complexity, critical system work, contractor experience, etc. OSIC manning will be discussed during the WPIC and Final Planning Conference, and/or equivalent New Construction Conferences.
19. Verify configuration change data is loaded in CDMD-OA sixty (60) days prior to start of installation and ensure final configuration data is submitted to the LCM/ISEA at installation completion to support CDMD-OA update (see paragraph 3.22). For New Construction ships, configuration change data is provided to the SHAPM's CDM representative who will load it into CDMD-OA.
20. Ensure appropriate Security Clearance information is provided in accordance with paragraph 3.8.
21. Ensure the AIT complies with applicable Occupational Safety and Health Administration (OSHA) Standards and NAVSEA Standard Items (SIs).
22. Identify Critical System work in accordance with paragraph 3.5.2.
23. Ensure electronic check in with RMMCO is accomplished in accordance with paragraph 3.13.
24. Ensure representatives are present at applicable Planning Conferences and review meetings, to discuss and resolve any issues related to the alteration; (for surface ships) the WPIC and WPER, (for submarines) NSA Final Planning Meeting/AIT Conference, (for carriers) the MRA Conference and/or equivalent New Construction Conferences.

    Note: Representatives may opt out of personal attendance if it is cost prohibitive (e.g. held overseas on a deployed unit). Teleconferencing or Video-teleconferencing may be employed, if reasonably available. For New Construction surface ships and carriers, attend PSA Planning Conferences and Work Package Scrubs as required by the SHAPM.

25. (Submarines only) Release readiness to start information in accordance with paragraph 3.18.13.
26. Ensure physical check in with RMMCO is accomplished including submission of required documentation for review and verification.

    Note: Ensure OSIC and AIT Lead attend a physical check-in with the applicable Environmental, Safety, and Occupational Health (ESOH) Office before work commences.

27. Ensure adherence to safety, technical, environmental, and production process requirements. Coordinate with NSA and LMA to determine requirements for local area AIT training requirements, including (but not limited to) Shipyard safety briefings and Work Authorization/Tag Out procedures.
28. Ensure OSIC executes AMQAP on-site as planned.
29. Have AMQAP available for review by NSA when requested.
30. Provide a copy of any surveillance reports or audits conducted to the NSA when requested.
31. Investigate significant problems and submit critique and Trouble Reports in accordance with references 2.2.3(17) and 2.2.3(35). The ship involved, the contractor(s) involved, and the applicable NSA and LMA will be parties to the investigation and will assist in the preparation of the Trouble Report. Implement the corrective actions addressed in the Trouble Report.
32. Review and submit Liaison Action Record (LAR) requests and incorporate into future installs if applicable.
33. Ensure all QMS requirements are met, appropriate quality oversight during installation is provided and qualified/trained personnel are in place to perform requisite technical and quality oversight responsibilities, including in-process monitoring on all shifts conducting work.
34. Ensure proper completion of inspection/installation records by reviewing completed Sections 6 and 7 of the QA Workbook (Section 3.12.1.5).
35. Ensure RMMCO Check-out is completed in accordance with paragraph 3.24.3
36. Upon completion of the installation, report alteration/SC completion in accordance with paragraph 3.24.2, verify delivery of ILS products, show the status of completion of each alteration/SC and list those items authorized but not undertaken to the TYCOM and SPM in accordance with existing instructions. Copies of the completion report will be sent to the NSA, LMA, PY, applicable Squadron/Group Commander, RMC, Submarine Maintenance, Engineering, Planning and Procurement (SUBMEPP), the applicable SPM, the Carrier Planning Activity (CPA) (carriers only), and the Naval Sea Logistics Center (surface ships only).
37. Forward copies of the Alteration/SC Completion Report (ACR) in accordance with paragraph 3.24.2. More than one completion report may be submitted for a single alteration/SC accomplished by multiple AIT activities. However, a single completion report must be issued for each alteration/SC.
38. Upon completion of each installation, ensure that red lined drawings are provided to the ship in accordance with paragraph 3.24 and to the PY in accordance with paragraphs 3.24.4.1 and 3.24.4.2.
39. Support any post-installation lessons learned meetings, including ensuring representation at post-Chief of Naval Operations (CNO) Availability Hot Washes.
40. Perform annual quality assessments in accordance with paragraph 3.12.2.3.

41. Recommend to AIT Sponsor and NAVSEA 04XQ the revoking of QMS acceptances when AITs are not in compliance with this or other invoked specifications.
42. In cases where the AIT is unable to complete the installation within the availability, the AIT Manager will:
    a. Document the amount of work left to be accomplished.
    b. Ensure the SPM, NSA, LMA, Ship CO, and AIT Sponsor have been informed.
    c. Verify and concur in writing that the AIT assessment of the impact of the missing equipment or capability and function is accurate and complete.
    d. Add amplifications or clarifications as appropriate.
    e. Obtain NSA and LMA concurrence that all required mitigating actions and documentations have been performed.
43. Provide Ship's Force/NSA red line drawings in support of tag-out boundary shifts during the installation.
44. Ensure that reference 2.2.3(20) activity submits a letter to the AIT Sponsor certifying that all SUBSAFE boundary work has been identified for their completion before commencement of the actual work.
45. Coordinate any required installation training, testing, and/or SOVT.
46. Ensure all training to be provided at the time of installation has been accomplished in accordance with paragraph 3.21.
47. For work on nuclear powered ships, verify requirements of reference 2.2.3(22) are met.
48. Ensure adherence to PICO requirements

1.5.7 AIT On-Site Installation Coordinator

The AIT OSIC is the government or military employee designated by and acting with the authority of the AIT Manager. The AIT OSIC will:

1. Be assigned and present during each installation, particularly for key/critical milestones and events in accordance with paragraph 3.2.2.2.
2. Maintain an on-site presence as dictated by the scope of work, AIT Manager and as further described in paragraph 3.2.2.2.
3. Have general responsibility for the conduct of the AIT and installation.
4. Attend advance planning meetings at the direction of the AIT Manager.
5. Be knowledgeable of and responsible for AIT adherence to all invoked requirements including safety, environmental, workmanship, quality, technical instructions, and any NSA/LMA MOA in effect with the NSA, LMA and AIT Manager.
6. Verify AIT personnel have required training and personnel/procedural qualifications for processes required for the installation.

7. Assist in providing visit requests and clearance information in accordance with paragraph 3.8.
8. Participate in negotiating and signing MOAs.
9. Coordinate with the AIT Lead, NSA and LMA for all planning and installation issues.
10. Support electronic RMMCO Check-in as designated by the AIT Manager.
11. Support RMMCO/NSA physical check-in.
12. Schedule and conduct ship's in-brief in accordance with Appendix E.
13. Obtain points of contact from the ship and provide AIT points of contact to the ship at the in-brief.
14. Ensure NSA and LMA has contact information for after normal duty hours in the local geographical area.
15. Be the primary point of contact for all matters regarding the AIT installation. Resolve AIT issues, particularly those relating to a stop work order.
16. Support PICO.
17. Execute AMQAP, including performing on-site QA surveillance inspections and audits to ensure AIT compliance with specified technical and quality requirements in accordance with Appendix D.
18. Employ the Corrective Action Request (CAR) Process in accordance with Appendix D.
19. Assist in coordinating work by other activities for associated or conjunctive alterations including the coordination of test/certification plans.
20. Ensure the AIT complies with applicable OSHA standards and NAVSEA SIs.
21. Ensure that proper housekeeping and ESOH requirements are maintained.
22. Ensure that work on a nuclear powered ship is in compliance with references 2.2.3(19), 2.2.3(22), and 2.2.3(33). Notify the NSA and LMA to assist in review of changes to specifications.
23. Ensure AIT contractor is maintaining a QA workbook on site during the installation.
24. Be responsible for verifying AIT accomplishment of Inspection (I) and Verification (V) check points and for conducting and signing Government (G) check points. Receive notifications of and take appropriate corrective action for any AIT QA deficiencies from NSA, LMA or Ship's Force.
25. Provide a periodic task status report to the AIT Manager. Report shall address overall alteration status, AIT progress, problems encountered and lessons learned.
26. Participate in Daily Production and Weekly Progress Meetings to provide updated progress on installations and changes to production schedule.
27. Ensure all requested AIT support services required for the installation have been provided. Ensure AIT support services are coordinated and tracked. Mediate any discrepancies regarding AIT support services in a timely fashion. Report any discrepancies to the AIT Manager.

28. Ensure AIT SUBSAFE work is performed in accordance with references 2.2.3(10) and 2.2.3(20).
29. Ensure AIT FBW work is performed in accordance with reference 2.2.3(34).
30. Keep the NSA, LMA and ship informed of SOVT Testing status. Provide a complete set of test reports to Ship's Force, NSA and LMA at the completion of the alteration/SC testing. Forward certification test results to the AIT Manager as provided by the AIT.
31. Ensure AIT is maintaining red lined mark-ups of all required drawings and documents reflecting all approved changes made during the installation and ensure copies are provided to the ship after installation.
32. Ensure LARs are generated and submitted in accordance with references 2.1.1(1) and 2.2.3(14). Ensure the AIT Manager is aware of any design changes requiring LARs.
33. Present signature verification that marked-up/red lined CDMD-OA workfile for all configuration alterations (adds/deletes/modifications) has been provided to the designated Ship's Force representative or designated NSA representative at RMMCO Check-out in accordance with paragraph 3.24.3.
34. Ensure delivery of ILS Support Documentation to the designated recipients as part of the RMMCO Check-out process in accordance with paragraph 3.23.
35. Ensure any ILS products not provided prior to installation completion are reported/documented.
36. Coordinate and conduct Ship's Force/NSA Out-brief.
37. Provide the draft of the Completion Report Message at the out-brief.
38. Conduct final walk-through with the ship and obtain signatures on the ACR.
39. Conduct RMMCO/NSA Check-out in accordance with paragraph 3.24.3.
40. Return completed ACR to AIT Manager.
41. Ensure all training to be provided at the time of installation in accordance with paragraph 3.21 has been accomplished.
42. Provide red line drawings in support of tag-out boundary shifts during the installation.
43. Ensure the AIT is following its QMS procedures, quality inspection and test plan, applicable safety and environmental compliance requirements and technical instructions.
44. Ensure the QMS, applicable work instructions/procedures, including contractually related procedures requiring acceptance, evidence of required personnel training/qualification, and evidence of required procedure approval/qualification are available upon request by NSA/RMMCO.
45. Attend a physical check-in with the applicable ESOH Office before work commences.
46. In cases where the AIT is comprised of all government personnel and the change is an internal equipment modification where no QA is required, the OSIC and AIT Lead functions can be performed by the OSIC.
47. Sign necessary work completion documents as required by the NSA and/or LMA.

48. Certify integration products that identify and track AIT work at the time of accomplishment as required by the NSA and/or LMA.

1.5.8 AIT Lead

The AIT Lead is the senior member of the AIT. The AIT Lead will report directly to the AIT OSIC, execute contract requirements, and will:

1. Ensure successful execution of the installation as tasked.
2. Ensure the AIT adheres to all aspects of TS9090-310(series) and requirements defined in applicable MOAs, NAVSEA SIs, Work Specification Items and/or NSY Uniform Industrial Process Instruction (UIPI).
3. Attend AIT in-brief and scheduled out-briefs.
4. Sign the ACR once all work has been satisfactorily completed.
5. Attend a physical check-in with the applicable ESOH Office before work commences.

In cases where the AIT is unable to complete the installation within the availability, the AIT Lead will:

1. Inform the OSIC and the NSA as early in the process as possible.
2. Completely describe in writing the extent of the unfinished work including valve numbers, piping, missing wiring, etc. This will usually include "red line" drawings at a minimum.
3. Completely describe in writing the impact of the missing equipment on capability or function if known.

1.5.9 AIT

A unit (military, government activity and/or contractor and subcontractors) under the direction of an AIT Manager/OSIC that is trained and equipped to accomplish specific alterations/SCs on specified ships. The AIT is responsible for the installation, performance and completion of the alteration/SC. The AIT will:

1. Maintain an up-to-date accepted QMS that complies with Appendix C.
2. Perform all work in accordance with the requirements of this TS, NAVSEA SIs, MOA, Work Specification Items, and/or NSY UIPI as applicable.
3. Comply with requirements of reference 2.2.3(10) to ensure that all SUBSAFE work is performed by an activity authorized by reference 2.2.3(20).
4. Ensure all work within the FBW Certification Boundary is performed by an activity authorized in accordance with reference 2.2.3(34).
5. Attend advance planning meetings as tasked (WPIC, WPER, AIT Conference, Final Planning Meeting, etc. or appropriate New Construction Conferences).

6. Provide AIT Manager with a POA&M (in accordance with paragraph 3.6.1 using templates in Appendices A and B) to support development of an integrated schedule in accordance with paragraph 3.6.3.
7. Provide visit clearance information to the ship, TYCOM, NSA, or other appropriate naval activities in accordance with regional procedures.
8. Along with OSIC, accomplish RMMCO Check-in and Ship In-brief.
9. Supply, assemble, and transport all of the material (ex: IAF, CFM) that is not Headquarters Centrally Procured Material (HCPM) for the installation.
10. Receive, inspect, and maintain control of all HCPM provided for the alteration/SC.
11. Provide proper handling and storage of Hazardous Material (HM)/Hazardous Waste HW) during the installation process in accordance with references 2.2.1(2), and 2.2.2(1).
12. Provide all required environmental reports cited in reference 2.2.3(21) to the AIT OSIC who will then provide to the NSA via the environmental coordinator.
13. Witness or conduct PICO of applicable systems in accordance with paragraph 3.6.2.
14. Comply with all NSA, LMA, and regional environmental instructions and procedures.
15. Maintain on-site QA workbook and when requested provide to the NSA and LMA for review.
16. Attend daily/weekly production and progress review meetings as tasked.
17. Report and update installation status, problems encountered and lessons learned to AIT OSIC.
18. Notify AIT OSIC of all instances where the installation cannot be executed in accordance with approved design documentation including as found conditions and instances of delay and disruption.
19. Maintain red lined mark-ups of all required drawings and documents reflecting any changes made during the installation and ensure copies are provided to the AIT Manager after installation in accordance with paragraph 3.24.4.2. .
20. Perform testing as tasked and in accordance with the QA workbook, test procedures, approved drawings, and applicable ship specifications.
21. Provide certification test results to the AIT Manager/OSIC.
22. Along with AIT OSIC, accomplish Ship Out brief and RMMCO/NSA Check-out.
23. The AIT shall be held accountable for a Test and Inspection Plan which meets the requirements of SI 009-04 and amplify that (I), (V) and (G) points are not all inclusive. Any other tests and inspections required by other applicable references will be included in the Test and Inspection Plan as well.

1.5.10 Regional Maintenance and Modernization Coordination Offices (RMMCOs)

A regionally-aligned organization that serves as the initial point of entry for all waterfront related alteration/SC installations performed by AITs. The RMMCO Gatekeeper is designated by and

acting with the authority of the NSA/Norfolk Ship Support Activity (NSSA)/RMC/SHAPM. The RMMCO will:

1. Serve as the control point (i.e. Gatekeeper) for AIT check-in and check-out for all alterations/SCs.
2. Verify alterations/SCs are properly authorized and mature. Liaison with appropriate stakeholders to ensure all alteration/SC maturity and authorization issues are resolved.
3. Operate and maintain the RMMCO website at https://rmmco.navy.mil which allows entry and tracking of alteration/SC installations performed by AITs. This website generates the authorized RMMCO/AIT Installation Check-In/Check-Out Form.
4. Submit the RMMCO Concept of Operations (CONOPS) to NAVSEA 04RP for annual review.
5. Submit RMMCO Form changes to NAVSEA 04RP for review.

Note: **To foster standardization across all regions, if RMMCO personnel are assigned additional NSA responsibilities (i.e. dual-hatted) those responsibilities shall be kept separate from the RMMCO roles and responsibilities.**

1.5.11 Regional Maintenance Centers (RMCs)/Norfolk Ship Support Activity (NSSA)/Ship Repair Facilities (SRF)

Regional Maintenance Centers (RMCs/NSSA/Ship Repair Facilities (SRFs) are responsible for work accomplished by all activities and act as the single point of contact. When not acting as an NSA, these responsibilities include but are not limited to:

1. Broker all Intermediate (I) and Depot (D) level work to assigned shipyards or appropriate activities as applicable.
2. Obtain all NAVSEA Availability Letters of Authorization (LOA)/Hull Modernization Plan (HMP) and monitor the CNO Availabilities in NDE (except submarines).
3. Review all planned alterations/SCs for equipment removal and disposal request by the SPM/PARM (except submarines).
4. Collect lessons learned metrics and schedule post-availability hot washes (except submarines).

   Note: In areas where there is no RMC/NSSA/SRF these responsibilities will be performed by the NSA.

1.5.12 Planning Yard (PY)

The PY is the Ship Class Engineering Design Agent responsible for life cycle and configuration change control to assigned ships. For carriers, PY responsibilities including those listed below are divided among the carrier shipyards in accordance with reference 2.2.3(26). For New Construction ships, the roles and responsibilities of the PY are accomplished by the Building Yard, when tasked. The PY shall:

1. Participate in planning conferences, design reviews, and problem reviews with the SPM, TYCOM, etc.
2. (Carriers and LPD 17 Class only) Maintain and coordinate Fiber Optic Cable Plant (FOCP) path reservation assignments with FOCP ISEA (Naval Surface Warfare Center (NSWC), Dahlgren Division).
3. Provide LAR services, including on-site engineering field services, to NSAs/Installing Activities for clarification of requirements, review and approval of changes.
4. Provide Design Service Allocation (DSA) services including COSAL Overhaul Planning (COP), Bill of Materials (BOM), Ship Selected Record (SSR), Design Change (DC), and Ship Configuration and Logistic Support Information System (SCLSIS) as funded.
5. Maintain a weight control baseline system.
6. Provide configuration control and maintain configuration data.
7. Develop test requirements for complex alterations/SCs when specified in the Ship Alteration Records (SARs)/SCDs
8. Develop, review and approve Ship Installation Drawings (SIDs) as tasked.
9. Provide a complete set of SIDs to the NSA and the ship receiving the alteration/SC.
10. Participate in accomplishing ship checks as tasked.

1.5.13 Configuration Data Manager

The designated activity, assigned by ship class, that has total responsibility for the completeness and accuracy of data within the Ship Configuration and Logistics Support Information System (SCLSIS) database and the Configuration Data Managers Database - Open Architecture (CDMD-OA). The CDM will:

1. Identify and track all configuration changes in accordance with reference 2.1.1(3).
2. Process end-of-installation configuration workfile updates submitted by the applicable ISEA and change the Installation/Alteration Status Codes (ASCs) within 30 days of installation completion.

1.5.14 In-Service Engineering Agent

The ISEA is the activity delegated to perform functions for the overall engineering, test, maintenance and logistics requirements incident to specific operational equipment. The ISEA functions typically include:

1. Providing technical expertise to the NSA, LMA, PY, SPM, TYCOM, and AIT Manager/OSIC as required.
2. Performing ILS planning and installation execution functions as tasked and funded by the PARM/PEO.

3. Coordinating with AIT Manager/OSIC to ensure ILS product turnover is properly documented and any deficiencies are identified to the SPM, NSA, LMA, RMC, Ship CO, Executive Officer (XO), Supply Officer (SUPPO).
4. Provide training of system/equipment as required.
5. Coordinating with the AIT Manager/OSIC to ensure end-of-installation configuration workfile updates are provided to the applicable CDM for processing via the SCLSIS process upon installation completion.
6. Provide Test Procedures to NSA, LMA, TYCOM, AIT Manager and PY as required.
7. Accomplish SOVT/System testing as required.

1.5.15 Immediate Superior In Command

The Immediate Superior In Command (ISIC) is responsible for providing oversight during modernization availabilities for all assigned units. The ISIC will:

1. Prepare the TYCOM LOA for fleet alterations/SCs when this action has been delegated by TYCOM (e.g. as is the case with Surface Ship Class Squadrons (CLASSRONs)) or for New Construction ships, when this action has been delegated by the SHAPM (e.g. LCS).
2. Participate in the availability advance planning process.
3. As required by Higher Authority, maintain the following files: Ready to Start Messages and Naval Message Completion Reports, alteration/SC briefs and other related documentation.

1.5.16 NAVSEA 04RP - Modernization Planning and Sustainability Office

NAVSEA 04RP, the Modernization Planning and Sustainability Office, is responsible to NAVSEA 04 via NAVSEA 04R for revising this TS and for monitoring the effectiveness of the overall AIT program. NAVSEA 04RP will:

1. Maintain direct contact with AIT Subject Matter Experts (SMEs) in the Surface Ship, Carrier, and Submarine communities who perform AIT tasks and who recommend changes to revise TS 9090-310 to improve documenting the AIT process.
2. Ensure TS is written to provide requirements to individuals and activities directly involved in the installation of ship alterations.
3. Serve as the process administrator.
4. Provide Advance Change Notices (ACNs) for process updates prior to releasing each revision.
5. Revise TS by incorporating/adjudicating all changes recommended, discussed, reviewed and approved by the AIT Process SMEs Working Groups (WGs).
6. Prepare and submit draft of TS proposed revisions to SMEs WGs for their review and concurrence.

7. Submit draft approved by SMEs WGs to NAVSEA 04, 04R, and the Navy Modernization Process Team (NMPT) for final approval.
8. Post revisions of TS as Appendix H to NMP-MOM website at https://www.nde.navy.mil.

1.5.17 NAVSEA 04XQ - Quality Programs and Certification Office

NAVSEA 04XQ supports NAVSEA 04RP by providing Quality Policy and Quality Policy oversight for alterations/SCs to ships accomplished by AITs. NAVSEA 04XQ will:

1. Monitor compliance with quality responsibilities of AIT Sponsors, AIT Managers, AIT OSICs and AITs. This will include efforts to develop audit plans and schedule audits of AIT Sponsors and AIT Managers to ensure compliance to TS9090-310(series).
2. Review AIT QMSs for compliance with SI 009-04. AIT changes, other than administrative, to QMS procedures must be resubmitted to NAVSEA 04XQ for acceptance. AITs are required to resubmit their QMS procedures every three years after NAVSEA acceptance letter date, or submit a letter stating they are working to QMS revision date stated in NAVSEA acceptance letter.
3. Maintain list of AIT organizations with NAVSEA Accepted Quality Systems (AQS) in the RMMCO website.

2 REFERENCED DOCUMENTS

The following documents form a part of this TS to the extent specified herein. Use current revision where the version referenced has been superseded.

2.1 Specifications

2.1.1 Naval Sea Systems Command

1. Technical Specification 9090-100 (Series) - Liaison Action Report (LAR).

2. Technical Specification 9090-600 (Series) - Ship Alteration (SHIPALT) Installation Drawing (SID) Preparation.

3. Technical Specification 9090-700 (Series) - Ship Configuration and Logistics Support Information Systems (SCLSIS)

4. NAVSEA Standard Items (SIs) - http://www.sermc.surfor.navy.mil/ssrac1/standard.htm.

2.2 Publications

2.2.1 Chief of Naval Operations

1. OPNAVINST 4790.4 (Series) - Ships Maintenance and Material Management (3M) System Policy – http://doni.daps.dla.mil

2. OPNAVINST 5100.19 - Navy Safety and Occupational Health (SOH)

2.2.2 Commander, U.S. Fleet Forces Command (COMUSFLTFORCOM)/Commander, U.S. Pacific Fleet (COMPACFLT)

1. COMUSFLTFORCOMINST 4790.3 - Joint Fleet Maintenance Manual (JFMM)

2. Commander, U.S. Fleet Forces Command (COMUSFLTFORCOM /Commander U.S. Pacific Fleet (COMPACFLT 4720.3 (Series) - (C5ISR) Modernization Policy

2.2.3 Naval Sea Systems Command (NAVSEA)

1. NAVSEA SS800-AG-MAN-010/P-9290(Series) – System Certification Procedures and Criteria Manual for Deep Submergence Systems

2. NAVSEA 0905-LP-485-6010(Series) – Manual for Control of Testing and Ship Conditions

3. NAVSEA S0400-AD-URM-010(Series) – Tag-out User's Manual (TUM)

4. NAVSEAINST 5400.95(Series) – Naval Shipyard, SUPSHIP and Fleet Engineering and Technical Authority Policy

5. NAVSEA 0948-LP-045-7010(Series) – Material Control Standard Volume 1

6. NAVSEA S9074-AR-GIB-010/278(Series) – Requirements for Fabrication Welding and Inspection, and Casting Inspection and Repair for Machinery, Piping and Pressure Vessels

7. NAVSEA 0900-LP-001-7000(Series) – Fabrication and Inspection of Brazed Piping Systems, w/CHG 1

8. NAVSEA TL855-AA-STD-010(Series) – Naval Shipyard Quality Program Manual

9. NAVSEA 0902-LP-018-2010(Series) – General Overhaul Specifications for Deep Diving Submarines (DDGOS)

10. NAVSEA 0924-LP-062-0010(Series) - Submarine Safety (SUBSAFE) Requirements Manual, Revision C, w/CHGS 1-2

11. NAVSEA S9040-AA-GTP-010(Series) – Shipboard Systems Certification Requirements for Surface Ship Industrial Periods (Non-Nuclear)

12. NAVSEA S9070-AA-MME-010(Series) – Guidance Manual for Temporary Submarine Alterations

13. NAVSEA S9AA-AB-GOS-010(Series) – General Specification for Overhaul of Surface Ships, Including the AEGIS Supplement

14. NAVSEA SL720-AA-MAN-030 – Navy Modernization Process Management Operations Manual (NMP-MOM) –https://www.nde.navy.mil/

15. NAVSEA Standard Items – http://www.sermc.surfor.navy.mil/ssrac1/standard.htm

16. NAVSEA T9066-AA-MAN-010(Series) – Navy Outfitting Program, Policies and Procedures Manual; Volume 1, Other Procurement Navy (OPN)

17. NAVSEAINST 4700.17(Series) – Preparation and Review of Trouble Reports

18. NAVSEAINST 4720.14(Series) – Temporary Alterations to Active Fleet Submarines

19. NAVSEAINST C9210.4(Series) – Changes, Repair and Maintenance to Nuclear Powered Ships

20. NAVSEANOTE 5000(Series) – Activities Authorized to Perform Submarine Safety (SUBSAFE) Work

21. NAVSEA Standard Item 009-02

22. NAVSEAINST 4350.2C - Contract Work Onboard Nuclear-Powered Ships

23. NAVSEA letter 4720 Ser 04X/086 of 22 Apr 2002, – Submarine Non-Nuclear SHIPALT Migration and Pricing Policy

24. NAVSEA T9074-AD-GIB-010/1688 – Requirements for Fabrication, Welding and Inspection of Submarine Structure

25. NAVSEA S0300-B2-MAN-010(Series), SUPSHIP Operations Manual (SOM)

26. NAVSEA SL 130-AF-CCD-10 - Integrated Design and Engineering Activity (IDEA) Operations Manual

27. NAVSEAINST 5400.97 - Virtual SYSCOM Engineering and Technical Authority Policy Concept of Operations for the Fiber Optic Cable Plant (FOCP) In-Service Engineering Agent (ISEA) in Support of Aircraft Carrier FOCP Systems

28. NAVSEA T9410-HD-PRO-010 - OHIO Class (SSBN/SSGN) Command and Control System (CCS) and Non-Propulsion Electronic System (NPES) Alteration Installation Team Standard Operating Procedures

29. DOD-STD-2003 (NAVY) Electrical Plant Installation Standard Methods for Surface Ships and Submarines

30. MIL-STD-1689 Fabrication, Welding and Inspection of Ships Structures

31. MIL-STD-2042 Fiber Optic Cable Topology Installation STD Methods for Naval Ships

32. NAVSEA S9AA0-AB-GOS-020/GSO Supply General Specifications for Overhaul of Surface Ships (GSO) Nuclear Supplement

33. OPNAVINST 4700.7 (Series) – Maintenance Policy for U.S. Navy Ships

34. NAVSEA T9044-AD-MAN-010 Requirements Manual for Submarine Fly-By-Wire Ship Control Systems

35. NAVSEA INST 4790.23 (series), Baseline Project Management Plan

36. NAVSEA T9074-AS-GIB-010 Requirements for Nondestructive Testing Methods

37. NAVSEA T9074-AQ-GIB/248 – Requirements for Welding and Brazing Procedures and Performance Qualifications

38. PEO SHIPS FL – Logistics and Material Support Plan for Aegis Destroyers (DDG 51 Class) Post Shakedown Availabilities

39. PEOTAD/SCN Notice 5223, Serial 4000/595 of 09 June 1998 – DDG 51 Class Shipbuilder Special Studies Procedures

40. SUBSAFEGRAM 87A, Serial 9077/07Q21 of 17 April 2008 – Standard Elements of a Memorandum of Agreement Addressing SUBSAFE Work

3 REQUIREMENTS

This specification outlines the process to be followed for the planning, scheduling and accomplishment of all permanent alterations/SCs and TEMPALTs/Non-Permanent Changes (NPCs), except as defined in paragraph 1.4, to ships by AITs. For the purposes of this document, the AIT process commences with the scheduling of the alteration/SC in NDE-NM. A representative AIT Process Flow Diagram is shown in Figure 3-1. Each block in Figure 3-1 corresponds with a paragraph of text below that delineates the process in that block. For a description of all AIT process flow responsibilities please see Section 3. Sequencing of an individual AIT process flow may vary slightly from the diagram below, based on local NSA and LMA policies, guidance, and other factors.

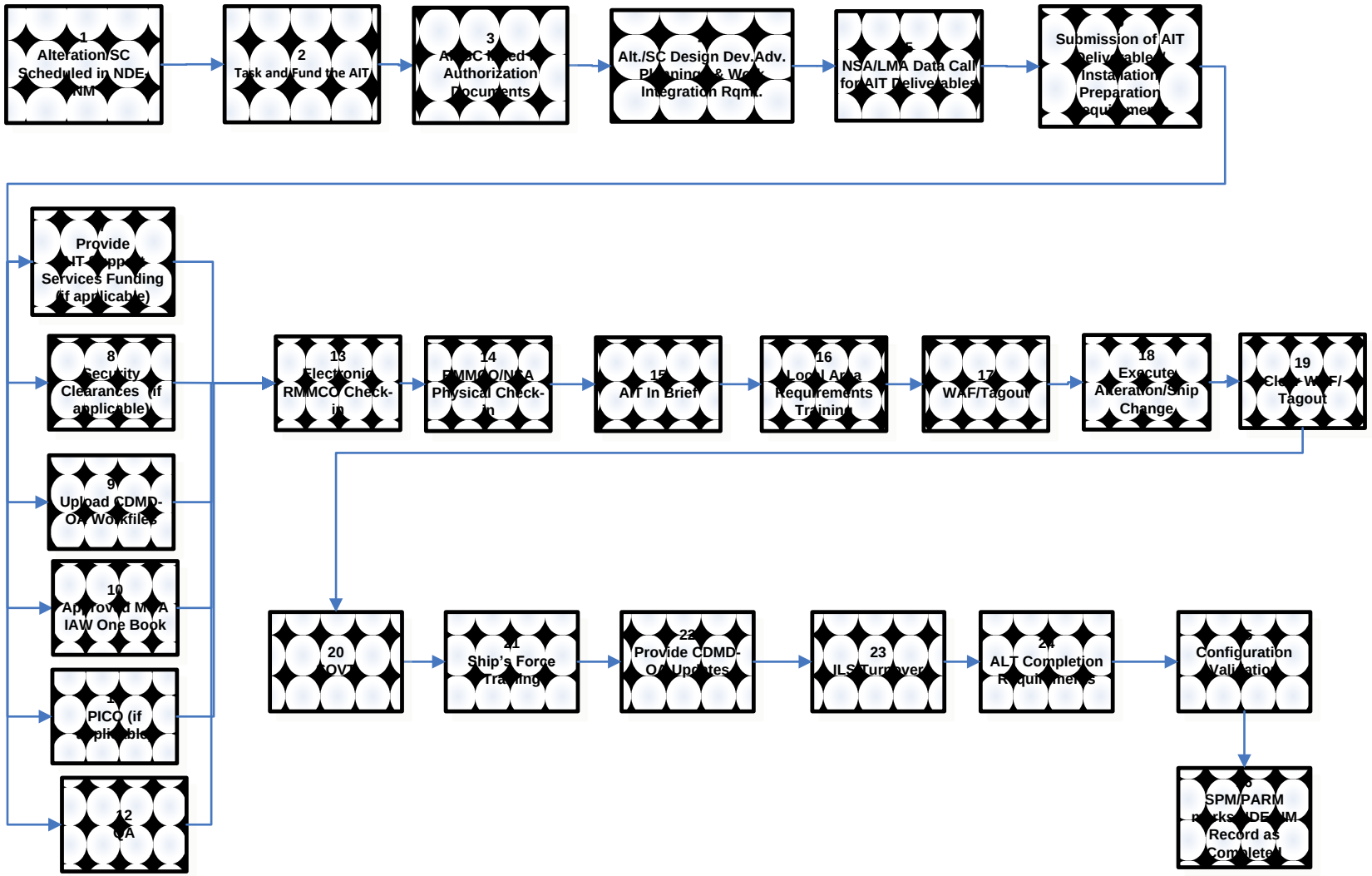

Figure 3-1 AIT Process Flow Diagram

3.1 Alteration/SC Scheduled in NDE-NM

For specific details on scheduling in NDE-NM, see reference 2.2.3(14) Section 3 for Surface Ships and Section 9 for Submarines. NDE-NM Website is https://www.nde.navy.mil.

3.1.1 Alteration/SC Scheduling in NDE-NM

An alteration/SC is scheduled in NDE-NM reflecting planned installation dates. The scheduled alteration/SC may be inside or outside a Modernization Window (MW). Additionally, the scheduled alteration/SC can be in a CNO Availability or a Non-CNO Availability.

For surface ships, the SPM, PARM, ISEA or AIT Manager enters scheduling dates in NDE-NM. For New Construction, SCN-funded alteration/SC scheduling is done with the SHAPM. For submarines, scheduling of Title “K” and “KP” alterations is via the programming in the program module of NDE and NTIRA. Submarine PARMs schedule Engineering Changes (ECs), Field Changes (FCs), Ordnance Alteration s (ORDALTs), Software Delivery (SWD) in NDE and ECs, FCs, and SWD in NTIRA. Submarine TEMPALTs and OPALTs are exempt from this process and are tracked internally by the SPM and TYCOM.

3.1.2 Availability Types

There are two basic types of availabilities – CNO Availabilities (DMP, ROH, EOH, SRA, DSRA, PMA, DPMA, etc.); Non-CNO (TYCOM) Availabilities (CMAV, Window of Opportunity (WOO), DMD, RAV, TAV (Technical Availability), etc.) and New Construction (SCN) Availability (Extended Post Delivery Availability (EPDA), Follow On Availability (FOA), Industrial Post Delivery Availability (IPDA), Post Shakedown Availability (PSA), etc.). For a complete listing of all the different types of availabilities, categorized as CNO and Non-CNO see NDE-NM.

3.1.3 Modernization Window

The MWs are noted in NDE-NM. Any alterations/SC scheduled outside of the MW is a Target Configuration Date (TCD) ”Bust" and will need to follow the TCD Offer Process in accordance with reference 2.2.2(2). The final approval of the TCD Offer is the authorization needed to satisfy RMMCO Check-in. TCDs are required for C5I and Combat System alterations/SCs and are not required for Hull, Mechanical and Electrical (HM&E) alterations/SCs. For New Construction, the MW is from Delivery to TCD or OWLD, whichever comes first. TCD for New Construction occurs 60 days after the completion of PSA.

3.2 Task and Fund the AIT

3.2.1 AIT Sponsor Assigns AIT Manager

The AIT Sponsor shall task the AIT Manager to accomplish a specific alteration/SC. Multiple installing activities or multiple AIT Managers may be required to accomplish a specific

alteration/SC. The AIT Sponsor needs to fund the AIT Manager as soon as funding is available in order to allow for maximum possible planning time, support meeting attendance, material procurement, planning, AIT funding, etc. Ensure reference 2.2.3(10) requirements are invoked for any SUBSAFE boundary work specified in the Ship Alteration (SHIPALT) installation drawings. When SUBSAFE boundary work is identified in the approved SHIPALT drawings, activities listed in reference 2.2.3(20) are required to perform the work and are the only activities authorized to perform the work.

3.2.1.1 Tasking Elements

Tasking for accomplishment of alterations/SCs will authorize procurement of required long lead-time and incidental material and accomplishment of the applicable alteration/SC. The tasking may include design development. Tasking will address the following:

1. The specific alteration/SC(s) covered by the task.
2. The specific applicable hull(s) covered by the task.
3. The type of task (alteration/SC design or accomplishment).
4. Whether NAVSEA 0902-018-2010, NAVSEA S9070-AA-MME-010/-SSN/SSBN, NAVSEA S9AA0-AB-GOS-010/GS or other general specification is invoked for basic guidance for design, installation, material selection, testing and certification requirements, tasking will require the AIT to be in compliance with the requirements of this TS.
5. The SPM point(s) of contact.
6. The equipment/system PARM/ISEA (Naval Air Systems Command (NAVAIR), Naval Sea Systems Command (NAVSEA), Space and Naval Warfare Systems Command (SPAWAR), etc.) point of contact and when certification in accordance with reference 2.2.3(11) is a requirement, the designated Certifying Authority.
7. The AIT Manager and financial points of contact (if other than the PARM/ISEA or the SPM).
8. The applicable Class PY points of contact.
9. Approval requirements for installation design products (SIDs, test procedures, etc.) for installation design tasks.
10. For submarines, whether SUBSAFE work is required and verification the SUBSAFE work is tasked to an activity authorized by reference 2.2.3(20) to perform SUBSAFE work.
11. For submarines, whether FBW work is required and verification that the FBW work is tasked to an activity authorized by reference 2.2.3(34) to perform FBW SCS work.
12. Submittal of AIT quality data analysis to support Sponsor's Annual Quality Assessment Report submittal to NAVSEA 04.
13. Any other financial/status reporting requirements desired of the AIT by the AIT Sponsor.

3.2.2 AIT Manager Tasking

3.2.2.1 AIT Manager Assigns AIT

The make-up and management of the AIT is the responsibility of the AIT Manager tasked to accomplish the alteration/SC. The AIT can be comprised of government, contractor, or military personnel.

3.2.2.1.1 AIT Contract/SOW Preparation

For alterations/SCs accomplished by AIT (using contractor entities), the AIT Manager will have in place the AIT contract in accordance with references 2.2.2(1) Volume VII Chapter 13 Shipboard Contracting Strategy and Utilization and 2.2.3(14) modernization milestones. ASN Memorandum of 27 Mar 2009 provides policy for non-nuclear Navy maintenance and modernization contracting strategy. The contract/Statement of Work (SOW) shall ensure that requirements of this TS are invoked. Contract/SOW tasking shall include support for, but not limited to, ship check, installation execution, procurement of incidental and consumable material, testing, and post-install. To perform an alteration/SC, the AIT Manager will ensure that the selected contractor has a NAVSEA 04XQ accepted QMS, before accomplishment of shipboard industrial work. The AIT Manager will ensure that the contract/SOW identifies all contractor deliverables necessary to facilitate pre-planning, execution and/or completion of alteration/SC. All work practices shall conform to the latest version of reference 2.1.1(4). For SUBSAFE, DSS-SOC, and FBW work to be contracted, the AIT Manager will verify compliance with the requirements of references 2.2.3(10), 2.2.3(20), 2.2.3(1) and 2.2.3(34), respectively.

3.2.2.1.2 AIT Formulation

The make-up of the AIT will be as determined by the AIT Manager based on the skill level requirements of the work to be accomplished and the number of shifts the AIT is planned to work. For those skills that require specific training, qualification and/or certification (welding, electrical connector assembly, SUBSAFE, Signal Security (SIGSEC), Telecommunications and Electrical Machinery Protected from Emanations Security (TEMPEST), PCMS installation, Level 1, fiber optic cable/equipment installation, FBW, etc.), AIT members performing these functions will be fully qualified/certified.

3.2.2.1.3 Transportation and Billeting

The AIT Manager will ensure that the AIT is tasked with transporting AIT personnel, tools, material, and support equipment to and from the installation site. All billet arrangements will be the responsibility of the AIT.

3.2.2.1.4 AIT Quality Assurance Workbook

The AIT Manager must ensure that the selected AIT is tasked to develop a QA Workbook in accordance with paragraph 3.12.1.5 for each installation.

3.2.2.1.5 Participation of Other Activities

At the tasking phase, the AIT Manager will assess the necessity of participation of other activities required for accomplishment of required conjunctive or associated alterations/SCs, or for testing or

certification of equipment or systems associated with the accomplishment of the tasked alterations/SCs. The AIT Manager will coordinate participation of the applicable system/equipment ISEA, PARM, or other designated activity, to ensure responsibilities for work are clearly defined and how certification of the alterations/SCs will be accomplished.

3.2.2.2 AIT Manager Assigns OSIC

For each alteration/SC, the AIT Manager will assign an AIT OSIC. The AIT OSIC will be a government or military employee and will be present during each installation. The AIT OSIC will act with the authority of the AIT Manager.

The AIT OSIC will have general responsibility for the conduct of the installation and will be the point of contact with the ship, AIT Manager, NSA and LMA. The AIT OSIC will be knowledgeable of and responsible for AIT adherence to all invoked requirements including safety, quality plan, technical instructions and, when applicable as identified in the SUPSHIP Operations Manual (SOM), NAVSEA SIs or any NSA MOA in effect with the NSA and AIT Manager.

A single AIT OSIC may be designated for multiple installations dependent upon the complexity of the alterations. If multiple-shift work is to be accomplished, an AIT OSIC for each shift shall be identified. AIT Managers will use their discretion and experience to determine the amount of physical on-the-ship presence required of the AIT OSIC based on production work complexity, critical system work, contractor experience, etc. AIT OSIC manning will be discussed during the WPIC and Final Planning Conference. If off-site at any time, the AIT OSIC must remain on call and be available to respond on-site within two (2) hours of request. Installations that do not have an assigned AIT OSIC, or documented approval from the SPM that an AIT OSIC is not required, will not attempt to accomplish alterations to ships and will be denied access to ships.

3.2.2.3 AIT Manager Conducts Advance Planning

The AIT Manager will initiate a planning strategy for alteration/SC accomplishment as soon as the determination is made to accomplish the alteration/SC by an AIT. This strategy shall incorporate advance planning milestones as dictated by reference 2.2.3(14). For alterations/SCs, the planning schedule will be based on SPM/PY approval of the SAR/SCD, SIDs and ILS certification. In addition, AIT Managers will include as part of their planning strategy the schedule of equipment/kit delivery, availability of AITs, availability of ILS products, test procedures and/or system certifications/SOVT, and the anticipated industrial availability schedules of applicable ships.

3.2.2.3.1 Scheduling and Pre-Installation Coordination Requirements

1. **Routine Scheduling and Coordination:** The AIT Manager will ensure that the alteration/SC is scheduled in accordance with paragraph 3.1.

    a. *During Scheduled CNO Availabilities:* The AIT Manager will ensure the alteration/SC is authorized for accomplishment during a CNO Availability via the SPM's Advance Planning Letter, LOA, MRA, or from the TYCOM Authorization Letter/Message, and NTIRA for submarine ECs/FCs/SW and NDE.

    The AIT Manager will coordinate all planning for the alteration/SC with the NSA and LMA in accordance with paragraph 3.6, including industrial services

support (e.g., crane and rigging services, welding/burning, compressed air). The AIT Manager will keep the ISEA/PARM, TYCOM, SPM, CNO availability planning activity, CDM, PY, LMA, and NSA informed of the AIT's schedule and any schedule changes.

b. *Outside of Scheduled CNO Availabilities:* The AIT Manager will ensure that the alteration/SC is scheduled via the TYCOM quarterly scheduling process. TYCOM authorizes the accomplishment of an alteration/SC scheduled during a Non-CNO Availability via an AIT Installation Scheduling Message. (NTIRA for submarines). The AIT Manager will verify that the alteration/SC is authorized in the TYCOM's AIT Installation Scheduling Message or NTIRA for submarine ECs/FCs/SW and NDE prior to the AIT initiating RMMCO processing..

If a C5I alteration/SC is scheduled outside a MW, the AIT Manager will ensure that a TCD waiver request is submitted in accordance with reference 2.2.2(2). Note that HM&E alterations/SCs do not require a TCD waiver.

Unlike an availability executed in an industrial facility, pierside availabilities generally do not include provision of AIT support services. The AIT Manager/AIT OSIC will ensure that all required support services are provided by the AIT or arranged via third-party providers. The AIT Manager will keep the ISEA/PARM, TYCOM, SPM, CNO Availability planning activity, CDM, PY, LMA, and NSA informed of the AIT's schedule and any schedule changes.

c. *During New Construction SCN Availabilities:* Throughout the New Construction MW, the FLTCDR has operational control (OPCON) of the ship and is responsible for the ship fulfilling its operational requirements. The SHAPM has the responsibility, accountability and authority for the configuration management of the ship. The AIT Manager or designated representative shall present the proposed alteration/SC accomplishment schedule to the SHAPM for coordination and concurrence. Notification for these alterations/SCs will be discussed at the PSA Planning Conference Work Package review or other planning meetings. If authorized for install during the SCN Window (inside or outside of a shipyard availability), the alteration/SC will be incorporated into the AWP for tracking.

Note: The late add and emergent processes are not applicable during New Construction SCN Availabilities. Proposed Late Add installations shall be coordinated directly with the SHAPM.

During SCN shipyard availabilities for any non-SCN funded alteration/SC work, the AIT Manager will coordinate all planning with the ACO in accordance with paragraph 3.6, including industrial support service requirements (e.g., crane and rigging services, welding/burning, compressed air). The AIT Manager shall keep the SHAPM and ACO informed of the AIT's schedule and schedule changes.

When a planned alteration/SC is not required to support a SCN event (Combat System Ship Qualification Trial (CSSQT), Post Delivery Test and Trials (PDT&T), Shock, Development Test/Operational Test (DT/OT), etc.), the installation should be scheduled during a SCN shipyard availability (EPDA, FOA, IPDA, PSA, etc.). For all other AIT work during a SCN shipyard availability, the AIT Manager will coordinate all planning with the SHAPM or SHAPM representative.

During pierside (non-shipyard) availabilities within the SCN MW, the AIT Manager will coordinate all alteration/SC planning with the SHAPM or SHAPM representative. Special consideration is given to alterations/SCs which support the operational requirements of an upcoming SCN event (CSSQT, PDT&T, Shock Quals, DT/OT, etc.). Since pierside availabilities generally do not include provision of AIT industrial support services, the AIT Manager/OSIC shall ensure that all required support services are provided by the AIT or arranged via third party providers. The AIT Manager shall keep the SHAPM or SHAPM representative informed of the AIT's schedule and any schedule changes.

2. **Emergent Alterations/SCs Requirements:** The Emergent Process, as defined by reference 2.2.3(14), applies to alterations/SCs that require immediate installation (30 days or less) and that do not have an approved SCD. When the Emergent Process applies, the AIT manager will utilize reference 2.2.3(14) for the approval process. The AIT Manager will coordinate all planning for Emergent Alterations/SCs with the NSA and LMA as applicable.

3. **Late Add Process:**

   Any alteration/SC added to an availability for installation after reference 2.2.3(14) milestones, is considered a late addition and must either be mature with concurrence from the Platform TYCOM, or have an approved Hull Installation Impact Assessment. See reference 2.2.3(14) for additional details.

3.3 Alteration/SC in Authorization Documents

3.3.1 Alteration/SC Authorization for a CNO Availability

SPM authorization is required for Program Funded Alteration/SC's during a CNO Availability. This is accomplished through the use of LOAs or the MRA process; and programming in the NDE-NM module. For submarines ECs, FCs, and SWD are scheduled in NDE-NM by the PARM and approved for installation in NITRA. ORDALTs are scheduled in NDE-NM by the PARM and authorized via the SPM's LOA. The TYCOM/CLASSRON provides authorization for Fleet funded alteration/SC's in a CNO Availability via message LOAs. CNO Availabilities that are SCN funded (e.g., Submarine EROs, Carrier RCOHs) are subject to SPM authorization processes.

3.3.2 Alteration/SC Authorization Outside a CNO Availability

For Surface Ship Non-CNO Availabilities, the TYCOM provides installation approval for both Fleet and Program authorized alteration/SC's via the TYCOM Quarterly Installation Scheduling message as noted in Section 7-5 of reference 2.2.3(14). The Quarterly Scheduling Message provides guidance for submitting additional alteration/SC's for approval.

For submarines, SPM authorization is required for Program Funded Alterations. The TYCOM provides installation approval for both Program and Fleet Alterations. Fleet Alterations installed by AITs along with Program Alterations are authorized via NTIRA. For submarines ECs, FCs, and ORDALTs are scheduled in NDE-NM by the PARM and approved for installation in NTIRA.

For Carriers, alterations/SCs shall be approved and scheduled in NDE-NM (in agreement with the approved NDE-EP fielding plan) and are tracked through the MRA database. AITs must go through RMMCO to install alterations/SCs outside of CNO Availabilities. Coordination with TYCOM is required. AIT POA&Ms are still required in accordance with reference 2.2.3(14) milestones.

3.3.3 Authorization During a New Construction Availability

For specific details for authorization contact the applicable New Construction SHAPM.

3.4 Alteration/SC Design Development, Advance Planning, & Work Integration Requirements

3.4.1 Alteration/SC Design Ship Check:

A Design Ship Check will be conducted on each hull when the AIT Manager and SPM determine that the technical risk warrants the cost. When a non-PY party is performing the ship check, participation by the PY may be requested by the AIT Manager or directed by the SPM (depending on the complexity of the SC). Funding will be provided by the AIT Manager to the PY. The SPM will be the only activity to task PY efforts, unless otherwise agreed to by the SPM and the AIT Manager. In either case, ship checks must be performed in time to meet milestones specified in references 2.2.3(14) and 2.2.2(1).

3.4.1.1 Scheduling of Alteration/SC Design Ship Checks

Design Ship Checks will be conducted at the convenience of the ship being checked, following the policies of the TYCOM, on a not-to-interfere basis. In preparation for the Design Ship Check, ship availability dates will be coordinated between the activity developing the alteration design and the respective TYCOM or TYCOM designee, employing local coordination policies. AIT Manager will notify applicable ships and NSA of the intent to accomplish the alteration/SC ship check via the port engineer or maintenance ISIC, as applicable.

3.4.1.2 Design Ship Check Security Clearances

Where access is required to secure areas or equipment, the individual Design Ship Check team members requiring such access are required to have the proper level of clearance for access without escort. Whether a ship check is to be accomplished in or out of a scheduled CNO Availability, the AIT Manager/AIT Lead will provide visit clearance information to the ship, TYCOM, and other appropriate Naval activities a minimum of seven (7) days prior to the scheduled ship check date or as established by TYCOM or regional policy. Prior to sending the clearance requests, the AIT Manager/AIT Lead will verify with the ship/ISIC/LMA that ship and/or industrial activity operations will permit completion of ship check requirements during the intended ship check period. If not, it should be re-scheduled.

3.4.1.3 Alterations/SCs Affecting Nuclear Powered Ships

Reference 2.2.3(19) defines propulsion plant and related systems and spaces in nuclear powered ships that require prior NAVSEA approval before modification or change. As it may not always be readily apparent that modifications or changes in nuclear powered ships affect reactor plant operations or personnel safety, it is of the utmost importance that reference 2.2.3(19) be reviewed when developing alterations/SCs that affect nuclear powered ships, to ensure the required reviews and approvals are obtained. NAVSEA, the applicable reactor plant PY, ship-class PY, or nuclear capable shipyard shall be consulted if any uncertainty exists as to the applicability of reference 2.2.3(19). Reactor Plant PY approval will be obtained by the AIT Sponsor before drawings are submitted to ship-class PY for final approval.

Reference 2.2.3(22) provides policy and direction for contracting work onboard nuclear powered ships, including requirements for prior NAVSEA approval before contracting work within spaces specified in reference 2.2.3(19).

3.4.1.4 Fiber Optic Cable Requirements

AIT Managers directing the install of Fiber Optics Systems on ships with centrally managed BOF FOCPs are required to contact the cognizant PY for FOCP path reservation assignments prior to SID development via LAR. If situations arise where deviations from these assignments are necessary a follow-on LAR shall be submitted to the PY to resolve the deviation prior to work being conducted. Resolution of LARs affecting the FOCP will be coordinated between the PY and the FOCP ISEA.

3.4.1.5 Design Ship Check In-Brief

A Design Ship Check in-brief will be conducted upon arrival onboard for appropriate members of Ship's Force, TYCOM, and the PY On-Site Representative (OSR). The briefing will explain the purpose and extent of the planned ship check, and provide an outline of data to be gathered, spaces requiring access, and other relevant information.

3.4.1.6 Design Ship Check Out-Brief

After completion of the Design Ship Check, the team will conduct a Design Ship Check Out-brief for appropriate members of Ship's Force, TYCOM representative, and the PY OSR. This brief will discuss the extent of work required to accomplish the alteration/SC as well as any

ship-provided support requirements. This will include requirements for PICOs, weapons handling, and other relevant information.

3.4.1.7 Design Ship Check Report

The AIT Manager, in coordination with the SPM's designated design agent and/or the PY when tasked and funded, will issue a Ship Check Report to the appropriate offices, including the Ship and NSA (if assigned), within fourteen (14) days after the Design Ship Check is completed. The SPM will be the only activity to task PY efforts, unless otherwise agreed to by the SPM and the AIT Manager.

The Ship Check Report shall include detailed sketches showing location and dimensions of existing equipment and systems, existing component designations/markings (e.g., circuit numbers, valve numbers), and interface(s) with other systems. The Ship Check Report will also include red line as-built mark-ups, when applicable, to reflect the ship's unique configuration to the PY, allowing identification and coordination of interferences/interaction with other alteration/SC designs under development by the PY.

3.4.1.8 Design Ship Checks for New Construction Ships within the SCN Window

The AIT Manager shall notify the SHAPM of the intent to accomplish ship checks. Whenever possible, Design Ship Checks should be accomplished prior to Sailaway. The AIT Manager shall notify the SHAPM of the time and location for all Design Ship Check In Briefs/Out Briefs and ensure that the SHAPM is on distribution for all Ship Check Reports.

3.4.2 Alteration/SC Design Element Review & Approval

All design products not prepared by the ship-class PY shall be reviewed and approved by the applicable PY prior to the initiation of work on any U.S. Navy ship. Unless prior agreement exists, the AIT Sponsor, PARM, SPM, PEO or System Command (SYSCOM) will provide funding for the PY to review non-PY developed design products, including drawings. Products and funding must be provided in time to allow PY to meet Ship Change Installation Drawing (SID) approval milestones as specified in references 2.2.2(1) and 2.2.3(14). The SPM will be the only activity to task PY efforts, unless otherwise agreed to by the SPM and the PARM. AITs without PY approved drawings will not accomplish alterations/SCs to ships without documented approval from proper authority in accordance with reference 2.2.3(14). AITs without PY approved designs or documented approval will be denied access to ships.

3.4.2.1 Ship Installation Drawings (SIDs) Not Developed By Planning Yard

Individual SIDs shall be prepared in accordance with reference 2.1.1(2) for each hull authorized in the tasking documentation, unless development of class-applicable SIDs has been authorized by the SPM and PY. The alteration/SC design that is represented in these drawings will be based on criteria presented in the approved SAR (for SHIPALTs) and approved SCD (for Ship Changes), Technical Data Packages (TDPs) provided by the ISEA/PARM, approved guidance LAR, plan schedule, installation control drawings, lessons learned, design guidance provided by the PY, actual configuration determined during a Design Ship Check of the applicable ship, references 2.2.3(9) and 2.2.3(13) or other general specifications as applicable. The PARM/LCM or their designated representative will approve

System/Equipment level drawings. All SIDs require approval by the applicable PY. To minimize errors or omissions that could hinder timely approval, SIDs shall address the following:

1. Interfaces required to accomplish the alteration/SC (e.g. NAV interface, distributed system interfaces (Heating, Ventilating, and Air Conditioning (HVAC), Power, Chilled Water, FOCP, etc.)).
2. Identify base materials of anything to be welded or brazed.
3. Identify mounting HM requirements to ensure shock and technical requirements are met.
4. When known, specify Navy Stock System (NSN) Standard Material.
5. Identify testing for existing hazardous materials, such as lead, asbestos and Poly Chlorinated Biphenyl (PCBs), in affected systems and components.
6. Arrangement drawings showing location of new equipment within existing space.
7. Critical systems as defined in paragraph 3.5.2.

3.4.2.2 Review and Approval of First-of-Class Alteration/SC Drawings

When specified in the tasking documentation, non-PY developed drawings for the first planned accomplishment of an alteration/SC on a ship class shall be reviewed in coordination with the SPM, PY, Deputy Commander for Integrated Warfare Systems (NAVSEA 05W), NAVSEA Chief Engineer, and the system/equipment LCM. The drawings will be reviewed for technical accuracy, design adequacy and clarity, compliance with applicable design technical requirements (e.g., SIGSEC, TEMPEST, Electromagnetic Compatibility (EMC), Electromagnetic Interference (EMI), Radiation Hazard (RADHAZ), NSV, Electrostatic Discharge (ESD), EMP, Radar Cross Section (RCS), SUBSAFE, FBW, etc.), technical standards [references 2.2.3(29), 2.2.3(30) and 2.2.3(31)], applicable TSs (including Gen Specs for Overhaul and New Construction [references 2.2.3(9), 2.2.3(13) and 2.2.3(32)], and drawing format in accordance with reference 2.1.1(2).

3.4.2.3 Alteration/SC Installation Drawing Submission Requirements

Depending on the PY, the drawings will be submitted either via LAR or transmittal letter and must include the scheduled installation date for the specific hull, two points of contact with corresponding phone numbers and e-mail addresses, and an explanation of type of submittal (i.e., initial review, comment incorporation validation, etc.). When submitted via LAR, the following information must also be included: tasking documentation, supporting calculations (as applicable), Ship Check Report (as defined in paragraph 3.4.1.7), applicable guidance documents (i.e., ICDs, TDPs) provided by the ISEA/PARM, LARs, shock certification documentation, Reactor Plant PY approval documentation, topside arrangement documentation, IC Switchboard ISEA concurrence documentation, etc.).

Except for very large or complex alterations/SCs, the review cycle will be sixty (60) calendar days or less for surface ships and carriers and three (3) months or less for submarines, following PY receipt of drawings and appropriate funding. If the review cannot be completed

within the allotted time, the PY will coordinate the completion date with the SPM and alteration/SC Sponsor.

The requirement to review alteration/SC designs for follow-on ships will be at the discretion of the applicable PY, unless otherwise required by the tasking documentation. A PY review of follow-on SHIPALT/SC designs will usually be required due to significant design differences among ship hulls. The interpretation of the degree of change required to prompt additional design review will be defined by the PY. The PY will, subsequent to the review of the first ship design, advise the AIT Manager if a review of follow-on ship design is considered necessary and under what circumstances.

3.4.2.4 Electronic Equipment Test Procedure/Record Approvals

Equipment-specific test procedures and test record forms for electronic equipment may be required to be approved for work on critical systems or for high visibility programs. The approving activity in these cases shall be the system/equipment LCM (usually the AIT Manager). When an alteration/SC affects interfaces with other systems or equipment via various signal distribution modes, the ISEAs for each impacted system or equipment shall participate in the test procedure approval process.

3.4.2.5 Changes to Approved Alteration/SC Designs

Once SIDs have been approved, only the PY, SPM, or the SPM's designated representative can approve deviations and waivers to the design. In accordance with reference 2.2.3(4) all technical and/or configuration change recommendations to approved SIDs must be submitted to the PY (via LAR or transmittal letter, as applicable) for review and approval prior to implementation of those changes. Approved design changes to alterations/SCs may still require that a DFS be submitted, in accordance with reference 2.2.2(1).

Note: NSA Chief Engineers designated in reference 2.2.3(4) may approve minor deviations and waivers to the design. Acceptance and agreement by the NSA Chief Engineer to assume this responsibility will be documented in the MOA between the AIT(s) and NSA.

3.4.3 Advance Planning & Work Integration

1. In accordance with reference 2.2.2(1) the NSA and LMA are responsible for integration of the AWP. Reference 2.2.2(1), and for submarines reference 2.2.3(35), require all activities participating in an availability to support the NSA, LMA, or PMAPT, as applicable, in advance planning and work package integration.

   For submarines, the PMAPT will initiate contact with the AIT Manager at A-10 months as detailed in paragraph 1.5.4.1.

   For surface ships and carriers, the NSA and LMA are responsible for initial contact with the AIT Manager. Initial contact with the AIT Manager will occur early enough to allow the AIT Manager to develop and submit required deliverables in accordance with milestones for the specific availability type. In the event that the contact does not occur before A-180 (A-225 for Firm Fixed Price Contracts), the AIT Manager should

initiate the contact. At a minimum, AIT Managers will provide Technical Points of Contact to assist the NSA and LMA with advance planning and integration questions, and submit required AIT deliverable items in accordance with paragraphs 3.6 and 3.9.

When an alteration/SC is planned for execution during a Non-CNO Availability or other Window of Opportunity, the AIT Manager will coordinate with the NSA and LMA when the alteration/SC is authorized for installation by the TYCOM and ensure participation in advance planning and work integration as specified by the NSA and LMA.

2. For each authorized alteration/SC, the AIT Manager/AIT OSIC will request a JCN by email from the RMC/Work Broker (the activity charged with entering JCNs into the maintenance database, e.g., CLASSRON, ISIC, or maintenance team), in accordance with paragraph 1.5.6(15). In addition, if the alteration/SC requires industrial support services to be provided, a second JCN for Services must be requested by the AIT Manager and entered by the RMC into the maintenance database. This second JCN will be used to develop a Work Specification Item for the required support services.

Note: For New Construction, a JCN assignment during an SCN availability is only required for alterations that are not SCN funded. A second JCN for support services may not be required, if support services are tasked in the SCN AWP. Contact the respective SHAPM to verify requirements.

3.4.4 Advance Planning Requirements for Nuclear Powered Ships

Reference 2.2.3(33) defines the work in nuclear powered surface ships which must be assigned to nuclear capable activities (e.g., nuclear capable shipyards). Reference 2.2.3(22) defines requirements for the conduct of contract work onboard nuclear powered ships (e.g. the work in nuclear powered ships that need not be assigned to nuclear capable activities). When conducting work in a nuclear powered ship, it may not always be readily apparent that modifications or changes in the nuclear powered ship, affects reactor plant systems, operations, or personnel safety. Therefore it is of the utmost importance that references 2.2.3(19), 2.2.3(33) and the associated requirements in reference 2.2.3(22) be reviewed to ensure that work in a nuclear powered ship is in compliance with these requirements. The AIT Manager is responsible for this review during advance planning for alteration/SC installation.

For contracted work onboard nuclear powered ships, the AIT Manager(s) will ensure that spaces under the cognizance of references 2.2.3(19) and 2.2.3(22) are identified on the submissions provided under paragraph 3.5.1. The NSA will review the submissions to ensure that all spaces listed therein are correctly identified with regards to cognizance of 2.2.3(19) and 2.2.3(22). Incorrect identification of spaces covered by references 2.2.3(19) and 2.2.3(22), or the lack of NAVSEA approval letter accompanying a submission and/or a signed MOA as required by reference 2.2.3(22), is sufficient reason for the NSA to hold or reject the POA&M acceptance. However, the submission may still be used by the NSA for schedule integration and planning purposes pending the receipt of the required additional documentation and final acceptance.

3.4.5 (Submarines) AIT Performed Modernization Advance Planning and Schedule Integration

The submarine modernization planning process is crucial to the success of the NSA/LMA project team and the modernization Program Offices. History has proven that without proper manning, planning and schedule integration well in advance of the execution phase, the risk to the project and modernization programs is high. Submarine modernization performed by AITs can add significant man-days to availability and can require a significant amount of support services to be provided. Full integration and coordination of AITs is crucial to completing availability on time.

Note: NSYs use AIM to plan, track and manage work. References to AIM and associated AIM features (PSS, CU phases, CU assemblies) are not applicable to Fleet Maintenance Activities using other AIS systems.

3.4.6 Submarine Advance Modernization Planning Package (AMPP)

The PMAPT will develop and submit a draft of AMPP at A-10 months to the AIT Managers and assigned NSA, LMA, and the PEO SUBS LMA/AIT Modernization Coordination and Integration Team for validation and refinement, as applicable, to the project's Milestones and Key Events. The AIT Managers, the NSA, LMA, and the PEO SUBS LMA/AIT Modernization Coordination and Integration Team will validate and revise the AMPP and provide the updated Modernization Project Plan (MPP) to the NSA and LMA no later than 6.5 months to support the A-6 months AIT Conference. The products supplied by the PMAPT include, but are not limited to the items shown in Table 3.1.

The assigned NSA and/or LMA may provide additional planning documents/data as well. The AIT Manager will validate and revise the AMPP and any additional planning documents/data from the NSA and provide the updated MPP to the NSA and LMA no later than A-6.5 months to support the A-6 months AIT Conference.

Table 3.1 - Typical Advance Modernization Planning Package (Submarines Only)

Deliverable	Purpose	Requirement
Integrated AIT List with Ship Alterations and EC/FC	Support AIT Conference Planning, generate the Standard MOA Template and support AIM Network Development	NTIRA, the Advance Planning Letter and NDE SHIPALT Programming.
Integrated AIM Modernization Network(s)	Supports advance planning and refinement to support the Milestones and Key events of the project	Validate and Refine the Network(s), Submit to AIT Mangers to support the AIT Conference at A-6
Integrated MS Excel Support Service Matrix. The integrated support service matrix is developed utilizing years of data from major modernization efforts both in CNO and Non-CNO availabilities.	Provide scope of support service plan to the LMA and NSA. Allow required support services contracting actions as needed.	Validate and provide to Code 1200 for budgeting
Recommended Power Isolation Plan	To support Equipment Off-Load and System Readiness to commence industrial efforts.	Validate and refine as required with each AIT.
Combat Systems equipment power restoration plan	Support the integrated AIT Combat Systems Light-Off plan and testing phase.	Validate and refine as required with each AIT.
Work Authorization Form (WAF) Priority List Template *Based on historical data, may not be available for first-time work.	Provide a best practice WAF template as currently known from previous modernization efforts and lessons learned.	Validate and refine as required with each AIT
List of AIT Tests and SWFTS Test interface Matrix	Ensure On-time delivery to AIT Managers at A-10	Validate and refine as required with each AIT
Project Initial Risk Letter	Identify any AIT modernization that could impact the schedule based on past history lessons learned, AIT quality issues and scope of new alterations (first time alterations).	Ensure risk mitigation plans are in place to identify each item. The risk will be tracked at the quarterly Readiness Review.

3.4.6.1 Preparations for the AIT Conference

Upon delivery of the AMPP at A-10, the PEO SUBS LMA/AIT Modernization Coordination and Integration Team will commence planning and integration of all AIT work. Work identified in the AMPP will be aligned to the project's Key Events and Milestones. The objective is to have a draft integrated schedule for review at the A-6 AIT Conference.

The PEO SUBS LMA/AIT Modernization Coordination and Integration Team will review/prepare the following in support of the AIT Conference:

1. Provide standardized MOA template to the AIT Managers.

2. Provide standardized job summaries for all modernization work based on the AMPP.
3. Review most current drawing, material, and ILS status from the quarterly PEO SUBS MIC&R Review.
4. Provide updated AIT installation schedules and validated networks to the AIT Managers as schedules are updated.
5. Develop PICO plan/schedule.
6. Review the RMMCO Web Site and verify all scheduled AITs have a NAVSEA Approved Quality Plan.
7. Prepare and transmit the "AIT Conference Notification and Agenda" Naval Message.
8. Develop the AIT Conference Shipyard Participant List with the Project Superintendent.
9. Finalize LMA work requirements in support of AITs and Critical Systems Work and determine with the LMA management whether the shipyard has the capacity to perform the work.
10. AIT Managers will provide the PEO SUBS LMA/AIT Modernization Coordination and Integration Team a list of Critical Systems Work at A-8 for acceptance.

3.4.6.2 The A-6 AIT Conference

The Scope of the AIT Conference will be driven by the amount of AIT work approved and included in the AMPP. AIT Conferences should be planned over a two (2) day period and include the following topics:

1. Project Superintendent Opening Remarks and expectations/goals.
2. Project schedule overview with Key Events and Milestones.
3. Modernization Package review.
4. Lessons Learned and best practices (from AMPP)
5. AIT AIM Network validation/Refinement.
6. Validation of AIT service requests and contracted work requirements.
7. NSA and LMA discuss their intentions to perform Critical Systems Work previously identified by the AIT Managers at A-8.
8. Review of draft MOAs

3.4.6.3 AIT Conference Follow-up Actions

1. The PEO SUBS LMA/AIT Modernization Coordination and Integration Team continues to refine the AIT products provided by the PMAPT, ensuring the LMA's project schedule is updated and supports the project planning Key Events and Milestones.
2. Integrating the AIT work into the project's Resource Constraint Schedule (RCS) requires joint efforts for planning and validation of the AMPP. Good teaming communication and project goals are essential in development of the AIT integrated

schedule. The following work requirements should be compiled and entered into the AIT integrated schedule by the PEO SUBS LMA/AIT Modernization Coordination and Integration Team based upon validation of the AMPP and results of the AIT Conference:

a. Timeframe for AITs to commence work (if not A-0)

b. Timeframe for AITs to complete approved work, to include all testing and training.

c. Number of shifts required to complete work, to include overtime requirements for support services.

d. Services required to accomplish work, i.e. crane lifts, power, air, lay-down areas, quality control, work requested for LMA to accomplish (all to be identified in the MOA).

e. Space close out schedule to support Habitability Key Event

f. WAF prioritization (validation of the AMPP submittal).

g. Fleet Training (comprised of new system maintenance/operability and crew certification on new combat/communication systems).

h. All other ship's evolutions, certifications and requirements that may impact schedule performance during the availability.

i. Schedule Integration of AIT Work

3. Each AIT assigned will have their key work entered into the project's schedule as a CU phase or CU phase assembly. AIT work will be broken down by primary components and tasks affected to identify interfaces with other maintenance providers.
4. AIT work that is directly tied to shipyard Key Events and/or Milestones (such as EAFW, power restoration, Sail close out/test, etc.) need to be associated with those Key Events and/or Milestones.
5. The LMA will develop additional schedule activities in PSS, or CU phases in AIM, as appropriate, for AIT work that interfaces with other maintenance providers.

3.5 NSA and LMA Data Call for AIT Deliverables

3.5.1 Pre-Installation Coordination Requirements

The NSA and LMA will require the AIT Manager to provide specific information and documentation in support of availability advance planning and the work integration process. AIT submission of required documentation (POA&M) shall be in accordance with the Navy Modernization milestones of reference 2.2.3(14). The NSA and LMA will initiate the request for AIT deliverable items far enough in advance as to allow AITs adequate time to prepare and submit the required items (e.g. NSA and LMA initiate data call at A-180 when AIT submission milestone is A-135). The NSA and/or LMA shall provide, no later than A-180, anavailability Key Event and Milestone schedule for use by the AIT in developing their POA&M. In order to streamline and standardize AIT deliverable documents, the NSA and

LMA data call shall require AIT submissions in a specific format provided in Appendices A and B. Distribution of templates and/or sample documents to AIT Manager will be concurrent with the NSA and LMA data call. Documents commonly required to be submitted in a specified format include MOAs, PICO Requirements, Production and Testing Schedules, POA&M and Industrial Support Service Requests. Each POA&M submittal by an AIT shall consist of the following documents:

1. AIT POA&M Cover Sheet (Microsoft Excel or equivalent template per Appendix B)

2. AIT POA&M Task Details (Microsoft Project or equivalent template and instructions per Appendix B)

3. AIT Support Services Request (Microsoft Work or equivalent template per Appendix A)

NOTE: The Project version of item #2 above includes an export to Excel capability in cases where the NSA/RMC requests an Excel input; however, the Project template is the same for ease of data entry.

NOTE: Item #3 is required for the initial submittal even if no support services are required, but is only required for subsequent revised submittals if support service requirements change.

AIT POA&M shall be submitted to the NSA/RMC at or before A-135 days. If the AIT is not under contract at A-135, then the sponsor or their government designate shall submit a notional POA&M no later than A-135 to be followed by an AIT-produced POA&M as soon as possible after the AIT is under contract.

For Submarines - Configuration Change Processing for OHIO Class Submarines: For OHIO Class Submarines, creation and processing of all planning records and configuration records are performed in the SAS system for nightly replication into CDMD-OA for subsequent upload into the WSF. Reference 2.2.3(28) provides processes and procedures for AITs specific to OHIO Class pre-installation planning and subsequent configuration change reporting.

3.5.1.1 Data Call for AIT Deliverables Outside a CNO Availability

When an alteration/SC is scheduled for execution during a Non-CNO Availability or other Window of Opportunity, the AIT Manager shall initiate contact with the NSA and/or LMA, upon authorization of the alteration/SC by the TYCOM/TYCOM Designee. Submission content requirements will be the same as for a CNO Availability and submissions are due at I-135 (135 days prior to installation start). Unlike an availability executed in an industrial facility, pier side availabilities generally do not include provision of AIT industrial support services. The AIT Manager shall ensure that all required support services are provided by the AIT or arranged via third-party providers.

For submarines, the advance planning process for large modernization packages scheduled for installation during Non-CNO Availabilities is the same as described in paragraph 3.4.3

3.5.2 Installations Impacting Critical Systems or Critical System Boundaries

Critical systems are defined as SUBSAFE, FBW, Level 1, DSS-SOC, P1 & P3A piping systems, A-1, A-2, A-3 pressure vessels (including boilers), and M-1 machinery systems, as defined in technical guidance documents, references 2.2.3(1), 2.2.3(5), 2.2.3(6), 2.2.3(7), 2.2.3(9), 2.2.3(10), 2.2.3(24), and 2.2.3(34).

Critical work consists of production processes such as fit-up/welding, brazing and mechanical joint assembly, documentation of work, and performance of related tests and inspections on critical systems.

The AIT Manager will ensure that work on critical systems, required to support the alteration/SC, is clearly identified on the Production & Testing Schedules, and in the AIT Support Services Request. (if requesting the LMA to perform). The AIT Manager shall identify any critical work and the activity that will be contracted to perform the work (LMA, NAVSEA NOTE 5000 Contractor, other qualified contractor) to the LMA prior to the A-6 Conference. If the LMA performs the critical system work, the AIT Manager will fund the LMA to accomplish production work and related engineering products (including testing) required for any portion of an alteration/SC impacting critical systems boundaries. If the LMA cannot execute the critical work due to resource constraints or other reasons, the NSA and/or LMA may, at their option, contract the critical work to a RMC, obtain the required resources from another LMA, or approve the AIT Manager's assignment of the critical work to a qualified contractor.

For critical work performed by an activity not qualified to perform as a NSA, the NSA shall perform QA oversight in accordance with the requirements of references 2.2.2(1), 2.2.3(8) and 2.2.3(25), as applicable, to ensure compliant production processes, personnel/procedure qualifications, and work documentation and certification. For SUBSAFE and FBW work to be contracted, the NSA and LMA will comply with the requirements of references 2.2.3(10), 2.2.3(20) and 2.2.3(34), respectively.

Note: AITs qualified to perform SUBSAFE work IAW NAVSEA NOTE 5000 are exempt from the requirement to offer SUBSAFE, Level 1, and P1 piping system work to the LMA.

For contracted work aboard nuclear vessels, the AIT Manager will ensure that spaces under the cognizance of references 2.2.3(19) and 2.2.3(22) are identified on the submissions provided under paragraph 3.5.1. The NSA will review the submissions to ensure all spaces listed therein are correctly identified with regards to cognizance of 2.2.3(19) and 2.2.3(22). Incorrect identification of spaces covered by references 2.2.3(19) and 2.2.3(22), or the lack of NAVSEA approval letter accompanying a submission and/or a signed MOA as required by reference 2.2.3(22), is sufficient reason for the NSA to hold or reject the submission. However, the submission may still be used by the NSA for schedule integration and planning purposes pending the receipt of the required additional documentation and final acceptance.

3.6 Submission of AIT Deliverables/Installation Preparation Requirements

The AIT Manager will ensure installation preparation requirements are provided to the NSA and LMA in accordance with references 2.2.2(1) and 2.2.3(35) for Submarines and reference 2.2.3(14) for Surface Ships and Carriers. When applicable, the NSA and/or LMA will then

provide significant installation preparation requirements, including material, team formulation and AIT production schedule to the Master Ship Repair (MSR)/Agreement for Boat Repair (ABR) to allow coordination and integration of the alteration/SC.

3.6.1 Memorandum of Agreement

While NAVSEA TS 9090-310(Series) is written to provide requirements to activities involved in the alteration/SC process, the MOA shall be written to provide specific requirements to each activity involved in accomplishing an alteration/SC.

For Submarines, the standard MOA template of reference 2.2.3(35), with applicable standard enclosures, and reference 2.2.3(40) shall be provided by the NSA to the AIT Manager as part of the AMPP at A-10 months. The AIT Manager shall verify/revise these documents and return to the NSA at A-6.5 months to support the AIT Conference at A-6 months.

For Surface Ships and Carriers, the NSA and LMA will jointly prepare a MOA in accordance with reference 2.2.2(1) to clarify the responsibilities of all participating activities involved in the installation of alterations/SCs by AITs for all availabilities.

NSA and LMA support services and funding requirements to accomplish the responsibilities will be clearly defined in the written MOA, and, when applicable, will be in accordance with reference 2.2.2(1). Some NSAs have developed standard MOA templates for use during their availabilities. The NSA and LMA will provide each AIT Manager with draft MOA containing information and requirements that are applicable to all participating activities in the availability. Each AIT Manager will respond with the specific requirements of their alteration(s), not addressed in the draft MOA. The NSA and LMA will take action to review and deconflict the AIT-specific requirements (with all involved parties, as appropriate), and incorporate them into the final MOA.

The depth of the specific requirements, identified in the MOA, will depend on the complexity of each alteration/SC and the combined Work Package. Participants include, but are not limited to, the AIT, NSA, LMA, LCM, MSR, Ship, and support activities. MOAs shall be approved and signed by all applicable activities prior to the AIT commencing the alteration/SC. The following are sample topics:

1. Funding requirements
2. Meeting attendance
3. NAVSEA SIs that are invoked for the installation
4. Clearly defined Technical Authority responsibilities consistent with references 2.2.3(4) and 2.2.3(27)
5. Clearances and insurance requirements
6. AIT Training requirements (ex. Hot work, RADCON, 6010 Manual)
7. In brief/out brief
8. Tag-out and work control
9. General cleanliness

10. Steam plant cleanliness environmental controls
11. Asbestos control
12. Hazardous Waste (HW) management
13. Heavy Metals Testing, Control and Abatement
14. Painting and adhesive application permit
15. Environmental reporting (e.g. paint, solvent, adhesive, fuel, welding rod usage reports, as per reference 2.1.1(4)
16. Quality Assurance
17. Work certification
18. Ship certification
19. General Safety
20. Nuclear Interface
21. Industrial radiation safety
22. Site-specific EPA HW generator ID number, if using a MSR or ABR to dispose of HW
23. Violations of safety/hazardous materials
24. Diesel engine (50hp or greater) registration/permit

Note: This is not an all-inclusive topic list. The areas that may warrant inclusion in the MOA may vary with each alteration/SC installation.

3.6.2 Pre-Installation Check-Out (PICO) Testing Requirements

When applicable, based on a requirement to conduct PICO testing in accordance with paragraph 3.11, the AIT Manager will ensure that PICO testing requirements are submitted to the coordinating activity (NSA/LMA/ISIC/Ship). Typical PICO requirements include, but are not limited to:

1. Technical Point of Contact and designated testing witnesses
2. Equipment, System, or System Interface to be tested, including required alignment or configuration
3. Applicable test procedures. (If PMS based, list MIPs/MRCs to be demonstrated or standard SUBMEPP Test Procedures. Otherwise, provide basic description of test procedures)
4. Estimated testing duration
5. Force Personnel support requirements (Ship’s Force equipment operators, technicians, etc.)
6. Supporting/interfacing equipment and/or systems requirements
7. Auxiliary Support Services (power, chilled water, A/C, Dry Air, etc.)

8. External service requirements (aircraft, ship's boats, Degaussing or Shipboard Electronics Systems Evaluation Facility (SESEF) facilities, etc.)
9. Special requirements to support testing (At Sea testing, EMCON, rotate and radiate, Personnel Aloft restrictions, etc.)

3.6.3 Production and Post-Installation Testing Schedules

For Submarines, PSS/AIM Production and Test networks shall be provided by the PMAPT to the AIT Manager, NSA and LMA as part of the AMPP at A-10 months. The AIT Manager will verify/revise these documents and return to the NSA, LMA and PMAPT at A-6.5 months to support the AIT Conference at A-6 months.

For Surface Ships and Carriers, Alteration/SC installation production and testing schedules shall be submitted in the format described in paragraph 3.5.1 using the templates provided in Appendices A and B. These schedules will specify the expected start dates and duration (in calendar days) of all AIT shipboard work and post-installation SOVT schedules. Other considerations include items that could impact ship's operations or other work items in the Integrated Production and/or Test Schedules. These include, but are not limited to:

1. AIT manning, planned number of work shifts per day and hours per shift
2. Impacted areas and spaces including required access to secure spaces
3. AIT points of contact
4. Inspection requirements (gas-free, SIGSEC, TEMPEST, weight tests, etc.)
5. Specific equipment, systems, circuits, components, piping or valves which will require isolation, deactivation or removal to accomplish planned work and any associated tag-out processing requirements
6. Work on Critical Systems or Critical System Boundaries
7. Weapons/ordnance handling requirements
8. System certification that could be required/affected by accomplishment of the alteration (Navigation Certification (NAVCERT), SIGSEC, TEMPEST, EMC/EMI/RADHAZ, SUBSAFE, FBW, etc.)
9. Crew training requirements
10. Requirements for special test conditions (Sea Trials/underway testing, satellite access time, cryptographic keying material, etc.)
11. All activities must comply with key event schedules promulgated by the NSA and LMA.

3.6.4 Industrial Support Service Requirements

For Submarines, the Support Services matrix will be provided by the PMAPT to the AIT Manager, NSA and LMA as part of the AMPP at A-10 months. The AIT Manager will

verify/revise these documents and return to the NSA, LMA, and PMAPT at A-6.5 months to support the AIT Conference at A-6 months.

For Surface ships and Carriers, the AIT Manager is responsible for providing advance notification of alteration/SC accomplishment requirements/impacts and making arrangements for industrial support services that will be required to support both the Production and Testing phases of the installation.

Appendix A provides the template for requesting industrial support services. These services may include but are not limited to:

1. Administration support requirements (dedicated telephone service, desk space, etc.)
2. Material delivery and stowage requirements (number of boxes/pallets, special handling [e.g. ESD, SUBSAFE, FBW, magnetic protection], special stowage, lay-down area requirements, etc.)
3. Crane service requirements (capacity, on-load, offload, high reach, etc.)
4. Rigging service requirements
5. Scope of hot work requirements (cutting, welding, brazing, etc.)
6. Fire watches (number of welders working, number and length of shifts, etc.)
7. Access cut requirements
8. Man-aloft requirements
9. Scaffolding and staging requirements
10. Diver and cofferdam requirements
11. Planned handling, use and disposal of identified hazardous materials (e.g. fluorocarbons, paint, welding rods, partially used material, hazardous waste)
12. Specific ventilation/environmental requirements (e.g. special air flow/cooling/heating requirements, protective shelters to be installed)
13. Ship systems service requirements (e.g. power, low or high-pressure air) that may be required to support the accomplishment of the alteration, calibration or certification of the equipment
14. Post-installation testing support requirements
15. Non-Destructive Testing (NDT) requirements
16. NSA turned-in equipment/material disposal requirements
17. Tag Out and Work Control requirements
18. Critical Systems or Critical System Boundaries work requirements
19. NSA QA inspection and verification of AIT Government Inspection points at the request of the AIT Manager.

3.7 Provide AIT Support Services Funding (if Applicable)

The AIT Manager is responsible for providing advance notification of alteration/SC accomplishment requirements/impacts and making arrangements for industrial support services that will be required to support both the Production and Testing phases of the installation. The NSA and/or LMA will provide the AIT Manager a cost estimate for required support services, including applicable prorations for common support service costs, in accordance with reference 2.2.3(14) and 2.2.2(1) milestones (see SUPSHIP SWT 980-01, "Alteration Installation Team Support Service, Provide"). The AIT Manager will ensure that funding for support services during a contracted shipyard availability is provided to the NSA, and/or LMA in accordance with Navy Modernization milestones identified in Appendix G of reference 2.2.3(14) for surface ships and carriers, and no later than 30 days prior to contract award or 90 days prior to the start of availabilities to be accomplished at public shipyards for submarines.

3.8 Security Clearances (if applicable)

The AIT Manager will ensure that Security Clearances are in place and will communicate with the NSA and LMA to ensure local requirements are clearly defined. For CONUS installations, the AIT Manager will ensure that security clearance information for government personnel is submitted in the appropriate Visit Request format. AIT contractor personnel are responsible for providing their own clearance information to the NSA and/or LMA. For OCONUS installations, the AIT Manager will ensure that a Country Clearance Message is issued a minimum of 30 days in advance of the installation start (or 30 days in advance of the CNO Availability start date if the install is taking place within a CNO Availability). Country Clearance Messages guidance is located in DoD 4500-54 (series), Department of Defense Foreign Clearance Manual.

Where access is required to secure areas or equipment, the individual AIT members requiring such access will have the proper level of clearance for access without escort. A minimum of seven (7) working days prior to arrival or as established by TYCOM/Regional policy, the AIT OSIC/AIT Lead will provide a visit request and clearance information for AIT members to the ship, TYCOM, NSA and/or LMA, and any other appropriate Naval activities. In situations requiring a quick response, visit request and security clearance information will be provided as far in advance as possible and by the fastest means practicable. For alterations/SCs being accomplished during contracted shipyard availabilities, the AIT will comply with security requirements of the industrial or naval activity in addition to those required for access to the ship.

3.9 Upload CDMD-OA Workfiles

The AIT Manager will verify that designated Alteration/SC LCM/ISEA pre-loads configuration planning data workfiles via CDMD-OA Database, for CDM review, no later than sixty (60) days prior to Start of Installation (SOI)/Start of Availability (SOA), in accordance with references 2.2.2(1) and 2.2.3(14). Proof of workfile submission to CDMD-OA (i.e., AIT CDMD-OA Verification Report or equivalent) will be required at RMMCO Check-In.

Note: A CDMD-OA query containing the following data elements Ship Hull, Install Date, RIN, RIC, ISC, EFD, EIN, PRID, Summary Title, RECD DATE, ALT TYPE, ALT ID, ALT RIC, ALT RIN and ALT STATUS can be substituted in place of the AIT CDMD-OA Verification Report.

For OHIO Class Submarines (SSBN/SSGN), reporting of completed configuration changes is performed in the SAS system for nightly replication into CDMD-OA for subsequent upload into the WSF. The OHIO Class configuration status reporting process is highly integrated with OHIO Class Intermediate Level (I Level) maintenance processes. AITs will coordinate with the appropriate Trident Maintenance Facility's Maintenance Department - Trident Refit Facility (TRF) Kings Bay or Intermediate Maintenance Faculty (IMF) PACNORWEST for receipt of configuration planning records from LDS in the form of pre-filled OPNAV 4790/CKs. Upon completion of installation, AITs will provide completed 4790/CKs to the requisite Trident Intermediate Facility Maintenance Department for up-line reporting. The OHIO Class (SSBN/SSGN) Command and Control System (CCS) and NPES Installation Standard Operating Procedures, reference 2.2.3(29), provides detailed process explanations, procedures and points of contact.

3.10 Approved MOA In Accordance With NMP-MOM

For Submarines: As discussed in paragraph 3.6.1, the MOA will be provided by the PMAPT to the AIT Manager, NSA and LMA as part of the AMPP at A-10. Availability participants, including AIT Manager/OSIC, will negotiate required changes and indicate concurrence via signature. Copies of the signed MOA will be made available to all members of the AIT. No AIT will be allowed to commence installation of their alteration/SC prior to all required activities/organizations signing the MOA.

For Surface Ships and Carriers: Following the initial review and update of the draft MOA, in accordance with paragraph 3.6.1 the NSA and LMA will adjudicate and incorporate recommended changes, and forward the final MOA for signature. Availability participants, including AIT Manager/OSIC, will indicate concurrence via signature, and copies of the signed MOA will be made available to all members of the AIT. No AIT will be allowed to commence installation of their alteration/SC prior to all required activities/organizations signing the MOA.

3.11 PICO (if applicable)

PICO shall be conducted as determined by the PARM/ISEA when alterations/SCs modify or relocate existing equipment or systems, including modifications that affect existing interfaces between multiple systems, as determined by PARM/ISEA or, when warranted, during Design Ship Check by the PY (see paragraph 3.4.1). For PICOs, TYCOM coordination and approval is required.

PICO is conducted in order to validate the operational status and characteristics of the equipment, systems and interfaces affected by the installation. PICO events support the establishment of clear responsibilities for maintenance and modernization communities. They also serve to identify existing discrepancies which, if uncorrected, could delay or prevent the installation of the alteration/SC, or the post-installation SOVT providing stakeholders with confidence in the post-production System Light Off and SOVT schedules. . Regional

NSAs/LMAs/RMCs may coordinate a consolidated PICO event, as part of the Availability Advance Planning process, led by a locally designated PICO Coordinator. In other instances, PICOs are coordinated directly with Ship's Force by individual AIT Managers.

During the New Construction window, multiple qualification and certification SCN events are occurring. In order to ensure integration with these events, all PICOs will be scheduled through the SHAPM or SHAPM representative. Every effort shall be made to consolidate and eliminate redundancy with duplicate or similar testing and assessments.

As noted in paragraph 3.6.2, the AIT Manager will specify the scope of PICO testing, support requirements (personnel and systems) and a proposed schedule. PICO testing may be based upon Planned Maintenance System (PMS) currently implemented on the ship. Ship's Force will complete PMS-based PICO, witnessed and assisted by the AIT OSIC/AIT Lead, if feasible. Any additional (non-PMS) test requirements/procedures will be provided to the AIT OSIC/AIT Lead by the cognizant Program Office/ISEA/PARM. Responsibility for executing and witnessing non-PMS based PICO testing will be by agreement between Ship's Force and the AIT OSIC/AIT Lead. Regardless of coordination method, required PICO will be completed prior to start of installation, nominally 60-30 days prior to the SOA should the ship's operational schedule and other factors permit.

Within five (5) days of PICO completion, the Ship's Force and AIT OSIC/AIT Lead will jointly produce a PICO completion report. The report will outline SAT or UNSAT performance and will include all known discrepancies which could impact installation or SOVT. If a consolidated PICO event was conducted, the locally designated PICO Coordinator may compile results from multiple PICOs into a consolidated PICO Report. The Ship's Force, LMA, or Maintenance Team in coordination with the ISEA/AIT OSIC/AIT Lead will evaluate discrepancies and identify the recommended activity responsible for corrective action. Ship's Force will ensure repair requirements are documented in the ship's CSMP. The ship will formalize PICO Completion Reports via naval message (see Appendix B for sample) within 14 days (30 days for submarines) of PICO completion. The PICO Completion Report Message shall be addressed to the NSA, LMA, ISIC and TYCOM representatives for record purposes and to other cognizant activities including AIT Sponsors.

3.11.1 Execution

PICO may be coordinated via three methods:

1. Between the AIT Manager and Ship's Force via TYCOM
2. At the discretion of the Regional NSA/LMA/RMC, a consolidated PICO event may be coordinated as part of the Availability Advance Planning process, led by a locally-designated PICO Coordinator.
3. For Surface Ships and Carriers, during the new construction window, multiple qualification and certification SCN events are occurring. In order to ensure integration with these events, all PICOs will be scheduled through the SHAPM or SHAPM representative. Every effort shall be made to consolidate and eliminate redundancy with duplicate or similar testing and assessments.

Regardless of coordination method, all required PICOs shall be completed prior to start of installation.

As noted in paragraph 3.6.2, the AIT Manager shall specify the scope of PICO testing, support requirements and a proposed schedule via the following ways:

1. PMS-Based PICO- The AIT Manager, via TYCOM, may request Ship's Force complete PICO witnessed and assisted by the OSIC/AIT Lead, if feasible. Ship's Force PICO testing shall be limited to current Ship's Force PMS.

2. Non-PMS Based PICO- Any Non-PMS based PICO requirements shall be provided to the OSIC/AIT Lead by the cognizant Program Office/ISEA/PARM in accordance with Appendix G of reference 2.2.3(14). Responsibilities for conducting and witnessing of Non-PMS PICO testing shall be coordinated in advance and documented in a POA&M/MOA.

3.11.2 AIT Manager Responsibilities

AIT Managers are responsible for identifying PICO requirements to the NSA and LMA. This includes:

1. Providing a list of systems planned for PICO
2. Coordinating with the ISEA/SME for development of PICO requirements for targeted systems
3. Providing PICO support and test requirements, as well as the test plan, if required
4. Identifying satellite access, keymat and requirements for interfacing systems
5. Developing cost estimates and funding any required technical support or witnesses for PICO accomplishment
6. Confirming PICO dates with ship/TYCOM and SME
7. Including PICO requirements in pre-installation messages
8. Identifying a SME, if required
9. Finalizing the PICO test plan
10. Conducting a PICO In-Brief, if required
11. Conducting the PICO
12. Generating a PICO completion report message in accordance with Appendix H of reference 2.2.3(14), ensuring ALCON are included. The message will be released by the ship by PICO completion +14 days (+30 days for submarines).

The AIT Manager shall ensure PICO requirements and milestones are coordinated with the NSA, LMA, and ship in accordance with Figure 3-2.

3.11.3 NSA, LMA, and Fleet Responsibilities

The TYCOM or TYCOM-designated representative shall coordinate the PICO test schedule and execution with the NSA, LMA, and ship. For all installations, AIT and Non-AIT, Ship's Force will ensure repair requirements are documented in the ship's CSMP and coordinate

work with the NSA and LMA. Additional reporting requirements for AIT installations can be found in Appendix A.

Figure 3-2 Consolidated PICO Event (Notional Timeline for MSMO CNO Availability)

When	Requirement	Responsibility
A-135	Provide scope of PICO testing requirements to NSA	AIT Manager
A-120	Confirm PICO start date (P-0) and duration; target accomplishment between A-60 and A-30	NSA, AIT Manager and Ship
A-90	Identify ISEA/SME and provide PICO test plan	AIT Managers
P-7	Conduct ship's in-brief, if required	AIT Manager and Ship
P-0	Perform PICO testing	Ship, PARM, SEA,OSIC/AIT Lead or Installing Activities, as required
P+5	PICO results out-briefed	OSIC/AIT Lead, as required
P+14	Document PICO results	OSIC/ AIT Lead as required
A-30	Screen new work and integrate into availability schedule, as applicable	Ship and NSA

3.12 Quality Assurance Provisions

3.12.1 AIT Quality Management System (QMS)

Note: NSYs are under control of NAVSEA 04 and are not required to submit their QMS procedures for NAVSEA acceptance. When accomplishing alterations/SCs as AITs, they shall comply with the requirements of the NSY's QA Policies and Procedures. NSYs performing AIT work at other activities will develop a QA Workbook and the designated AIT Manager will develop a QA oversight plan per guidelines in paragraph 3.12.2.1 and Appendix D.

3.12.1.1 Initial Acceptance

Initial acceptance consists of acceptance by either NAVSEA 04XQ, SUPSHIP or the RMC.

Contractors and government activities performing AIT work will submit their QMS for review and acceptance to NAVSEA 04XQ. The QMS shall comply with the requirements of Appendix C.

RMC, NSSA and SUPSHIP are authorized to review and accept an AIT's QMS. The RMCs will then forward a copy of the acceptance letter to NAVSEA 04XQ for their master files

Note: Master Ship Repair Agreements (MSRA) and ABR contractors - Contractors performing AIT work who are MSRA or ABR Agreement holders are not required to submit their QMS to NAVSEA 04XQ but must maintain a current QMS that has been accepted by the designated RMMCs/SUPSHIPs. On an annual basis, RMCs/SUPSHIPs will provide NAVSEA 04XQ with a listing of their qualified MSRA and ABR contractors.

NAVSEA review of the AIT's documented QMS will include review of quality manual (level I) and supporting implementing procedures (level II) to demonstrate compliance to documented processes required by SI 009-04 (ISO 9001). Work instructions (level III) and process control procedures, while an integral part of the QMS, are not reviewed and accepted by NAVSEA 04X. For AIT work, the supervisor, as identified in SI 009-04, is the AIT Manager, when work is not under the control of SUPSHIP/RMC/NSSA.

3.12.1.2 Revoking of Quality Management System (QMS) Acceptance

The AIT Manager is responsible for reviewing AIT quality trends and taking action when negative trends can degrade product quality. NAVSEA 04XQ has the authority to revoke a QMS acceptance where evidence exists (via audit reports, Trouble Reports, Method D letters, AIT Manager recommendations, AIT Sponsor evaluations, etc) of significant quality issues or non-compliance to the QMS with prior notification to the AIT Sponsor.

3.12.1.3 Quality Management System (QMS) Resubmittal

The QMS requires a one time submittal/acceptance unless the AIT changes or amends the QMS, NAVSEA SIs and/or references change, or AIT's status changes in accordance with NAVSEA SI 009-04.

3.12.1.4 Invoking AIT Quality Management System (QMS)

The AIT Manager will ensure the AITs have a QMS/plan accepted by NAVSEA 04XQ (that complies with Appendix C) prior to installation, and that proper training, certifications and quality assurance/control are in place for the work identified. Upon request by the designated NSA, the AIT will be required to show proof that their QMS has been accepted by NAVSEA 04XQ. Additionally, all other contractually related procedures requiring acceptance shall be available to the NSA prior to the start of ship work when requested.

3.12.1.5 AIT Quality Assurance (QA) Workbook

The AIT Manager must ensure that the selected AIT develops a QA workbook that outlines the scope and process of the installation. In cases where multiple related alterations/SCs are being installed by the same AIT, a single QA workbook covering all alterations/SCs is acceptable providing any unique requirements are clearly identified and addressed. In addition, the QA workbook will outline all personnel requirements and identify procedures

that will be used in accordance with reference 2.1.1(4). The QA workbook must be presented by the AIT to the AIT Manager in advance of the install for satisfactory review and be available onboard the ship during install. Where installations consist of standalone software changes, an AIT QA workbook is not required. The AIT Manager/OSIC/ISEA loading the software must have available the install and test procedure documentation onboard ship and during RMMCO Check-in.

The QA workbook will contain at a minimum, the following sections:

Section 1: Alteration/SC description – a copy of the approved SAR/SCD that describes the scope of the alteration/SC.

Section 2: Personnel – a comprehensive list of all AIT personnel, including subcontractors and temporary employees that will be onboard during the installation. This section must include up-to-date qualifications, certifications and training received that is relevant to the installation and pre-fabrication. Minimum requirements as to required personnel certifications are provided in Appendix C (AIT Quality System Requirements). The AIT shall cross-reference personnel to qualifications and/or certifications.

Section 3: Procedures – Objective Quality Evidence (OQE) is required to show that the AIT is operating under an accepted QMS. The AIT shall list in this section all NAVSEA SIs , approval letters and/or procedures that are relevant to the work being performed. The AIT shall develop all procedures and cross-reference with personnel qualifications that are provided in previous section.

Section 4: Installation POA&M provides a breakdown of AIT work being accomplished in a sequence of events, and provides time requirements. Specific requirements for the POA&M are contained in paragraph 3.6.1. A sample POA&M is provided in Appendix B.

Section 5: Ship Change Installation Drawing (SID) or Install Procedures – For alterations/SCs where SIDs are required, depending on size of SID package, the AIT will enclose a set of SIDs that reflects the latest drawing revisions. If the size of SID package is large, the AIT may include only the list of drawing numbers. For internal equipment modifications, the AIT will include the installation instructions that were developed by PARM/ISEA.

Section 6: Test and Inspection (T&I) Plan – This Section provides a step-by-step outline for accomplishing the work and testing. This ensures that work is accomplished safely, meets the technical specifications, and provides OQE that work has satisfied all requirements. This provides the Inspections, Verification and Government checkpoints (referred to as I, V&G points) that demonstrate AIT has completed all procedures. Any other tests and inspections required by other applicable references shall be included in the T&I Plan.

Section 7: Test and Inspection Records – Includes all forms that will be used to document the T&I performed in Section 6. The AIT Manager will either retain or ensure AITs retain all completed records of this section after installation has been completed.

AIT and Sponsor are required to maintain records of install in accordance with Joint Fleet Maintenance Manual (JFMM) COMFLTFORCOMINST 4790.3 Rev B, Quality Assurance Manual, Page 10.2.2 (2) Level I records. Requirement stated as follows: “Non-Nuclear/Non-Submarine (SUBSAFE) Level I Records will be maintained for a minimum of seven years from the ship’s delivery date for new construction or seven years from the availability

completion date for repairs, overhauls, conversions, etc. Disposition instructions will be requested from NAVSEA 04XQ via the appropriate TYCOM after that time."

Records of Level I work will be retained at the activity (Ship or FMA) for at least three years following the completion of the work. After three years the records may be stored ashore.

3.12.2 Quality Assurance (QA) Oversight

3.12.2.1 Performance Surveillances/Compliance Audits

The NSA and AIT Manager or designated representative will perform process surveillances and product inspections of installations on a sampling basis and will use the sampling evidence to indicate conformance or nonconformance with requirements of the tasking/contract and this specification. NAVSEA 04 is responsible for monitoring compliance with this document at both Command and field activity levels. NAVSEA 04XQ shall audit, on a sampling basis, AIT Sponsors, AIT Managers and NSAs for compliance with the requirements of this document. In addition, the accepted QMS will also be subject to periodic compliance audits to the requirements of Appendix C as directed by NAVSEA 04XQ

3.12.2.2 AIT Manager's Quality Assurance (QA) Program

The AIT Manager will administer the AMQAP outlined in Appendix D to evaluate the effectiveness of the AIT's QMS.

3.12.2.3 Quality Assessment

The AIT Sponsor will ensure an annual quality trend analysis of Fiscal Year (FY) data, for each sponsored AIT is performed, using oversight reports, deficiency reports, departure requests, critiques, customer feedback, etc. to evaluate AIT performance. The AIT Sponsor will report results of this trend analysis including weaknesses identified and actions taken to NAVSEA 04XQ and NAVSEA 04RP by February of the following year.

3.13 Electronic RMMCO Form Submission

3.13.1 General

The RMMCO AIT Check-In/Check-Out application process at https://rmmco.navy.mil/ provides the AIT Manager/AIT OSIC with a tool to initiate the check-in procedures required for the installation of an alteration/SC aboard ship. This application shall be used by the AIT to ensure rapid, problem-free completion of the check-in requirement. RMMCO eCheck-In form shall be initiated by the AIT Manager or AIT OSIC at least 30 days prior to installation start. To conduct the RMMCO Check-in, access to the RMMCO web application must be obtained by requesting access at the website. With website access, follow the steps to submit the RMMCO form. On-line help is available if necessary. Attach applicable documents pertaining to the installation to the RMMCO Form in accordance with paragraph 3.13.2.

3.13.2 Required Documentation for Electronic RMMCO Form Submission

The required documentation for Electronic RMMCO Form Submission is:

1. ILS certification or TYCOM approved ILS Risk Assessment.
2. Itemized inventory list of all ILS products to be provided to the ship (i.e. DD 1149 or equivalent)
3. Proof of work file submission to CDMD-OA (i.e., AIT CDMD-OA Verification Report or equivalent).

3.13.3 Reasons for Placing an Installation on Gatekeeper Hold

During Electronic RMMCO Form Submission, the RMMCO Gatekeeper reviews authoritative data sources, confirms the Alteration/SC is authorized by the SPM or TYCOM and that it has an approved QMS. Alterations/SCs that have not been authorized will be placed on Gatekeeper Hold. Gatekeeper will place Alterations/SCs on Gatekeeper Hold for the following reasons:

1. No Approved SID or SID Waivers. For Surface Ships and Carriers, installation shall not be placed on hold if an emergent approval has been issued in accordance with reference 2.2.3(14)
2. No Approved SAR/SCD/Legacy Alteration. For Surface Ships and Carriers, installation shall not be placed on hold if an emergent approval has been issued in accordance with reference 2.2.3(14).
3. No AIT Lead POC information.
4. No Government OSIC POC information.
5. No Government AIT Manager POC information.
6. No Government Sponsor POC information
7. No Final or Interim certified ILS Certification or TYCOM approved ILS Risk Assessment
8. For CNO Availabilities: No SPM LOA/MRA authorization.
9. AIT QMS has not been accepted by NAVSEA 04XQ.
10. For NON-CNO availabilities: No TYCOM Authorization
11. No approved risk form number from NDE-AMPS or date time group for TCD Waiver
12. No Approved Baseline.
13. No SECNAV DTG or MFR Waiver reference (DECOM)
14. No 2K in CSMP
15. No Accepted Quality S/QA Plan
16. No Country Clearance for out of CONUS visitors
17. CDMD-OA workfiles not submitted
18. ATO/IATO not approved or has no risk waiver.

3.14 RMMCO Physical Check-In

3.14.1 General

The AIT Manager/OSIC/AIT will check-in with the NSA and/or RMMCO prior to reporting to the ship. During check-in, NSA and/or RMMCO (as applicable) will review documentation provided by the AIT Manager/OSIC/AIT.

3.14.2 AIT Installation Package Required for Physical Check-In

RMMCO will require the following AIT installation package for physical check-in:

1. QA workbook prepared in accordance with paragraph 3.12.1.5.
2. Release of all Gatekeeper hold items previously identified.
3. Approved/Signed installation instructions as identified in the QA work book.

3.14.3 RMMCO Check-In Form

Once the AIT installation package is verified, the RMMCO Form will be printed by RMMCO or the NSA and provided to the AIT. This form identifies all items that will require signature verification of accomplishment and/or receipt of the list of ILS deliverables from designated Ship's Force/NSA representatives prior to check out.

3.14.4 AITs Not Meeting Requirements

For AITs not meeting any of the above requirements, the ship will be notified of the deficiencies by email from RMMCO and RMMCO will not allow the installation to commence until resolved.

3.15 AIT In-Brief

The purpose of an in-brief is to provide an overview and objectives of the alteration/SC to be accomplished. The in-brief will outline work to be performed, any critical work to be performed, review the schedule of accomplishment (i.e. POA&M) and identify impacts on the ship, confirm arrangements for requested/required services, review key schedule of events (milestones), establish responsibilities and points of contact, review planned ship's evolutions, and review ILS products and training to be provided. An in-brief will be scheduled and coordinated by the AIT OSIC. It will be conducted after RMMCO Check-in and prior to the initiation of alteration/SC accomplishment as outlined in Appendix E. Whenever possible, for alterations/SCs which impact several systems or spaces or will require more than a week to complete, or will impact critical systems identified in paragraph 3.5.2, the in-brief will be held for key personnel prior to the start of alteration/SC accomplishment.

The following personnel shall be invited to attend the in-brief: applicable Ship's Force personnel and/or designated representative to include but not limited to the following: CO, XO, Ship's Availability Manager, applicable Department Heads and Division Officers,

SUPPO, and Technical/Operator Personnel (i.e. FC, ET, OS, etc). Also invited shall be: TYCOM, Squadron, NSA, LMA, Shipyard Trades Personnel (i.e. Electrical Foreman), Lead Zone Manager (i.e. HM&E, Combat Systems, Engineering), Work Integration Representative, PY On-Site Representatives, RMMCO, Program Manager Representative (PMR), AIT OSICs, and AIT Leads.

Note: AITs that have not held an in-brief shall be denied permission to start installation of an alteration/SC.

3.16 Local Area Requirements Training

AITs are to follow the local area requirements of the industrial facility where the alteration/SC is to take place. This training is commonly conducted prior to badge access being allowed into the industrial facility. Most industrial facilities conduct the training via video. The training may consist of but is not limited to the following areas:

1. PPE Requirements
2. Badge Color Code and areas able to access
3. Requirements for access to Radiological Controlled areas and other controlled areas
4. Radiological Controlled Material handling requirements
5. Overhead Crane movements
6. Vehicle Traffic/Parking
7. Marked areas for walking
8. Alarms/Emergency Reporting Procedures (i.e. what to do, what number to call)
9. Off limit areas
10. Environmental impact
11. Confined Space Requirements
12. Hazardous Materials (HAZMAT) Requirements
13. WAF Requirements
14. Lock Out/Tag Out Requirements
15. Electrical Safety
16. Hot Work and Firewatch requirements
17. Manual for Control of Testing and Ship Conditions (Submarines)
18. Industrial Facility indoctrination.

3.17 Work Authorization Form (WAF)/Tag-Out

During accomplishment of the alteration/SC, various circuits, pipe runs, equipment, etc., may have to be temporarily deactivated or placed in a reduced operating status. The CO's designated representative and assigned NSA, LMA will be notified in writing, using a WAF in accordance with reference 2.2.2(1) of equipment and systems that require isolation to

accomplish the alteration/SC. During availabilities when the NSA and/or LMA is coordinating all WAFs and Tag-outs, this request should be made to the NSA and/or LMA. Notification will be provided prior to initiation of ship work so that tag outs can be accomplished as required by reference 2.2.3(3). Notification will be made at least forty-eight (48) hours prior to required deactivation to ensure proper coordination with other on-going work, or in accordance with local NSA and/or LMA policies. During periods of heavy industrial activity, 48 hour notification may be insufficient to ensure proper coordination and accomplishment of isolation. In these circumstances, notification should be accomplished as early as possible and/or as required by the MOA between NSA, LMA and AITs. AIT members will comply with all the requirements identified in reference 2.2.3(3).

All individuals who perform work onboard Naval Vessels shall be indoctrinated in basic purpose, use and restrictions associated with the Tag-out Users Manual (TUM).

3.18 Execute Alteration/Ship Change

3.18.1 AIT Formulation

The make-up of the AIT will be as determined by the AIT Manager, based on the skill requirements of the work to be accomplished and the number of shifts the AIT is planned to work. Each AIT will be outfitted with all tools and materials required to accomplish the alteration/SC, including (but not limited to) hand tools, PPE, General Purpose Electronic Test Equipment (GPETE), special purpose electronic test equipment, Installation and Check-Out (INCO) spares, and special alignment equipment. For those skills that require specific training, qualification and/or certification (welding, electrical connector assembly, SUBSAFE, SIGSEC, TEMPEST, PCMS installation, Level 1, fiber optic cable/equipment installation, FBW, etc.), AIT members performing these functions shall be fully trained, qualified and certified. Substantiating documents shall be made available for review by the NSA and/or LMA upon request.

3.18.2 Transportation and Billeting

Transport of AIT personnel, tools, material and support equipment to and from the installation site and all billet arrangements shall be the responsibility of the AIT.

3.18.3 Participation of Other Activities

The participation of a system/equipment ISEA, or other activity, which is required for accomplishment of required conjunctive or associated ORDALTs, MACHALTs, FCs, Software Deliveries, etc. shall be coordinated with the AIT Manager and AIT OSIC and documented in a MOA to ensure responsibilities for work are clearly defined and understood. Where an ISEA or other activity is required for testing or certification of equipment/systems associated with the accomplishment of the tasked alterations/SCs, the testing/certification plan will also be coordinated with the AIT Manager and AIT OSIC.

3.18.4 Safety Considerations

3.18.4.1 Risk Assessment, Risk Abatement, and Personal Protective Equipment (PPE)

AIT members will use Operational Risk Management (ORM) or similar Risk Assessment and Abatement of Hazards program to anticipate and mitigate the hazards associated with the task and the potential exposure to dangers in the work environment. Identified/recognized hazards will be abated using the following hierarchy:

1. Employment of Engineering controls
2. Employment of Administrative controls
3. Use of PPE

The appropriate PPE will be worn when there is potential exposure to hazards. As a minimum, Hardhat, Steel Toe Shoes, Safety Glasses and Earplugs shall be with the employee, ready for use, should the hazard arise. AIT personnel shall wear PPE when boarding and when walking around a vessel. AIT personnel shall bring PPE or arrange the acquisition of PPE when visiting sites (such as Warfare Centers, RMCs and Shipyards) where there is a potential for exposure.

3.18.4.2 Fire Protection

In accordance with 29 CFR 1915, Subpart P, each AIT must have a fire safety plan for their employees. This plan must comply with the host employer's fire safety plan.

3.18.4.3 Damage Control, Fire Fighting and Fire Protection Equipment

AIT members shall familiarize themselves with the location and details of all damage control, fire fighting and fire protection equipment and systems (e.g., detection, suppression, equipment stowage).

3.18.5 Housekeeping

The AIT will perform general housekeeping in all impacted areas. At the completion of each shift, each work site shall be broom-cleaned. All trash and debris will be removed from the ship, and all hazardous waste, industrial waste, and/or excess hazardous material will be properly disposed of. The AIT will properly dispose of all installation and associated material and will ensure equipment is protected from contamination and damage during the alteration/SC installation process.

NAVSEA SI 009-06 (Maintaining Protection and Cleanliness from Non-Radioactive Contaminate Producing Operations) and SI 009-07 (Confined Space Entry, Certification, Fire Protection and Housekeeping) provide additional housekeeping requirements. The AIT will also ensure that all hoses, welding leads, temporary ventilation trunks, and other industrial service components and materials are kept clear of water tight doors and hatches or be capable of removal in accordance with reference 2.2.3(2) for submarines. Rigging of temporary service leads and hoses will be kept clear of the decks, on temporary trees or brackets. They

shall be arranged to minimize tripping and other safety hazards and to allow ready access through doors, hatches and passageways.

3.18.6 Material Requirements

All material required to be installed or provided as part of an alteration/SC should be assembled by the AIT for each tasked hull. This material includes all material (HCPM and AIT-procured) required by the installation drawings and all logistic support items required to be turned over to the ship (including special tools/test equipment, interim spares, APLs/Preliminary APLs, maintenance plans, Technical Manuals (TMs), test procedures, Planned Maintenance System (PMS) documents, Maintenance Assistance Modules (MAMs), Operating Space Items (OSI), Material Safety Data Sheets (MSDS), etc.). All ILS requirements will be provided by the End of Installation (EOI) or have an approved waiver and an estimated delivery date.

1. When ordering AIT-procured material (other than shop stores-type material) from the Federal Supply System, the AIT Manager shall first contact the Material Item Manager to determine whether or not the supply activity has pre-staged or reserved material for the applicable alteration/SC.
2. For ease of accomplishment and reduced onboard effort, prefabricated material (foundations, cable/harness assemblies, etc.) should be used to the maximum extent possible.
3. All material in SUBSAFE boundary shall be accompanied with a full set of certification documentation, in accordance with reference 2.2.3(10) to expedite alteration/SC accomplishment.
4. All DSS-SOC material shall be accompanied with a full set of certification documentation in accordance with reference 2.2.3(1) to expedite alteration/SC accomplishment.
5. Each FBW SCS SFCC material shall be accompanied with a Certificate of Conformance (COC) document in accordance with reference 2.2.3(35).
6. All material in the SUBSAFE and FBW boundary (e.g., Level I, etc.), which is temporarily removed as part of a submarine alteration, shall be controlled, stored and protected while removed in accordance with references 2.2.3(5), 2.2.3(10), and 2.2.3(35), as applicable, in order to maintain the SUBSAFE and FBW or Level I certification of the material.
7. All DSS-SOC material shall be controlled and protected in accordance with reference 2.2.3(1)

8. to maintain certification of the material.

3.18.7 Incidental Material

For work to be accomplished by the AIT, the AIT will be responsible for supplying all material that is not HCPM, including incidental/expendable (shop stores) material (e.g. tape, solder, welding rods, paint, fasteners, deck covering, insulation, etc.), required to accomplish the alteration/SC. For industrial support by an activity other than the AIT, the activity providing the industrial services shall be responsible for all incidental/expendable material required to accomplish the industrial support.

3.18.8 Installations in Nuclear Powered Ships

References 2.2.3(19) and 2.2.3(33) define the work in nuclear powered ships which must be assigned to nuclear capable activities (e.g. nuclear capable shipyards). Reference 2.2.3(22) defines requirements for the conduct of contract work onboard nuclear powered ships (e.g. the work in nuclear powered ships that need not be assigned to nuclear capable activities). When conducting work in a nuclear powered ship, it may not always be readily apparent that modifications or changes in the nuclear powered ship, affects reactor plant systems, operations, or personnel safety. Therefore, it is of the utmost importance that reference 2.2.3(19) and the associated requirements in reference 2.2.3(22) be reviewed to ensure that work in a nuclear powered ship is in compliance with these requirements. The AIT OSIC is responsible for this review during execution. The NSA and LMA should be requested to assist in review of changes to specifications during execution to ensure requirements are met.

3.18.9 Workmanship

1. Workmanship and work practices shall meet the requirements of all contract specifications, including applicable NAVSEA SIs or Submarine Maintenance Standards, as invoked.
2. AITs and their subcontractors will be required to accomplish work under an accepted QMS in accordance with paragraph 1.5.16(2). Subcontractors that perform small portions of an installation may use the prime AIT contractor's QMS procedures that are applicable when invoked in a subcontract purchase order. The AIT's QMS will include, or make reference to, procedures that will ensure product conformance. An AIT without an accepted QMS will be denied access to the ship. AIT sponsor/NSA (or PY when tasked) will provide oversight for AIT installations and production milestones (critical path), to ensure conformance to ship specifications and that the installation is accomplished in accordance with design. AIT Sponsor/NSA participation will ensure cradle-to-grave conformance to ship standards throughout the entire AIT installation process. When requested in support of NSA spot-checks conducted in their oversight role, the AIT will provide documentation showing the requirements included in Appendix C are met (i.e., welder qualifications, etc.). The AIT is responsible for the quality of the alteration/SC installation, including subcontractor work, and for ensuring subcontractors adhere to the requirements of this specification. The OSIC will ensure the AIT is following its QMS procedures, quality

inspection and Test Plan (TP), applicable safety and environmental compliance requirements and technical instructions. NSA or Ship's Force shall report all noted AIT QA deficiencies to the OSIC in writing.

3.18.10 Work Affecting Critical Systems or Critical System Boundaries

As noted in paragraph 3.5.2, critical systems are defined as SUBSAFE, FBW, Level 1, DSS-SOC, P1 and P3A piping systems, A-1, A-2, A-3 pressure vessels (including boilers), and M-1 machinery systems, as defined in technical guidance documents, references 2.2.3(1), 2.2.3(5), 2.2.3(6), 2.2.3(7), 2.2.3(9), 2.2.3(10), 2.2.3(24), and 2.2.3(35). If the NSA and LMA exercises their option to approve the AIT Manager's assignment of the work on Critical Systems/Critical System Boundaries to a qualified contractor, the AIT Manager shall ensure that the contractor performing the critical work (as defined in paragraph 3.5.2) has an accepted QMS. For critical work performed by an activity not qualified to perform as a NSA, the NSA shall perform QA oversight in accordance with the requirements of references 2.2.2(1), 2.2.3(8), and 2.2.3(25), as applicable, to ensure compliant production processes, personnel and procedure qualifications, and work documentation and certification. For SUBSAFE, DSS-SOC, and FBW work to be contracted, the NSA and LMA will comply with the requirements of references 2.2.3(1), 2.2.3(10), 2.2.3(20), and 2.2.3(35), respectively.

3.18.11 Status Reports and Meetings

3.18.11.1 Task Status Report

The AIT OSIC will ensure that a periodic Task Status Report is submitted to the AIT Manager. AIT Manager will forward copies to the NSA, LMA, SPM, applicable TYCOMs, LCM, as requested. The form and format of Task Status Reports shall be as specified by the AIT Manager or tasking NSA and/or LMA. For AITs with more than one alteration/SC task from the same AIT Manager, the reports may be combined in the same document, but the data shall be segregated by alteration/SC.

3.18.11.2 Periodic Progress Reports

When invoked, AITs are responsible for complying with the reporting requirements for NAVSEA SIs (for updated production schedules and progress reporting). Additional reporting, for the purposes of work de-confliction and schedule integration, may be required when the NSA implements a Work Package Integration specification in accordance with reference 2.2.2(1), volume VI, chapter 43. When a required periodicity for progress reports is not specified, the NSA, LMA and Ship's designated point of contact shall be informed of the progress on a weekly basis.

3.18.11.3 Periodic Meetings

The NSA and/or LMA may require AIT OSIC/AIT Lead to participate in meetings for the purpose of work coordination and/or progress review. These typically take the form of Daily Production meetings, and Weekly Progress reviews, but local practice shall dictate periodicity and attendance requirements. In the event that regular work coordination meetings are not scheduled, AIT work shall be conducted in accordance with the POA&M/production work

schedule presented at the in-brief. It will be the responsibility of the AIT to execute required work around restrictions that may be imposed due to emergent ship's evolutions. Any changes to the work schedule provided at in-brief shall be reported to the NSA, LMA and Ship's designated point of contact as soon as changes are identified.

3.18.12 Final Housekeeping

After completion of all ship work, the AIT will conduct final housekeeping in all areas involved in the alteration/SC accomplishment. With the exception of cryptographic gear, equipment that is removed as part of the alteration/SC and is to be turned-in for accounting purposes shall be the responsibility of the AIT, although removal may require coordination with the NSA's Government Property Manager. Turn-in of cryptographic equipment will be the responsibility of the ship. The NSA and LMA shall be notified by the AIT of their planned departure from the alteration/SC site. All outstanding discrepancies, environmental reports (paint, solvent, adhesive, welding, fuel, abrasives usage report, etc.) and the corrective POA&M shall be indicated in the completion report. All special badges, passes, check-out forms, dosimeters, etc., shall be turned-in, as required, in accordance with local NSA and/or LMA requirements.

3.18.13 AIT Readiness to Start Message for Submarines

At least seven (7) days prior to the scheduled start of the AIT installation, the AIT Manager will release a "Readiness to Start Message" following the format provided in Appendix B. The AIT Manager will address each area identified in the Readiness to Start Message. The message will reference all pertinent scheduling information and coordination, the industrial level skills required, design readiness, ship requirements, effects of the alteration/SC, ships spaces affected, impacts, and any other information.

3.18.13.1 Design Changes During Installation

If installation cannot be accomplished in accordance with the approved SIDs, proposed changes must be documented via LAR. The LAR must be submitted to and approved by the PY before incorporation of the change can be made onboard ship. Minor changes which can be addressed via red lines to the drawing should be brought to the attention of the OSR to ensure the change does not require a LAR. Any changes, via LAR or red line, need to be annotated as a red line on the drawings and incorporated into the final as-installed drawings per paragraph 3.24.4.

3.19 Clear Work Authorization Form (WAF)/Tag-Out

3.19.1 WAF

Once the alteration/SC is completed, the WAF is signed by the repair activity as work completed and forwarded to Ship's Force for clearing of Tag-Out Record Sheet line items in accordance with reference 2.2.2(1) if a tag-out was required. Once the alteration/SC testing (if there is no formal test program) is complete, the WAF is signed by the repair activity. Following completion of testing and setting of appropriate system status (e.g., clear tags and

perform valve line-ups as appropriate for the situation, setting equipment to certain conditions), the WAF is signed by the repair activity as closed out and forwarded to Ship's Force for review.

The WAF process, administration, form, and instructions are contained in reference 2.2.2(1) Volume IV, Chapter 10.

3.19.2 Tag-Out

Once the alteration/SC is completed, remove danger and caution tags immediately when the situation requiring the tag-out has been corrected and clearing of tags has been authorized.

The tag-out process, requirements, training, and instructions can be found in S0400-AD-URM-010/TUM TAG-OUT USERS MANUAL.

3.20 SOVT

3.20.1 SOVT Requirements

The AIT and/or ISEA will conduct SOVT for the alteration/SC and all equipment directly impacted by accomplishment of the alteration/SC in accordance with the QA Workbook Test and Inspection Plan, approved drawings, test procedures, and applicable ship specifications. Systems shall be subjected to appropriate testing to demonstrate operational acceptability including SIGSEC, TEMPEST, EMC, SUBSAFE, FBW, CPS, etc., as applicable. Such tests will be conducted under conditions simulating normal service conditions as closely as possible. The AIT will also conduct inspection and testing of all systems that have had equipment or machinery removed and reinstalled due to interference in accordance with NAVSEA SI 009-23. Systems and equipment requiring permanent modification or relocation to accommodate the alteration/SC are not to be considered interference but part of the alteration/SC design.

When an alteration/SC is to be accomplished during a CNO Availability, testing requirements shall be submitted to the NSA and LMA NLT A-6.5 for discussion during the AIT Conference (for submarines) and for surface ships and carriers the test requirements shall be submitted to the NSA and LMA no later than as specified in reference 2.2.3(14). The test requirements submittal shall include a list of tests to be conducted including the test procedure identification, expected duration of the tests, Ship's Force personnel support requirements, support systems requirements, and any special requirements (rotate and radiate, active sonar, radio transmission, at-sea test, etc.). This will ensure that testing requirements do not conflict with other on-going ship work or present possible personnel or equipment safety hazards. The NSA and LMA shall be notified prior to conducting any shipboard testing. For submarines all tests shall be authorized and listed on the applicable NSA and/or LMA Test Plan prior to accomplishment. The OSIC will keep the NSA and LMA informed of the status of testing.

An individual alteration/SC will not be considered complete until a SOVT and/or appropriate systems integration testing has been successfully accomplished and witnessed by Ship's Force

and the NSA, LMA. The AIT will maintain completed test reports in the QA Workbook during accomplishment of the alteration/SC testing. The OSIC/AIT Manager/ISEA will provide a complete set of test reports to Ship's Force, NSA and the LMA at the completion of the alteration/SC testing.

3.20.2 SOVT Personnel

Personnel involved with SOVT testing shall comply with all local directives for:

1. Scheduling and Conducting SOVT Testing
2. Security Clearance and Access Requirements
3. Safety and PPE
4. Housekeeping Requirements
5. SOVT is not to be confused with EOA/EOU/Production Completion Date (PCD). Installation teams are accountable and directed to deliver ILS at one of these specific times within the process. SOVT is closeout and system operational verification and testing.

3.21 Ship's Force Training

Training for this shipboard system installation shall be provided as outlined in the approved Navy Training Summary Plan (NTSP) and within the corresponding ILS certification for the alteration/SC. Training for shipboard system installations without a Navy approved NTSP will be delivered in accordance with a Program Office approved Installation Training Package. Actual conduct of the training shall be performed by an activity certified by the Program Office to deliver the approved training package and process. The AIT Manager/OSIC will coordinate accomplishment of any prescribed Alteration/SC training, and verify that it is conducted and documented in strict conformance with section 6-4.7 of reference 2.2.3(14). As part of the alteration/SC process the AIT Manager/OSIC shall complete the Training Verification Statement as part of the ACR, Appendix B.

The following five minimum standards are established for all Post-Installation Training:

1. Advanced planning, coordination and scheduling of training in accordance with ship's preferences
2. Identification of targeted crewmembers, pre-qualified for post-installation training in accordance with FLTMPS criteria.
3. Training follows Program Office approved training package with defined objectives and measured achievement.
4. Training delivered by qualified personnel in accordance with Program Office approved process.
5. Training documented in a comprehensive package of metrics documenting all elements of the training delivered.

3.22 Provide CDMD-OA Updates

Upon installation completion the AIT Manager will ensure the final configuration data is provided to the alteration/SC LCM/ISEA. The alteration/SC LCM/ISEA will update CDMD-OA and forward updated workfiles to the CDM for validation. At the end of installation, the AIT OSIC will provide a copy of the marked-up/red lined CDMD-OA workfile(s) (i.e., AIT CDMD-OA Verification Report or equivalent) for all configuration alterations (adds/deletes/modifications) to the designated Ships Force representative, NSA or SPM designated activity. The CDM will conduct the final validation within 30 days of install completion, and will change the Installation Status Code (ISC) in accordance with reference 2.2.2(1).

For Ohio Class Submarines (SSBN/SSGN), AITs will coordinate with the appropriate TRF for OPNAV 4790/CK processing in accordance with reference 2.2.3(29).

3.23 ILS Turnover

The AIT OSIC is responsible for delivery of all ILS products as outlined in ILS certification (i.e. tech manuals, PMS, Red line Drawings, training, etc.) in accordance with reference 2.2.3(14) to the designated recipient (Ship/NSA or Maintenance Support Center (MSC) for CVNs) by EOA/EOI/PCD as appropriate and shall obtain required signatures verifying delivery, noting any ILS deficiencies, as part of the RMMCO Check-out process. The AIT OSIC is responsible for providing an itemized inventory (i.e. DD 1149) for all deliverables to the ship with a signature from the appropriate Department Head or authorized personnel.

3.24 ALT Completion Requirements

Upon completion of each alteration/SC installation, the AIT Manager/OSIC will ensure the provisions of the following paragraphs are met:

3.24.1 NSA and Ship Out-Brief

An out-brief shall be scheduled and coordinated by the AIT OSIC. The out-brief shall be conducted after completion of the alteration/SC and prior to RMMCO Check-out. Normally the AIT OSIC will obtain the required Ship's Force and NSA verification signatures on the ACR at the out-brief. The AIT OSIC must check out of RMMCO with completed/signed ACR and completed SOVT. The TYCOM, NSA, LMA, RMMCO/ NAVSEA 21 PMR, AIT OSIC, Ships Force and the local PY OSRs (Program Representative and CDM) shall be invited to attend all out-briefs.

3.24.2 Alteration Completion Reporting

3.24.2.1 Alteration/SC Completion Report (ACR)

The AIT OSIC/AIT Lead will fill out the Alteration/SC Completion Report (Appendix B) and obtain signatures on all applicable attachments for each alteration/SC installed. The AIT

OSIC will return the signed ACR to the AIT Manager immediately after alteration completion/RMMCO Check-out.

The AIT Manager will forward copies, in the format requested by the recipients, of the completed and signed ACR with all applicable attachments Appendix B to the SPM, PY, LCM, NSA, Ship, TYCOM, Group Commander, Squadron Commander, ship's CDM (if the PY is not the CDM), and ISEA within twenty (20) days of alteration/SC completion. For alterations/SCs to CVN's, a copy shall also be forwarded to the CPA, Code PMS 312C; for submarines, to SUBMEPP (Code 1800); and for surface ships, to the appropriate RMC. PYs will notify the SPM in the event of non-receipt of an ACR within thirty (30) days of the scheduled completion date initially established in accordance with the provisions of this specification.

For installations accomplished by AITs, completion and submission of the ACR in accordance with this TS fulfills the requirements of reference 2.2.3(21).

3.24.2.2 Naval Message Completion Reporting

The AIT Manager/OSIC will provide the draft of the Completion Report Message at the out-brief. Upon completion of the installation, and within seven (7) days of the out-brief, the ship will send a “joint” naval message reporting completion of the effort, any deficiencies, corrective action plan and comments from the ship’s CO relative to the installation. The message will indicate any system interface not demonstrated during operational certification/testing and include all known discrepancies assigned to the responsible activity (e.g. the ship, the AIT, TYCOM). An alteration/SC completion message is required in addition to the ACR required in paragraph 3.24.2.1. A sample Naval Message Completion Report format is provided in Appendix B. If there are no reported discrepancies, this is the final completion report. In the event that the Naval Message Completion Report lists installation deficiencies, the ship receiving the installation will send a Naval Message Final Completion Report after all deficiencies have been corrected and the ship has accepted the installation as complete.

3.24.3 RMMCO Check Out

Following the alteration/SC completion and outbrief, the AIT OSIC or AIT Lead (Government Only) must check out of RMMCO with. the General Report, completed SOVT/operational test and signed RMMCO Form. RMMCO will review the supplied documentation and make appropriate entries into the RMMCO website to register the completion status.

When the AIT Sponsor funds more than one government activity to accomplish a specific alteration/SC, each activity must check out with RMMCO for their portion/area of responsibility (e.g. industrial work, system testing, ILS, etc.).

3.24.4 Drawing Updates

3.24.4.1 Planning Yard Developed Drawings

The AIT Manager shall provide a redline mark-up of the drawings, copies of the approved LARs, authorized deviations and/or waivers from approved designs, via transmittal letter to

the PY within 20 days of installation completion. A copy of the final transmittal letter, without enclosure, will be provided to the SPM. Transmittal letter to SPM is not applicable to Carriers).

When funded, the PY will update the SIDS using the red lined drawings and approved LARS to document the as-installed configuration. Unless otherwise agreed to by the SPM and AIT Manager, the SPM will be the only activity to task PY drawing revision efforts. If funded, the PY will distribute final drawings to the ship and AIT Manager within 30 days of receipt of the red lines/LAR package.

3.24.4.2 Non-Planning Yard Developed Drawings

The AIT Manager will ensure the approved design drawings, including all deviations/variances approved by the PY, are revised to indicate the actual "as installed" configuration on the ship. Electronic media copies of the as-installed drawings shall be forwarded to the ship class PY via LAR or transmittal letter, as desired by the PY, no later than 30 days after alteration/SC completion. The PY may request the drawings in AutoCAD, PDF or another designated format. A copy of the final transmittal letter, without enclosure, will be sent to the SPM. Transmittal to SPM is not applicable to Carriers).

3.25 Configuration Validation

In accordance with Section 6 of reference 2.2.3(14), the NSA or SPM designated activity will accomplish a physical site validation of each alteration/SC configuration as reported by LCM/ISEA and update the Installation Status Code (ISC) within 30 days of installation completion. CDMD-OA database records will be processed in accordance with reference 2.1.1(3).

3.26 SPM/PARM Marks NDE-NM Record as Completed

The SPM or a designated representative must enter completion data for SHIPALT type Ship Changes (SCs) in NDE-NM as part of the completion process. PARMs will enter completion data for ECs, FCs, ORDALTs, MAs, PRTs, or SWD in NDE-NM. Submarine PARMs will enter completion data for ECs, FCs, ORDALTs, and SWD in NDE-NM and all but ORDALTs in NTIRA. Submarine TEMPALTs and OPALTs are tracked internally by the SPM and TYCOM and are not entered in NDE-NM.

3.26.1 Alteration/SC Completion Reporting in NDE-NM

Upon installation completion, RMMCO Check out, and issuance of the Completion Report and/or Completion Message from the NSA, the SPM, AIT Manager or PARM, as applicable, will enter an ASC of 'R' (Install complete - ILS not verified) and the completion date in the ship's alteration record in NDE-NM. Once the SPM has received either the Alteration Completion Letter or the NSA Completion Message, the ASC will be updated to “C” - (Complete - ILS verified). For submarines, the SPM will enter the "R" and "C" completion data in NDE-NM from completion reports received.

APPENDIX A

AIT SUPPORT SERVICES REQUEST FORM

AIT SUPPORT SERVICES REQUEST FORM

Alteration/Ship Change Information

Ship:
Alt/SC Identifier:
Alt/SC Description:

Support Services Required? ☐ Yes ☐ No

(If No, complete only Alt/SC, Schedule, and POC sections.)

Schedule

Production Start Date	
Production Completion Date	
Testing Start Date	
Testing Completion Date	
Work Hours	
Work Week (e.g. Mon-Fri)	

Points of Contact

	Name	Organization/ Company	Phone	Email
Government Sponsor				
Funding POC				
AIT Manager				
AIT OSIC				
AIT Lead				
Test Coordinator (if other than OSIC)				

Support Services

Service	Qty.	Remarks/Additional Info
Crane Services (# of lifts)		Capacity, on-load, off-load, high reach, etc.
Rigger services (# of man days)		Special requirements (HAZMAT, sensitive equipment, etc.)
Conex Storage (sq. ft.)		Include size, temp services required (electrical power, LP air, phones, etc.)
Office Space/Temp Office trailers		Temp services required (phone/FAX lines, office equipment, custodial services, etc.)
Lay-down Area (sq. ft.)		Special requirements (enclosed, environment controls, power, etc)
Material delivery and storage requirements		Number of boxes/pallets, special handling, special stowage, etc.
Labor (# of mandays)		Describe type of labor requested (i.e. hot work authorization, HAZMAT disposal, etc.)
Critical Systems work (# of mandays)		Describe critical systems work requested for the LMA to perform
Access cut requirements		Location and purpose

SAMPLE

Welding, Burning, Brazing (# of mandays)		Describe scope of hot work requirements
Firewatch (# of mandays)		
Inspection Support (# of mandays)		Gas-free, Signal Security, TEMPEST, weight tests, NDT, etc.
Forklift (# of lifts) (Max lift 2,500 lb.)		
Insulation/Lagging (# of mandays)		
Sandblasting and Painting (# of mandays)		
Deck tile/Formica (# of mandays)		
Sheet metal services (# of mandays)		
Man-aloft requirements (# of lifts/shifts)		
Diver/cofferdam requirements		Number and location of cofferdams required
Equipment/material disposal requirements		Description and number of pieces of equipment/material to be disposed
Material ($)		

Work Scope Space (Compartments/Tanks) Impacted
(Insert additional rows in each table as necessary.)
(A 2D Planning Yard Drawing should be attached if possible)

Space Name	Space No.	Remarks/Additional Info

Equipment Removal
(A 2D Planning Yard Drawing should be attached if possible)

Space Name	Space No.	Equipment	Height/Width/Depth	Weight

SAMPLE

Equipment Install
(A 2D Planning Yard Drawing should be attached if possible)

Space Name	Space No.	Equipment	Height/Width/Depth	Weight

Compressed Air

Space Name	Space No.	Remarks/Additional Info

Supply and Exhaust Ventilation

Space Name	Space No.	Remarks/Additional Info

Lighting

Space Name	Space No.	Remarks/Additional Info

Electrical Power

Space Name	Space No.	Remarks/Additional Info

SAMPLE

Other Requirements

Space Name	Space No.	Remarks/Additional Info

Staging

Space Name	Space No.	Size	Height	Duration	Install Date	Staging Wrap (Y/N)

Rolling Staging

Space Name	Space No.	Width	Depth

Tank Work

Tank No.	Defuel/pump down (Y/N)	Gas-free (Y/N)

Office Space

# of Desks	# of Parking Spaces	Phone/Data/Fax Requirements

Special Tool Requirements

Other Requirements

Test Requirements

Item/Requirement	Remarks/Additional Info
Spaces/Compartments Involved	
Prerequisites (Crew Training, Lower-level Tests)	

SAMPLE

Auxiliary Services (Power, Chill Water, A/C, Dry Air)	
Ship Systems to Support (Radars, SHF)	
External Services (Aircraft, SESEF Range)	
Support Personnel (S/F Operators, MSMO Support)	
Special Conditions (U/W Sea Trials)	
Operational or Safety Limitations (Man Aloft, Launcher Movement, Eng. Plant Configuration)	
Additional Requirements (temporary systems required, etc.)	

Distribution:

AIT Lead or designated person will keep original and make two copies (BSPO and PEPM)

BSPO and PEPM use this form to perform estimates, fund, plan, and develop documentation (e.g. TGI's) for NSA portions of work.

Note: If additional requirements are discovered after final funding, a DR shall be submitted.

SAMPLE

APPENDIX B

MESSAGES, CHECKLISTS, & REPORTS

CONTENTS

Suggested Format for Readiness to Start Naval Message (Subs Only)
Suggested Format for PICO Completion Report Naval Message
Suggested Format for Installation Completion Report Naval Message
AIT POA&M Cover Sheet Template
AIT POA&M Task Detail Template
AIT POA&M Schedule Guide (Instructions)
Alteration Completion Report
Attachment (1) General Report
Attachment (2) Training Verification Statement

(SAMPLE)

SUGGESTED FORMAT FOR READINESS TO START NAVAL MESSAGE (SUBS ONLY)

ADMINISTRATIVE MESSAGE
ROUTINE
R DTG
FM AIT MANAGER//
TO IMMEDIATE SENIOR IN COMMAND//
SHIP/STATION//
INFO TYPE COMMANDER//N4//
GROUP COMMANDER//
NAVAL SUPERVISING ACTIVITY/AUTHORITY (AS APPLICABLE)//
RMMCO//
PLANNING YARD//
SHIP'S CONFIGURATION DATA MANAGER (IF OTHER THAN PLANNING YARD)//
IN-SERVICE ENGINEERING AGENT (ISEA)//
LIFE CYCLE MANAGER (LCM)//
COMNAVSEASYSCOM WASHINGTON DC//04RP/05/PARM/SPM//
PEO (AS APPLICABLE)//
COMSPAWARSYSCOM SAN DIEGO CA////
NAVICP MECHANICSBURG PA//
SUBMEPP PORTSMOUTH NH//1814//
UNCLAS //N04720//
MSGID/GENADMIN/SENDER'S PLAD//
SUBJ/SUBS/SHIP/STATION/ALTERATION TITLE READINESS TO START//
REF/ REFERENCE ALL PREVIOUS APPLICABLE SCHEDULING AND COORDINATION COMMUNICATIONS
POC/NAME/CODE/TELEPHONE/EMAIL//
RMKS/1. ALTERATION INSTALLATION SCHEDULE INFORMATION
2. INDUSTRIAL LEVEL MANPOWER SKILLS AND EQUIPMENT STATUS
3. DESIGN READINESS:
A. ALTERATION/SC APPROVAL DATE: DD MMM YYYY
B. SID APPROVAL DATE: DD MMM YYYY OR ESTIMATED COMPLETION DATES. RED LINE DRAWINGS TO BE PROVIDED TO PLANNING YARD UPON COMPLETION OF WORK. (IF APPLICABLE)
C. ILS CERT DATE: DD MMM YYYY OR WAIVER INFORMATION
4. SHIP SUPPORT REQUIREMENTS (IF NOT ALREADY PROVIDED IN AIT SERVICES REQUEST):
A. REQUEST A SINGLE POINT OF CONTACT ON SHIP.
B. PRODUCTION WORK IMPACT ON SHIPS SCHEDULE AND ROUTINE:
C. HOT WORK REQUIREMENTS:
D. FIRE WATCH REQUIREMENTS:
E. EQUIPMENT STAGING AREA REQUIREMENTS:
F. SHIPS FORCE REQUIREMENTS WHILE CONDUCTING CHECK POINTS AND DURING POST INSTALLATION TEST OUT OF EQUIPMENT:
G. SAFETY/ENVIRONMENTAL REQUIREMENTS:
5. ALTERATION DESCRIPTION AND PURPOSE
6. SPACES AFFECTED: LIST SPACES AFFECTED
7. ESTIMATED START DATE: DD MMM YYYY. ESTIMATED COMPLETION DATE: DD MMM YYYY.
8. IN-BRIEF SCHEDULE
9. CLEARANCE INFORMATION AS APPLICABLE
10. IMPACTS IF IDENTIFIED
11. ANY OTHER APPLICABLE INFORMATION
12. NEGREP ONLY.//
BT

(SAMPLE)

SUGGESTED FORMAT FOR PICO COMPLETION REPORT NAVAL MESSAGE

ADMINISTRATIVE MESSAGE
ROUTINE
R (DTG)
FM SHIP/STATION
TO ISIC
INFO (AS APPLICABLE) TYPE COMMANDER//N43/N6//
COMNAVNETWARCOM NORFOLK VA//C4/FN/RA/OPS//
GROUP COMMANDER/SQUADRON COMMANDER
PLANNING YARD
NAVAL SUPERVISING ACTIVITY/AUTHORITY (AS APPLICABLE)
SHIP'S CONFIGURATION DATA MANAGER (IF OTHER THAN PLANNING YARD)
IN-SERVICE ENGINEERING AGENT (ISEA)
LIFE CYCLE MANAGER (LCM)
COMNAVSEASYSCOM WASHINGTON DC//04M5/05/SPM (PMS400F FOR COMBATANTS, PMS470 FOR AMPHIBS, PMS312 FOR CARRIERS)//
PEO C4I SAN DIEGO CA
COMSPAWARSYSCOM SAN DIEGO CA
SPAWARSYSCEN PACIFIC SAN DIEGO CA
SPAWARSYSCEN ATLANTIC CHARLESTON SC
NAVICP MECHANICSBURG PA//
CLASSRON//SURFACE COORDINATOR// (SURFACE COMBATANTS)
CLASSRON (FOR AMPHIB SHIPS)
SUPSHIPS RMC NEWPORT NEWS VA//1800//(CARRIERS ONLY)
SUBMEPP PORTSMOUTH NH//1800//(SUBMARINE ONLY)
REGIONAL RMMCO OFFICE, AS APPLICABLE
BT
UNCLAS //NO4720//
MSGID/GENADMIN/USS SHIP//
SUBJ/(EQUIPMENT/SYSTEM PRE-INSTALLATION CHECK-OUT ON USS SHIP)
RMKS/
1. THIS IS A JOINT (SHIP)/AIT MESSAGE.
2. (EQUIPMENT/SYSTEM) PRE-INSTALLATION CHECK-OUT (PICO) WAS CONDUCTED ON (COMPLETION DATE) AND ACCEPTED AS OPERATIONAL (WITH/WITHOUT) DISCREPANCIES. (MULTIPLE PICOS CAN BE CONSOLIDATED AND REPORTED IN ONE MESSAGE, AT SHIP'S OPTION.) (LIST ALL KNOWN DISCREPANCIES, RESPONSIBLE ACTIVITY, AND DATE DISCREPANCY WILL BE CORRECTED.)

A. EQUIPMENT/SYSTEM TESTED: (LIST EQUIP/SYSTEM BEING MODIFIED, AND ALTERATION/SCD NUMBER.)

1. WITNESSED BY: (NAME & ACTIVITY)
2. NOTED DISCREPANCIES: (BRIEF DESCRIPTION OF EACH, JOB CONTROL NUMBER (JCN), AND A CASREP NUMBER IF ASSIGNED; OR STATE "NO DISCREPANCIES")
3. ACTIVITY RESPONSIBLE:FOR CORRECTION: (FOR EACH DISCREPANCY)
4. ESTIMATED DATE DISCREPANCY WILL BE CORRECTED: (FOR EACH DISCREPANCY)

B. (FOLLOW FORMAT OF PARA 3.A FOR EACH EQUIP/SYSTEM ON WHICH A PICO WAS CONDUCTED.)

AIT POC (NAME, PHONE NUMBER AND E-MAIL ADDRESS, LIST POCS FOR EACH EQUIP/SYSTEM REPORTED UPON)
COMMANDING OFFICER'S COMMENTS.//
BT
#
NNNN

(SAMPLE)

SUGGESTED FORMAT FOR INSTALLATION COMPLETION REPORT NAVAL MESSAGE

ADMINISTRATIVE MESSAGE
ROUTINE
R (DTG)
FM SHIP/STATION
TO ISIC
INFO TYPE COMMANDER//N4/N6//
GROUP COMMANDER
PLANNING YARD
NAVAL SUPERVISING ACTIVITY/AUTHORITY (AS APPLICABLE)
SHIP'S CONFIGURATION DATA MANAGER (IF OTHER THAN PLANNING YARD)
IN-SERVICE ENGINEERING AGENT (ISEA)
LIFE CYCLE MANAGER (LCM)
COMNAVSEASYSCOM WASHINGTON DC//04/05 /SPM//
PEO (AS APPLICABLE)
PARM (AS APPLICABLE)
NAVICP MECHANICSBURG PA//
CLASSRON//
RMC (AS APPLICABLE)
SUBMEPP PORTSMOUTH NH//1800//(SUBMARINE ONLY)
BT
UNCLAS //NO4720//
MSGID/GENADMIN//
SUBJ/PRELIMINARY/FINAL (SELECT ONE) (EQUIPMENT/SYSTEM) ALTERATION/SC INSTALLATION ON USS (SHIP) COMPLETION REPORT//
REF/A/RMG/SHIP/STATION/DTG//(PRELIMINARY INSTALLATION COMPLETION MSG RPT) (IF NOT PRELIMINARY COMPLETION REPORT)
REF/B/DOC/DATE/SERIAL// (ALTERATION COMPLETION REPORT)(IF NOT PRELIMINARY COMPLETION REPORT)
RMKS/
1. THIS IS A JOINT (SHIP)/AIT MESSAGE (PRELIMINARY COMPLETION REPORT ONLY).
1. THIS IS A FINAL COMPLETION REPORT MESSAGE. (ONLY IF PRELIMINARY COMPLETION REPORT SENT)
2. (EQUIPMENT/SYSTEM) WAS (INSTALLED/MODIFIED/REMOVED) ON (COMPLETION DATE) AND ACCEPTED AS OPERATIONAL WITH THE FOLLOWING DISCREPANCIES:
(LIST ALL KNOWN DISCREPANCIES, RESPONSIBLE ACTIVITY, AND DATE DISCREPANCY WILL BE COMPLETED.) (IF PRELIMINARY REPORT).
2. ALL DISCREPANCIES LISTED IN REFS A AND B CORRECTED/COMPLETED AND RETESTED SAT (IF PRELIMINARY COMPLETION MESSAGE SENT).
FOLLOWING INFORMATION PROVIDED: (ONLY IF PRELIMINARY REPORT NOT SENT)
A. TYPE INSTALLATION:
B. ALTERATION NUMBER:
C. SYSTEM OPERATION VERIFICATION TESTING (SOVT) CONDUCTED.
D. NO CHANGES TO SIDS ARE REQUIRED / SIDS REQUIRE REVISION.
E. REDLINE DWGS HAVE BEEN PROVIDED TO SHIP (IF APPLICABLE)
F. ALTERATION COMPLETION REPORT COMPLETED AND FORWARDED SEPCOR.
G. EQUIPMENT INSTALLED: NOMENCLATURE.
H. ILS STATUS STATEMENT: (SAT/UNSAT, LIST DISCREPENCIES)
I. SUMMARY OF INSTALLATION:
3. INSTALLATION ACTIVITY POC: (NAME, PHONE NUMBER AND E-MAIL ADDRESS).
4. COMMANDING OFFICER'S COMMENTS:
BT

AIT POA&M
COVER SHEET TEMPLATE

AIT POA&M
WorkItem Header Tei

AIT POA&M Task Detail Template

AIT POA&M
Template-2003.mpp

AIT POA&M Scheduling Guide

AIT POA&M
Guidance Ver2.docx

Alteration Completion Report (ACR)

Alteration/Ship Change Information

Alt/SC No.:

Alt/SC Identifier:

Alt/SC Brief:

Alt/SC Accomp Start Date:

Alt/SC Accomp End Date:

Ship Information

Ship Hull No.

Ship Name:

Ship Class:

Planning Yard:

Type Commander:

Squadron/Group

Points of Contact

	Name	Phone	Email	Activity
Ship Program Manager				
Planning Yard				
PARM/ISEA				
AIT Manager				
NSA				

Signatures

	Signature	Name	Dept./Division/ Company	Phone	Date
Ship					
AIT OSIC					
AIT Lead					

These signatures do not indicate the alteration/SC is complete if there are discrepancies noted in the attachments. The ship will not accept the alteration/SC as complete until all discrepancies noted in the attachments are corrected, at which time the ship will accept the alteration/SC as complete by naval message.

SAMPLE

ATTACHMENTS: (Check reports applicable and provided)

☒ 1. General Report (All Installations)
☒ 2. Training Verification (All Installations)
☒ 3. Signed RMMCO Installation Check-In Sheet (All Installations)
☒ 4. DD1149 (Itemized list of ILS Deliverables)
☐ 5. List of ILS Discrepancies (as required)
☐ 6. SIGSEC, TEMPEST Visual Report (if applicable [See NSTISSAM TEMPEST/2-95])
☐ 7. HF Antenna Installation and Impedance Report (cover sheet, if applicable [See NAVSEA S9AA0-AA-SPN-010/GEN-SPEC, Sec 400])
☐ 8. CABLE/CABLEWAY INSPECTION REPORT (if applicable [See NAVSEAINST 9304.1(series)])
☐ 9. CERTIFICATION TEST FINDINGS/REPORT (if applicable [See NAVSEA S9040-AA-GTP-010/SSCR])

Distribution:

Ship

Type Commander

Group Commander

Squadron Commander

PARM

Naval Supervising Activity/Authority (NSA)

Regional Maintenance Center (RMC)

NAVSEA Ship's Program Manager (SPM)

NAVSEA 04

In-Service Engineering Agent (ISEA)

Ship's Configuration Data Manager (CDM)

Planning Yard (PY) (if different than the CDM)

SUBMEPP PORTSMOUTH NH (Code 1800) (Submarines only)

Carrier Planning Activity (PMS312C) (CVNs only)

SURFMEPP Norfolk, VA (Code 21D) (Surface Ships only)

SAMPLE

DATE_____

ALTERATION/SC IDENTIFICATION: _____

(TYPE HULL-CLASS-ALTERATION NUMBER)

SHIP: _____ ALTERATION ACCOMPLISHMENT DATE: _____

(HULL NO./NAME) (FROM - TO)

This report documents the proper installation of the alteration/SC identified above. To ensure conformance with quality standards and installation specifications and procedures, a physical installation ship check was conducted jointly by the NSA, RMC (if applicable), Ship's Force and the Alteration Installation Team (AIT) for completion of the various elements of this report. Non-acceptance of an individual element requires that the Remarks line be filled-in by Ship's Force. The AIT shall provide a Plan of Actions and Milestones (POA&M) for completion or correction of all non-acceptance items within five (5) working days of rejection of the individual element. The POA&M will describe the degree of completion or correction required, lead activity point of contact, and the scheduled completion date. Final completion of discrepancies will be accepted jointly by Ship's Force and the lead Installing Activity (IA).

1. Pre-Installation Check-Out (PICO). A PICO was conducted on existing systems/equipment to verify operational status. Testing was conducted by Ship's Force and witnessed by the AIT. A PICO report was provided by Ship's Force representatives within three (3) working days of PICO completion work.

Ship's Force:			AIT OSIC:		
	Yes	☐		Yes	☐
	No	☐		No	☐
	N/A	☐		N/A	☐

Remarks: _____

_____

2. Physical ship check of completed installation. To ensure conformance with quality standards and procedures, the following elements were ship checked after completion of ship work:

   a. Design conformance. Alteration was accomplished in accordance with the approved alteration drawings provided.

Ship's Force:			AIT OSIC:			NSA:		
	Yes	☐		Yes	☐		Yes	☐
	No	☐		No	☐		No	☐
	N/A	☐		N/A	☐		N/A	☐

Remarks: _____

_____

   b. Equipment access. Access to new and relocated equipment is acceptable for operation and maintenance of the equipment including access to connectors where practicable.

Ship's Force:			AIT OISC:			NSA:		
	Yes	☐		Yes	☐		Yes	☐
	No	☐		No	☐		No	☐
	N/A	☐		N/A	☐		N/A	☐

Remarks: _____

_____

SAMPLE

c. Removal items. In addition to items indicated on removal drawings, piping, cabling, mounts, racks, foundations, pipe/cable hangers, etc., which were made unnecessary or redundant as a result of the accomplishment of the alteration/SC, have been removed and properly discarded.

Ship's Force:	Yes ☐	AIT OSIC:	Yes ☐	NSA:	Yes ☐
	No ☐		No ☐		No ☐
	N/A ☐		N/A ☐		N/A ☐

Remarks: _____

d. Structural installation. All structural work (deck/bulkhead modifications, foundations, etc.) is satisfactory in terms of workmanship, fit, function, preservation and finish.

Ship's Force:	Yes ☐	AIT OSIC:	Yes ☐	NSA:	Yes ☐
	No ☐		No ☐		No ☐
	N/A ☐		N/A ☐		N/A ☐

Remarks: _____

e. Piping installation. All piping work (pipe modifications, valves, pipe fittings, etc.) is satisfactory in terms of workmanship, fit, function, preservation and finish.

Ship's Force:	Yes ☐	AIT OSIC:	Yes ☐	NSA:	Yes ☐
	No ☐		No ☐		No ☐
	N/A ☐		N/A ☐		N/A ☐

Remarks: _____

f. Cabling. Cabling is satisfactory in terms of type, function, workmanship, designation and marking, cable shield grounding, cable entry into equipment, penetrations (including coamings), routing (including avoidance of interferences with equipment or personnel/material movement), acceptable bending radius and finish.

Ship's Force:	Yes ☐	AIT OSIC:	Yes ☐	NSA:	Yes ☐
	No ☐		No ☐		No ☐
	N/A ☐		N/A ☐		N/A ☐

Remarks: _____

g. Cableways. Cableway work (hangers, supports and trunks) is satisfactory in terms of workmanship, clearances, spacing, and new hanger/support installation (when required), fit and finish. New banding has been applied to all new or disturbed hangers.

Ship's Force:	Yes ☐	AIT OSIC:	Yes ☐	NSA	Yes ☐
	No ☐		No ☐		No ☐
	N/A ☐		N/A ☐		N/A ☐

Remarks: _____

SAMPLE

h. Wiring. Wiring is satisfactory in terms of workmanship, designation and marking, terminal lug application (proper type, size, and attachment process [crimp/solder]), sufficient wire length, signal shield terminations, and wire routing within equipment.

Ship's Force:		AIT OSIC:		NSA:	
Yes	☐	Yes	☐	Yes	☐
No	☐	No	☐	No	☐
N/A	☐	N/A	☐	N/A	☐

Remarks: _____

_____

i. Connectors. Connector work is satisfactory in terms of workmanship, connector selection, connector assembly (fully pinned with proper pin type, size, and attachment process [crimp/solder]), sufficient wire length, back shell application (type, assembly, cable shield termination, strain relief, etc.), and accessibility.

Ship's Force:		AIT OSIC:		NSA	
Yes	☐	Yes	☐	Yes	☐
No	☐	No	☐	No	☐
N/A	☐	N/A	☐	N/A	☐

Remarks: _____

_____

j. Grounding and bonding. Grounding and bonding requirements for safety, TEMPEST, and Electromagnetic Interference (EMI)/Intermediate Modulation Interference (IMI)/Radio Frequency Interference (RFI) have been observed and properly applied and grounding and bonding is satisfactory in terms of workmanship, fit, function, preservation and finish.

Ship's Force:		AIT OSIC:		NSA:	
Yes	☐	Yes	☐	Yes	☐
No	☐	No	☐	No	☐
N/A	☐	N/A	☐	N/A	☐

Remarks: _____

_____

k. Labels and label plates. New labels and label plates have been installed where required (piping, valves, equipment, racks, switch/patch boards, panels, connection boxes, etc.). Existing labels and label plates removed or damaged during accomplishment of the alteration and requiring restoration or relocation have been restored. Labels and label plates have been properly applied and are satisfactory in terms of workmanship, type, fit, function and finish.

Ship's Force:		AIT OSIC:		NSA:	
Yes	☐	Yes	☐	Yes	☐
No	☐	No	☐	No	☐
N/A	☐	N/A	☐	N/A	☐

SAMPLE

Remarks: _____

_____

l. Compartment marking. Compartment marking, which was removed or damaged during accomplishment of the alteration and requires restoration or relocation, has been restored in accordance with NAVSEA S9086-CN-STM-020/CH-79 V2 and NAVSEA S9086-RK-STM-010/CH-505. Compartment marking has been properly applied and is satisfactory in terms of workmanship, type, fit, function, and finish.

Ship's Force:		AIT OSIC:		NSA:	
Yes	☐	Yes	☐	Yes	☐
No	☐	No	☐	No	☐
N/A	☐	N/A	☐	N/A	☐

Remarks: _____

_____

m. Impacted equipment condition. Equipment installed or relocated as a result of the alteration accomplishment has been tested and demonstrated to be operational and free from defects. Equipment or components removed and re-installed as interferences are in at least an "as-found" condition. Interference items, which were operational prior to removal, have been tested and demonstrated to be operational and free from defects. (See NAVSEA Standard Item 009-23)

Ship's Force:		AIT OSIC:		NSA:	
Yes	☐	Yes	☐	Yes	☐
No	☐	No	☐	No	☐
N/A	☐	N/A	☐	N/A	☐

Remarks: _____

_____

n. Clean-up. Chips, shavings, refuse, dirt, fluids (including water), and all scrap and other foreign material, including hazardous waste, industrial waste and excess hazardous material produced as a result of the accomplishment of alteration have been removed from spaces and areas impacted by the alteration and properly disposed. Operational spaces, tanks and unoccupied spaces and compartments have been left "broom clean".

Ship's Force:		AIT OISC:	
Yes	☐	Yes	☐
No	☐	No	☐
N/A	☐	N/A	☐

Remarks: _____

_____

3. Correction of Discrepancies (if required). POA&Ms for discrepancies is (are) as follows:

Ship's Force:		AIT OISC:	
Yes	☐	Yes	☐
No	☐	No	☐
N/A	☐	N/A	☐

Remarks: _____

_____

_____

_____

SAMPLE

Ship's Force:	AIT OSIC:_____	NSA_____
Printed Name/Rank_____	Printed Name:_____	Printed Name:_____
Signature:_____	Signature:_____	Signature:_____
Date:_____	Date:_____	Date:_____

SAMPLE

TRAINING VERIFICATION STATEMENT

Ship:

Alt/SC Identifier:

Alt/SC Description:

Alt/SC Start Date:

Alt/SC End Date:

Installing Activity:

1. On-the-job operator and maintenance training has been provided to the ship for equipments installed as part of the above alteration/SC as follows:

Operator Training

Equipment	Name	Signature

Maintenance Training

Equipment	Name	Signature

Ship Integration Training (If Applicable)

Equipment	Name	Signature

SAMPLE

APPENDIX C

ALTERATION INSTALLATION TEAM (AIT) QUALITY MANAGEMENT SYSTEM REQUIREMENTS

ALTERATION INSTALLATION TEAM (AIT) QUALITY MANAGEMENT SYSTEM REQUIREMENTS

The AIT shall provide to NAVSEA 04 and maintain a documented Quality Management System (QMS) to ensure product conformance to contractual/task requirements. The system shall be accepted by NAVSEA 04 and, as a minimum, comply with the requirements of NAVSEA Standard Item (SI) 009-04 and all additional contract/task requirements.

Note: This will provide for the same level of quality assurance required for private sector industrial facilities under Master Ship Repair Agreements (MSRA) and Agreement for Boat Repairs (ABR).

1. General. The AIT shall maintain a QMS that will assure that all supplies, services and workmanship are provided for the accomplishment of alterations/SCs to ships conform to contract or task requirements whether manufactured or provided by the AIT, or procured from contractors or vendors. The QMS shall apply to supplies, services and workmanship provided for the accomplishment of alteration/SC to ships whether the alteration/SC is a permanent change to the ship, an equipment alteration/legacy alteration or a Temporary Alteration (TEMPALT)/Non-Permanent Change (TEMPALT/NPC). The AIT shall perform, or have performed, the inspections and tests required to substantiate product conformance to approved design drawings, specifications, and contract or task requirements and shall also perform, or have performed, all inspections and tests otherwise required by applicable alteration/SC records, installation drawings, contract or tasking documentation. Inspection and Test Plans and records shall be made available upon request by the NSA.

The QMS shall include the following additional requirements, clarifications, and processes:

1.1. Master Test Plans (MTPs). MTPs describe test objectives, the inspections, and tests to be conducted to verify compliance with specifications and operating requirements to verify proper operation of impacted systems, equipment and interfaces after completion of ship work. MTPs shall include or reference Inspection and Test Plans developed to substantiate product conformance to design drawings, specifications, alteration/SC requirements, installation drawings and contractual or task requirements. A MTP shall be prepared for each alteration/SC (permanent or temporary), shall be prescribed by clear, complete and current instructions and shall be developed in conjunction with the Planning Yard (PY), the system/equipment Life Cycle Manager (LCM) and the responsible In-Service Engineering Activity (ISEA). During accomplishment of an alteration/SC, associated MTPs shall be provided to the ship, and designated NSA.

1.2. Test Procedures (TPs). Equipment-unique Inspection and Test Plans shall be obtained from the system/equipment LCM or the responsible ISEA and shall cover in detail the procedures for accomplishment of each of the equipment unique tests required to demonstrate the proper operation of all equipment impacted by accomplishment of the alteration/SC. This includes all equipment that was modified or relocated as a result of the accomplishment of the alteration/SC including testing of all system/components that were removed and reinstalled by the AIT as interference in accordance with NAVSEA SI 009-23. Testing will be adequate to demonstrate compliance with applicable installation certification requirements Signal Security [SIGSEC], TEMPEST, Radiation Hazard [RADHAZ]/Electromagnetic Interference [EMI]/Electromagnetic Compatibility [EMC], SUBSAFE, Submarine FBW, etc.).

1.3. Process Controls. Process control procedures shall be an integral part of the QMS. In addition to process controls that may be required by the alteration/SC record, installation drawing, or contract or tasking documentation, the AIT will provide and maintain such process controls as are necessary to assure the quality of ship work. Process controls shall include the following as applicable:

1.3.1. Design product control procedures. When tasked for design development, the AIT's design product control procedures shall cover:

a. Assignment of responsibility for detailed examination, review, and internal approval authority for AIT design products.

b. Required qualifications of personnel performing detailed examination, review, and approval of AIT design products.

c. Procedural flow of design drawings and other associated documentation.

d. Checklists to be used in the detailed examination and review of design products. The checklists shall specify each examination to be performed to verify conformance of products to the applicable specifications.

e. Method of safeguarding classified information.

f. Methods providing for the prevention and ready detection of discrepancies and for timely and positive corrective action.

g. Method of safe storage of Master File Drawings, reference drawings, and other ship design documentation.

h. Methods providing for controlled issue of design drawing copies, both reproducible and non-reproducible.

i. Method for ensuring that listing of training and personnel qualifications/certifications is maintained and made available upon request by the NSA.

1.3.2. Installation process control procedures. Instructions shall be developed which identify requirements necessary to preclude damage to the ship or injury to personnel during the accomplishment of ship work and technical work documents shall be developed to ensure that the installation is accomplished in accordance with the drawings and other applicable technical specifications. These instructions shall include, but are not limited to:

a. Control of magnetic material

b. Material storage at the work site

c. Storage and use of hazardous materials

d. Fire prevention

e. Sight and hearing protection

f. Material for staging and screening temporary covers and shelters

g. Installation of cofferdams, patches, and shaft wraps

h. Hotwork – Requires the following QQE at check in: NAVSEA approved welding/brazing procedures (approval letters) and NAVSEA approved Non-Destructive Testing (NDT) procedures (approval letters)

i. Uncrating/unpacking of equipment

j. Storage and use of tools and test equipment

k. Protection of pipes, cables, and equipment during ship work

l. System or equipment de-activation/reactivation

m. Control of connector fabrication

n. Critical Systems

o. Workmanship, which includes cleanliness of the ship

1.3.3. NOTES.

a. AITs are required to use a certified marine chemist for entry into confined spaces.

b. NAVSEA 04/RMC acceptance of the quality manual/plan does not constitute approval of individual welding, brazing and NDT procedures. The approval requirements for these procedures are specified in NAVSEA S9074-AQ-GIB-010/248 (Requirements for Welding and Brazing Procedure and Performance Qualification) or NAVSEA T9074-AS-GIB-010/271 (Requirements for Non-Destructive Testing Methods).

c. Submittal of procedures and Process Control Procedures (NAVSEA SI 009-09) invoked by NAVSEA SIs, MIL-STDs, drawings, technical publications, and specifications, although an integral part of the QMS, are to be submitted and approved by the SUPERVISOR independent of the documented QMS submittal.

d. Procedures required to control processes in the Safety and Environmental area, are not required to be submitted as part of the written QMS, but upon request will be submitted to the NSA or LMA Safety Office for review.

1.4. Personnel Certifications. Procedures shall be maintained to assure personnel certifications that may be required to perform ship work, depending on the work to be accomplished. These certifications include, but are not limited to, the following:

a. Hot work.

(1) Competent Person

(2) Firewatch personnel

(3) Tank cleaning personnel

(4) Persons performing hot work

(5) Test personnel qualification

b. Insulation work

c. Fluorocarbon use

d. Electrical/Electronic Connector and Fiber Optic Work

(1) Electrical/Fiber Optic Connector Fabricators

(2) Electrical/Fiber Optic Connector Fabricator Supervisors

(3) Electrical/Fiber Optic Connector Fabrication QA Inspector(s)

e. Accomplishment of Nondestructive Testing (NDT)

f. Painting of Critical Surfaces

g. Entry into Confined Spaces

h. SUBSAFE work

i. Electrostatic Discharge (ESD) Work

j. PCMS Work

k. FBW Work

l. Cable/Wireway Inspector

1.5. Headquarters Centrally Procured Material (HCPM).

1.5.1. Receipt of HCPM. Provide for receipt of HCPM as follows:

a. When the HCPM is received directly, one signed copy of the Shipping Document (DD Form 1348-1) and one signed copy of the Government Bill of Lading (GBL) shall be retained by the AIT.

b. The HCPM shall be inspected immediately upon receipt to verify conformance with description and requirements, verify quantity and check for possible damage.

c. Notify the shipping activity of any damage immediately after inspection. The Headquarters equipment manager and the SPM shall be notified if the damage is more than superficial.

d. If the HCPM is electronics equipment, the AIT shall provide testing and calibration of the equipment to verify that the equipment meets operational specifications.

1.5.2. Records of HCPM. Records of the receipt and disposition of each HCPM item shall be maintained.

1.6. Configuration Status Accounting. Depending on the program, the AIT may be tasked to maintain configuration records of equipment and software so that the ship and equipment managers can maintain configuration control. If configuration status accounting is tasked, the material control process shall provide the following:

1.7. Equipment accounting. For each piece of HCPM equipment (not material), which is intended to be installed aboard ship, that is received, ordered, or fabricated by the AIT, a computerized index of purchase orders, modifications accomplished and final disposition shall be maintained.

1.7.1. Software accounting. For each software item, which is to be installed in shipboard equipment, a computerized index of purchase orders, modifications accomplished and final disposition shall be provided and maintained.

1.7.2. Weight Accounting. Depending on the program and the ship class, the AIT may be tasked to maintain a written record of equipment and material removed (weight and installed location) which are not indicated on removal drawings to allow the ship and equipment managers to maintain an accounting of weight changes on weight critical ships. Generally this includes the removal of unused or dead-ended cables, the removal of unused foundations or the removal of unused equipment with associated cables and foundations when such removal is authorized by the ship and designated NSA and approved by the SPM. The material control process shall provide procedures for weight accounting and reporting to the PY when required.

1.8. Problem Resolution Process Procedures shall be maintained that allow for documentation of actions to resolve any quality problems with installation or work control. The necessary documentation shall be made available to the AIT Manager and applicable NSA.

APPENDIX D

AIT Manager's Quality Assurance Program (AMQAP)

LISTING OF ATTACHMENTS.

(1) Corrective Action Request

(2) Quality Oversight Schedule and Surveillance Plans (Samples Only)

(3) AIT Sponsor/Manager's Annual Quality Assessment Report of AIT Performance (Sample Only)

1. PURPOSE. This Appendix establishes basic guidance for assisting AIT Manager's role in performing Tasking/Contract Administration Quality functions to ensure AIT product quality. The quality program elements are structured to facilitate an AIT Manager's oversight role for processes associated with shipboard alterations accomplished by AITs. This Appendix supports QA oversight requirements set forth by FAR Part 46 – Quality Assurance. The five elements of the AIT Manager Quality Assurance Program (AMQAP) are designed to provide a systematic and uniform program approach for ensuring AIT compliance with requirements. The AMQAP program elements are:

1. AIT Document/Procedure Review
2. Process Surveillance and Product Inspections
3. Quality System Audits
4. Corrective Action
5. Quality Data Evaluation

The AIT Manager and/or designated On-Site Installation Coordinator (OSIC) will develop, apply and maintain an effective program for performing Government Contract QA actions consistent with AMQAP.

2. PROGRAM DIRECTION AND CONTROL.

2.1. AIT Responsibilities. The AIT carries out the obligations as set forth in the terms and conditions of the contract/tasking and in accordance with applicable specifications. The AIT is responsible for controlling product quality, offering for acceptance only those supplies and services that conform to contract requirements and, when required, for maintaining and furnishing objective evidence of this conformance.

2.2. AIT Sponsor Responsibilities. The AIT Sponsor is responsible for ensuring AIT installations are funded to the level necessary to ensure all quality system requirements are met, including AIT Manager/OSIC execution of AMQAP and NSA, LMA quality oversight. Data analysis and metrics resulting from the Quality Data Evaluation element of the AMQAP will support the Sponsor's annual quality trend analysis of sponsored AITs. Submit annual quality assessment reports of FY data, to NAVSEA 04XQ and NAVSEA 04RP by the February following the end of the FY. Attachment C provides a sample form for providing an annual quality assessment report of an AIT's performance.

2.3. AIT Manager / On-Site Installation Coordinator Responsibilities. The AIT Manager/OSIC will determine the type and extent of AMQAP actions to ensure AIT compliance and shall as a minimum implement the requirements of Section 3 of this Appendix. When OSIC functions will be performed by a different organization than the AIT Manager, the AIT Manager shall ensure that the scope of authority assigned to the activity performing the OSIC's functions is

documented via the MOA. The AIT Manager may also task and fund QA program responsibilities to the NSA. This scope of authority shall be documented in the MOA

2.4. Naval Supervising Activity/Authority (NSA) responsibilities. The NSA is the single naval activity responsible for the oversight and verification of work accomplished by all activities working within the assigned availability and is responsible for integrating the planning and execution of work by all involved activities. The NSA is responsible for monitoring the effectiveness of the AIT Manager/OSIC's execution of their QA Program responsibilities. Significant issues and quality trends with AIT quality performance and/or AIT Manager/OSIC's AMQAP monitoring shall be documented. Attachment on page D9 provides an AIT Manager/OSIC's QA Program Action Requests Form for NSA use to document issues with the AIT Manager/OSIC's execution of their AMQAP.

2.5. Compliance. The Government determines if the AIT's performance of work complies with the requirements of the tasking/contract. The tasking/contractual documents must provide the authority to require the AIT to maintain a QMS adequate for the work. To implement this, cognizant Government personnel will determine the effectiveness of the AIT's quality effort, as well as perform the product inspections necessary to ensure AIT's conformance to the specification.

2.6. Personnel Capability Requirements. The AIT Manager/OSIC will ensure the required skills are available to determine acceptability of products produced and services rendered by the AIT. Training must be provided to ensure personnel have the skills, techniques and knowledge necessary to comply with the requirements of this document.

3. ELEMENTS OF AN AIT MANAGER QUALITY ASSURANCE PROGRAM (AMQAP).

3.1. Document/Procedure Review. Document Review is the AMQAP element for verifying that the AIT's documented procedures and technical data comply with contractual/tasking requirements, including latest applicable version of invoked NAVSEA SIs. The AIT Manager/OSIC must review the AIT's procedures in a timely manner and not delay the AIT's performance. This review shall ensure that AIT has developed a specific QA Workbook that identifies installation plan and all applicable inspections and tests needed to ensure product/process quality. When the AIT does not develop required written procedures or fails to correct inadequate procedures previously reported to the AIT, the AIT Manager/OSIC shall initiate corrective action.

3.1.1. The AIT QA Workbook shall be made available to the applicable NSA and/or LMA.

3.2. Process Surveillances and Product Inspections. Process surveillance inspections verify that the AIT is compliant with written quality procedures and that procedures are accomplishing the intended purpose of controlling product/process quality. Product inspections validate product compliance with drawing and specification requirements.

3.2.1. AIT Managers/AIT OSICs are required to develop quality overview plans for use during AIT work performance to ensure AIT compliance with established requirements. The surveillance and inspection plan shall include Government (G) notification points, critical inspection points and those areas to be monitored.

3.2.1.1. Process surveillance inspections shall be scheduled and accomplished frequently by the AIT OSIC to ensure the AIT is compliant with their QMS processes and procedures for accomplishing work. Process surveillance inspection plans shall be developed using process

specific attribute checklists where AIT Manager/OSIC intends to verify compliance. These inspection plans also serve as an inspection record when completed. The attachment on page D-13 provides examples of a surveillance oversight plan and attributes used when conducting surveillances and inspections.

3.2.1.2. Product inspections shall be periodically conducted to verify that the AITs processes and procedures are accomplishing the intended purpose of controlling product/process quality. Product inspections will be performed for critical dimensions and/or attributes requiring additional oversight and are usually defined as a Government inspection point (G point) for AIT contractor work. AIT Managers/OSICs should work with the AIT during the planning phase to identify (via attribute sampling) product characteristics that need verification by the AIT Manager/OSIC to validate product offered by the AIT for acceptance, conforms to contract/tasking technical requirements. Records for documenting product inspections may be part of the AIT inspection and Test Plan or can be developed internally by the AIT Manager/OSIC. The scope and depth of these inspections depend on the complexity and size of the alteration/SC.

3.2.1.3. Flexibility for adjusting frequency of surveillances and inspections will depend on nonconformity rates and problem areas identified, based on AIT's quality history. As a minimum AIT Manager/AIT OSIC surveillance and inspection frequency shall be established for each AIT installation and be identified in the AIT Manager/OSIC's oversight plan.

3.2.1.4. Process and product surveillance and inspection results shall be made available to the applicable NSA/ when requested.

<u>3.3. Quality System Audits</u> Quality system audits are designed to examine and evaluate procedures and processes to determine compliance and measure the effectiveness of the AIT's QMS. The "QMS audit" may be conducted as a single audit or may be combinations of several audits that ensure all major elements of QMS are audited. AIT Managers should conduct quality system audits when selecting new AITs or when quality issues are identified that indicate a breakdown in AIT compliance with quality system requirements.

3.3.1 Documentation of audit results for AIT installs shall be made available to the applicable NSA when requested.

<u>3.4. Corrective Actions.</u> Effective corrective action is one of the most important AMQAP elements as it serves to define methods for requesting action by AIT to act to correct nonconformities and address unplanned events. To achieve systematic assurance of compliance throughout all phases of the AIT's operation, the basic causes of nonconformities must be identified and prompt corrective action taken to correct assignable conditions in order to preclude future nonconformities. The AIT shall be required not only to correct specific nonconformities but also to initiate preventive action to identify and eliminate cause of nonconformities. The AIT Manager/OSIC's use of a Corrective Action Request (CAR) is designed to ensure that AITs address actions needed to support effective corrective and preventive actions. The AIT Manager/OSIC must evaluate effectiveness of an AIT's preventive action to eliminate cause of nonconformities by performing follow-up actions after process change has been implemented. The AIT Manager/OSIC may need to increase oversight inspections until there is assurance that the AIT's corrective action is satisfactory.

3.4.1. For significant ship problems (e.g., problems that affect ship safety, cause significant damage to the ship or its equipment, delay ship deployment or incur substantial cost increase or involve severe personnel injury), AIT Manager/OSIC shall require a critique be conducted inviting participation by the applicable NSA and LMA and a Trouble Report issued, if applicable. Trouble Reports shall be prepared and distributed in accordance with reference 2.2.3(17) Trouble Reports should also identify systemic problems and issues that constitute significant lessons learned for other activities.

3.4.2. CARs should be discussed with AIT management/AIT prior to issuance. An effective follow-up system will be maintained by AIT Manager/OSIC on all CARs to ensure acceptable resolution. Nonconformities shall be assigned one of three levels of severity (Minor, Major and Critical) to distinguish those problems that have the most impact on an activity in accomplishing its mission. Severity levels also help ensure appropriate resources are focused on the most significant problems. When corrective action by an AIT is required, one of the following methods will be implemented by the AIT Manager/OSIC:

3.4.2.1. Minor Nonconformities (Method A). A minor nonconformity is a defect or flaw that will probably not impair the performance or life of a product or result in unsafe conditions for the user. Generally, a minor nonconformity is administrative in nature or can be corrected on the spot; at most, the AIT can be reasonably expected to correct it within one day. Examples of minor nonconformities are nondocking related late reports, repeated housekeeping violations, potential safety discrepancies such as a hot work chit not posted on-site, minor repetitive administrative discrepancies with submittals of work specifications, Process Control Procedures, reports, etc., minor Objective Quality Evidence discrepancies and G-Points called out during normal working hours that are not ready for inspection at the designated time. These minor nonconformities shall be presented to responsible AIT personnel verbally or in writing for correction. Each minor nonconformity will be described in sufficient detail to allow the AIT to understand what contractual/tasking requirement is violated and to take appropriate corrective action. While the AIT is not required to provide a written response, the internal AIT Manager/OSIC's process shall ensure that minor nonconformities are documented, corrected and date verified/cleared. While causal analysis or long term action is not required, the AIT Manager/OSIC shall evaluate Minor nonconformities for trend analysis.

3.4.2.2 Major Nonconformities (Method B). A major nonconformity is a nonconformance that judgment and experience indicate could impair the performance or life of a product or result in hazardous or unsafe conditions for the user. Examples of major nonconformities are late dry-dock related reports, repeated Method A nonconformities in the same area, safety discrepancies that pose an immediate threat or danger, serious injuries to personnel, damage to government property or ship's systems that impact the product or performance, AIT's actions that result in the issuance of a Trouble Report and technical authority violations such as unauthorized substitution of materials or unauthorized changes to ship's systems.

Major quality problems must be investigated to determine scope of the problem, to identify root causes and to take action to correct the assignable causes. When major nonconformities are detected or a trend of recurring minor nonconformities is noted, a CAR shall be initiated citing the specific tasking/contract, specification or AIT procedural requirement violated and a description of the nonconformity, clearly indicating how the requirement was violated. Additionally, the CAR shall include pertinent control information such as: contract or tasking number/job order, ship, appropriate references, originator name and signature, unique serial

number, AIT's corrective action response and preventive action(s) taken to eliminate the causes of potential nonconformities in order to prevent their occurrence, and AIT Manager/OSIC indication of acceptability and signature. An example of a CAR form is provided herein. The CAR shall be forwarded to the appropriate level of the AIT's management for action. The actual time frame for completion of AIT corrective action may vary; however, a prompt response to CARs is required. An interim reply may be acceptable pending AIT's completion of corrective actions. The AIT Manager/OSIC shall review and accept AITs corrective and preventive action.

3.4.2.3. Systemic/Critical Nonconformities (Method C). When the previous methods fail to obtain satisfactory results; or when the severity of the situation warrants, a Method C letter shall be issued from the Quality Assurance Officer/Director/Manager or the appropriate Department Head notifying the AIT's appropriate level of management that a critical or systemic problem exists and immediate management action must be taken to comply with the provisions of the contract/tasking. These problems must be investigated to determine and correct the causes. In addition, when a Method C letter fails to obtain satisfactory results or when the severity of the situation warrants, a second letter (Method D) shall be issued by the CO or the Contracting Officer notifying the AIT's top level of management that a systemic or critical problem exists and that immediate management action must be taken to comply with the provisions of the contract. An electronic or hard copy of each Method C or D letter shall be furnished to the CO and/or Contracting Officer.

3.4.2.4 Systemic/Critical Nonconformities (Method D). When a Method C letter fails to obtain satisfactory results or when the severity of the situation warrants, a Method D letter shall be issued by the CO or the Contracting Officer notifying the AIT's top level of management that a systemic or critical problem exists and that immediate management action must be taken to comply with the provisions of the contract. An electronic or hard copy of each Method D letter shall be furnished to the CO and/or Contracting Officer.

3.5 Quality Data Evaluation. Quality Data Evaluation is the AMQAP element that provides for the collection, evaluation and use of AIT, AIT Manager/OSIC and customer quality data. Quality Data analysis shall be done at least annually using the following quality data:

a. Casualty Reports
b. Trouble Reports
c. CARs
d. AIT Performance Assessment Report data
e. Process and Product Surveillance Inspection results
f. NSA and/or LMA Surveillance Inspection results
g. Quality System Audit results

3.5.1 The results of quality data analysis provide evidence of an AIT's quality performance and assist in determining the effectiveness of an AITs QMS. The AIT Manager/OSIC shall use the results of quality data analysis to adjust the intensity of application of basic elements of the AMQAP.

3.5.2 The results of AIT Manager/OSIC's Quality Data Evaluation will be used for metrics that support the AIT Sponsors' annual AIT quality trend analysis submittal.

3.6 Quality Assurance (QA) Program for Field Activities having AIT Manager/OSIC Responsibilities. Naval activities having AIT Manager responsibilities shall establish an internal audit program that audits AIT Manager/OSIC actions and responsibilities as identified in TS 9090.310 to determine if internal departments are in compliance with this instruction and internal quality related directives and procedures. The Audit shall normally be conducted every 12 months. However, audit periodicity may be extended to 24 months based on satisfactory performance.

4. NAVSEA EVALUATIONS

NAVSEA, at its discretion, will perform periodic evaluations/audits of AIT Sponsors, AIT Managers and AIT OSICs to assess and determine conformance to QA functions and responsibilities.

CORRECTIVE ACTION REQUEST

To: (AIT Activity Name and POC)	From: (AIT Manager/OSIC Activity Name and POC)
SHIP/HULL NUMBER:	REFERENCES:
PROBLEM SEVERITY LEVEL: ☐Critical ☐Major ☐Minor	
CONTRACT/TASKING NUMBER (if applicable):	
SERIAL NUMBER:	
STATEMENT OF NONCONFORMANCE (INCLUDE CONTRACT/SPECIFICATION REQUIREMENTS:	
_____ SIGNATURE OF AIT MANAGER/OSIC	_____ DATE
AIT CORRECTIVE ACTION TAKEN TO CORRECT NONCONFORMANCE:	
IDENTIFICATION OF ROOT CAUSE:	
PREVENTIVE ACTIONS TAKEN TO CORRECT ROOT CAUSE: _____ SIGNATURE OF AIT	_____ DATE
VERIFICATION OF AIT'S RESPONSE: ☐SATISFACTORY ☐UNSATISFACTORY COMMENTS: _____ SIGNATURE OF OSIC	_____ DATE
FOLLOW UP REQUIRED: ☐YES ☐NO RESULTS OF FOLLOW-UP ☐ SATISFACTORY ☐ UNSATISFACTORY _____ SIGNATURE OF AIT MANAGER	_____ DATE

SAMPLE

AIT MANAGER/OSIC QA PROGRAM ACTION REQUEST

(AIT MANAGER/OSIC Activity Name and POC)	(NSA Activity Name and POC)
SERIAL NUMBER AND DATE: (e.g. AIT MANAGER Name – Sequential Number)	REFERENCES:
ITEM CATEGORY: ☐ Non-Conformance ☐ Process Improvement	
SHIP/HULL NUMBER:	

NSA STATEMENT OF NONCONFORMANCE / PROCESS IMPROVEMENT:

AIT MANAGER/OSIC CORRECTIVE ACTION(S) TAKEN TO CORRECT NONCONFORMANCE/PROCESS IMPROVEMENT:

IDENTIFICATION OF ROOT CAUSE (NONCONFORMANCE ITEMS ONLY) :

PREVENTIVE ACTIONS TAKEN TO CORRECT ROOT CAUSE (NONCONFORMANCE ITEMS ONLY):

_____ _____

SIGNATURE OF AIT or AIT MANAGER/OSIC REPRESENTATIVE DATE

VERIFICATION OF AIT MANAGER/OSIC'S RESPONSE:
☐ SATISFACTORY ☐ UNSATISFACTORY

COMMENTS:

_____ _____

SIGNATURE OF REPRESENTATIVE DATE

FOLLOW UP REQUIRED: ☐ YES ☐ NO

RESULTS OF FOLLOW-UP ☐ SATISFACTORY ☐ UNSATISFACTORY

_____ _____

SIGNATURE OF AIT MANAGER/OSIC DATE

*(provide copy to SEA 04XQ marion.b.hall@navy.mil)

SAMPLE

(Sample)

I. Introduction: This Quality Oversight Plan is for AIT Manager or AIT Name oversight actions during installation of alterations/SCs #(_____).

II. References:

a) NAVSEA 0902-018-2010; General Overhaul Specification for Deep Diving Submarines

b) NAVSEA S9073-AM-SBV-010/020; Noise Monitoring of SSN/SSBN Auxiliary Machinery

c) NAVSEA Technical Specification (NSTS) 9090-310(Series)

III. Enclosures:

1. AIT OSIC QA Surveillance Oversight Plan
2. Surveillance Checklist
3. In-Progress Monitoring
4. Work Package Review Record Sheet
5. Housekeeping Record Sheet
6. AIT QA Plan Audit Record
7. Annual Quality Assessment Report of AIT Performance

IV. The AIT Manager (insert name) Government On-Site Installation Coordinator (OSIC) will be responsible for the conduct of the installation and ensuring:

1. The AIT workmanship and work practices meet the requirements of all installation drawings and contract specifications including applicable NAVSEA SI and Submarine Maintenance Standards as invoked/applicable.
2. The AIT performs general housekeeping, including the proper disposal of any hazardous waste, industrial waste or excess hazardous material, in all impacted areas as an on-going part of the alteration accomplishment.
3. After completion of all ship work, the AIT will conduct final housekeeping in all areas involved in the alteration accomplishment.
4. The AIT Team Lead insures that all hoses, welding leads, temporary ventilation trunks, and other material and services shall be kept clear of water tight doors and hatches or be capable of being removed.
5. The AIT shall ensure all removed equipment and associated material is properly disposed of. Additionally, the AIT OSIC/AIT Lead will be responsible for protecting equipment from contamination during the alteration installation process. NAVSEA SI 009-06.
6. Provide on site installation oversight and management for respective installs to include spot-check and surveillance inspections of ongoing and completed work. Establish, witness, and sign-off on government “G” point inspection points in the Test and Inspection Plan. The Quality Overview Schedule provides details on planned audit and surveillance tasks and includes forms used for documentation.

SAMPLE

A. Provide copies of completed surveillances to the NSA when requested.

7. Ensure all members of the AIT comply with all requirements specified in the Tag-out User's Manual (TUM).
8. Ensure tag-out notification is submitted in a timely manner so that tag-outs can be accomplished as required by NAVSEA Instruction S0400-AD-URM-010/TUM(Series), Tag-out Users Manual (TUM). Notification shall be made at least forty-eight (48) hours prior to required deactivation to ensure proper coordination with other on-going work.
9. Act as the central point-of-contact with the ship, NSA, LMA and AIT.
10. Ensure AIT adherence to safety, environmental, quality, and technical requirements.

V. Mitigate AIT issues, particularly those relating to a stop work order.

VI. Testing

1. Ensure the NSA and LMA are notified prior to all testing events
2. Maintain completed test reports during accomplishment of the alteration/SC
3. Provide completed test reports to the NSA, LMA and Ship's Force.

VII. Attend NSA and/or LMA availability production and coordination meetings and all other appropriate meetings, as required.

VIII. Monitor the progress of work against the installation POA&M and provide updated installation progress.

IX. Ensure delivery of all documentation, test reports, ILS products.

1. Upon completion of the alteration, ensure any required on-the-job training of assigned members of the ship's crew is conducted by the AIT.
2. Training will include both operation and maintenance of all new and modified equipment.

X. Resolve quality discrepancies.

XI. Ensure that AIT work responsibilities that involve SUBSAFE work is performed only by a NAVSEA Note 5000 activity.

XII. Ensure that AIT work responsibilities that involve Fly-By-Wire (FBW) is performed in accordance with reference 2.2.3(35).

XIII. Ensure adherence to schedule requirements.

XIV. Ensure the following actions have been completed for alteration/SC #(_____):

1. AC Plant tested in accordance with Section 9590 of reference (a) per alteration/SC instructions.
2. Validate all new equipment meets noise requirements specified in the alteration/SC.
3. Validate Structure Borne Noise Testing is completed for all modified equipment during operations per reference (b).

SAMPLE

4. Validate Isolation System Survey and Housekeeping portion of Topside and Housekeeping Survey for affected areas upon alteration/SC completion per Section 9400-1 of reference (a).
5. Validate completion of Airborne Noise Survey of the affected areas upon alteration/SC completion per Section 9400-1 of reference (a).

(Sample)

SURVEILLANCE TASK	PERIODICITY	RESPONSIBILITY	ACTIONS
Conduct random spot check of an AIT employee performing work on board the ship. Use the Work In-Progress Monitoring surveillance checklist to evaluate process.	Twice per week, for each shift in which work is performed.	AIT Manager, On-Site Installation Coordinator (OSIC) or OSIC Designated Government Employee	Complete surveillance checklist; retain forms on site as OQE; make copies available to LMA or NSA, upon request.
Spot check AIT work packages to ensure scope of work is identified, individual is working within work scope, package contains details of work being performed, current process procedures are being utilized and QA checkpoints incorporated into the process. Use Work Package Review surveillance checklist to evaluate process.	Twice per week rotating through each SHIPALT	AIT Manager, OSIC or OSIC Designated Government Employee	Complete surveillance checklist; retain forms on site as OQE; make copies available to LMA or NSA, upon request.
Conduct random spot check of on board or off-hull AIT work areas for cleanliness, stowage and general housekeeping. Use housekeeping surveillance checklist to evaluate process.	Twice per week	AIT Manager, OSIC or OSIC Designated Government Employee	Complete surveillance checklist; retain forms on site as OQE; make copies available to LMA or NSA, upon request.
Conduct an audit of AIT'S audit and surveillance plan to ensure compliance. Use AIT QA Audit/Surveillance checklist to evaluate process.	Bi-weekly	AIT Manager, OSIC or OSIC Designated Government Employee	Complete surveillance checklist; retain forms on site as OQE; make copies available to LMA or NSA, upon request.
OSIC conduct an audit of completed AIT work packages. Complete work Package Audit Form.	All work packages as they are completed	AIT Manager, OSIC or OSIC Designated Government Employee	Complete surveillance checklist; retain forms on site as OQE; make copies available to LMA or NSA, upon request.

EXAMPLE OF SURVEIILANCE CHECKLIST

Ship Alt Number:	SHIP:	Date:	AIT:	AIT Manager/OSIC:

Attributes: **STRUCTURAL WELDING**	SAT	UNSAT	N/A	Remarks/Correct Action Required
1. Is the welder currently qualified for: a. Process being used? b. Position? c. Electrode and material type?				
2. Does Weld Procedure correspond with work being accomplished?				
3. Has the Weld Procedure been approved by NAVSEA/SUPSHIP or their authorized representative?				
4. Is the Process Control Procedure at the worksite, when required (e.g. critical aluminum welding)?				
5. Does welder have the correct filler material type and size required by procedure?				
6. Does welder have more than one filler material type in his possession that could lead to material mix-up?				
7. Are moisture sensitive covered electrodes (e.g., Mil types 9018, 10018, 11018, 12018, 10018-N1, 410NiMo and E2209-15/16) placed in holding ovens (225-300 degrees) after hermetically sealed container is opened? a. Are returned exposed electrodes exceeding time limit (more than 5 hours) re-baked or placed in holding ovens for at least 8 hours? b. Is the holding oven for other Low Hydrogen covered electrodes maintained at 150-300 Degrees?				
9. Where applicable, did welder ensure that confined space was certified gas free prior to welding?				
10. Did welder ensure that equipment was protected prior to welding?				
11. Was a fire watch in position during welding operations?				
12. Did welder check pre-heat and interpass temperatures for correct temperature required by weld procedure? 13. Does welder have correct temperature sticks or other devices to check base material temperature?				

EXAMPLE OF SURVEIILANCE CHECKLIST

Ship Alt Number:	SHIP:	Date:	AIT:	AIT Manager/OSIC:

Attributes: **STRUCTURAL WELDING**	SAT	UNSAT	N/A	Remarks/Correct Action Required
14. Does welder clean base material to ensure weld is not contaminated with foreign material?				
15. Did welder perform Visual Inspection (VT) of welds? a. Has welder been training to perform workmanship inspection per MIL-STD-1689A?				
16. Were All NDT inspections required by Drawing or Fabrication Specification performed?				
17. Was the NDT inspector qualified for NDT inspections performed?				
18. Was welding and NDT performed documented on a Weld Joint record?				
Note: Source requirements: S9074-AQ-GIB-010/248, and MIL-STD-1689A				

EXAMPLE OF SURVEIILANCE CHECKLIST

Ship Alt Number:	SHIP:	Date:	AIT:	AIT Manager/OSIC:

Attributes: **PIPE WELDING**	SAT	UNSAT	N/A	Remarks/Correct Action Required
1. Is the Work Authorization Form (WAF) at the worksite?				
2. Is the Process Control Procedure, when required, at the worksite?				
3. Is correct Welding Technique Sheet at worksite for materials being welded?				
4. Is correct filler type material and size being used for weld per Weld Technique Sheet?				
5. Is welder 5X visual inspector qualified?				
6. Is welder qualified for weld procedure?				
7. Has the diametrical clearance been checked (P1 maximum clearance .065”)?				
8. Has the socket pipe end clearance (1/16” to 1/8” for new and 1/32” to 1/16” existing been checked? (evidence of a scribe line being used to measure)				
9. Have the items been preheated per the Welding Technique Sheet?				
10. Have Interpass temperatures been taken for multiple pass welds per Weld Technique Sheet? (Check temperature at site of operation before starting the next pass)				
11. When required, has the item been post weld heat treated per the Welding Technique Sheet?				
12. Is pipe socket fillet weld the correct size for Piping Nominal Wall Thickness (Tp)? (Weld size =Tp x 1 ¾ Tp)				
13. Are there any visual discrepancies such as weld spatter, weld undercut and weld slag?				
14. Was NDT performed as required by drawing?				
15. Was the NDT inspector qualified for NDT inspections performed?				
16. Was welding and NDT performed documented on a Weld Joint record?				
Note: Source requirements: S9074-AQ-GIB-010/248, and S9074-AR-GIB-010/278				

EXAMPLE OF SURVEIILANCE CHECKLIST

Ship Alt Number:	SHIP:	Date:	AIT:	AIT Manager/OSIC:

Attributes: **WORK AUTHORIZATION FORM (WAF) and QA Workbook**	SAT	UNSAT	N/A	Remarks/Correct Action Required
1. Is WAF placed in the work authorization signed by Ships Force and other appropriate personnel at worksite?				
2. Did the AIT present proposed tag-out for work on system equipment? a. Are all tags posted properly? b. Does the equipment tagged appear to be in the position indicated on the tag?				
3. Is the work being performed within the scope of WAF?				
4. Are any revisions to WAF reviewed and signed by appropriate personnel?				
5. Is QA workbook on-site and being used to perform work?				
6. Does AIT have correct drawing and revision level for performing the work?				
7. Are in-process steps being followed and appropriate signatures annotated as specified in inspection and test plan?				
8. Has OSIC been notified by AIT for Government G-point inspections in QA Workbook?				
9. Is the AIT worker qualified to perform work and is his qualifications in the QA workbook?				
10. If HAZMAT is being used, is it properly labeled?				
11. Is the worker following safety requirements specified in the work package?				
12. Is the worker observing cautions, warnings and notes, as applicable?				
13. Has the AIT supervisor visited the work site during the shift?				
14. Is the mechanic using good work practices?				
15. Is the mechanic using calibrated measuring and test equipment for product inspections?				
16. Have test requirements to certify work been identified in QA Workbook?				
17. Does the AIT have required test equipment to test work being accomplished? a. Are the test gage ranges appropriate (middle ¾ range of gage) of test pressure being applied? b. Are test gages calibrated?				
18. Do test procedures require that equipment or system be protected from over-pressurization?				
19. Is system tested prior to closing out WAF?				

EXAMPLE OF SURVEIILANCE CHECKLIST

Ship Alt Number:	SHIP:	Date:	AIT:	AIT Manager/OSIC:

Attributes: **ELECTRICAL SAFETY and TAG-OUT**	SAT	UNSAT	N/A	Remarks/Correct Action Required
1. Have all required circuits have been electrically isolated?				
2. Have circuit breakers been locked and tagged out?				
3. Was a voltage tester/voltmeter used to validate equipment was de-energized?				
4. Was ship's duty officer's permission obtained prior to start work?				
5. Are all unused openings in cabinets, boxes, and fittings effectively covered, covers closed, exposed power supplying conducted ends taped, and all conductors protected from contamination?				
6. Are any loose wires properly insulated and identified?				
7. Are electrical storage devices discharged prior to commencing work?				
8. Are metal hand held tools properly covered with electrical insulating material when working near energized circuits?				
9. Are electrical workers wearing appropriate personal protective equipment (safety glasses and electrical hazard safety shoes, etc) ?				
10. Are non-qualified personnel and other personnel not involved with the work are kept a minimum of three feet from the energized circuit?				

SPONSOR SUMMARY PAGE Date:_____

Assessment Period Dates _____

AIT Manager {Government Activity, include POC Name/Title} _____

_____

Sponsor Overall Assessment of AIT (include basis for assessment)

(Name and CAGE Code)

☐ Below Average ☐Average ☐Above Average

Comments:

(Name and CAGE Code)

☐ Below Average ☐Average ☐Above Average

Comments:

(Name and CAGE Code)

☐ Below Average ☐Average ☐Above Average

Comments:

AIT Manager's Oversight Assessments are provided by Enclosures:

Signature:

Name, Organization/Code, Title:

MANAGER SUMMARY PAGE

AIT Manager {Government Activity, include POC Name/Title} _____

_____

Assessment Period Dates _____

AIT Assessed _____

Scope of Work (optional)

Affected Platforms / Class (optional)

Manager' Assessment of AIT ☐ Below Average ☐ Average ☐ Above Average

- Address

  - ❑ Program Weaknesses and Actions Taken to address

  - ❑ Systemic Problems / Concerns

  - ❑ Significant Production Delays Caused By AIT (e.g., rework, material not ordered properly, or staged when required, lack of personnel assigned for work to be accomplished, unqualified personnel or procedures)

Considerations in Developing Assessments

- MOA
  - NSA and/or LMA – QA Support Services Requested in accordance with requirements?

    ☐ YES ☐ NO
  - Agreements Obtained Prior to Installation Start Date?

    ☐ YES ☐ NO

DETAILS:

- Analysis of Deficiency Data Collected

  - Departures / Waivers ☐ YES ☐ NO

    DETAILS:

  - Significant Critiques / Trouble Reports ☐ YES ☐ NO

    DETAILS:

  - Customer Surveys/Feedback ☐ Below Average ☐Average ☐Above Average

    DETAILS:

  - Significant Audit Findings ☐ YES ☐ NO

    DETAILS:

Signature:

Name, Organization/Code, Title:

APPENDIX E

AIT IN-BRIEF

AIT IN-BRIEF

Purpose: The purpose of a AIT in-brief is to provide an overview and objectives of the alteration/SC to be accomplished. The in-brief shall outline PICO deficiencies, work to be performed, review the schedule of accomplishment and identify impacts on the ship, confirm arrangements for requested/required services, establish responsibilities and points of contact, review planned ship's evolutions, and review Integrated Logistics Support (ILS) products and training to be provided.

1. Alteration/Ship Change Overview: The overview provides a description of the alteration/SC purpose and the expected improvements to be provided, areas of the ship impacted by the alteration/SC and additional areas affected by the accomplishment of the alteration/SC and the impact on ship's services.

2. PICO deficiency corrections:

A. The AIT OSIC, Ships Force, NSA and LMA shall discuss and agree who is responsible for correction of each reported PICO deficiency to prevent delays during the installation and the SOVT test procedure.

3. Work to be accomplished::

A. Review of installation drawings

(1) Arrangement drawing(s) indicating equipment to be removed and locations of new, modified, and relocated equipment

(2) System drawing(s) indicating system interconnections and interfaces with ship system interfaces including power and ventilation

(3) Cable and/or pipe runs

B. Review of equipment and materials to be used

(1) Review of equipment and material to be installed

(2) Review of equipment and material to be removed

(3) Review of hazardous materials to be used or removed and handling and disposal procedures

C. Review of ship's systems impacted during alteration/SC accomplishment and duration of impact

D. Review of areas that may have restricted access during alteration/SC accomplishment

(1) Areas where welding is to be accomplished

(2) Areas where hazardous material is to be used or handled

E. Review of applicable process control procedures to be used for fire prevention, hot work, sight and hearing protection, protection of pipes, cables, and equipment during ship work, system or equipment deactivation/reactivation, material storage

at the work site, storage, use and disposal of hazardous materials (including excess and partially used hazardous material and hazardous material removed as part of the accomplishment of the alteration/SC, material for staging and screening, temporary covers and shelters, uncrating/unpacking of equipment, cleanliness of the ship and workmanship.

F. Review of personnel qualification/certifications for work requiring specific qualifications.

4. Schedule of events/Milestones: A detailed review of schedule-of-work and Test Plan (TP) and/or SOVT agenda of all functional items shall be provided during the briefing. Key event checkpoints (e.g. piping flush, hydrostatic testing, cableway and compartment closeout) and system operational testing of all functional items will be provided for Ship's Force witnessing. The material deliveries, required compartment accesses, security requirements, and shift schedules will also be discussed at this time. The schedule information shall include projected start and finish dates, planned shift start time(s), planned testing periods, planned training dates and planned ILS turnover.

5. Planned ship's evolutions: Any special restrictions due to ship's evolutions during the availability (weapon/ordinance loading, ship's receiver/transmitter testing, emergent requirements, other alterations/SCs being accomplished, etc.), which could impact or be impacted by work being performed by the AIT, will also be discussed at this time. It will be the responsibility of the AIT to perform required shipboard work around these restrictions. If restrictions exist which cannot be accommodated by the AIT without jeopardizing scheduled completion date of the alteration/SC or the scheduled departure date of the ship, the AIT will make arrangements with the Naval Supervising Activity/Authority (NSA) for accomplishment of the alteration/SC during a subsequent availability and withdraw from the ship.

6. Confirmation of services: AIT arrangements for crane and/or welding services, special test requirements, fire watches, etc., will also be confirmed at this time. For alterations/SCs being accomplished during CNO Availability, arrangements and associated funding for services included in the contract (if the alteration/SC is to be accomplished at a private activity) (crane services, welding services, special test requirements, fire watches, NSA disposal of turned-in equipment/material, etc.) will also be confirmed at this time.

7. Points-of-contact: The AIT OSIC/AIT Lead shall request the ship to provide a list of all points of-contact for accomplishment of the alteration(s)/SC(s). The points-of contact list will include those technical personnel assigned to work with the AIT and witness testing, the names of those people authorized to sign off the ACR, and the names of personnel authorized to accept delivery of computer tapes and ILS items. For alterations/SCs being accomplished during CNO Availability, the NSA representatives, PY On-Site Representatives (Program Representative and Configuration Data Manager [CDM]), and the Lead Ship Availability Manager from the industrial activity will also be identified. For alterations/SCs being accomplished during a CNO Availability, the AIT OSIC will also identify which AIT member(s) will attend daily progress meetings.

8. Responsibilities: The AIT OSIC will be identified as being responsible for the conduct of the AIT and the person to be contacted in regard to work deficiencies, scheduling problems, or

problems with AIT members. The AIT OSIC shall be accessible to Ship's Force throughout the period(s) the AIT is on board and is responsible for the resolution of identified deficiencies or issues associated with accomplishment of the assigned alteration(s)/SC(s). When work is being accomplished during a CNO Availability, the AIT OSIC shall also be accessible to the NSA and the Lead Ship Availability Manager at all times during period(s) the AIT is on board the ship. The AIT OSIC shall be responsible for reporting any changes in schedule and providing notification to the ship and NSA of upcoming key event checkpoints and testing evolutions. Additionally, if multiple-shift work is to be accomplished, the AIT OSIC(s) for each shift shall be identified.

9. ILS and training to be provided: The AIT Lead/OSIC will review all ILS products and provide a current, approved ILS Certification as well as all training to be provided at the time of installation. All applicable ILS elements listed in the ILS portion of the ACR and any known ILS deficiencies shall be addressed.

APPENDIX F

LIST OF ACRONYMS

LIST OF ACRONYMS

3M	Maintenance and Material Management
A&I	Alteration and Improvement
ABR	Agreement for Boat Repair
ACN	Advanced Change Notice
ACR	Alteration Completion Report
AER	Alteration Equivalent to Repair
AIM-NT	Advanced Industrial Management – Network Technology
AIT	Alteration Installation Team
AIT OSIC	AIT On-Site Installation Coordinator
ALT	Alteration (or change/modification)
AMPP	Advance Modernization Planning Package (Submarines)
AMPS	Afloat Master Planning System
AMQAP	AIT Manager's Quality Assurance Program
AQS	Accepted Quality System
ASC	Alteration Status Code
AWP	Availability Work Package
BOM	Bill of Material
C4I	Command, Control, Communications, Computers, Intelligence
C5IMP	Command & Control, Communications, Computers, Combat Systems Installation Master Plan
C5ISR	Command & Control, Communications, Computers, Combat Systems, Surveillance, Reconnaissance
CAR	Completion Alteration Report / Corrective Action Request
CCB	Configuration Control Board
CDM	Configuration Data Manager
CDMD-OA	Configuration Data Manager Database-Open Architecture
CM	Configuration Management
CMAV	Continuous Maintenance Availability
CNO	Chief of Naval Operations
CO	Commanding Officer
COC	Certificate of Conformance
COH	Complex Overhaul
COMFLTFORCOM	Commander, U.S. Fleet Forces Command
COMNAVSEASYSCOM	Commander Naval Sea Systems Command
COMPACFLT	Commander U.S. Pacific Fleet
CONOPS	Concept of Operations
COP	COSAL Overhaul Planning
CP	Computer Program
CPA	Carrier Planning Activity

CPM	Centrally Provided Material
CSSQT	Combat System Ship Qualification Trial
CU	Component Unit
CUI	Component Unit Identifier
DC	Design Change
DFS	Departure From Specification
DIRSSP	Director, Strategic Systems Programs
DMP	Depot Modernization Period
DPIA	Docking Planned Incremental Availability
DPMA	Docking Phased Maintenance Availability
DSA	Design Service Allocation
DSRA	Docking Selected Restricted Availability
DSS	Deep Submergence System
DSS-SOC	Deep Submergence System - Scope of Certification
DT/OT	Development Test/Operational Test
EA	Equipment Alteration
EC	Engineering Change
ECP	Engineering Change Proposal
EDSRA	Extended Dry-Docking Selected Restricted Availability
EMC	Electromagnetic Compatibility
EMI	Electromagnetic Interference
EMP	Electromagnetic Pulse
EOA	End of Availability
EOH	Engineered Overhaul
EOI	End Of Installation
EPA	Environmental Protection Agency
EPDA	Extended Post Delivery Availability
ERP	Enterprise Resource Planning
ESD	Electrostatic Discharge
ESOH	Environmental, Safety, and Occupational Health
ESRA	Extended Selected Restricted Availability
FBW	Fly-By-Wire
FBW SCS	Fly-By-Wire Ship Control System
FC	Field Change
FCB	Field Change Bulletin
FMA	Fleet Maintenance Activity
FOA	Follow-on Availability
FOCP	Fiber Optic Cable Plant
G	Government

GBL	Government Bill of Lading
GPETE	General Purpose Electronic Test Equipment
HAZMAT	Hazardous/Toxic Material
HCPM	Headquarters Centrally Procured Material
HM	Hazardous Material
HM&E	Hull, Mechanical and Electrical
HMP	Hull Modernization Plan
HSC	Headquarters Systems Command, Hardware Systems Command
HW	Hazardous Waste
HVAC	Heating, Ventilating, and Air Conditioning
IA	Installation Activity / Industrial Activity
ICP	Inventory Control Point
IDEA	Integrated Design and Engineering Activity
ILS	Integrated Logistics Support
IMA	Intermediate Maintenance Activity
IMF	Intermediate Maintenance Facility
INCO	Installation and Checkout
IPDA	Industrial Post Delivery Availability
IR	Installation Report
ISC	Installation Status Code
ISEA	In-Service Engineering Agent
ISRA	Incremental Selected Restricted Availability
ISIC	Immediate Superior In Command
JCN	Job Control Number
JFMM	Joint Fleet Maintenance Manual
LACR	Legacy Alteration Change Request
LAN	Local Area Network
LAR	Liaison Action Record
LAR	Liaison Action Request
LCM	Life Cycle Manager
LMA	Lead Maintenance Activity
LOA	Letter of Authorization
LSI	Local Standard Item
MACHALT	Machinery Alteration
MAM	Maintenance Assistance Module
MFR	Memorandum For Record
MILR	Modernization in Lieu of Repair
MOA	Memorandum of Agreement

MOI	Method of Installation
MPMP	Maintenance Program Master Plan
MPP	Modernization Project Plan
MRA	Modernization Readiness Assessment
MSC	Maintenance Support Center
MSDS	Material Safety Data Sheet
MSR	Master Ship Repair
MSRA	Master Ship Repair Agreement
MTA	Modernization Through Attrition
MTP	Master Test Plan
MW	Modernization Window
NAVAIR	Naval Air Systems Command
NAVCERT	Navigation Certification
NAVSEA	Naval Sea Systems Command
NAVSUP	Naval Supply
NDE	Navy Data Environment
NDE-NM	Navy Data Environment-Navy Modernization
NDT	Non-Destructive Testing
NMP	Navy Modernization Process
NMPT	Navy Modernization Process Team
NMP-MOM	Navy Modernization Process-Management and Operations Manual
NPC	Non-Permanent Change
NPES	Non-Propulsion Electronic System
NSA	Naval Supervising Authority/Activity
NSLC	Naval Sea Logistics Center
NSN	Navy Stock Number
NSSA	Norfolk Ship Support Authority/Activity
NSTS	NAVSEA Technical Specification
NSY	Naval Shipyard
NTIRA	Navy Tool for Interoperability Risk Assessment
NTSP	Navy Training Summary Plan
OPCON	Operational Control
OQE	Objective Quality Evidence
ORDALT	Ordnance Alteration
ORM	Operational Risk Management
OSHA	Occupational Safety and Health Administration
OSIC	On- Site Installation Coordinator
OSR	On -Site Representative
OWLD	Obligating Work Limiting Date
PARM	Participating Acquisition Resource Manager

PC	Permanent Change
PCB	Poly Chlorinated Biphenyl
PCD	Production Completion Date
PCMS	Passive Countermeasure System
PDT&T	Post Delivery Test and Trials
PEO	Program Executive Office, Officer
PIA	Planned Incremental Availability
PICO	Pre-Installation Check Out
PM	Program Manager
PMA	Phased Maintenance Availability
PMAPT	PEO SUBS Modernization Advance Planning Team
PMR	Program Manager Representative
POA&M	Plan of Actions and Milestones
PMS	Planned Maintenance System
PPE	Personal Protective Equipment
PPL	Provisioning Parts List
PRAV	Pierside Restricted Availability
PSA	Post Shakedown Availability
PSAWP	Post Shakedown Availability Work Package
PY	Planning Yard
QA	Quality Assurance
QMS	Quality Management System
QRA	Quick Reaction Alteration
RADHAZ	Radiation Hazard
RAV	Restricted Availability
RCS	Radar Cross Section
RCS	Resource Constraint Schedule
RCOH	Refueling Complex Overhaul
RF	Radio Frequency
RFI	Radio Frequency Interference
RMAIS	Regional Maintenance Automated Information System
RMC	Regional Maintenance Center
RMMCO	Regional Maintenance and Modernization Coordination Office
ROH	Refueling Overhaul
SAR	Ship Alteration Record
SAS	Submarine Acquisition and Support
SC	Ship Change
SCD	Ship Change Document
SCLSIS	Ship Configuration and Logistic Support Information System
SCN	Shipbuilding and Conversion, Navy

SCO	Service Craft Overhaul
SCS	Ship Control System
SECDEF	Secretary of Defense
SECNAV	Secretary of the Navy
SESEF	Shipboard Electronics Systems Evaluation Facility
SFI	Strike Force Interoperability
SHAPM	Ship Acquisition Program Manager
SHIPALT	Ship Alteration
SI	Standard Item
SID	SHIPALT/Ship Change Installation Drawing
SIGSEC	Signal Security (electromagnetic/ RF)
SMART	Submarine Modernization and Alteration Requirements Tool
SME	Subject Matter Expert
SOA	Start of Availability
SOC	Scope of Certification
SOM	Supervisor of Shipbuilding, Conversion and Repair Operations Manual
SOVT	System Operational Verification Testing
SOW	Statement of Work
SPALT	Strategic Systems Program Alteration
SPAWAR	Space and Naval Warfare Systems Command
SPM	Ship Program Manager
SRA	Selected Restricted Availability
SRD	Selected Record Drawing
SRF	Ship Repair Facility
SSBN	Ship, Submersible, Ballistic, Nuclear (submarine)
SSCR	Shipboard Systems Certification Requirements
SSGN	Submersible, Ship, Guided, Nuclear (nuclear powered cruise missile submarine)
SSR	Ship Selected Record
SSRD	Ship Selected Record Drawing
ST	Sustainment Type
SUBMEPP	Submarine Maintenance, Engineering, Planning, and Procurement
SUBSAFE	Submarine Safety
SUPPO	Supply Officer
SUPSHIP	Supervisor of Shipbuilding, Conversion and Repair
SW	Software
SWD	Software Delivery
SWFTS	Submarine Warfare Federated Tactical System (US Navy)
SYSCOM	System Command
T&E	Test and Evalution
T&I	Test and Inspection
TAMS	TYCOM Alteration Management System
TAV	Technical Availability

TCD	Target Configuration Date
TDC	TYCOM Discretionary Change
TDP	Technical Data Package
TEMPALT	Temporary Alteration
TGI	Task Group Instruction
TM	Technical Manual
TEMPEST	Telecommunications and Electrical Machinery Protected from Emanations Security (electric compatibility)
TOA	Type Commander Opportunity Availability
TP	Test Plan / Training Plan
TRF	Trident Refit Facility
TS	Technical Specification
TUM	Tag-out User's Manual
TWD	Technical Work Document
TYCOM	Type Commander
TYCOMALT	Type Commander Alteration
UIPI	Uniform Industrial Process Instruction
UNNPI	Unclassified Naval Nuclear Propulsion Information
USFFC	United States Fleet Forces Command
VR	Voyage Repair
WAF	Work Authorization Form
WBS	Work Breakdown Structure
WG	Working Group
WOO	Windo of Opportunity
WPER	Work Package Execution Review
WPI	Work Package Integration
WPIC	Work Package Integration Conference
WSF	Weapons System File
XO	Executive Officer

APPENDIX G

DEFINITIONS

1. **Accomplishing Activity.** A required field for proper scheduling of alterations/SCs in NDE-NM. The Accomplishing Activity should reflect either the responsible headquarters command or the actual Installing Activity (IA). NDE-NM has activities broken into types. The list of Accomplishing Activity Types is:

- ISEA
- SHIP
- SHIPYARD
- SUPSHIP

The ISEA type is the preferred list of activities and includes government and contractor activities. Any activity missing from the list can be added with a request to the NDE Helpdesk.

2. **Advanced Industrial Management – Network Technology (AIM-NT).** A corporately developed software application specifically tailored to performing AIM planning and execution processes on a large-scale shipyard projects such as ship availabilities. AIM-NT is provided to the Shipyard for use on local Citrix ("legacy") servers featuring Microsoft® Network Technologies. The principal Technical Work Document (TWD) products generated by this software are the Long Form Task Group Instruction (TGI) and the Short Form TGI.**Alteration.** Any change in the hull, machinery, equipment, fittings, computer program and/or interface to external equipment, regardless of whether it involves a change in design, materials, number, location or relationship of an assemblies component parts whether it is undertaken separately from, incidental to or in conjunction with repairs.

3. **Alteration Approval, Technical.** A certification that all requirements necessary for successful alteration installation, operation and support have been met. Requirements include such items as SAR, SIDs, installation funding, removal and system restoration funding (TEMPALTs only), etc. The SPM is the technical approval authority for all Title K, K-P, D and F alterations, Surface Ship NPCs and equipment alterations that may affect ship's power, weight or air conditioning requirements and all Alteration and Improvement (A&I) items. All other types of equipment alterations normally require approval of the PARM.

4. **Alteration Authorization (Legacy FMP).** Authorization that is required prior to the accomplishment of any alteration. Chief of Naval Operations (CNO) authorization is required before military improvement type K-Alts may be installed. The Ship Program Manager (SPM) approves and either the CFFC or TYCOM may authorize or program Title D or F Ship Alteration (SHIPALTs), equipment alterations and A&I items. Alteration Equivalent to Repair (AERs) require that the designated system command, Program Executive Office (PEO) or SPM who exercises technical authority over the affected article approve them for accomplishment. All Command, Control, Communications, Computer, Intelligence and Combat System alterations (C5I) and alterations impacting interoperability must be authorized in accordance with the D-30 process, by the CFFC, before they can be installed, regardless of the type of alteration.

Note: The D30 process only applies to availabilities for those submarines in a Battle Group. All other submarine availabilities are exempt from this D30 process.

5. **Alteration/SC Completion Report.** A mandatory report certifying an alteration's/SC's accomplishment. The cover-page, report distribution requirements and report enclosures are

contained in Appendix B to this specification. This report provides detailed information for use in process improvement design, AIT performance measurement, alteration/SC deficiency tracking, etc.

6. **Alteration Equivalent to a Repair (Legacy FMP).**

a. An AER is a technical alteration, which has one or more of the following attributes:

(1) The use of different material, which has been approved for like or similar use, and such materials are available from standard stock.

(2) The replacement of obsolete, worn-out or damaged parts, assemblies, or equipment, requiring renewal by a more efficient design previously approved by the System Command (SYSCOM), Program Executive Office (PEO) or Ship Program Manager (SPM); providing such replacement does not cause a change to the existing system design and does not affect a change to the systems or equipment normally associated with the military characteristics of the ship. All requirements for ILS will be adhered to for AERs affecting ships configuration and or technical documentation.

(3) The strengthening of parts requires repair or replacement in order to improve the reliability of the parts and unit provided that no other change in design is involved.

(4) Minor modifications involving no significant changes in design or functioning of equipment but considered essential to prevent recurrence of unsatisfactory conditions.

(5) The replacement of parts, assemblies, or equipment with like items of later or more efficient design where it can be demonstrated that the cost of installation and maintenance of the new parts, assemblies or components is less than the cost of maintaining the installed parts, assemblies, or components; and such replacement does not cause a change to the existing system design or impact any external interfaces to the system and does not affect a change to the system or equipment normally associated with the military characteristics of the ship.

b. Only the SYSCOM, PEO or SPM exercising technical control over the article, or the authority to which such technical control has been delegated by that command, shall designate an alteration as a Alteration Equivalent to Repair (AER) and approve it for accomplishment.

c. An AER is approved for accomplishment by a Title "D" or "F" alteration, A&I, Alteration Request (AR) or Letter AER depending on the scope and effects of the change. Such AERs must be approved by NAVSEA and funded for accomplishment by the TYCOM.

7. **Alteration Installation Team (AIT).** A unit (military, government activity or contractor) under the direction of an AIT Manager or designated agent (ISEA, military or government civilian) of the AIT Manager that is trained and equipped to accomplish specific alterations/SCs on specified ships.

8. **Alteration Installation Team (AIT) Activity or AIT Manager.** The government activity, In Service Engineering Agent (ISEA), military person or government civilian tasked and funded by the AIT Sponsor to initiate, plan, coordinate, schedule, manage and oversee the successful accomplishment of the alteration/SC in accordance with legacy FMP/NMP policy and procedures. The AIT Manager will coordinate with the NSA to ensure satisfactory completion

of the Ship Alteration (SHIPALT)/SC installation during CNO availabilities. This coordination does not relieve the AIT manager of any of his/her responsibilities.

9. **Alteration Installation Team Lead.** Senior member of the AIT.

10. **Alteration Installation Team On-Site Installation Coordinator (OSIC).** The AIT OSIC is a government or military employee designated by and acting with the authority of, the AIT Manager. The AIT OSIC is responsible for the conduct of the entire alteration/SC installation and will be the point-of-contact with the ship, AIT Manager and the NSA. The AIT OSIC shall be knowledgeable of and responsible for AIT adherence to all invoked requirements including safety, quality plan, technical instructions and, when applicable, the SUPSHIP Operations Manual (SOM), Appendix 4-E or NSA/AIT Manager MOAs. AITs that do not have an assigned AIT OSIC (or documented approval from the SPM that an AIT OSIC is not required) shall not attempt to accomplish alterations/SCs to ships and will be denied access to ships.

11. **Alteration Installation Team (AIT) Sponsor.** The Systems Command Naval Air (NAVAIR), Naval Supply (NAVSUP), Naval Sea (NAVSEA) or Space and Naval Warfare (SPAWAR), Program Executive Officer (PEO), (including PARM or SPM, Commander Pacific Fleet (COMPACFLT), Commander Submarine Force (COMSUBFOR), TYCOM, Chief of Naval Operations (CNO) or other government activity that tasks and funds the AIT Manager/AIT.

12. **Alteration/Ship Change, Mature.** An alteration/SC that has a reasonable expectation of successful installation, operation, maintenance and interoperability and is fully supported logistically. A mature alteration has a JCF, SAR, SIDs and an approved Integrated Logistics Support (ILS) Certification.

13. **Alteration, Permanent**. Any logistically supported alteration, which is intended to remain on board the ship for more than 1 year or more than 1 operational deployment. These alterations are accomplished as Ship Alterations (SHIPALTs), AERs, TYCOM alterations and other System Commands (SYSCOMs) and TYCOM alterations (e.g. Field Changes [FCs], Engineering Changes [ECs]). For Surface Ships and Carriers, SCs by category of Program or Fleet applies.

14. **Alteration Scheduling**. The act of slating an alteration for installation on a given ship in a specific time-frame. Ship Program Manager (SPMs) schedule all alterations for installation during all Chief of Naval Operations (CNO) Availabilities via the SPM's Availability Advance Planning and Authorization Letters except for Title D and F alterations and AERs and Fleet SCs, which are scheduled by the TYCOM and except for ECs/FCs/SW which are scheduled by the PARMs.

15. **Alteration, Temporary (TEMPALT) (Legacy FMP).** Any alteration that provides given capabilities on a temporary basis (not to exceed one (1) year or one (1) operational deployment in duration). TEMPALTs support Research, Development, Test and Evaluation (RDT&E), exercise or mission requirements. TEMPALTs are reviewed, technically approved by the Ship Program Manager (SPM) and authorized and scheduled for accomplishment by the TYCOM. All TEMPALTs impacting Battle Force interoperability or that are Command, Control, Communications, Computer, Intelligence (C4I) or Combat System related, need to be approved by the CFFC in accordance with the D-30 process, before they can be installed. The Ship Program Manager (SPM) review considers logistic support, safety, technical adequacy, impact on ship stability, operational characteristics, damage control, ship structure, ship services, ship

interfaces and habitability. Integrated Logistics Support (ILS) (final or preliminary) needs to be identified on the TEMPALT authorization letter and provided at time of installation. Alterations which are intended to be installed for a period in excess of one year or for more than one operational deployment are permanent changes to a ship's configuration and shall be accomplished accordingly (see "Alteration, Permanent"). After completion of testing requirements, mission or exercise support requirements or one year, whichever comes first, TEMPALTs must be removed and the ship restored to its previous configuration. The activity sponsoring the accomplishment of the TEMPALT shall be responsible for funding the removal of the TEMPALT and the restoration of the ship.

16. **As-Built.** Drawings prepared or developed by an AIT, approved by the Planning Yard (PY), used for installation, and revised to indicate the actual, as installed, configuration on the ship.

17. **Battle Force Baseline Configuration Alterations/Ship Changes.** All Command, Control, Communications, Computer, Intelligence (C4I) and Combat System Alterations/SCs and alterations/SCs impacting Interoperability, that have been approved by the CFFC for a specific ship in a specific Battle Force, in accordance with the D-30 process. These alterations/SCs should be technically approved by the Ship Program Manager (SPM) and coordinated with the Naval Supervising Activities/Authorities (NSAs), in accordance with this document.

Note: The D30 process only applies to availabilities for those submarines in a Battle Group. All other submarine availabilities are exempt from this D30 process.

18. **Completion Report, Final.** A message report from the ship receiving the alteration/SC identifying that all discrepancies, noted in the Installation Completion Report, have been satisfactorily resolved. This message report is not required if the Installation Completion Report message also served as the Final Completion Report.

19. **Completion Report, Installation.** A mandatory message report from the ship receiving the alteration/SC identifies the successful accomplishment of the alteration/SC. This message will be drafted by the AIT and provided to the ship for concurrence prior to the AIT's final departure. The ship will ensure that all known discrepancies associated with the alteration/SC are fully documented, along with the activity responsible for resolution of each discrepancy and the estimated date of resolution. If no discrepancies exist, this report will also serve as the Final Completion Report.

20. **Cost Benefit Analysis (CBA) (NMP only).** CBA is a systematic quantitative method to compare the costs of implementing a specific project or course of action with the benefits to be gained from implementation. In the NMP process the CBA is used to compare the Investment Cost of an item to the potential savings or cost avoidance that that same item may provide. It is used in conjunction with the AFOM to provide the Decision Makers with criteria that will help them to decide the relative priority of one ship change with respect to all other ship changes being evaluated.

21. **CU Phase.** A CU Phase is the fundamental or "core" unit of work for AIM processes. Each CU Phase is a distinct job that is usually only one of a group of jobs needed to accomplish the work goal(s) set forth in a job summary. Each CU Phase is further broken down into one or more shop tasks needed to accomplish the job. All production work (and other service work) for a project is tracked, managed, and certified at the CU Phase level. The focus on attention for work is always a CU or (CU assembly), and the type of work done on the CU is a described by a

standard work phase. Thus, a unique identification for any job can be created by combining a Component Unit Identifier (CUI) with a standard work item.

22. **Emergent Change (NMP only).** Emergent Ship Changes are those items that require immediate installation (30 days or less) and/or reprioritization of tasking and reallocation of resources to support accelerated development and installation. The emergent change process is only applicable to the following Ship Change criteria:

- Proposed emergent change is funded in the year of execution or offset has been identified and already approved
- Modernization changes to resolve identified safety items
- Need for mission critical capability
- Need to correct critical software, firmware or other deficiencies that degrade designed capability

23. **Equipment Alteration.** Any modification, other than a ship alteration,to the configuration of an equipment or system (including embedded equipment, computer programs and expendable ordnance) after establishment of the product baseline. An Equipment Alteration involves a change in design, type of material, quantity, installed location, logistics, supportability or the relationship of the component parts of an assembly within the ship. Equipment Alterations include the addition, deletion, rework or replacement of parts, assemblies or equipment; or changes in assembly procedures. Alterations to associated computer programs include the incorporation of different computer program versions and approved modifications or corrections to both operational test and maintenance programs. Equipment Alterations are initiated by approved Class I Engineering Change Proposals (ECPs) or Ship Change Document (SCD). Equipment Alterations apply equally to changes installed in delivered systems and equipment, and changes installed in systems and equipment in production to identify differences from an established product baseline. Equipment Alterations may be initiated to correct a design defect, to change equipment operational capability, to eliminate safety hazards, to update obsolete components to change an external interface, or for any combination of these reasons. There are 6 types of Equipment Alterations:

a. Machinery Alteration (MACHALT). A planned change, modification or alteration of any in-service Hull, Mechanical and Electrical (HM&E) equipment when it has been determined by the MACHALT Configuration Control Board that the alteration or modification meets all of the following conditions:

   (1) Can be accomplished without changing an interface external to the equipment or system.

   (2) Are modifications made within the equipment boundary or are a direct replacement of the original equipment system.

   (3) Can be accomplished without the ship being in an industrial activity.

   (4) Will be accomplished individually and not conjunctive with an alteration or other MACHALT.

If power, weight or air conditioning requirements are modified, the modification must be discussed with the appropriate Ship Program Manager (SPM), who will decide whether to proceed with the modification as a MACHALT or a alteration.

b. Ordnance Alteration (ORDALT). An ORDALT is a change made to ordnance equipment or their associated computer programs by the addition, deletion, rework or replacement of parts, assemblies or equipment, or by a change in assembly procedures. Computer Program changes are any changes to maintenance or operational software.

c. Field Change (FC). A mechanical, electronic or electrical change, modification or alteration made to electronic equipment after delivery to the government or installation on-board ship. It includes software changes, which does not impact interfaces to other equipment within the ship, change the footprint, form or fit or change power, weight or air conditioning requirements. If power, weight or air conditioning requirements are modified, the modification must be discussed with the appropriate SPM, who will decide whether to proceed with the modification as a field change or alteration. Field Changes are initiated and approved by the Systems Command and are implemented by Field Change Bulletin (FCB). AIT or Ship's Force can accomplish FCs. For these specific types of alterations, the SPM shall be notified of the approved changes affecting their respective platforms. The SPM shall be periodically advised of installation status and shall be notified of any logistics upgrades, which have been completed as a result of the alteration.

d. Engineering Change (EC). A modification, usually to Under-Sea Warfare (USW) equipment or systems or other equipment groups as designated by the Systems Command, Program Manager (PM), Participating Acquisition Resource Manager (PARM) or Configuration Control Board (CCB).

e. Alteration & Improvement (A&I) Item. (Submarines only) Tests, inspections, and minor alterations to submarines and submarine tenders. No significant Integrated Logistics Support (ILS) impact or significant material is required. A&I items are approved by Naval Sea Systems Command (NAVSEA) and authorized by the TYCOM.

(1) Software Delivery (SWD) Alteration/Ship Change. Any Operational Computer Program change that is not an ORDALT or FC. These programs must satisfy all platform and system certification requirements before they can be installed, or must have interim authority to be used if they have not passed appropriate software certification criteria. Provisioning Parts List (PPL) certification is required if the software is to run on the IT-21 Local Area Network (LAN).

24. **Hardware Systems Commands (HSC).** Commander Naval Sea Systems Command (COMNAVSEASYSCOM) is the lead hardware systems commander for the life cycle management of ships. Commander Naval Air Systems Command (COMNAVAIRSYSCOM) and Commander Space and Naval Warfare Systems Command (COMSPAWARSYSCOM) are also hardware systems commands. They must coordinate with COMNAVSEASYSCOM in the development of technical requirements essential to performing quality maintenance. The HSC provides Naval Supply (NAVSUP) with sufficient, accurate, up-to-date technical information to ensure consistent procurement and control of material that fulfills all technical requirements.

25. **Hull Modernization Plan (HMP) (NMP only).** The HMP is the sole, time-phased planning document for hull-specific Modernization requirements; it is the authoritative input to the Maintenance and Modernization Business Plan (MMBP), SPM Letter(s) of Authorization and the TYCOM Quarterly Installation Scheduling Message(s) for each affected hull; it is available as a report from NDE-NM. The HMP is used to create the hull specific A-360 Critical Milestone LOA, and subsequent change letters at A-180 and A-120 as well as any follow-on change messages. It is also used to develop the TYCOM Quarterly Installation Scheduling Message for installations planned in other than CNO Availabilities. It is the single, authoritative document for final authorization status for all modernization actions aboard any surface ship or aircraft carrier.

26. **Industrial Activity (IA)**. An IA is an activity capable of performing all aspects of work on ships. These activities generally include Naval Bases, Naval Ship Repair Facilities (NSRFs), Fleet Maintenance Activities, Trident Refit Facilities (TRFs), public (Naval) shipyards, and private shipyards, which hold Agreements for Boat Repair (ABR) or Master Ship Repair Agreements (MSRAs) in accordance with the Naval Sea Systems Command (NAVSEA) Supervisor of Shipbuilding, Conversion and Repair (SUPSHIP), USN Operations Manual.

27. **Initiator (NMP only).** Any authorized user of NDE. Provides the initial data input in an SCD or Legacy Alteration Change Request (LACR).

28. **Integrated Logistics Support (ILS) Certification.**

The process by which the SPM validates and certifies that the proper logistics support is in place to support a specific alteration planned for installation. SPM ILS Certification is required as part of the Alteration Approval process, unless a risk impact assessment is approved allowing the installation to precede after the determination is made that not all ILS products will be available at the time of installation.

a. NMP. The ILS Certification process is specified in Section 6-2.2.2 of reference 2.2.3(14).

b. Legacy FMP. The ILS Certification process for legacy alterations (applicable to K, F and A&I alterations) is specified Section 8-1.3.2 and Section 8 Exhibit II of reference 2.2.3(15).

29. **Integrated Logistics Support (ILS) Products.** Configuration and logistics items that impact a ship as a result of the installation of an Alteration/Ship Change (SC). These items include, but are not limited to, an alteration's/SC's ILS Certification, APLs, TMs, OBRPs, MAMs, MIPs/MRCs, CDMD-OA work file, support and test equipment requirements, and training requirements.

30. **Maintenance Program Master Plan (MPMP).** The MPMP provides a general overview of the Program Executive Offices (PEOs) and/or Ship Program Manager's (SPM's) maintenance plan for the ship class. It specifies key elements such as depot-level availability intervals and duration, frequency of intermediate-level availabilities and any special maintenance, maintenance support or infrastructure requirements.

31. **Maintenance Support Center (MSC).** CVN Ship force work center in which ILS products get checked-in and tracked inside and outside CNO availabilities.

32. **Method of Install (MOI).** A required field for properly scheduling of alterations/SCs In NDE-NM.

The list of MOI is as follows:

- TBD-To Be Determined
- IND-Industrial
- AT-AIT Industrial
- AP-AIT Pierside
- MO-Mail Out

Proper use is as follows:

- TBD is the system default setting and needs to be changed to reflect the actual method of installation.
- IND is set by the system when an alteration/SC is programmed in the Program/Execution Module to be installed in a CNO availability by the shipyard or SUPSHIP.
- AT is to be used when an installation is being executed by an Alteration Installation Team (AIT) during a CNO availability
- AP is to be used when an installation is being executed by an AIT during a TYCOM controlled availability (WOO, CMAV etc.)
- MO is to be used when an activity is sending an alteration/SC via mail including electronic delivery methods. The associated accomplishing activity should reflect the sending activity or responsible headquarters command not the ship that is expected to do the installation.
- For those installations that are identified as IND it is recommended that the alteration/SC be programmed first and then scheduled so that the MOI stays as IND.

33. **Modernization Through Attrition/Modernization in Lieu of Repair (MTA/MILR).** (NMP only). Fleet SCs used to facilitate Modernization through Attrition (i.e. SCDs which need to be installed only on an "MTA/MILR" basis, but do involve a change in ship configuration). Approval of the SCD will be based on the technical merit, ROI, AFOM, and total cost of the SC. Installation will be determined by the TYCOM during the execution year.

34. **Naval Supervising Activity/Authority (NSA).** The single Naval Activity charged with the responsibility of oversight of work being accomplished on U.S. Naval ships during any type of availability. The NSA has overall responsibility for integrating the planning and execution of work on Naval Ships by all involved activities. Implementation of an integrated planning, schedule, work control, and ship certification process is essential to a project's success. Effective coordination and oversight must be provided to ensure that all work performed during any availability will allow the NSA to meet the overall project schedule, cost, and quality requirements. NSAs have the authority and responsibility to preclude and/or stop AITs from performing work when they are found to be in non-compliance with this or other invoked specifications.

35. **New Construction: The period of time from Sail-away to the Obligating Work Limiting Date (OWLD) for a Shipbuilding and Conversion, Navy (SCN) surface ship.**

36. **Non-Permanent Change (NPC) (NMP only).** A NPC is defined as a change that will be installed for Test & Evaluation (T&E) purposes and to demonstrate a new or improved capability for the fleet. A NPC may be installed on a specific hull per class, CSG, or ESG. The testing criteria is normally carried out during an at-sea exercise or during an acquisition program's technology demonstration for further development in pursuit of a Permanent Change fielding if the NPC reaches maturity. In some cases, for NPCs installed and demonstrated during a previous exercise, the systems/equipment may need to be installed and additional testing conducted during another exercise to meet the overall criteria for a new capability. Additionally, NPCs can be used to provide an interim capability to support operational and training requirements for Platform TYCOMs, NETWARCOM, Operational Commanders, ISICs, or CFFC when formal justification and approval is provided.

37. **Post Shakedown Availability (PSA). An availability assigned to newly built, activated, or converted ships upon completion of post-delivery shakedown. PSAs will be scheduled to complete no later than the end of the Shipbuilding and Conversion Navy (SCN) obligation work limiting date, which is the date upon which SCN funding and work authority terminates. Work performed shall normally include correction of defects noted during shakedown, correction of deficiencies remaining from the acceptance trials, and performance of class modifications remaining from the new construction activation or conversion period.**

38. **Quality Management System (QMS).** A documented set of rules and procedures, which will assure that all provided supplies and services conform to a prescribed level of quality. For alterations/SCs accomplished on ships, the minimum prescribed level of quality shall be that specified in MSRAs and Agreements for Boat Repair (ABRs) as outlined in Naval Sea Systems Command (NAVSEA) Standard Item 009-04, and Appendix C of this TS.

39. **Quick Reaction Alteration (QRA) (Legacy FMP).** Alterations that are driven by an emergent requirement that requires rapid entry of high priority Secretary of Defense (SECDEF), Secretary of the Navy (SECNAV), Chief of Naval Operations (CNO), national interest items or vital technical changes into Quick Reaction Alterations necessitate rapid Ship Alteration (SHIPALT) development and close coordination between Operations Navy (OPNAV) Resource Sponsors and the Hardware System Command (HSCs).

40. **Red Lines or Red Lined Installation Drawings.** Planning Yard (PY) approved SIDs that have been revised manually (preferably in red ink) by the AIT to reflect all approved deviations and variances of the completed installation.

41. **Regional Maintenance and Modernization Coordination Office (RMMCO).** A Regional Maintenance Center-aligned; Fleet-chartered organization that serves as the primary point of entry for all waterfront related SC and maintenance activities. The RMMCO will serve as the office for AIT check-in and check-out, where applicable. The RMMCO's AIT Check-In/Check-Out application located at https://rmmco.navy.mil provides the AIT OSIC/AIT Lead with a means to initiate the check-in procedures required for the installation of a alteration/SC aboard ship. It also provides a means to measure performance of these installations.

42. **Scheduled/Non-Scheduled Chief of Naval Operations (CNO) Availabilities.** CNO Scheduled availability is a depot level maintenance window that is scheduled by CNO in accordance with the Maintenance Program Master Plan (MPMP) for the ship.

a. CNO Scheduled Maintenance Availabilities greater than 6 months in duration are:

(1) Overhaul. Availability scheduled for accomplishment of industrial maintenance and modernization. Types of Availabilities include:

- Regular Overhaul
- Complex Overhaul (COH)
- Engineered Overhaul (EOH)
- Refueling Overhaul (ROH)
- Refueling Complex Overhaul (RCOH)
- Engineered Refueling Overhaul (ERO)

(2) Other Availabilities. Availability scheduled primarily for industrial maintenance and installation of major, high priority alterations/SCs. Types of these include:

- Depot Modernization Period (DMP)
- Planned Incremental Availability (PIA)
- Docking Planned Incremental Availability (DPIA)

b. CNO Scheduled Maintenance Availabilities less than six months in duration are short, labor-intensive availabilities scheduled for accomplishment of industrial maintenance and modernization. Types of these availabilities include:

- Selected Restricted Availability (SRA)
- Docking SRA (DSRA)
- Phased Maintenance Availability (PMA)
- Docking Phased Maintenance Availability (DPMA)
- Service Craft Overhaul (SCO)
- Extended SRA (ESRA)
- Extended Dry-Docking SRA (EDSRA)
- Incremental SRA (ISRA)
- Extended Refit Period

c. Non-CNO Scheduled Availability. Availability that is not scheduled by CNO. The CFFC/TYCOMs assign and schedule Restricted Availabilities (RAVs), Technical Availabilities (TAVs), TYCOM Opportunity Availability (TOA),Voyage Repair (VR) Availabilities, Continuous Maintenance Availabilities (CMAVs), unscheduled CMAVs, ‘Z’ availabilities and Emergent availabilities.

43. Ship Acquisition Program Manager (SHAPM). The Naval Activity charged with the programmatic responsibility, accountability, and authority for the configuration of new construction ships. Prior to a New Construction Ship's OWLD, the SHAPM (or SHAPM representative) assumes many of the roles and responsibilities fulfilled by other activities during CNO and Non-CNO Availabilities for Active Fleet Units. These responsibilities may include, but are not limited to:

a. Serve as RMMCO Gatekeeper/Production controller, or provide additional support to the FLTCDR RMMCO to help meet additional requirements unique to managing installations aboard SCN ships.

b. Act as the NSA during ship availabilities, within the limits discussed elsewhere in this document.

c. Act as the TYCOM or SPM to determine alterations/SC authorization for installation and promulgate authorization documentation (e.g., TYCOM Authorization message, SPM LOA).

d. Act as the SPM for all FMP/NMP funded C51SR installations and make recommendations to the FLTCDR. Participate in C5IMP and other NCMC related meetings as applicable. Manage C5ISR configuration status for SCN ships via the NDE-AMPS database.

44. **Ship Alteration (SHIPALT)**. Approved permanent change to the configuration of a ship, which is documented as a SAR or SCD, and implemented through the legacy FMP Process. SHIPALTs are classified by the following titles:

a. Title "D" SHIPALT. A Title "D" SHIPALT is an "alteration equivalent to a repair" that is formally approved by Naval Sea Systems Command (NAVSEA) in the form of a SAR. It may require Centrally Provided Material (CPM) and is programmed and funded by the TYCOM. It does not require Headquarters Centrally Provided Material (HCPM). A Title "D" SHIPALT may specify whether it should be accomplished only by a depot level maintenance facility, or if it is within the capabilities of ship's force or Intermediate Maintenance Activity (IMA) to accomplish. A Title "D" SHIPALT shall be issued for all non-Nuclear Alteration Equivalent to Repair (AERs) that require changes to the equipment or system Integrated Logistics Support (ILS).

b. Title "F" SHIPALT. A Title "F" SHIPALT is an "alteration equivalent to a repair" that is formally approved by NAVSEA in the form of a SAR. It does not require CPM and is programmed and funded by the TYCOM. Ship's force or an Intermediate Maintenance Activity (IMA) can accomplish a Title "F" SHIPALT. It is usually limited to the equipment removals or relocations or minor wiring, piping or ducting modifications.

c. Title "K" SHIPALT. A permanent alteration to provide a military characteristic, upgrade existing systems or provide additional capability not previously held by a ship, which affects configuration controlled areas or systems of a ship or which otherwise requires the installation of HCPM. These SHIPALTs are approved for development and authorized for accomplishment by the Chief of Naval Operations (CNO) (military improvements) or the Hardware System Command (HSCs) (non-military improvements). Commander Naval Sea Systems Command (COMNAVSEASYSCOM) provides the technical approval for Title "K" SHIPALTs.

d. Title "K-P" SHIPALT. A Title "K" SHIPALT that is within forces afloat or AIT capability for accomplishment and for which required special program and centrally provided materials are provided as a package by the HSC.

45. **Ship Change (SC)** A Ship Change (SC) **(NMP only)** is a modernization action documented by a Ship Change Document (SCD). There are only two types of Ship Changes (SCs) in the NMP: Program changes and Fleet changes.

- Program changes are programmed for installation by SYSCOMs or PEOs, as well as funded for accomplishment by the SYSCOMs, PEOs or other organizations as agreed upon.
- Fleet changes are programmed for installation by the Fleet (TYCOM), as well as funded for accomplishment by the Fleet or other organizations as agreed upon.

46. **Ship Program Manager (SPM).** The Naval Sea Systems Command (NAVSEA) organization responsible for management of ships' acquisition, overhauls, or repairs.

47. **Submitter (NMP only).** Submitter is responsible and accountable for the all phases of the SCD. They will be the primary point of contact for questions or clarification throughout the process. Subsequent approvals, disapprovals, and notification to complete the next phase of the SCD will be forwarded to this point of contact.

48. **Sustainment Change (NMP only).** Sustainment consists of all efforts required to correct or maintain a system's design capability, maintainability or reparability through internal equipment modifications that do not impact shipboard distributed systems. There are two types of sustainment:

- Sustainment Type 1 (ST 1). An internal equipment modification that is a configuration change that provides new functionality, but has no impact on ship distributed systems.
- Sustainment Type 2 (ST 2). An internal equipment modification that is a configuration change that provides no new functionality and has no impact on ship distributed systems. For example:
    - System repair action that resolves a reliability issue
    - Corrective maintenance (repair) that results in a requirement to back fit all systems

49. **Task.** A task in common usage is usually construed as a way of referring to a job; however, for AIM processes, a Task has a more carefully defined meaning. (For this reason it may be beneficial to refer to AIM Tasks with a capital "T".) An AIM Task is a portion of the work within one CU Phase that requires a specific trade skill. There are usually multiple Tasks (i.e., a Task Group) developed for a CU Phase. See also Work Breakdown Structure (WBS).

- It is interrupted by any other planned work.
- It is associated with a physical location, test boundary, zone, and a single system.
- It supports completion of a distinct phase of work.
- It has its own budget allocation.

50. **Trouble Report.** The trouble report is the vehicle for reporting significant problems to NAVSEA and other activities involved in work performed on Naval ships, carriers and submarines for use in training and improving the weaknesses identified as a result of the problems. NAVSEA Instruction 4700.17(Series) provides requirements for preparing and submitting trouble reports. The AIT Manager should use UIPI 0900-453, Critique and Problem Analysis Matrix Processes; Problem Identification and Investigation or equivalent process when preparing trouble reports.

51. **Type Commander Alterations (TYCOMALTs)/SCD Fleet Change.** TYCOMs are authorized to approve temporary changes to compartments of ships, other than nuclear support facilities or compartments adjacent to ship nuclear support facilities, through use of TYCOMALTs subject to the requirements laid out in COMUSFLTFORCOMINST 4790.3 (Series).

52. **Work Authorization Form (WAF).** A WAF is required to authorize the start of work on all ship systems and equipment by activities other than Ship's Force. Work includes all maintenance repairs or modifications and installation of existing and new systems or removal of temporary support systems and equipment. Additional information is contained in COMUSFLTFORCOMINST 4790.3.

TECHNICAL SPECIFICATION

TITLE: SHIP ALTERATION DRAWINGS PREPARATION

NO.: TS9090-600A

DATE: JUNE 2002

SUPERSEDES: TS9090-600, dated AUGUST 85

DISTRIBUTION STATEMENT A

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Published By

Commander, Naval Sea Systems Command

Naval Sea Systems Command

1333 Issac Hull Avenue S.E.

Washington, D.C. 20376

Ship Alteration Drawing Preparation

1. This specification is published to establish minimum requirements for preparation of Ship Alteration (SHIPALT) Drawings (SIDs). This specification should also be complied with, as practical, for other Alteration drawings.

2. Recommended corrections, additions, or deletions should be addressed to Commander, Puget Sound Naval Shipyard, 1400 Farragut Ave, Bremerton, WA 98314-5001, Attn: Code 270

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SHIP ALTERATION DRAWING PREPARATION

1. SCOPE

1.1. General.

This specification provides minimum requirements for the uniform preparation of non-nuclear Ship Alteration (SHIPALT) Drawings (hereafter referred to as drawings) used for the accomplishment of all non-nuclear SHIPALTs except as noted herein (see 1.3).

1.2. Applicability.

This specification is applicable to surface ship and submarine engineering drawings and associated lists and shall be utilized by all Hull Planning Yards/Design Agents (hereafter referred to as *Planning Yards)* for preparation of all working drawings prepared for accomplishment of SHIPALT work except as noted herein (see 1.3).

1.3. Exceptions.

This specification shall not be utilized for preparation of the following:

a. Drawings prepared for Nuclear Propulsion Plant SHIPALTs under the cognizance of the Deputy Commander for Nuclear Propulsion, NAVSEA 08.

b. Drawings prepared for installation of Special Project Alterations (SPALTs) issued by the Director, Special Strategic Project Office, NAVMAT PM-1.

c. Drawings concerning aircraft launch and recovery equipment that are under the cognizance of the Commander, Naval Air Systems Command.

d. Ship's Selected Record Drawings (SRDs).

2. APPLICABLE DOCUMENTS

2.1. General.

The following documents, of the issue in effect on the date of invitation for bids or request for proposals (for private Planning Yards) or on the date of the tasking documentation (for public Planning Yards), or as specified in the data of the tasking correspondence, form a part of this specification to the extent specified herein.

2.1.1. Specifications, standards, and handbooks.

The following specifications, standards, and handbooks of the exact revision listed below form a part of this document to the extent specified herein.

SPECIFICATIONS

Federal

L-P-519	Plastic Sheet, Tracing, Glazed and Matte Finish
CCC-C-531	Cloth, Tracing

Military

MIL-DTL-31000	Technical Data Packages, General Specifications for
MIL-PRF-5480	Data, Engineering and Technical, Reproduction Requirements for
MIL-D-23140	Drawings, Installation Control for Shipboard Electronics Equipment

NAVSEA

Technical Specification 9090-100	SHIPALT Technical Liaison Services, Waivers and Deviations
Technical Specification 9090-500	Ship Alteration Record Preparation

STANDARDS

Military

DOD-STD-2003-5	Electric Plant Installation Standard Methods for Surface Ships and Submarines (Connectors)
MIL-STD-22	Welded Joint Design
MIL-STD-25	Ship Structural Symbols for Use on Ship Drawings
DOD-STD-100	Engineering Drawing Practices
MIL-STD-129	Marking for Shipment and Storage
MIL-STD-196	Joint Electronics Type Designation System

HANDBOOKS

MIL-HDBK-505	Definitions of Item Levels, Item Exchangeability, Modules and Related Terms

2.1.2. Other Government documents, drawings, and publications.

The following other Government documents, drawings, and publications of the exact revision level shown form a part of this document to the extent specified herein.

PUBLICATIONS

DEPARTMENT OF DEFENSE

H4-1/H4-2 - Cataloging Handbook	CAGE Code for Manufacturers and Government, Name to Code and Code to Name

NAVAL SEA SYSTEMS COMMAND

0900-LP-001-7000	Fabrication and Inspection on Brazed Piping Systems
0902-018-2010	General Overhaul
	Specification for Deep Diving Submarine
0902-LP-041-2010	Standard Specifications for U.S. Navy Craft
0948-LP-045-7010	Material Control-Standard
S9040-AA-IDX-010/SWBS5D	Ship Work Breakdown Structure
S9074-AQ-GIB-010/278	Requirements for Fabrication Welding and Inspection, and Casting Inspection and Repair for Machinery, Piping, and Pressure Vessels
S9AA0-AA-SPN-010/GEN-SPEC	General Specifications for Ships of the United States Navy
	[Last revision 1995 for internal NAVSEA use only]
S9AA0-AB-GOS-010	General Specifications for Overhaul of Surface Ships (GSO) Including the Aegis Supplement
S0005-AE-PRO-010/EDM	NAVSEA Engineering Drawing Life-Cycle Management Process Manual
SL720-AA-MAN-010	Fleet Modernization Program Management and Operations Manual
SECNAVINST 5510.30	Department of the Navy Personnel Security Program
SECNAVINST 5510.36	Department of the Navy (DON), Information Security Program (ISP)
NAVSEAINST 9085.2	Engineering Drawing Acquisition and Life-Cycle Management Policy and Responsibilities
NAVSEA Drawing No.	Piping System Symbols and abbreviations 53711-803-5001049

2.2. Other Publications.

The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on the date of the invitation for bids or request for proposal (for private Planning Yards) or the date of the tasking documentation (for public Planning Yards) shall apply.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI/AWS A2.4	Symbols for Welding and Nondestructive Testing
ANSI / ASME Y14.1	Drawing Sheet Size and Format
ANSI / ASME Y14.2	Line Conventions and Lettering
ANSI / ASME Y14.3	Multi and Sectional View Drawings
ANSI / ASME Y14.5	Dimensioning and Tolerancing
ANSI Y14.15	Electrical and Electronic Diagrams
ANSI Y14.15a	Interconnection Diagrams
ANSI Y14.17	Fluid Power Diagrams
ANSI / ASME Y32.2	Graphic Symbols for Electrical and Electronics Diagrams
ANSI / ASME Y32.10	Graphic Symbols for Fluid Power Diagrams
ANSI Y32.16	Reference Designations for Electrical and Electronics Parts and Equipment
ANSI Y32.2.4	Redesignation of Graphic Symbols for Heating, Ventilating and Air Conditioning

(Application for copies should be addressed to the American National Standard Institute, 1430 Broadway, New York, New York 10018.)

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME Y14.38	Abbreviations and Acronyms
ASME Y14.100	Engineering Drawing Practices

3. REQUIREMENTS

3.1. Precedence.

In the event of conflict between the requirements of this specification and the documents referenced herein, the requirements of this specification shall apply except in the event of conflict between the requirement of this specification and the requirement of NAVSEA 0902-

018-2010, NAVSEA 0902-LP-041-2010, NAVSEA S9AAO-AB-GOS-010, or NAVSEA S9AAO-AA-SPN-010/GEN-SPEC. In these cases, the requirements of those documents shall apply.

3.2. General.

3.2.1. SHIPALT Drawings.

SHIPALT drawings are those drawings which are utilized by a shipyard or other activity (including Ship's Force) for the accomplishment of all non-nuclear SHIPALT work. These drawings also provide a record of ship configuration after SHIPALT accomplishment, are used by Ship's Force in maintenance and casualty control, are used by material support activities in determining support requirements, and are used by NAVSEA to maintain system and compartment configuration control. These drawings include, as required, system drawings and diagrams, arrangement drawings, structural drawings, manufacturing drawings, assembly and detail drawings, removal drawings, temporary access/egress drawings, cabling sheets and special drawings and shall meet the following general criteria:

a. Drawings shall be prepared to meet the requirements of this specification.

b. Drawings shall be as complete as practicable; i.e., drawings should not rely on references to other drawings or other sources of technical data to provide information which would be more easily utilized by the installing activity if presented on the drawing. When reference to other data sources (technical manuals, specifications, standards, drawings, etc.) is required, the drawings shall not reference restrictive data (3.2.4) that would not be available at all installing activities.

c. Unless otherwise approved by NAVSEA, drawings shall contain complete ordering information for all required parts, material and equipment. Any Standards referenced for manufacturing must be readily available.

d. SHIPALT engineering design shall be applied to drawings either as revisions to existing drawings (see 3.4.16 (a)) or by creation of new drawings. New drawings can be in the form of modification drawings (see 3.4.16 (b)), superseding drawings (see 3.4.16 (c)), or stand-alone drawings (drawings which do not change or supersede information shown on other drawings, usually providing a new design or capability to the ship). If SHIPALT design is applied to an existing drawing, the revisions which applies to the design shall clearly indicate the changes caused by the SHIPALT without loss of essential information which describes ships which have not completed the SHIPALT or are not applicable to the SHIPALT. If the application of SHIPALT design data by revision will cause confusion or changes more than 25% of the data on an existing drawing, a new drawing shall be prepared either modifying or superseding the existing drawing.

3.2.2. Non-Expanded Planning Yard SHIPALT Drawings.

Planning Yards not designated as Expanded Planning Yards by NAVSEA SL720-AA-MAN-010 shall prepare SHIPALT drawings to support accomplishment of individual SHIPALTs. There are two types of SHIPALT drawings to support this effort, Basic Alteration Class Drawings (BACDs) and Supplemental Alteration Drawings (SADs).

a. Basic Alteration Class Drawings (BACDs). BACDs are the first complete set of drawings developed for accomplishment of a SHIPALT that requires drawings. The drawings for accomplishment of an individual SHIPALT shall form a complete drawing package or set and shall be prepared based on conditions found during a shipcheck of the first ship scheduled to receive the SHIPALT. The drawings shall be generally applicable to the other ships of the class. If the shipchecks of follow ships reveal significant differences (less than 75% of a drawing is applicable) on a follow ship or series of follow ships, the Planning Yard may prepare a new drawing for that ship or series of ships. The cognizant NAVSEA Ship Logistic Manager (SLM) or Ship Acquisition Project Manager (SPM) must authorize preparing of the new drawing(s). If the differences found on follow ships are not significant (more than 75% of the BACD is applicable), Supplemental Alteration Drawings (SADs) may be prepared to adapt the design of the BACD to the specific ship or series of ships or the BACD may be revised to indicate the differences.

b. Supplemental Alteration Drawings (SADs). SADs are drawings that adapt the design details developed on BACDs to provide applicability to follow ships of class. SADs do not modify the requirements or scope of a SHIPALT and shall only be prepared to the extent necessary to tailor the BACD design to a specific hull or series of hulls. (Departure from the technical requirements indicated on the parent BACD or changes which affect component selection, material specifications, stress levels, stress distribution (especially on structural and piping drawings), system integration and/or functional configuration, system operational and/or maintenance characteristics, structural integrity, or compartment/topside arrangements shall require cognizant NAVSEA Engineering Directorate approval and cognizant SLM or SPM authorization. They will normally be prepared as modification drawings (see 3.4.16 (b)) and the level of detail shall be equal to that of the BACD being modified. The area(s) of the BACD being modified shall be clearly identified. In cases where a shipcheck reveals significant differences (less than 75% of a BACD is applicable) on a ship, a new drawing shall be prepared for that ship. The new drawing shall have all of the BACD design details, including the engineering data (see 3.5.10.7), adapted for that ship that the BACD has for the other ships of the class.

3.2.3. Expanded Planning Yard SHIPALT Drawings.

Expanded Planning Yards (as designated by NAVSEA SL720-AA-MAN-010) shall prepare complete drawing packages, SHIPALT Installation Drawings (SIDs), to support all non-nuclear SHIPALT work scheduled to be accomplished on specific ships during specific availabilities. The drawings, as a package shall provide complete design data for all non-nuclear SHIPALTs scheduled for specific availabilities. The drawing package may include modification drawings, superseding drawings, stand-alone drawings and revised existing drawings which provide design data for individual SHIPALTs, and may also include integrated design drawings. Integrated design drawings represent work required by two or more SHIPALTs, usually to be accomplished in the same space or area of the ship and would be scheduled to be accomplished at the same time. These drawings may include rip-out drawings (see 3.5.10), temporary access/egress drawings, and arrangement drawings (see 3.5.9) and are generally applicable to only one ship. (Integrated design drawings shall not be prepared unless it is clearly advantageous to do so and the drawings shall clearly indicate the extent of work for each SHIPALT included on the drawing.)

3.2.4. Restrictive Data.

Unless otherwise specified by NAVSEA, individual drawings in a drawing package shall not include the following:

a. SHIPALT drawings shall invoke only Government or other universally accepted procedures, standards or specifications such as those specified in NAVSEA 0902-018-2010 or NAVSEA S9AA0-AB-GOS-010. Planning Yard or other local procedures, standards or specifications may be invoked in conjunction with the applicable government specifications (such as in parenthesis following the government specification) only when all requirements of the government specification are invoked in the local specification. (Until such time as NAVSEA Standard and Type Drawings can be updated, the use of Planning Yard Standard Drawings shall be permitted as references on SHIPALT drawings, if they are listed as required references in the applicable Planning Yard-prepared Ship's Availability Drawing Schedule.)

b. Original builder's specifications, contract drawings, and contract guidance drawings. These are not available at most activities and shall not be referenced directly on SHIPALT drawings.

c. Reference to any specific availability or overhaul.

d. Reference to the shipyard assignment for any ship.

e. Reference to any miscellaneous information or Notes relating to operations or procedures peculiar to a specific shipyard or activity unless it is clearly delineated that the information pertains only to a specific activity. For example, following the miscellaneous information or Notes with ‘(for PSNS only)’.

f. Material specifications based on the material's availability in the Planning Yard's shipyard stock. To the maximum extent possible, material shall be selected on the basis of its suitability and of its general availability, according to the best information held by the Planning Yard, to all installing activities.

g. Specification of proprietary material, unless the Planning Yard determines that there is no generic equivalent. If proprietary material is required, complete ordering information shall be provided on the drawing.

h. References to proprietary vendor drawings unless required for ordering information (see 3.2.4 (g)).

i. Material part numbers or stock numbers which are peculiar to a given activity's stock system unless handled in a manner similar to e. above.

3.2.5. Computer Aided Design (CAD).

In nearly all instances, SIDs will be developed using a CAD application. This provides significant benefits in efficiency and accuracy, as well as reusability. When CAD files are generated they must follow a consistent set of CAD Standards with regards to layers, line weights, line fonts, and standard library parts inserted. Specific CAD Standards are not mandated as long as the CAD drawings are developed in a consistent manner. (The Planning

Yards at PSNS, NNSY and NGNN have published a CAD Standard which is available for other activities to use.) The electronic drawing files must be backed-up and archived in accordance with NAVSEA requirements.

3.3. Responsibilities.

3.3.1. Planning Yard.

The Planning Yard for each ship class, as designated by NAVSEA SL720-AA-MAN-010, is the engineering design agent for assigned specific classes of ships. Responsibilities assigned to the Planning Yard (both Expanded and Non-Expanded) in support of SHIPALT drawings include the following:

a. Developing basic SHIPALT engineering design

b. Developing detail design drawings for accomplishment of SHIPALTs as described in 3.2.2 and 3.2.3.

c. Performing shipchecks, as required, to accomplish the following:

   1. Determine lead ship design (performed prior to or after actual drawing preparation, but must be conducted on applicable ships prior to issuance of the drawing) to support specific availabilities.

   2. Determine drawing adequacy and applicability to follow ships of a class (performed prior to or after actual drawing preparation, but must be conducted on applicable ships prior to issuance of the drawing) to support specific availabilities.

   3. Conduct proofing (Validation) of SHIPALT drawings (performed as part of proofing of SHIPALT design for SHIPALT records (SARs) which require proofing after SHIPALT accomplishment on the first ship to receive the SHIPALT).

   4. Verify the design and applicability of high risk or complex SHIPALT drawings. This is to be limited to those alterations that are high risk and where the Planning Yard has reason to believe that the drawings or the design presented on the drawings may be inadequate. The NAVSEA SLM/SPM is to be notified in advance of the shipcheck. This shipcheck may also be conducted by the installing activity/SUPSHIP when approved by the Planning Yard.

d. Approve drawings.

e. Providing resolution to problems with SHIPALT drawings encountered by overhaul yards via the liaison action record (LAR) procedure in accordance with NAVSEA Technical Specification 9090-100.

f. Maintaining a central drawing file of all Master File Drawings, including CAD files, applicable to the ships for which the Planning Yard is responsible.

g. Developing SHIPALT man-day and material cost estimates as part of BACD or SID preparation. A SHIPALT cost Estimate Record Sheet, Figure S4-4 of Section 4.6.3.3 of NAVSEA SL720-AA-MAN-010, shall be appropriately completed by the Planning Yard

and submitted to the cognizant SLM or SPM within 30 days of completion of BACDs or SIDs.

h. Maintain configuration control.

3.3.2. NAVSEA Engineering Directorate.

NAVSEA Engineering Directorate (NAVSEA 05) is the activities responsible for the SHIPALT technical products. This includes:

a. SHIPALT review and approval requirements will be established by the NAVSEA Engineering Directorate Office responsible for each SHIPALT, on a case basis or the requirements of NAVSEA 0902-018-2010 or NAVSEA S9AA0-AB-GOS-010 shall be specified. Requirements will be specified in the SHIPALT Record (SAR) (see NAVSEA Technical Specification 9090-500).

b. Conducting in-process reviews during the development of the technical products of major SHIPALTs. In-process reviews will be conducted when either the Engineering Directorate or the cognizant SLM/SPM determine such a review is required for a particular SHIPALT. Review requirements will be specified in the SAR.

c. Performing technical review and approval of major changes, waivers and deviations to SHIPALT documentation in accordance with procedures for controlling engineering changes to SHIPALTs, NAVSEA Technical Specification 9090-100.

3.4. Drawing Preparation Requirements.

Drawings and associated lists shall be prepared as engineering drawings in accordance with the general drafting practices outlined in DOD-STD-100, as defined herein, and as modified by NAVSEA 0902-018-2010 or NAVSEA S9AA0-AB-GOS-010, as specified in the contract or tasking documentation.

3.4.1. General.

3.4.1.1. Quality.

Within the requirements of DOD-STD-100, MIL-DTL-31000, and the direction contained herein. Planning Yards shall provide drawings for SHIPALT accomplishment, as tasked, which are timely, accurate, and as suitable for direct use as a stand-alone drawing package by installing activities as possible. Installing activities are to use these drawings with a minimum of departure to promote standardization and reduce ship differences in a given class.

3.4.1.2. Quantity.

When the SHIPALT design affects the configuration of other systems, compartments, or spaces adjacent to the system or area directly affected by the SHIPALT, sufficient drawings shall be prepared to reflect the rearrangement and reconfiguration of such systems, compartments or spaces. (For submarines only - For SHIPALTs included on approved Baseline Arrangement Drawings, arrangement drawings shall reflect the approved baseline or the Planning Yard shall request departures in accordance with NAVSEA 0902-018-2010. For SHIPALTs not included on baseline drawings, NAVSEA approval of arrangements drawings shall be as specified in the SAR.)

3.4.2. Drawing Sheet Sizes and Format.

3.4.2.1. Drawing Sheet Sizes.

Drawing sheet sizes shall be size "A", "B", "C", "D", or "F" as indicated in ANSI/ASME Y14.1. For specific drawings, such as some system diagrams which must be shown as one continuous drawing and will thereby exceed the length of a single size "F" sheet, "H" roll size sheets shall be utilized as described herein.

a. Size "A" sheets shall be used where information is primarily text or is limited to notes and small sketches. Except for tabular type drawings (e.g. cable running sheets or engineering calculations), size "A" drawings will be generally limited to ten data sheets or less. All size "A" drawings exceeding ten sheets shall also include an index sheet.

b. Size "B", "C" and "D" sheets shall be used for intermediate size drawings where the data is not appropriate for size "A" sheets and has insufficient information to justify size "F" sheets.

c. Size "F" drawings shall be used for most large drawings. Drawings which must be prepared as a single continuous drawing (not multiple sheets) such as some system drawings and deck drawings of large ships and will therefore exceed the length of size "F" sheets, shall be prepared as size "H" drawings.

d. Size "H" drawings shall only be used for drawings which must display information on one continuous sheet which would exceed the length of a single size "F' sheet or would be confusing if prepared as a multiple sheet drawing. This would include complex piping and wiring system diagrams, arrangements of flight and hanger decks, arrangements of antennas and deck machinery, power and lighting wiring deck plans for large ships, etc. Size "H" drawings shall be prepared as single, continuous, multi-frame drawings with no single frame exceeding 44 inches in length. The final frame shall be 11,23, 33 or 44 inches in length. There shall be no second sheets for "H" size drawings: the title block shall always indicate the sheet number as "SHEET 1 OF 1".

3.4.2.2. Drawing Sheet Formats.

Figures 1 through 9 provide the basic drawing sheet formats to be used for non-nuclear NAVSEA drawings. In preparation of these formats, especially as reproducible format masters, the following guidance shall be utilized:

a. Margins. The margin sizes shall be selected to permit reproduction of drawings on sheets that conform to this specification or international paper sizes.

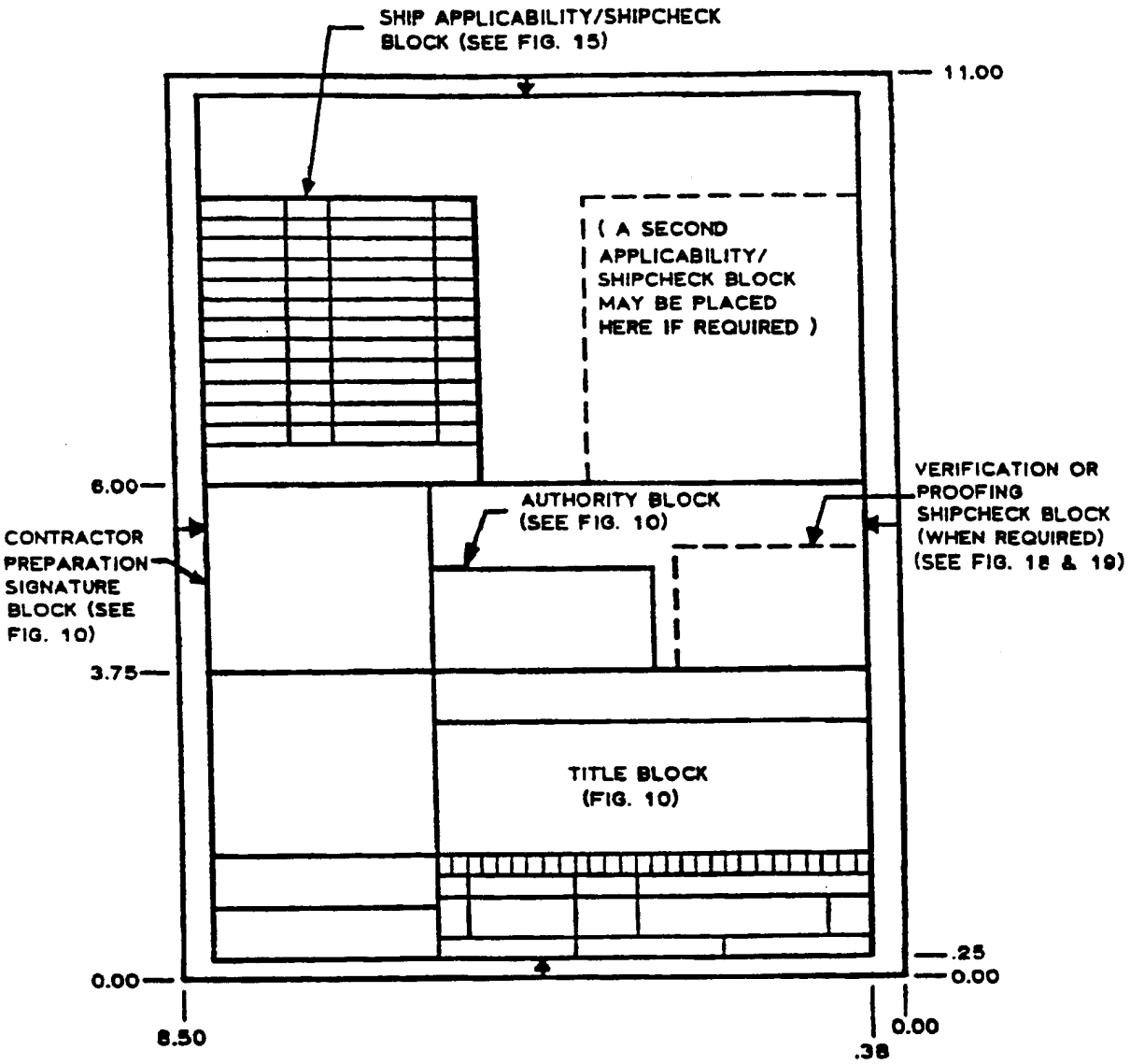
b. Zoning. Except for size "A" and "B" formats, all NAVSEA drawings shall include zones for reference purposes. Where used, zones are indicated by alphabetical and numerical entries in the format margins as indicated in figures 6, 7, 8 and 9. Horizontal zones on continuation sheets shall be lined in but not numbered as part of the format. (The numbering of zones on continuation sheets is provided as part of drawing preparation.)

c. Format Lettering. The size and style of lettering printed on drawing formats shall be in accordance with ANSI/ASME Y14.2.

d. Format Lines. Width of lines in format features shall conform to the following:

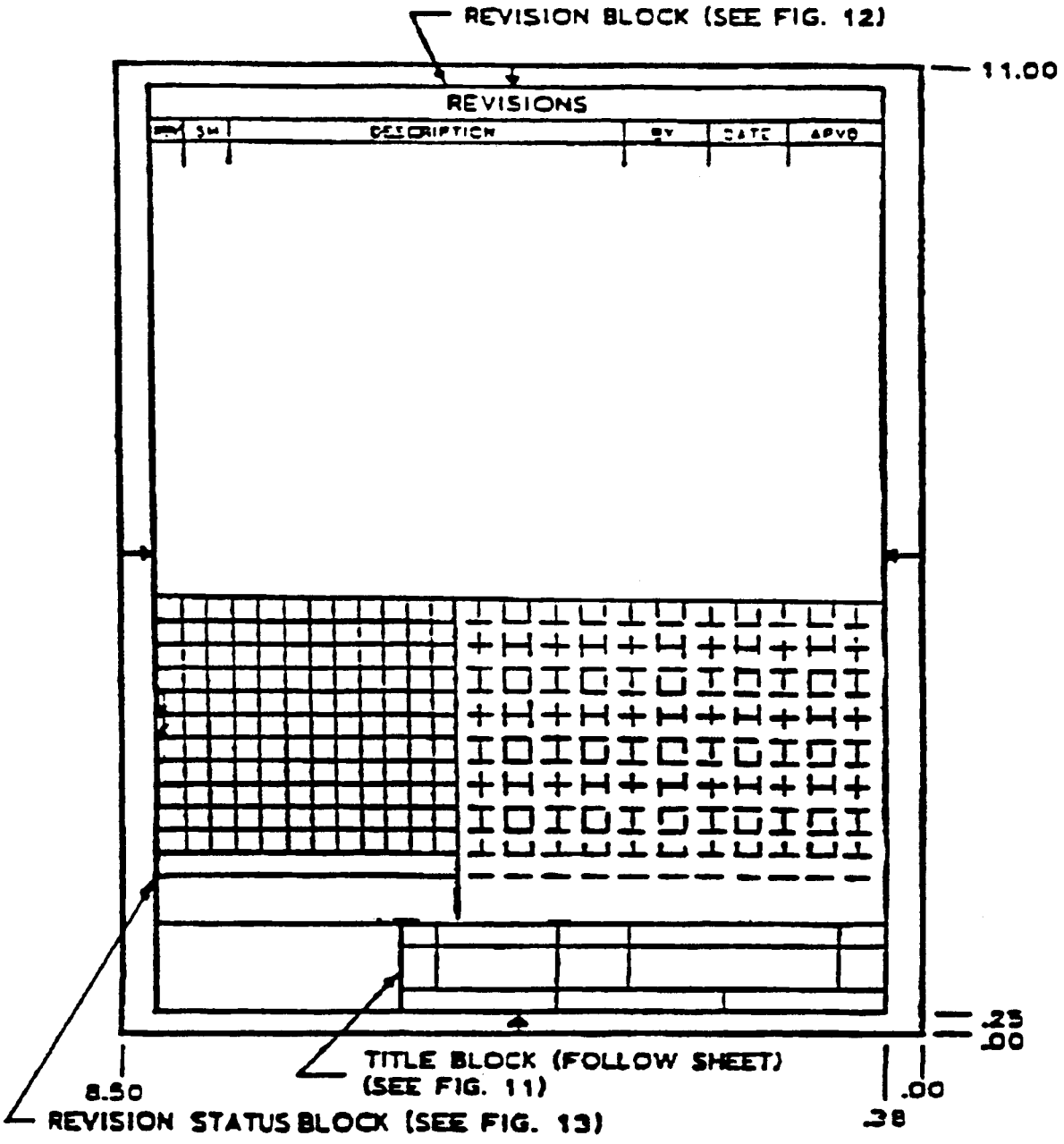
1. Thick (approximately 0.030 in.) lines shall be utilized for borderlines, outlines of principal blocks and main division blocks.

2. Thin (approximately 0.015 in.) lines shall be utilized for divisions of parts, material and equipment lists and revision and reference blocks, minor subdivisions of title blocks and supplementary blocks, and zone markers.



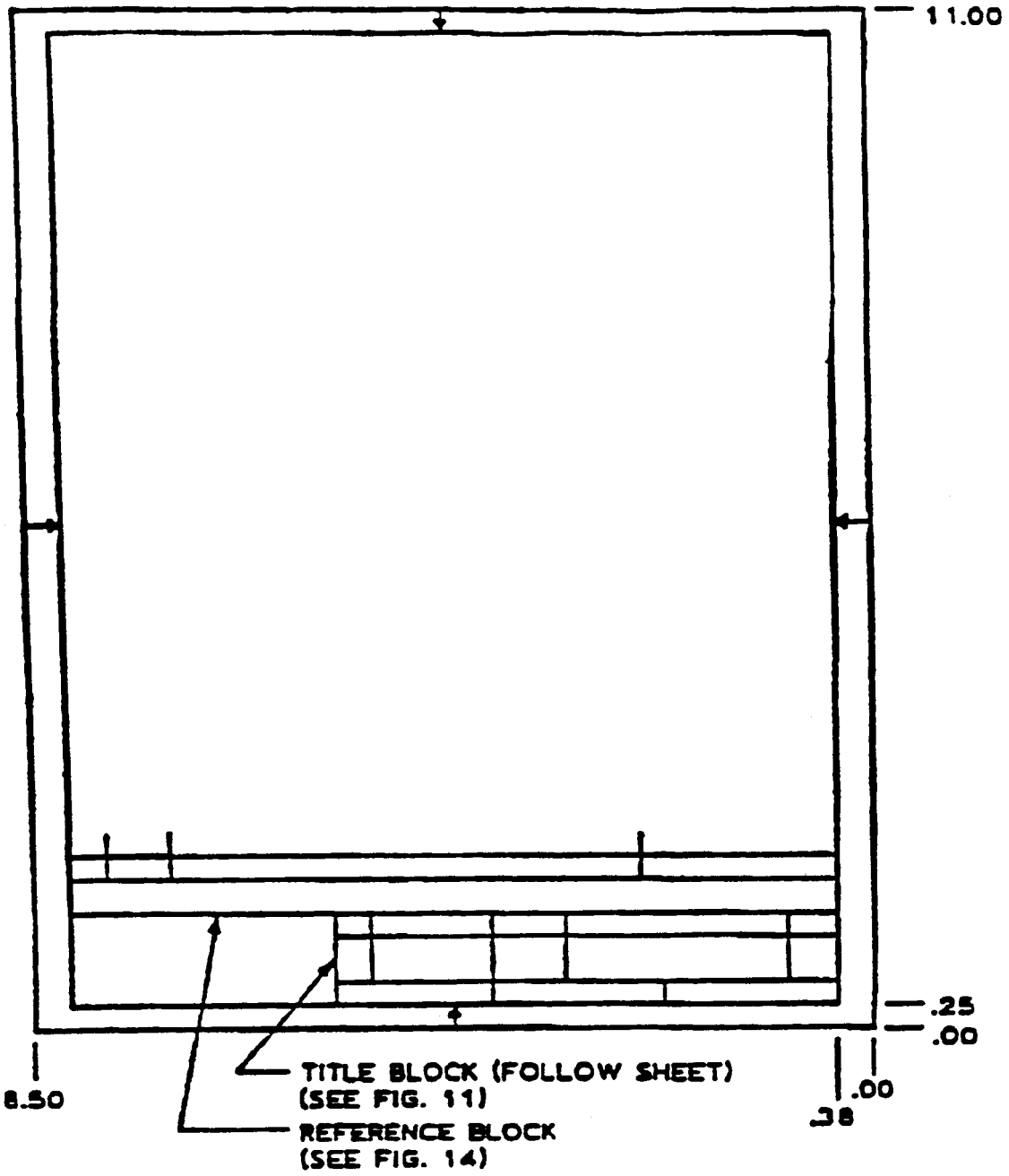
TITLE (FRONT) SHEET
SIZE "A" FORMAT

Figure 1



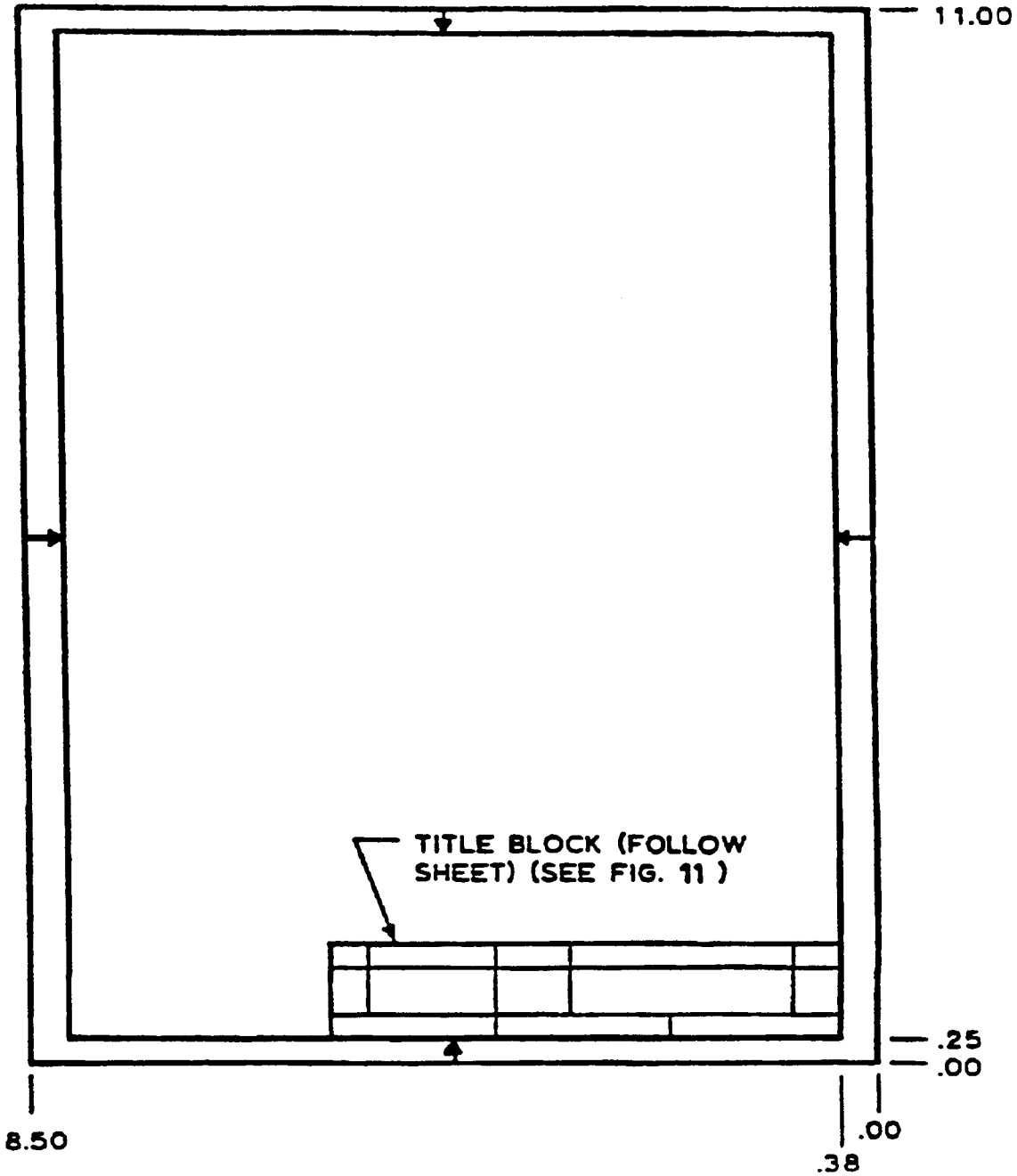
REVISION DESCRIPION SHEET
SIZE "A" FORMAT

Figure 2



REFERENCE AND REVISION STATUS
SIZE "A" SHEET FORMAT

Figure 3



INFORMATION SHEET
SIZE "A" FORMAT

Figure 4

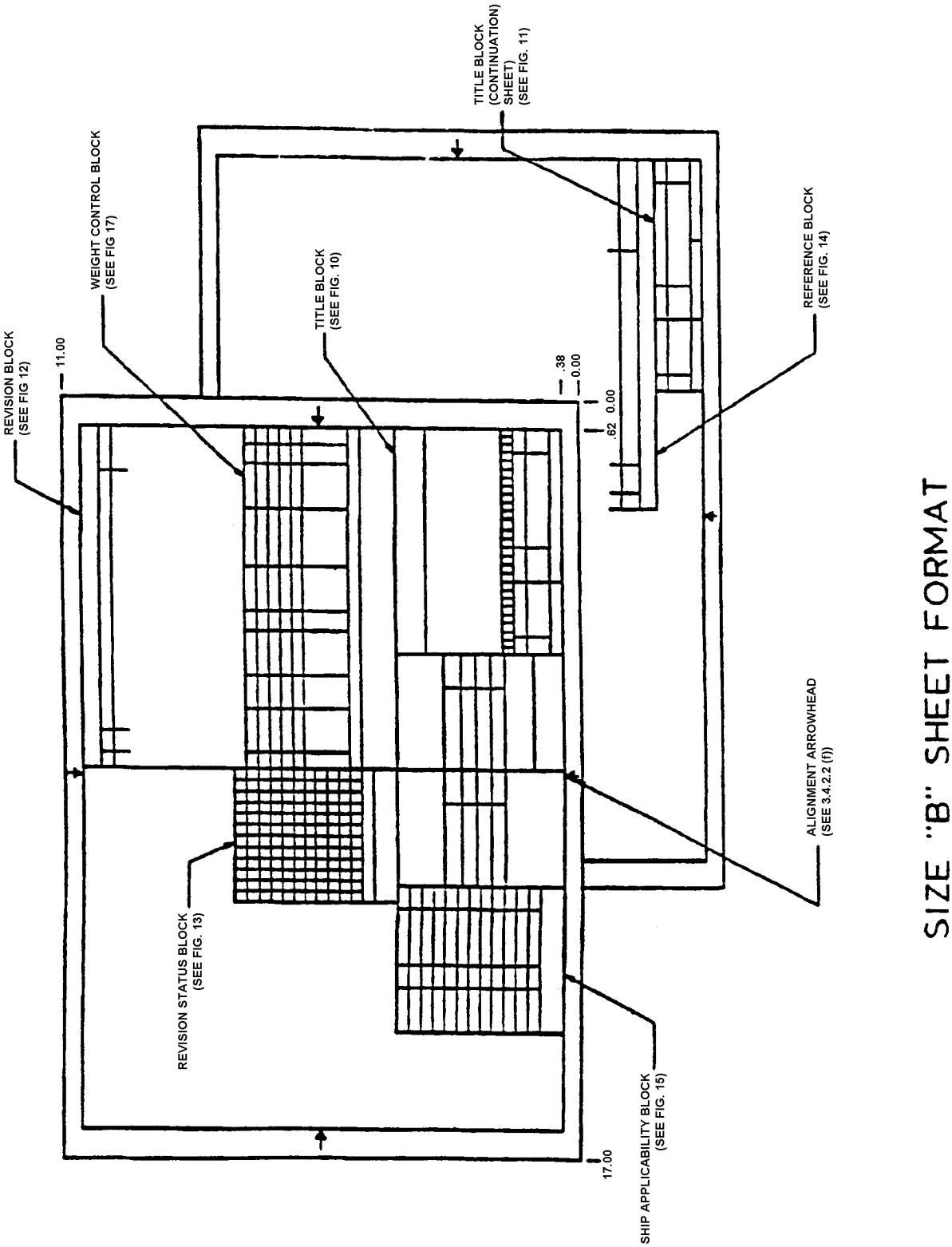

REVISION BLOCK
(SEE FIG 12)
11.00
WEIGHT CONTROL BLOCK
(SEE FIG 17)
TITLE BLOCK
(SEE FIG. 10)
TITLE BLOCK
(CONTINUATION)
SHEET)
(SEE FIG. 11)
.38
0.00
.62 0.00
REFERENCE BLOCK
(SEE FIG. 14)
ALIGNMENT ARROWHEAD
(SEE 3.4.2.2 (f))
REVISION STATUS BLOCK
(SEE FIG. 13)
SHIP APPLICABILITY BLOCK
(SEE FIG. 15)
17.00
SIZE "B" SHEET FORMAT

Figure 5

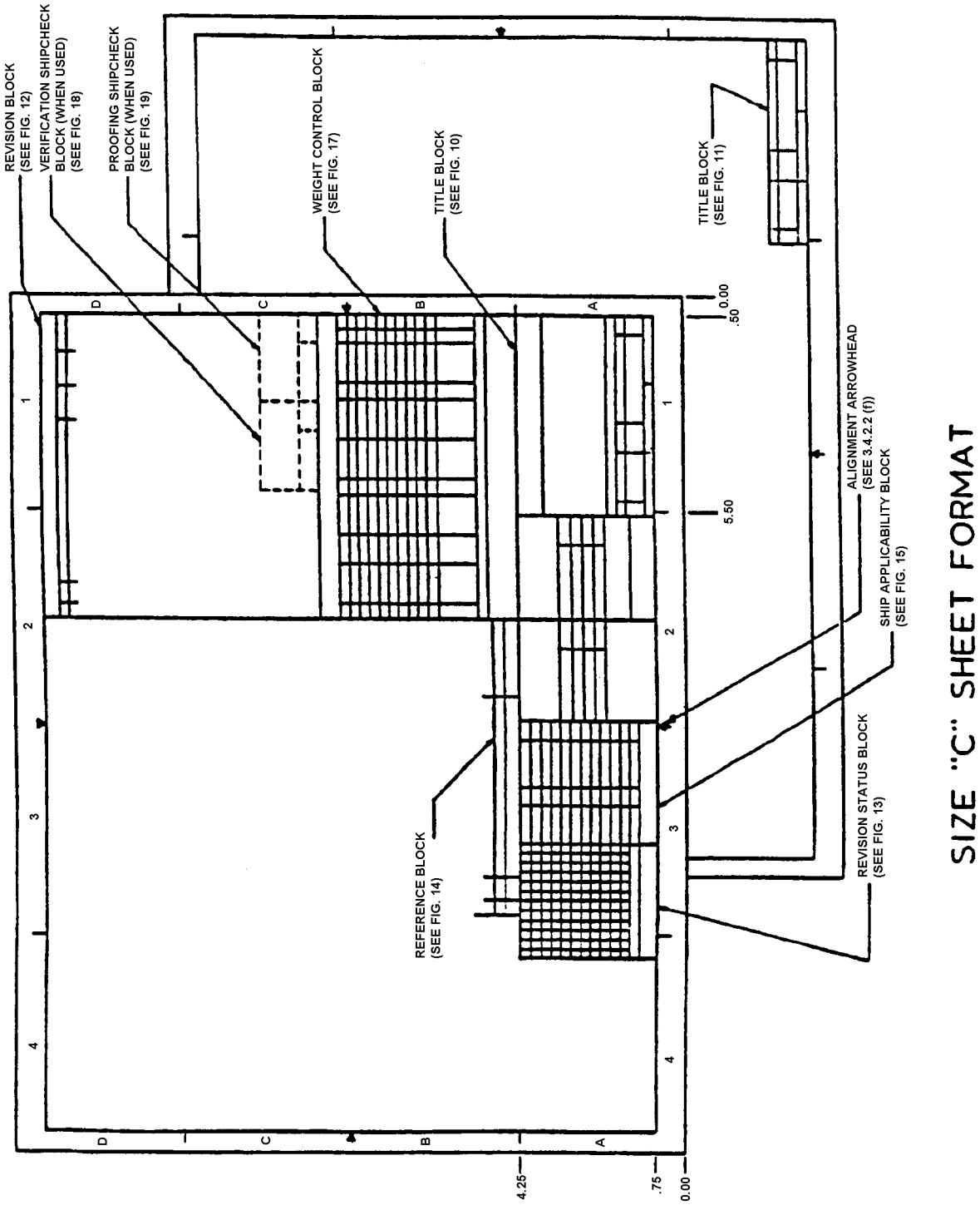

REVISION BLOCK
(SEE FIG. 12)
VERIFICATION SHIPCHECK
BLOCK (WHEN USED)
(SEE FIG. 18)
PROOFING SHIPCHECK
BLOCK (WHEN USED)
(SEE FIG. 19)
WEIGHT CONTROL BLOCK
(SEE FIG. 17)
TITLE BLOCK
(SEE FIG. 10)
TITLE BLOCK
(SEE FIG. 11)
ALIGNMENT ARROWHEAD
(SEE 3.4.2.2 (f))
SHIP APPLICABILITY BLOCK
(SEE FIG. 15)
REVISION STATUS BLOCK
(SEE FIG. 13)
REFERENCE BLOCK
(SEE FIG. 14)
SIZE "C" SHEET FORMAT
0.00
.50
5.50
4.25
.75
0.00
A
B
C
D
1
2
3
4

Figure 6

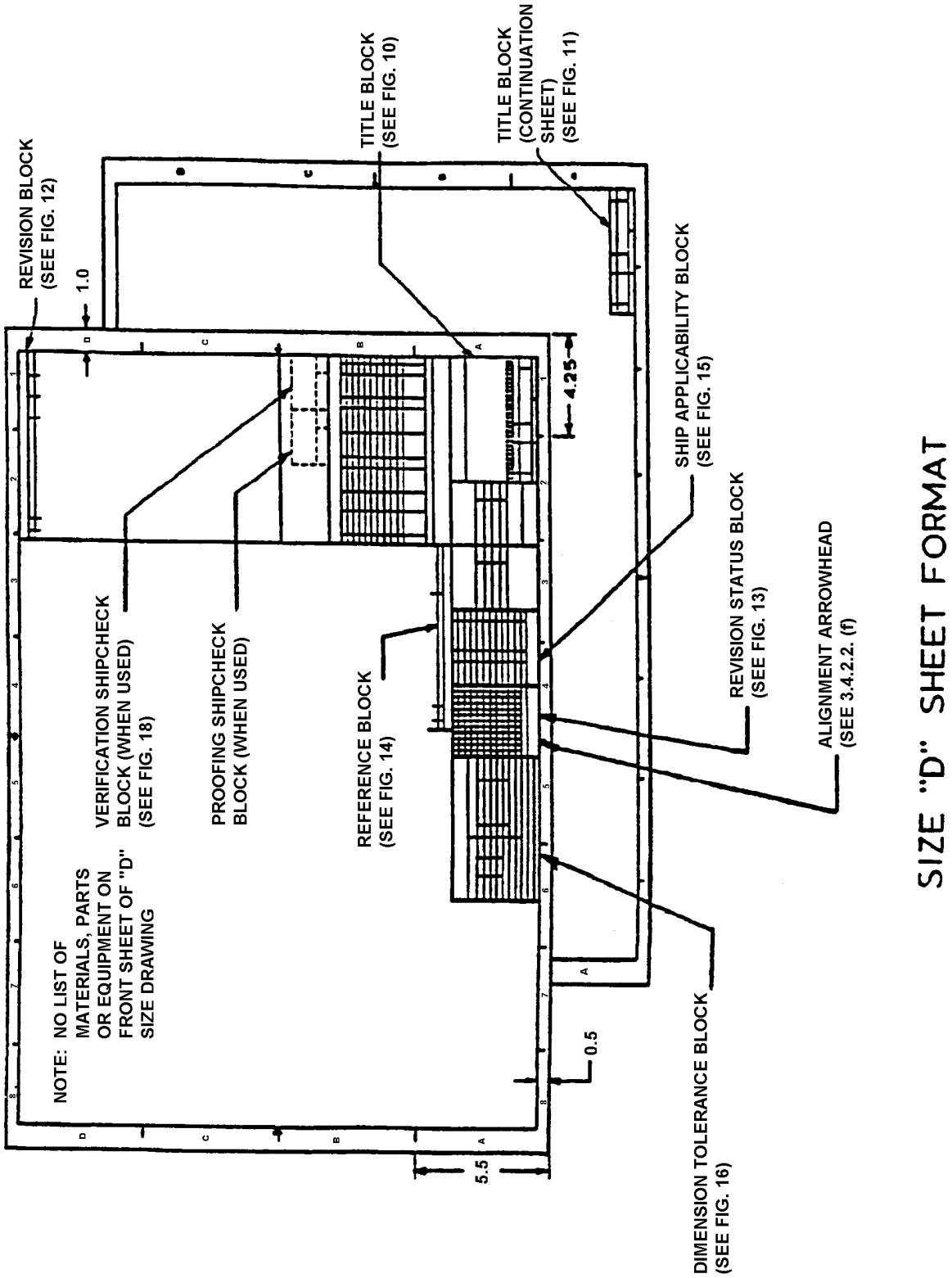

REVISION BLOCK
(SEE FIG. 12)
1.0
TITLE BLOCK
(SEE FIG. 10)
TITLE BLOCK
(CONTINUATION
SHEET)
(SEE FIG. 11)
4.25
SHIP APPLICABILITY BLOCK
(SEE FIG. 15)
REVISION STATUS BLOCK
(SEE FIG. 13)
ALIGNMENT ARROWHEAD
(SEE 3.4.2.2. (f)
VERIFICATION SHIPCHECK
BLOCK (WHEN USED)
(SEE FIG. 18)
PROOFING SHIPCHECK
BLOCK (WHEN USED)
REFERENCE BLOCK
(SEE FIG. 14)
NOTE: NO LIST OF
MATERIALS, PARTS
OR EQUIPMENT ON
FRONT SHEET OF "D"
SIZE DRAWING
0.5
5.5
DIMENSION TOLERANCE BLOCK
(SEE FIG. 16)
SIZE "D" SHEET FORMAT

Figure 7

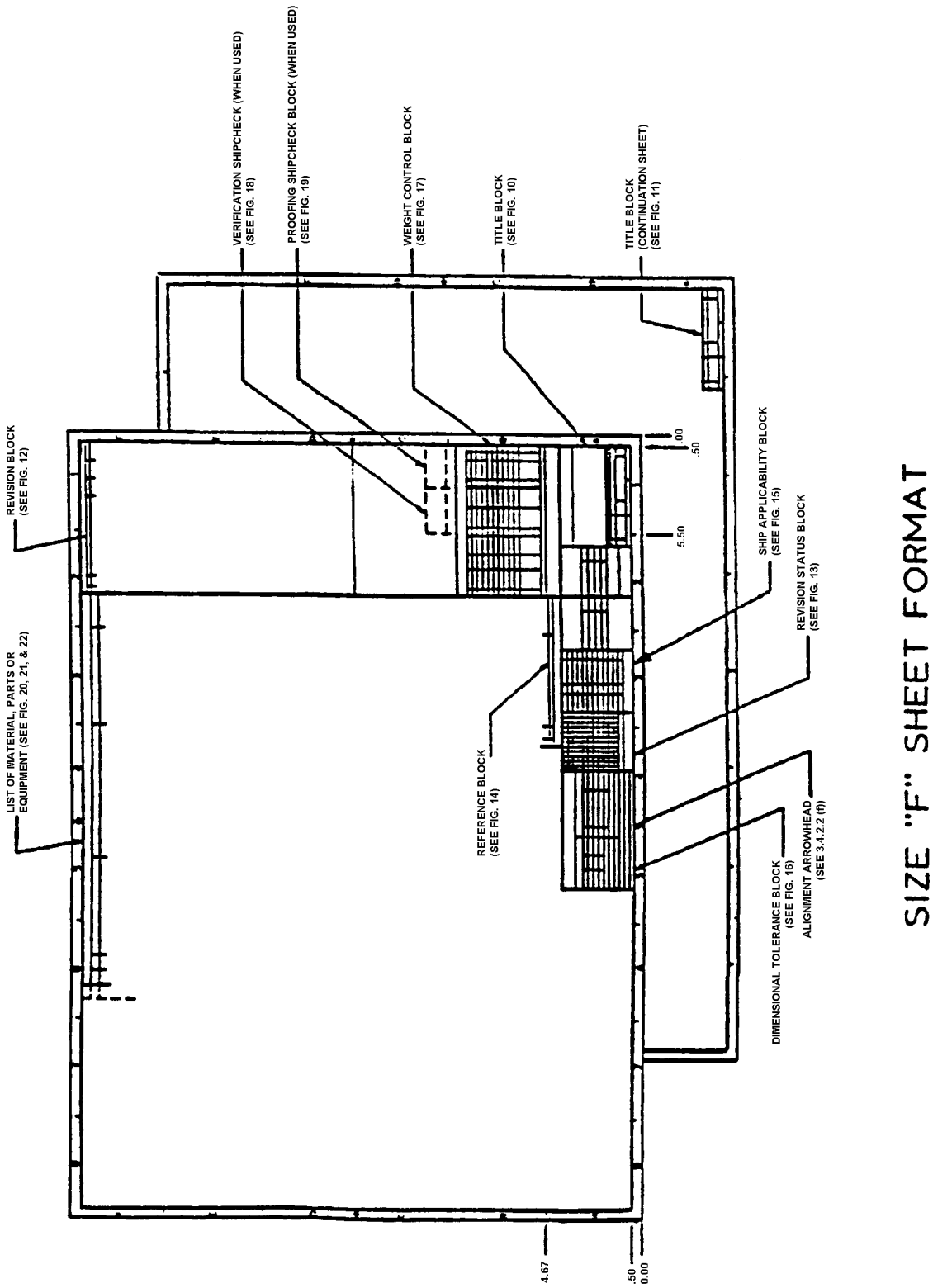
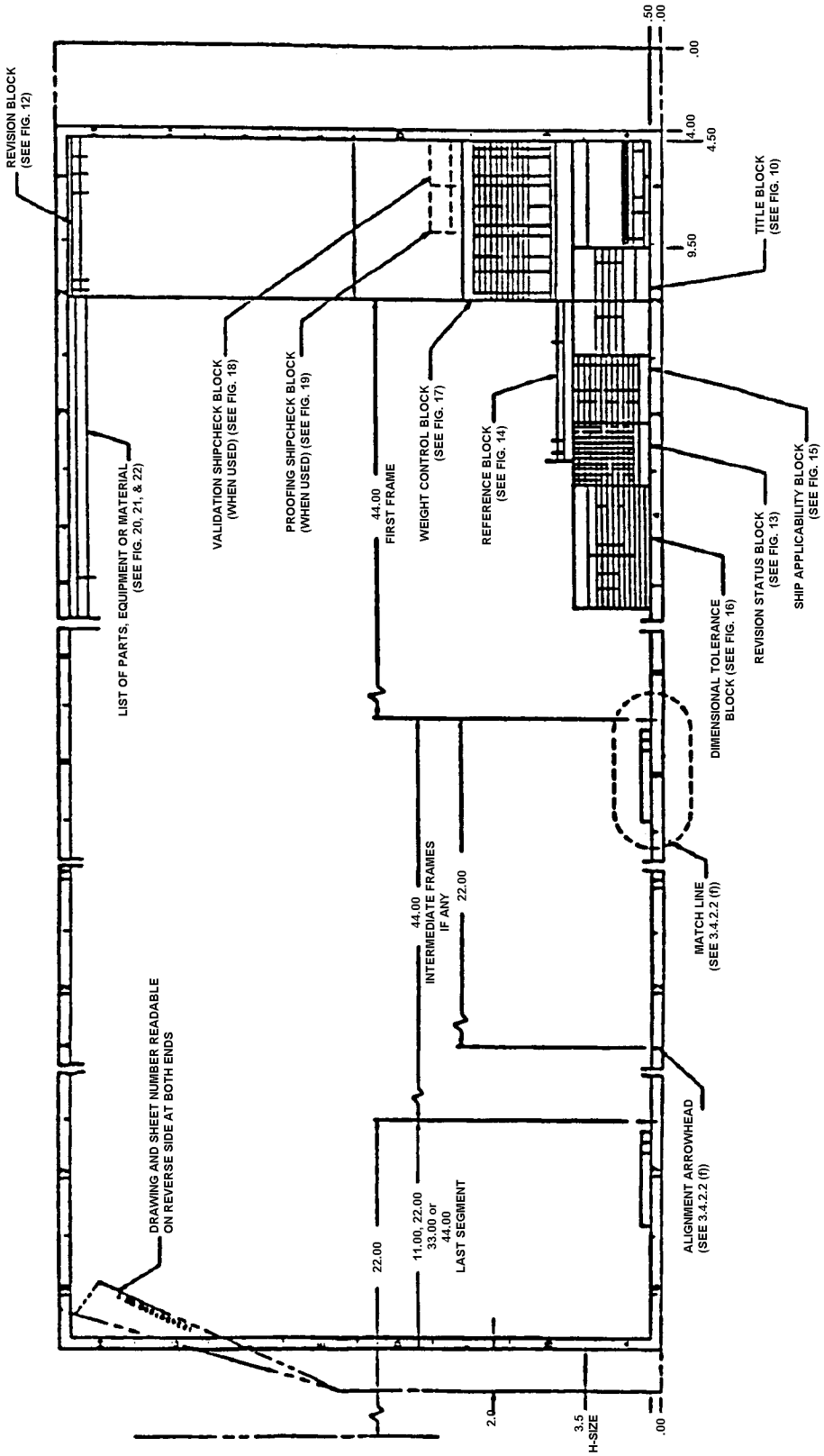

VERIFICATION SHIPCHECK (WHEN USED) (SEE FIG. 18)
PROOFING SHIPCHECK BLOCK (WHEN USED) (SEE FIG. 19)
WEIGHT CONTROL BLOCK (SEE FIG. 17)
TITLE BLOCK (SEE FIG. 10)
TITLE BLOCK (CONTINUATION SHEET) (SEE FIG. 11)
REVISION BLOCK (SEE FIG. 12)
LIST OF MATERIAL, PARTS OR EQUIPMENT (SEE FIG. 20, 21, & 22)
REFERENCE BLOCK (SEE FIG. 14)
SHIP APPLICABILITY BLOCK (SEE FIG. 15)
REVISION STATUS BLOCK (SEE FIG. 13)
DIMENSIONAL TOLERANCE BLOCK (SEE FIG. 16)
ALIGNMENT ARROWHEAD (SEE 3.4.2.2 (f))
.00
.50
5.50
4.67
.50
0.00
SIZE "F" SHEET FORMAT

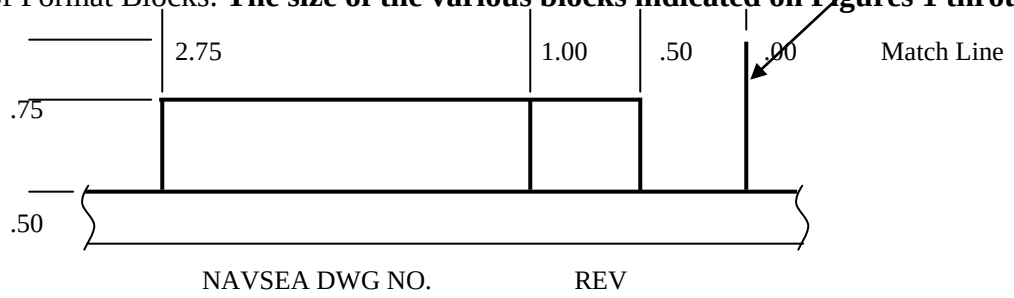
Figure 8



SIZE "H" DRAWING FORMAT

Figure 9

Size of Format Blocks. **The size of the various blocks indicated on Figures 1 through 9 shall**



be in accordance with 3.4.3 and Figure 10 through Figure 22.

3.4.3. Drawing Block Formats.

Drawing block formats shall be in accordance with the appropriate figures as follows:

a. Title/signature block (front sheet) (Figure 10)

b. Title block (continuation sheets) (Figure 11)

c. Revision block (Figure 12)

d. Revision status block (Figure 13)

e. Reference list block (Figure 14)

f. Applicability/shipcheck block (Figure 15)

g. Dimensional tolerance block (Figure 16)

h. Weight control block (Figure 17)

i. Verification Shipcheck block (Figure 18)

j. Proofing Shipcheck block (Figure 19)

k. List of Parts block (Figure 20)

l. List of Material block (Figure 21)

m. List of Equipment block (Figure 22)

3.4.4. Line Conventions and Lettering.

Line conventions and lettering shall be in accordance with the ANSI/ASME Y14.2.

3.4.5. Multi and Sectional View Drawings.

Multi and sectional view drawings shall be in accordance with ANSI/ASME Y14.3. The application of space geometry and space analysis included as appendices in ANSI/ASME Y14.3 shall not be included in NAVSEA drawings unless otherwise specified in the contract or tasking documentation.

3.4.6. Dimensions and Tolerance Levels.

Dimensions and tolerance levels of NAVSEA drawings shall be in accordance with ANSI/ASME Y14.5. Drawings shall utilize U.S. customary units (non-metric units) unless otherwise specified in the contract or tasking documentation (dual dimensions shall not be utilized). Use of fractional or decimal dimensions is left to the option of the Planning Yard, but shall be consistent throughout the drawing. Both decimal and fractional dimensions may be utilized on drawings that contain machining details (decimals) as well as structural/equipment/piping details (fractions). Graphic and architectural symbols specified in ANSI/ASME Y14.5 shall not be used. Requirements for these symbols are covered elsewhere in this specification.

3.4.7. Abbreviations.

Abbreviations used on drawings shall be used only where the limitation of space or conservation of significant drafting time dictate. When required, abbreviations shall be in accordance with ASME Y14.38. A note shall explain abbreviations not covered in this standard on the drawing.

3.4.8. Reference Designations.

Reference designations for electrical and electronic equipment shall be in accordance with ANSI Y32.16.

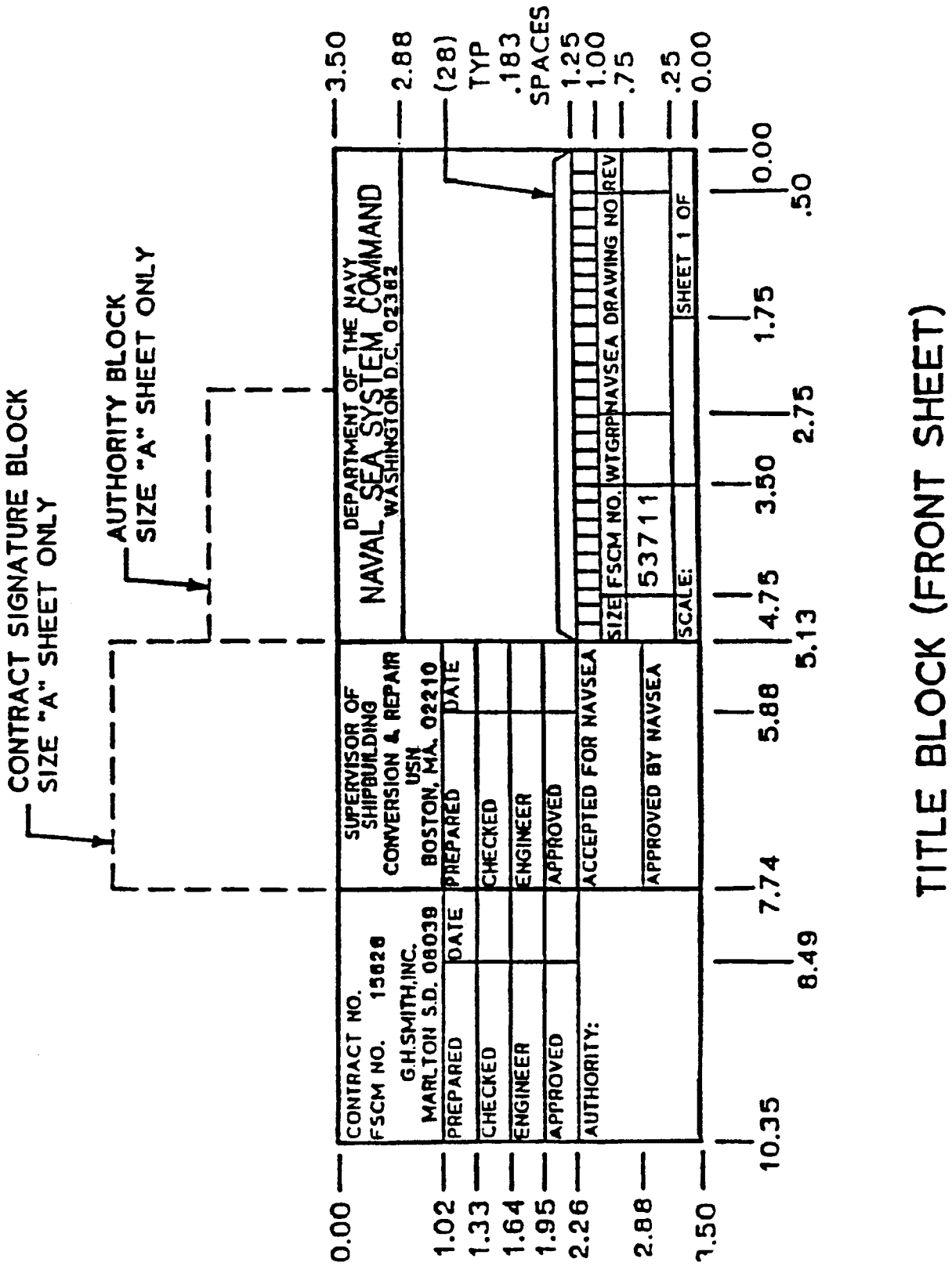
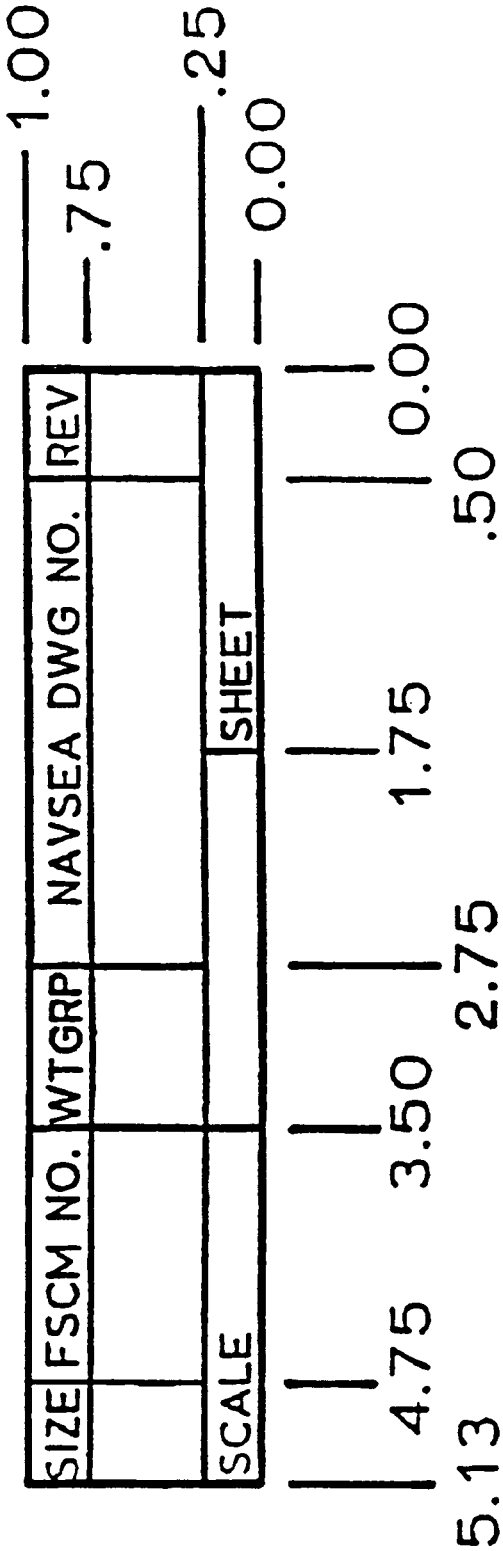

CONTRACT SIGNATURE BLOCK
SIZE "A" SHEET ONLY
AUTHORITY BLOCK
SIZE "A" SHEET ONLY
CONTRACT NO. 15628
FSCM NO.
G.H.SMITH,INC.
MARLTON S.D. 08039
PREPARED
DATE
CHECKED
ENGINEER
APPROVED
AUTHORITY:
SUPERVISOR OF SHIPBUILDING CONVERSION & REPAIR USN
BOSTON, MA. 02210
PREPARED
DATE
CHECKED
ENGINEER
APPROVED
ACCEPTED FOR NAVSEA
APPROVED BY NAVSEA
DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEM COMMAND
WASHINGTON D.C. 02382
SIZE
FSCM NO.
WTGRP
NAVSEA DRAWING NO
REV
53711
SCALE:
SHEET 1 OF
(28) TYP .183 SPACES
0.00
1.02
1.33
1.64
1.95
2.26
2.88
3.50
10.35
8.49
7.74
5.88
5.13
4.75
3.50
2.75
1.75
.50
0.00
2.88
1.25
1.00
.75
.25
0.00
TITLE BLOCK (FRONT SHEET)

Figure 10



TITLE BLOCK CONTINUATION SHEETS

Figure 11

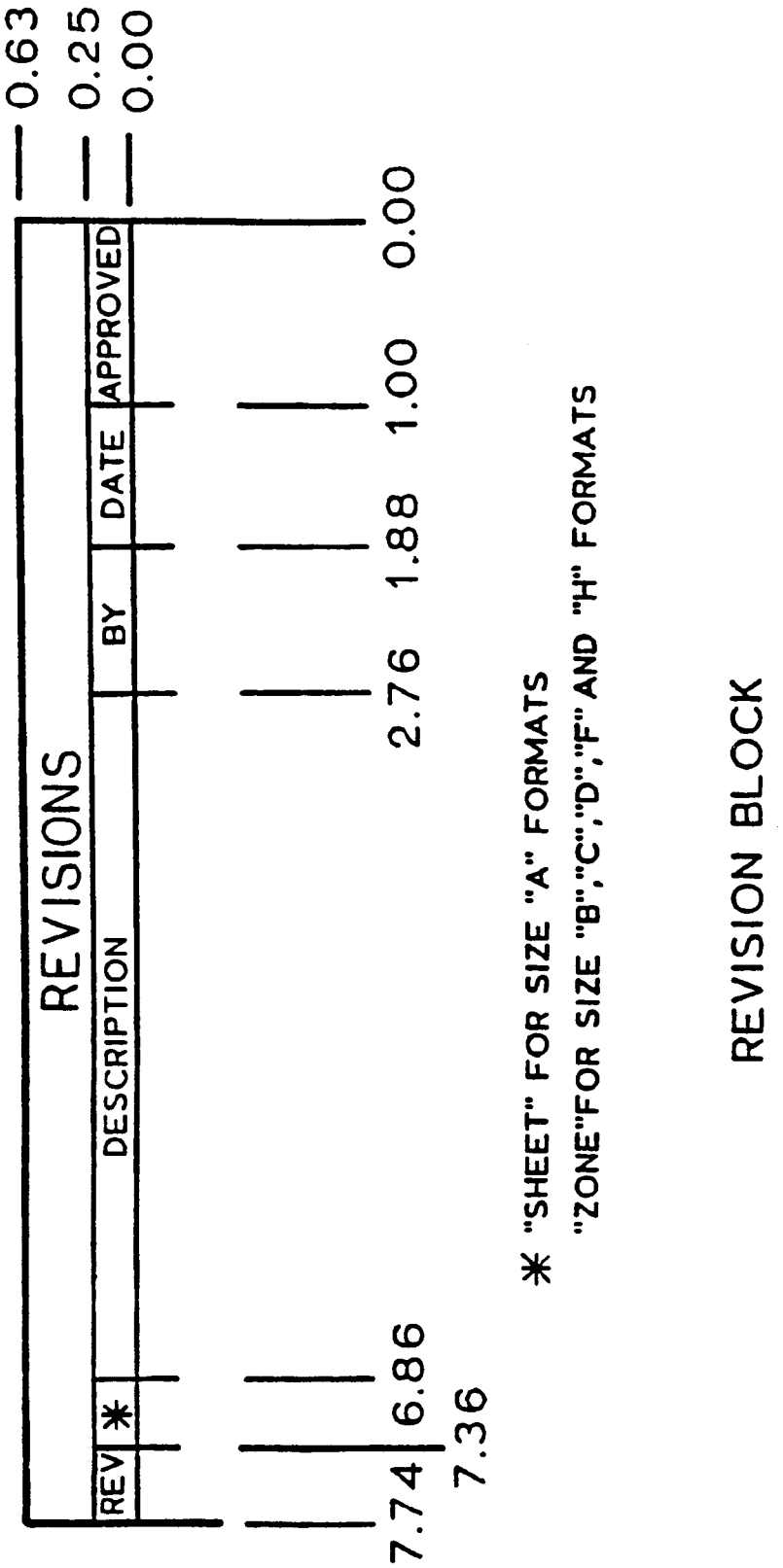

0.63
0.25
0.00
REVISIONS
REV
*
DESCRIPTION
BY
DATE
APPROVED
0.00
1.00
1.88
2.76
6.86
7.36
7.74
* "SHEET" FOR SIZE "A" FORMATS
"ZONE"FOR SIZE "B","C","D","F" AND "H" FORMATS
REVISION BLOCK

Figure 12

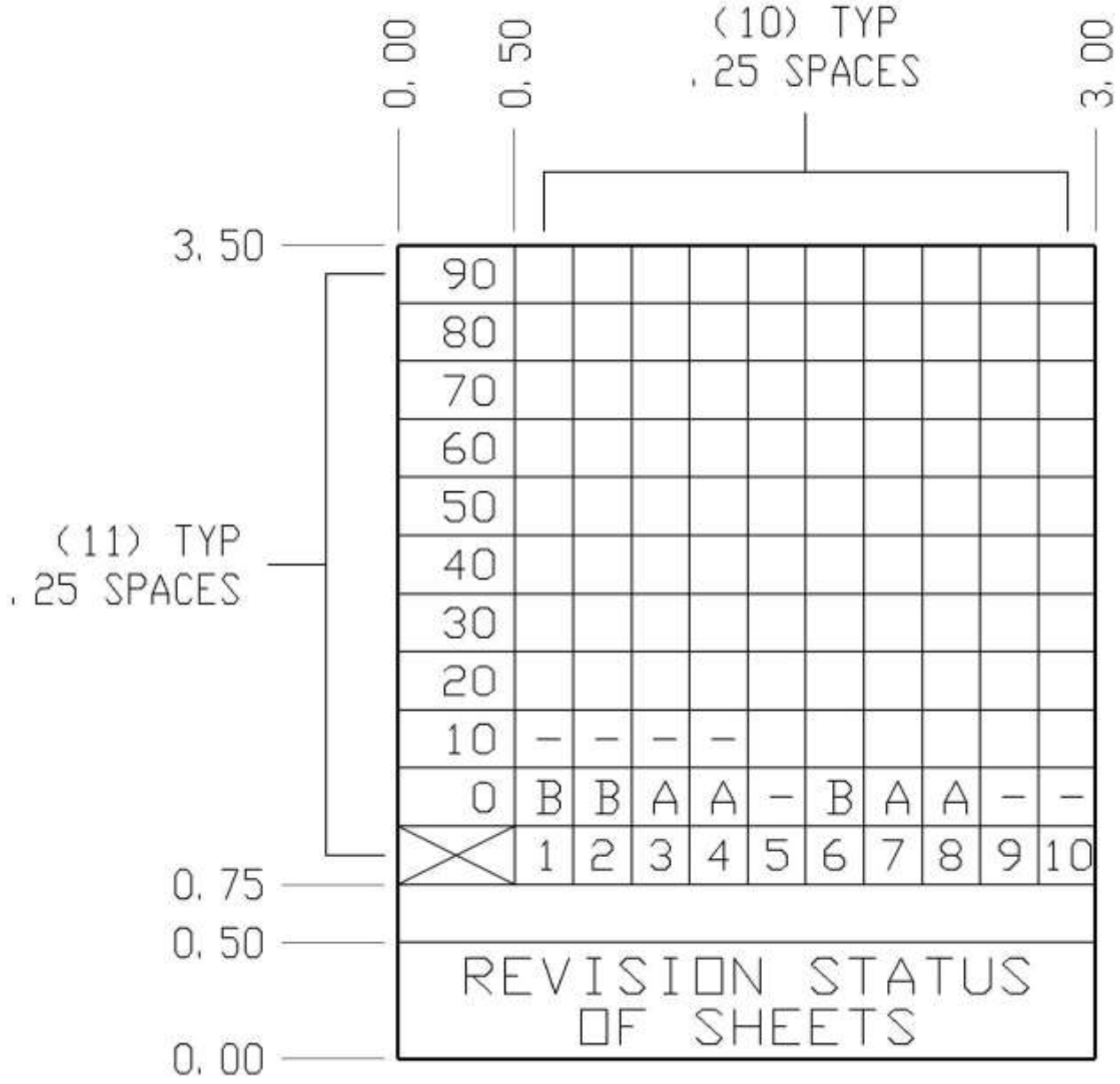

0.00
0.50
(10) TYP
.25 SPACES
3.00
3.50
(11) TYP
.25 SPACES
0.75
0.50
0.00
90
80
70
60
50
40
30
20
10
0
B B A A - B A A - -
1 2 3 4 5 6 7 8 9 10
REVISION STATUS
OF SHEETS

Figure 13

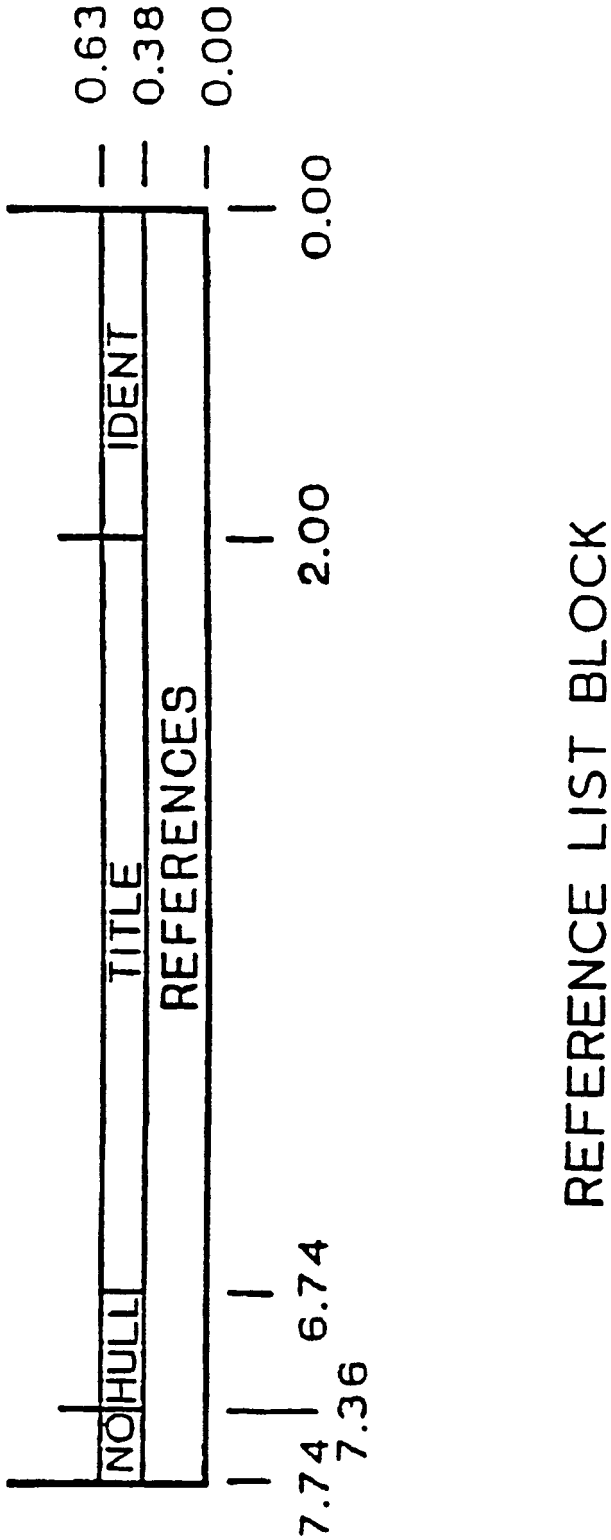
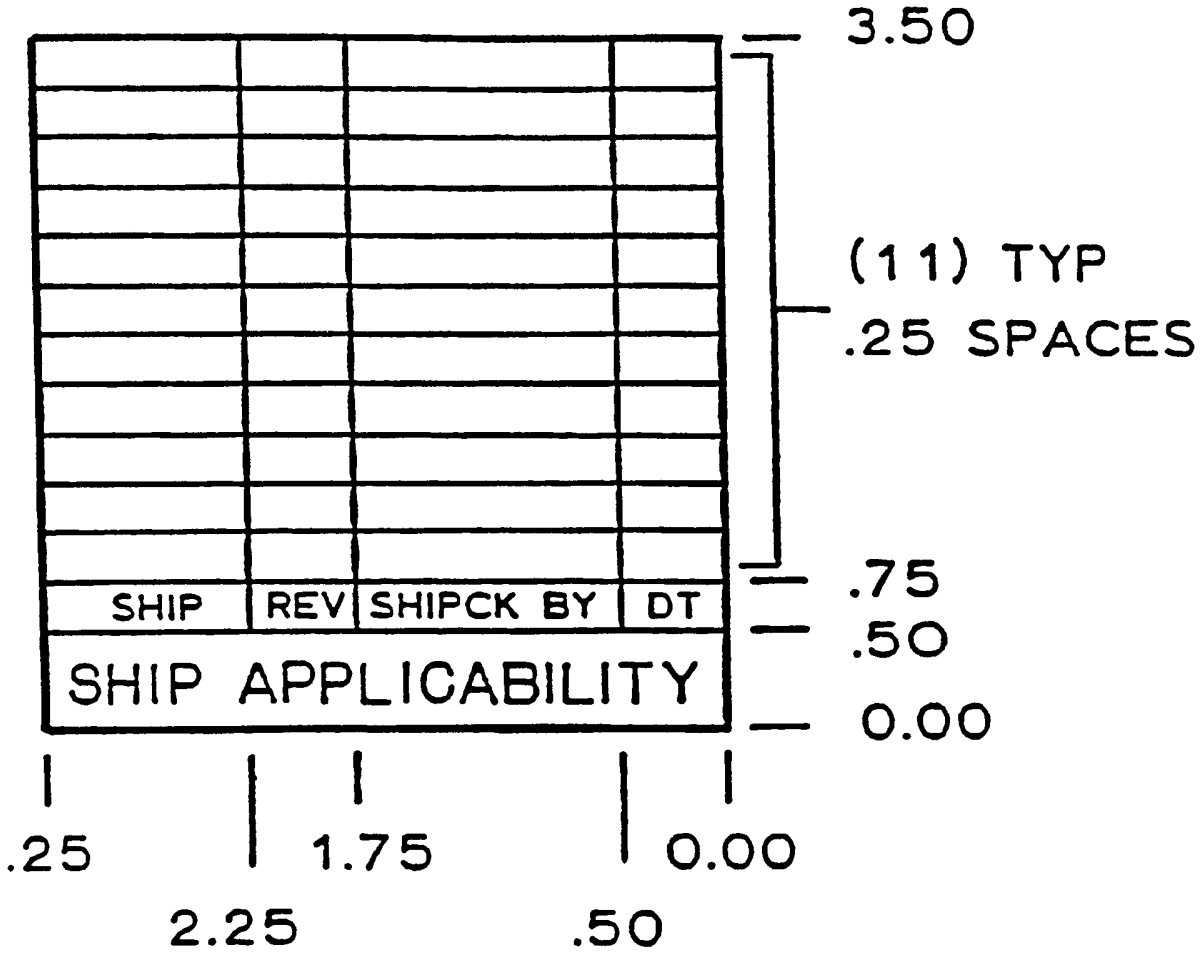
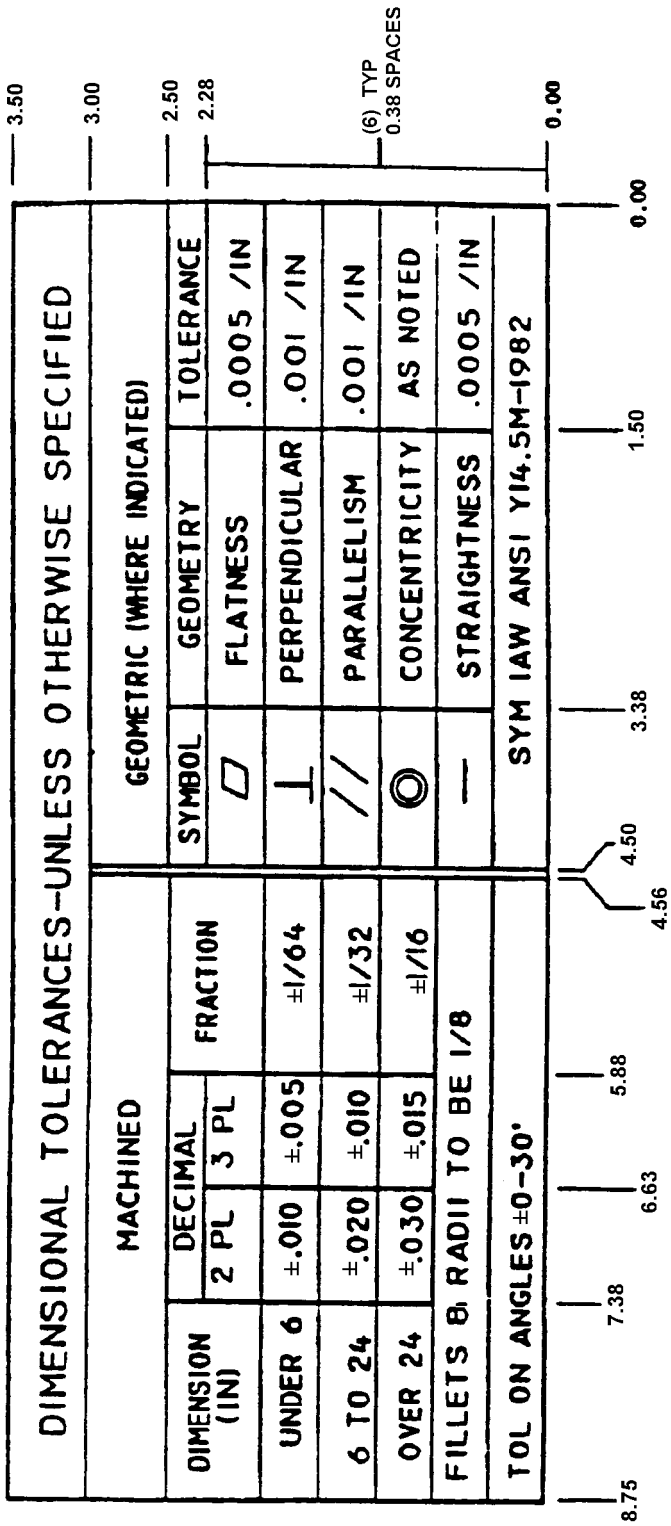

0.63
0.38
0.00
0.00
IDENT
2.00
TITLE
REFERENCES
6.74
NO
HULL
7.36
7.74
REFERENCE LIST BLOCK

Figure 14



SHIP APPLICABILITY/SHIPCHECK BLOCK

Figure 15



DIMENSIONAL TOLERANCE BLOCK

Figure 16

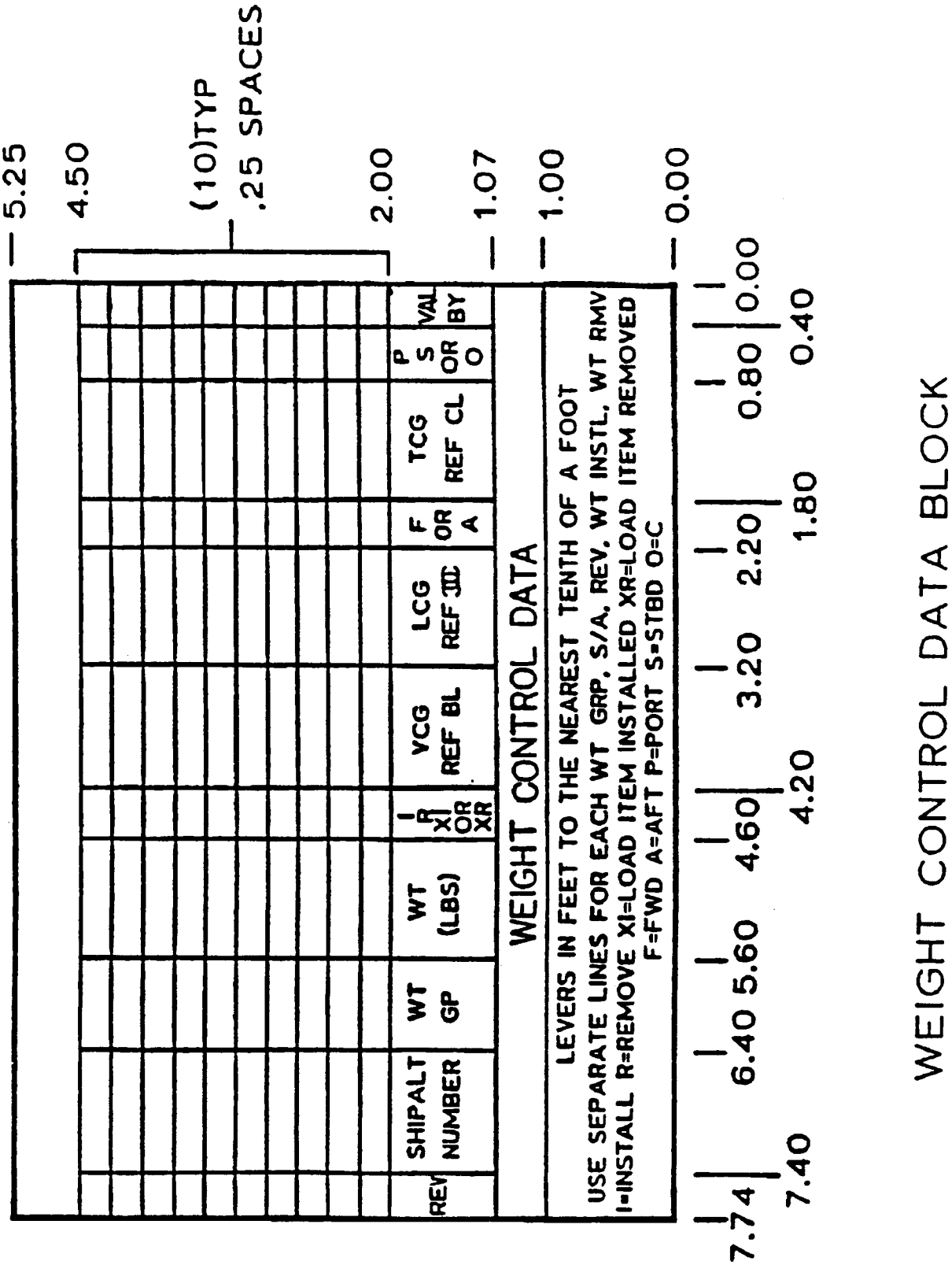
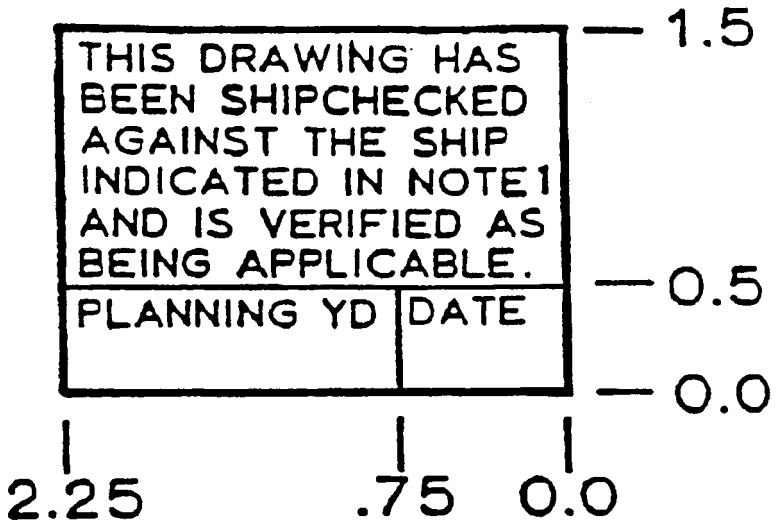
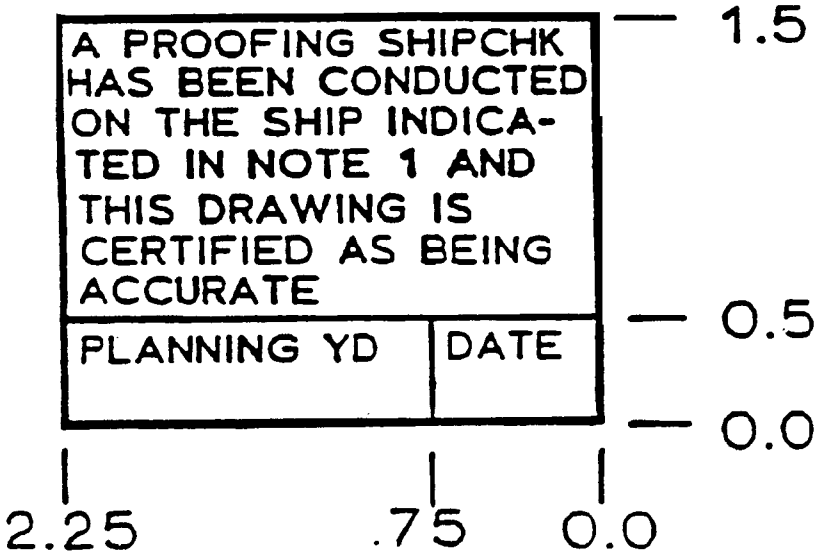

5.25
4.50
(10)TYP
.25 SPACES
2.00
1.07
1.00
0.00
REV
SHIPALT NUMBER
WT GP
WT (LBS)
I R XI OR XR
VCG REF BL
LCG REF ⅢC
F OR A
TCG REF CL
P S OR O
VAL BY
WEIGHT CONTROL DATA
LEVERS IN FEET TO THE NEAREST TENTH OF A FOOT
USE SEPARATE LINES FOR EACH WT GRP, S/A, REV, WT INSTL, WT RMV
I=INSTALL R=REMOVE XI=LOAD ITEM INSTALLED XR=LOAD ITEM REMOVED
F=FWD A=AFT P=PORT S=STBD O=C
7.74
7.40
6.40
5.60
4.60
4.20
3.20
2.20
1.80
0.80
0.40
0.00
WEIGHT CONTROL DATA BLOCK

Figure 17



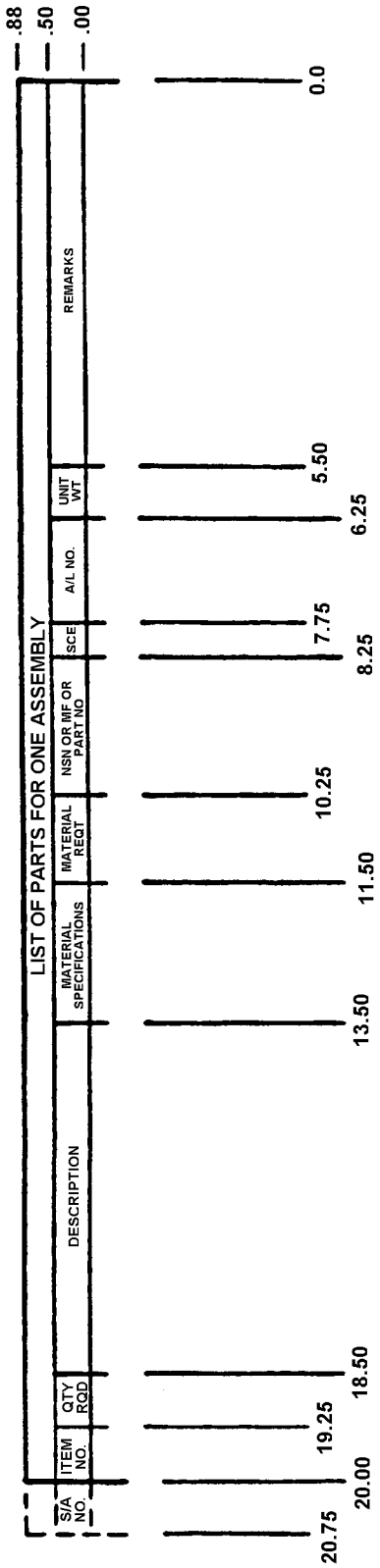
VERIFICATION SHIPCHECK BLOCK

Figure 18



PROOFING SHIPCHECK BLOCK

Figure 19



LIST OF PARTS

Figure 20

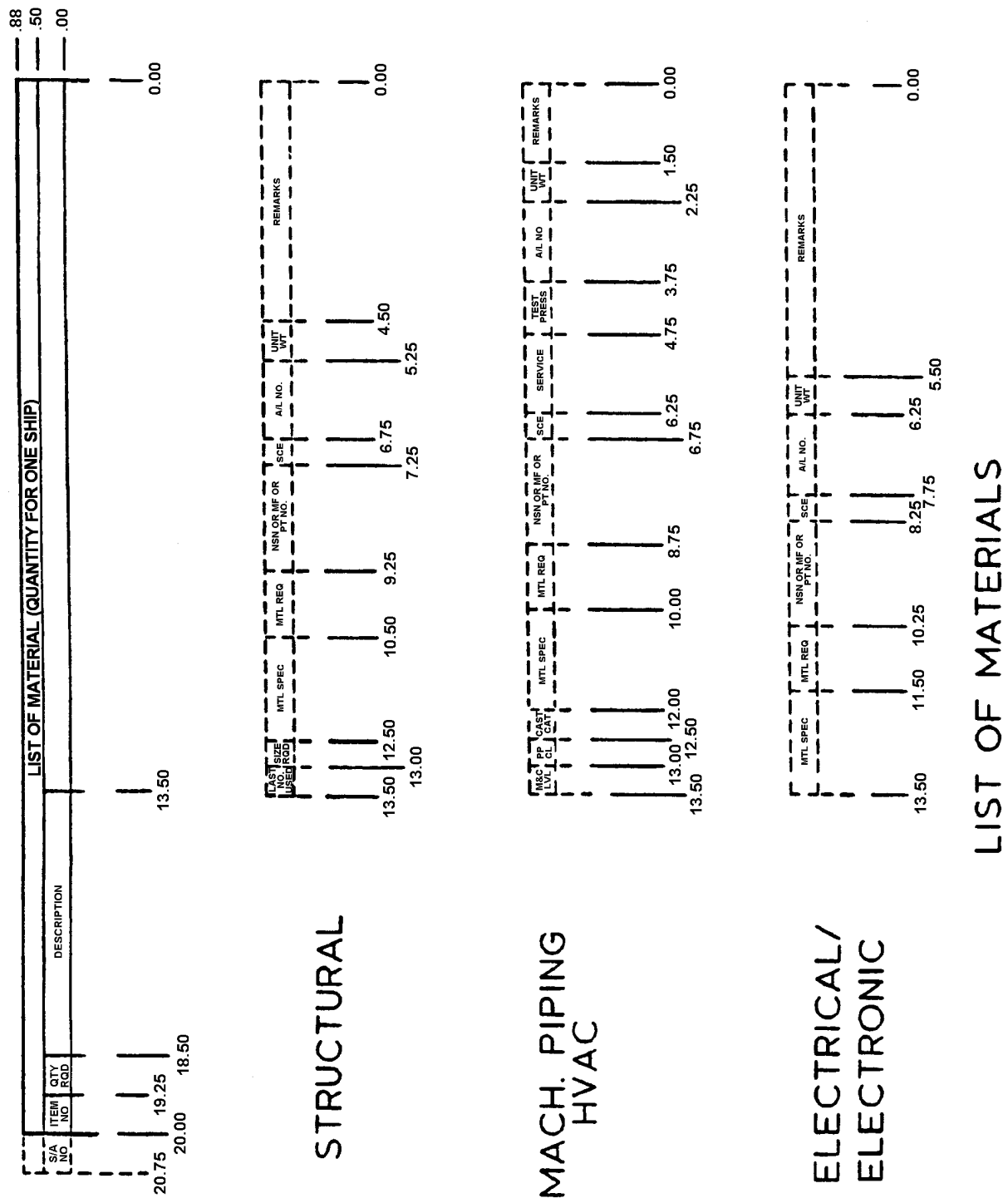

LIST OF MATERIAL (QUANTITY FOR ONE SHIP)
S/A NO
ITEM NO
QTY RQD
DESCRIPTION
.88
.50
.00
0.00
13.50
18.50
19.25
20.00
20.75
STRUCTURAL
CAST WT
SIZE USED
ROD
MTL SPEC
MTL REQ
NSN OR MF OR PT NO.
SCE
A/L NO.
UNIT WT
REMARKS
13.50
12.50
13.00
10.50
9.25
6.75
7.25
5.25
4.50
0.00
MACH. PIPING HVAC
M&C LV/T
PP CL
CAST CAT
MTL SPEC
MTL REQ
NSN OR MF OR PT NO.
SCE
SERVICE
TEST PRESS
A/L NO
UNIT WT
REMARKS
13.00
12.00
12.50
13.50
10.00
8.75
6.25
6.75
4.75
3.75
1.50
2.25
0.00
ELECTRICAL/ ELECTRONIC
MTL SPEC
MTL REQ
NSN OR MF OR PT NO.
SCE
A/L NO.
UNIT WT
REMARKS
13.50
11.50
10.25
8.25
7.75
6.25
5.50
0.00
LIST OF MATERIALS

Figure 21

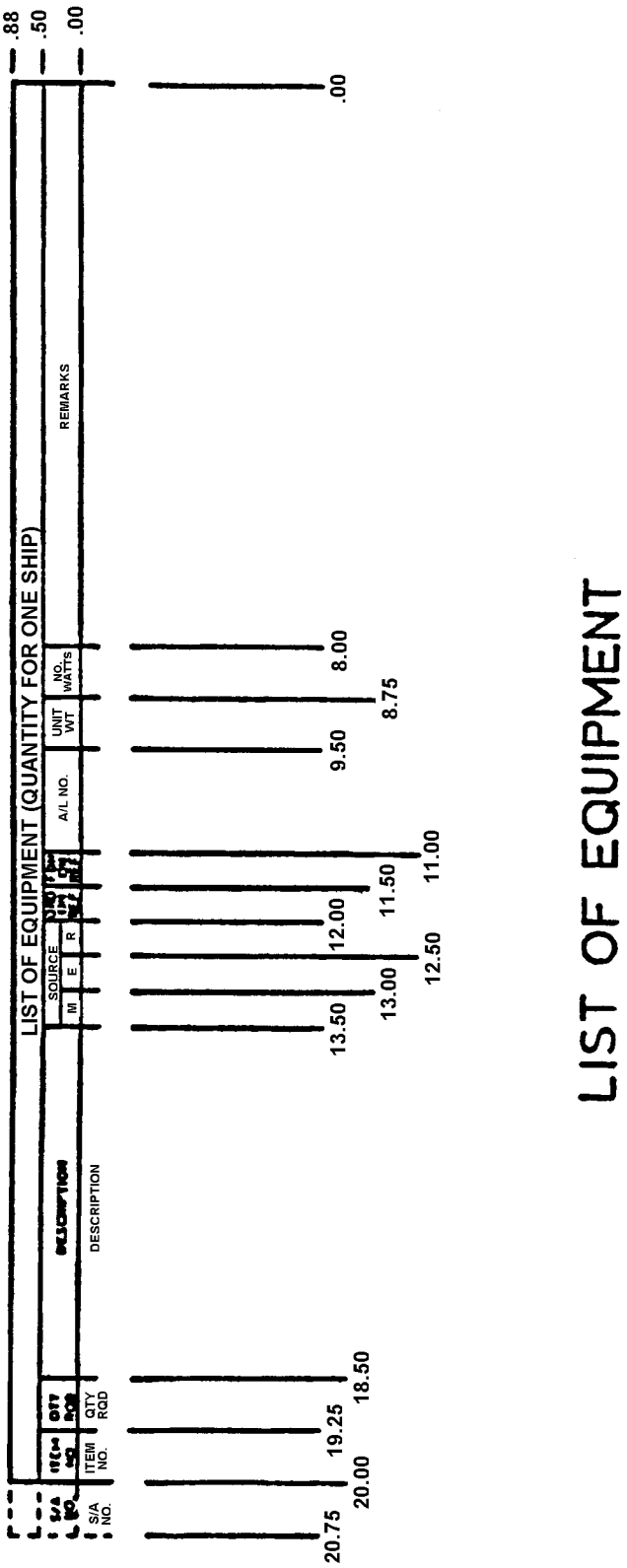

LIST OF EQUIPMENT (QUANTITY FOR ONE SHIP)
S/A NO.
ITEM NO.
QTY RQD
DESCRIPTION
SOURCE
M
E
R
A/L NO.
UNIT WT
NO. WATTS
REMARKS
.88
.50
.00
.00
8.00
8.75
9.50
11.00
11.50
12.00
12.50
13.00
13.50
18.50
19.25
20.00
20.75
LIST OF EQUIPMENT

Figure 22

Table 1 MINIMUM LETTER HEIGHTS FOR DRAWINGS

(Extracted from ANSI/ASME Y14.2)

USE	INCH (FREEHAND)	INCH (CAD)	DRAWING SIZE
Drawing Number in Title Block	5/16 (.312)	.290	Larger than 'C'
	1 / 4 (.250)	.240	'C' or Smaller
Drawing Title	1 / 4 (.250)	.240	All
Section and Tabular Letters	1 / 4 (.250)	.240	All
Zone Letters and Numerals in Borders	3/16 (.188)	.175	All
Dimensions, Tolerances, Limits, Notes, Subtitles for Special Views, Table, Revision, and General Lettering for the Body of the Drawing	5/32 ** (.156)	.120 *	'C' or Smaller
	5/32 ** (.156)	.140	Larger than 'C'

* For CAD or computer generated lettering, .120" lettering is permitted; otherwise .140" lettering shall be the minimum letter height permitted.

** In variance with ANSI/ASME Y14.2

3.4.9. Type Designations.

Equipment type designations used on drawings shall conform to MIL-STD-196 for electronics equipment or other appropriate documents for other types of equipment (see DOD-STD-100).

3.4.9.1. Equipment Subdivisions.

Equipment subdivisions shall be in accordance with MIL-HDBK-505.

3.4.10. Hull, Structural and Mechanical Graphic Symbols.

Hull, structural and mechanical graphic symbols for use on all NAVSEA drawings shall be as follows:

a. Structural graphic symbols shall be in accordance with MIL-STD-25.

b. Welding graphic symbols shall be in accordance with MIL-STD-22 and ANSI/AWS A2.4. In case of conflict between these specifications, MIL-STD-22 shall take precedence.

c. Fluid power graphic symbols for diagrammatic drawings shall be in accordance with ANSI/ASME Y32.10.

d. Pipe fitting, valve and piping graphic symbols for diagrammatic drawings shall be in accordance with NAVSEA Dwg. No. 803-5001049, except for fluid power systems (see 3.4.10(c)).

e. Heating, ventilation and air conditioning graphic symbols for diagrammatic drawings shall be in accordance with ANSI Y32.2.4.

3.4.11. Electrical and Electronic Graphic Symbols.

Electrical and electronic graphic symbols for schematic diagrams shall be in accordance with ANSI/ASME Y32.2. Symbol numbers, where used for standard electrical equipment, shall be in accordance with MIL-HDBK-290.

3.4.12. Security Classification.

Security classification for drawings shall be marked in accordance with SECNAVINST 5510.30 and SECNAVINST 5510.36.

3.4.13. Drawing Scale.

Drawing scale, where utilized, shall be indicated using the architectural method (example: 1/2" = 1'–0, 6" = 1'–0) in lieu of the fractional method. To allow for overlaying and ease of interference control, drawings for the same SHIPALT shall, where feasible, be drawn to the same scale for drawings such as arrangements, foundations, ventilation, piping, etc. As an option, each sheet may have a bar scale (graphic scale) for each scale-utilized on that sheet. Bar scales shall show both vertical and horizontal dimensions.

3.4.13.1. Arrangement Scale.

General and Machinery Arrangement drawing scales shall be not less than 1/4" = 1 '0".

3.4.14. Drawing Materials.

Materials used in the preparation of NAVSEA drawings shall be of the type and quality that will assure legibility and reproducibility.

3.4.15. Final Drawings.

Final drawings, whether an original tracing or an electronic file, must show all required approvals. For electronic drawing files, per NAVSEA guidance, a signature can be signified with ‘/s/’ after the typed name of the signer.

3.4.16. Revisions and Modifications to and Superseding of Existing Drawings.

Existing drawings, defined as those final drawings whose final copies are held by the Planning Yard, can be affected by design developed for SHIPALTs. All changes to existing drawings shall be in accordance with DOD-STD-100. The following criteria shall be utilized to determine the level of change required:

a. Drawing Revisions. A revision of an existing drawing is authorized if all of the following conditions are met:
   1. The Master File Drawing (or ‘as issued’ electronic file) is held by the Planning Yard and reproduction quality is acceptable.
   2. Less than 25% of the existing drawing is affected.

3. The revision will clearly show changes caused by the SHIPALT without loss of essential information that describes ships which have not completed the SHIPALT or are not applicable to the SHIPALT. (Use of cross-hatching over original information shall not be permitted unless the information is only applicable to one ship. Except for corrections, erasing or removal of original information shall not be permitted.)

b. Modification Drawing. A modification drawing, defined as a drawing that, by modification of an existing drawing, defines the total change required for accomplishment of the SHIPALT. Preparation of a modification drawing is authorized when both of the following conditions are met:
   1. The Master File Drawing is not available or a revision of the existing drawing would cause confusion.
   2. Less than 25% of the existing drawing is affected.

c. Superseding Drawing. A superseding drawing, defined as a drawing that takes the place of and cancels an existing drawing, is authorized when more than 25% of an existing drawing is changed by a SHIPALT. The superseded drawing shall have a supersedure note added and shall be retained by the Planning Yard.

3.4.17. General Notes.

Each drawing shall have general notes to explain its purpose and provide general information on procedures and methods of installation (not local process instructions), welding criteria, surface preparation and painting, etc. These notes are also used to provide cautionary and safety information and to bring attention to special controls or requirements imposed on the drawing or the work to be accomplished by the drawing. All notes shall be clear, concise and complete sentences. The notes provided herein shall apply to all drawings developed in accordance with this specification. Other notes which may be required shall be as specified by NAVSEA 0902-018-2010, NAVSEA SA9AA0-AB-GOS-010, or other documentation invoked by the contract or tasking documentation, or by the Planning Yard as determined during development of the drawing.

3.4.17.1. The first general note on all BACDs shall read as follows:

"*(1) THIS IS A BASIC ALTERATION CLASS DRAWING FOR ACCOMPLISHMENT OF SHIPALT __ REV __. IT WAS PREPARED BASED ON A SHIPCHECK OF USS (Ship Name and Hull Number). AN APPLICABILITY SHIPCHECK (IS/IS NOT) REQUIRED PRIOR TO ITS USE ON OTHER SHIPS"*

3.4.17.2. The first general note on all SADs shall read as follows:

"(1) THIS IS A SUPPLEMENTAL ALTERATION DRAWING FOR ACCOMPLISHMENT OF SHIPALT___ REV___. IT WAS PREPARED BASED ON A SHIPCHECK OF USS (Ship Name and Hull Number). THIS DRAWING MODIFIES/REPLACES REF (Parent BACD) FOR (Hull Number(s)) ONLY FOR ACCOMPLISHMENT OF THIS SHIPALT. AN APPLICABILITY SHIPCHECK (IS/IS NOT) REQUIRED PRIOR TO ITS USE ON OTHER SHIPS."

3.4.17.3. The first general note on all Expanded Planning Yard SHIPALT drawings shall read as follows:

"(1) THIS DRAWING WAS DEVELOPED FOR ACCOMPLISHMENT OF SHIPALT(S) ___

REV__. BASED ON A SHIPCHECK OF THE USS (Ship Name and Hull Number). AN APPLICABILITY SHIPCHECK (IS/IS NOT) REQUIRED PRIOR TO ITS USE ON OTHER SHIPS."

3.4.17.4. The second general note on all drawings shall read as follows:

"(2) THIS DRAWING IS BASED UPON THE REQUIREMENTS OF (NAVSEA 0902-018-2010 or S9AA0-AB-GOS-010 or other specification as applicable and provide effective date or revisions as appropriate) WHOSE PROVISIONS SHALL PREVAIL IN AREAS WHERE THIS DRAWING IS SILENT."

3.4.17.5. The third general note on all drawings shall read as follows:

"(3) EXCEPT WHERE OTHERWISE NOTED OR APPROVED BY NAVSEA, THE EFFECTIVE DATE OF FEDERAL OR MILITARY SPECIFICATIONS, PUBLICATIONS AND STANDARD/TYPE DRAWINGS AND REVISIONS AND CHANGES THERETO SHALL BE THE EFFECTIVE DATE OF (NAVSEA 0902-018-2010 or S9AA0-AB-GOS-010). LATER SPECIFICATION REVISIONS MAY BE USED PROVIDED THAT THEY MEET THE INTENT AND INTERFACE REQUIREMENTS OF THE SPECIFICATION INVOKED FOR THE SPECIFIC AVAILABILITY."

3.4.17.6. If the engineering data required by 3.5.10.7 are not an integral part of the drawing, the fourth general note on all drawings shall read as follows:

"(4) ENGINEERING DATA SUPPORTING THIS DRAWING IS FOUND ON REF__." (The drawing which contains the supporting data shall be the corresponding reference listed in the List of References.)

3.4.18. Test Notes.

Test notes are to be placed on all drawings which install or alter structure, systems or equipment that require testing. The notes shall specify the type of test to be performed and the test criteria to be used. Test notes shall be separated from the general notes.

3.4.19. Modification/Supersedure Notes.

All SHIPALT drawings shall contain a modification/supersedure note which states whether or not a drawing is being modified or superseded. One of the following notes shall be conspicuously placed to the left of the title block:

a. *"THIS DRAWING MODIFIES REF __ FOR APPLICABLE SHIPS UPON ACCOMPLISHMENT OF SHIPALT___ REV__"*

b. *"THIS DRAWING SUPERSEDES AND CANCELS REF __ FOR APPLICABLE SHIPS UPON ACCOMPLISHMENT OF SHIPALT___REV__."*

c. *"THIS DRAWING MODIFIES NO KNOWN DRAWING. "*

3.4.20. Drawing Submittal and Approval.

SHIPALT drawings not developed by the cognizant Planning Yard will be submitted to the Planning Yard for review and approval prior to execution.

3.4.20.1. Submittal of Drawings for NAVSEA Approval.

Drawings requiring approval by NAVSEA will be specified by the SHIPALT(s) designated in the contract or tasking documentation. Prints of the proposed final drawings shall be marked

PRELIMINARY and submitted to NAVSEA for review and approval. (If there are drawing original tracings, they shall remain in the custody of the Planning Yard and shall not be forwarded to NAVSEA.) Two drawings prints shall be submitted to the designated NAVSEA Ship's Logistic Manager (SLM). Drawing submitted for approval shall be accompanied by a transmittal document identifying the drawings submitted, applicable SHIPALT(s), and the applicable contract or task number.

3.4.20.1.1. Proposed Departure(s) From Specifications.

The Planning Yard shall request approval of any proposed departure(s) from specifications, contracts or tasking documentation as soon as possible. When the request is made concurrent with drawing submittal, it shall be accomplished by calling specific attention to the proposed departure(s) in the transmittal letter. In either case, the request for proposed departure(s) shall be submitted in accordance with NAVSEA 0902-018-2010 or NAVSEA S9AA0-AB-GOS-010. Approved departure(s) shall be listed on the drawing(s).

3.4.20.1.2. Resubmittal of Drawings.

When drawings are disapproved, the reviewer may require resubmittal of the corrected drawings

3.4.20.1.3. Previously-approved Drawings.

Drawings previously approved by NAVSEA will not require further NAVSEA approval unless revisions which change technical design details are made to the drawing (revisions which add ship applicability or correct reference listing, stock numbers, etc., and do not change technical design details will not require further NAVSEA approval).

3.4.20.1.4. Review and Comment.

Where the applicable SHIPALTs do not specify the need for specific NAVSEA drawing approval as indicated in Section 4, NAVSEA may desire to review the Planning Yard's effort and may elect to comment thereon. The Planning Yard's authority to proceed will not be made contingent upon such review. Any comment made as a result of the review shall not be construed as indicating approval (or disapproval). Such comments will be limited to directing attention to possible departures from specified requirements. In most cases, a formal reply or notification of actions taken by the Planning Yard will not be required, except for reviews conducted in accordance with Section 4.

3.4.21. Drawing Distribution.

Except for the general distribution of drawings made by the Naval Engineering Drawing Support Activity, the distribution of SHIPALT drawings shall only be made by and shall be controlled by the cognizant Planning Yard as directed by the contract or tasking documentation. Except as otherwise specified in the contract or tasking documentation, the type of drawing copy distributed shall be as follows:

3.5. Content and Format.

Content and format of NAVSEA drawings shall be as specified herein.

3.5.1. General.

3.5.1.1. Product Drawings.

All NAVSEA drawings shall be prepared as product drawings and associated lists as defined by MIL-DTL-31000 except as specified herein and in contract or tasking documentation.

3.5.1.2. New drawing number.

When preparing a drawing, if a major portion is developed by reproducing an existing drawing, upgrading to this specification is not required. However, a new NAVSEA drawing number shall be assigned and a new title block (see 3.4.3) shall be applied. All new and revised drawings shall be processed to achieve the requirement of Master File Drawings (see 3.4.14.2).

3.5.1.3. Separate views and notes.

Where drawings are specifically applicable to more that one ship, separate views and notes shall be utilized to reflect minor differences. Views and notes which are associated with a specific ship (or ships) shall be clearly identified as such and grouped together on the drawing(s) insofar as possible.

3.5.2. Level of Detail.

The installation design shall be final, complete and accurate to allow installing activities to accomplish the industrial work involved without additional design work. Drawings shall be as self-sufficient as practicable; for example, to the maximum extent possible they shall include rather than reference information given on reference drawings (other than SHIPALT drawings for that SHIPALT and Standard or Type drawings).

3.5.3. Drawing Types.

As specified in the contract or tasking documentation, final drawing shall consist of the following types of drawings, as applicable, and shall meet all requirements of this specification:

a. Hull/Structural drawings (see 3.5.6)

b. Machinery, piping and heating, ventilation and air conditioning (HVAC) drawings (see 3.5.7)

c. Electrical/electronic drawings (see 3.5.8)

d. Arrangement drawings (see 3.5.9)

e. Removal drawings (see 3.5.10)

f. Support drawings (see 3.5.11)

3.5.4. Data Elements.

As specified in the contract or tasking documentation, final drawings (see 3.4.15.2) shall contain the following data elements, formatted as specified herein:

3.5.4.1. Title Block (Front Sheet.

Front sheet title blocks shall be in accordance with 3.4.3 and as follows:

a. Show drawing titles in the following form:

SHIPALT DESIGNATION(S) AND APPLICABLE SHIP CLASS (OR INDIVIDUAL SHIP):	(SHIPALT SSN1561 - SSN 637 CL)
SYSTEM DESIGNATION:	(60HZ AC POWER DISTR)
TYPE OF DRAWING:	(MOD TO WIRING DECK PLAN)

b. An abbreviated title (not to exceed 28 characters, including spaces) shall be entered in the series of blocks between the title and the drawing identification blocks. (The SHIPALT and ship identification may be omitted from the abbreviated title.)

c. The drawing sheet size (see 3.4.2) shall be entered in the drawing identification block marked SIZE.

d. In accordance with NAVSEAINST 9085.2, the Commercial and Government Entity (CAGE) code CAGE number 53711 shall be placed in the drawing identification block marked CAGE NO. on all NAVSEA drawings.

e. The weight group number (located in S9040-AA-IDX-010/SWBS5D) applicable to the drawing shall be placed in the drawing identification block marked WT GRP. (The weight group system chosen shall be the same as originally used on the new construction drawings for the applicable class of ships.)

f. Each NAVSEA drawing shall have a unique drawing number assigned in accordance with NAVSEAINST 9085.2. This unique number shall be placed in the drawing identification block marked NAVSEA DWG NO.

g. The latest revision of the drawing shall be indicated in the drawing identification block marked REV. The initial drawing issue shall be indicated as revision "-" and the first change to the drawing shall be revision "A". Subsequent revisions shall be indicated as revisions "B", "C", "D", etc., in alphabetic sequence. Numeric ("1", "2", etc.) Or alphanumeric ("Al", "4B", etc.) designators shall not be used for revisions of NAVSEA drawings.

h. The scale of the drawing (not just of the first sheet) shall be indicated in the block marked SCALE. On drawings where more than one scale is used, the block shall indicate AS SHOWN. On drawings which are not to any particular scale, the block shall indicate NONE.

i. The block marked "SHEET 1 OF" shall indicate the total number of sheets in the drawing ("SHEET 1 OF 5" for a five sheet drawing).

j. The identification and signature blocks to the left of the main title area and above the ACCEPTED FOR NAVSEA block are for use by the Naval activity assigned the responsibility for the drawing, normally the Planning Yard. The complete name, address and CAGE number (from DOD Handbook H4-1/H4-2) of the activity responsible for the drawing shall be placed in the area above the signature/date blocks. The preparer (CAD operator), the drawing checker, the cognizant engineer and the approving official shall

sign and date the appropriate blocks below the activity name and address. Per 3.4.15, the electronic files shall include the typed name and '/s/' to show who signed the drawing. (The Signature Blocks may be modified to include Code and Phone Number if desired.) These blocks shall be filled in on all NAVSEA drawings which are ready for issue even when the drawing is prepared by another activity (except the PREPARED block which shall be lined out or filled in with the preparing activity name).

k. For those drawings prepared by activities other than the Planning Yard, an appropriate Planning Yard official shall sign and date the ACCEPTED FOR NAVSEA block after review and approval of the drawing by the Planning Yard (or other activity responsible for the drawing). (If the drawing is prepared by the Planning Yard, this block may be crossed out, corner to corner.)

l. For those drawings which are required to be approved by NAVSEA, the document which provides specific NAVSEA approval of the drawing shall be referenced in the APPROVED BY NAVSEA block. (No actual signature shall be placed in this block.) For those drawings not requiring NAVSEA approval, NOT REQUIRED shall be entered in this block.

m. The identification and signature blocks to the left of the Naval activity block and above the AUTHORITY block (above the Naval activity block on "A" size formats) are for the use of the activity actually preparing the drawing if other than the Planning Yard (or other activity responsible for the drawing). The complete name, address and CAGE number (from DOD handbook H4-1/H4-2) of the non-Planning Yard activity preparing the drawing (and contract number, if applicable) shall be placed in the area above the signature/date blocks. The preparer (CAD operator), the drawing checker, the cognizant engineer and the approving official shall sign and date the appropriate blocks below the activity name and address. (If the Planning Yard prepares the drawing, this block may be crossed out, corner to corner.)

n. The AUTHORITY block below the non-Planning Yard signature block (to the right of the block on "A" size formats) is to provide reference to the documentation which authorized preparation of the drawing (not the SHIPALT number).

3.5.4.2. Title Block (Continuation Sheet.

Continuation sheet title blocks shall be in accordance with 3.4.3 and shall contain the same drawing identification, revision, scale and sheet number data as that required for the Front Sheet (see 3.5.4.1) except as follows:

a. The revision letter indicated in the REV block shall be the latest revision of that sheet. The revision letter shall only be changed when that sheet is revised.

b. The scale of the information shown on that sheet shall be indicated in the SCALE block. On sheets where more than one scale is used, the block shall indicate AS SHOWN. On sheets which are not to any particular scale, the block shall indicate NONE.

c. The block marked SHEET shall contain the specific sheet number of that sheet ("2", "3", "4", etc.) and shall not refer to the total number of sheets in the drawing (SHEET "2 OF 4", etc.)

3.5.4.3. Revision Block.

Revision blocks shall be in accordance with 3.4.3 and shall contain a complete description of the revision as follows:

a. The REV column shall contain the letter designation of the revision. (The initial drawing issue, revision "–" of the drawing, shall have no information in the revision block.) The first change to the drawing, revision "A", shall begin at the top of the revision block and shall proceed down the block (when the bottom of the block is reached the revision block shall be continued (using the same dimensions) on a continuation sheet. Subsequent revisions shall be indicated as revisions "B", "C", "D", etc., in alphabetic sequence. Numeric ("1", "2", etc.) or alphanumeric ("A1", "4B", etc.) designators shall not be used for revisions of NAVSEA drawings.

b. The ZONE or SHEET column shall contain reference to each zone or sheet affected by the revision. The zones or sheets affected by each of the ADDED, DELETED, CHANGED, etc., descriptions shall be placed opposite that description.

c. The DESCRIPTION column shall contain reference to the document or action which required the revision to be made and shall provide a description of the modifications which were made to the drawing. This information shall be provided in the form of - ADDED, DELETED, CHANGED, etc. When the complete description of the revision has been provided, a line shall be drawn across the revision block at the end of the description, signifying the end of the revision description.

d. The BY and DATE columns shall contain the signature of the person actually making the revision to the drawing and the date.

e. The APPROVED column shall contain the signature of the Planning Yard official responsible for the system design. This signature shall be placed on the drawing only after the revision has been reviewed and is found to be acceptable.

3.5.4.4. Revision Status Block.

Revision Status Blocks shall be in accordance with 3.4.3. The block will show the current revision status for each sheet (up to 100 sheets) (see Figure 13). The initial issue of the drawing shall indicate a "–" above the applicable sheet number indicating that all sheets are in their initial issue. As revisions are made to the drawing, the Revision Status Block is updated to reflect the current revision of each sheet. Because the first sheet is changed by every revision, the first sheet shall always show the current revision of the drawing and each sheet will always reflect the current revision status of that sheet.

3.5.4.5. Reference List Block.

Reference list blocks shall be in accordance with 3.4.3 and shall list all sources of technical data referenced on the drawing. The references shall be numbered from the bottom up and a line shall be drawn across the block between each reference to avoid confusion. References on drawings

are to provide details of manufacturing, detail procedures or methods, drawings being modified or superseded, pertinent information regarding the ship's structural or system configuration, and other information, as required, which will better enable the accomplishing activity to complete the work. (When referencing information or details shown on other drawings or documentation, consideration shall be given to including the information on the drawing being prepared rather than referencing it. Generally, if the referenced information has any options or decisions which must be made by the user, the information should be shown on the drawing rather than referenced. (Or if the referenced material is beyond the scope of what is expected as basic trade competency.) If the list of references exceeds the space available on the front sheet, the list may be continued (using the same dimensions) on a continuation sheet. If a listed reference is only applicable to a single ship or is being referenced for only one ship, the ship hull number shall be indicated in the column marked *HULL*, otherwise, this column shall be left blank. (If the reference is applicable to a series of ships, but not all of the ships the drawing is applicable to, a General Note shall be referenced and the applicable ships listed in the Note.)

3.5.4.6. Ship Applicability/Shipcheck Block.

The ships which are applicable to a drawing and the revision of the drawing which provided applicability shall be listed in the appropriate columns of the ship applicability/shipcheck block (See 3.4.3). The shipcheck data shall be filled in when the actual applicability shipcheck takes place. (When the Planning Yard determines that an applicability shipcheck is not required for a specific drawing, the *SHIPCK BY and DATE* columns shall be crossed out, corner to corner, and *NOT RQD* shall be written across them.)

3.5.4.7. Dimensional Tolerance Block

The dimensional tolerance block shall be in accordance with 3.4.3 and shall provide the dimensional tolerances for matching and geometric alignment of surfaces, parts and equipment. On drawings which do not require a dimensional tolerance block, this block shall be crossed out, corner to corner (or may be omitted).

3.5.4.8. Weight Control Data Block.

The weight control data block shall be in accordance with 3.4.3. (Weight control data shall only be calculated on drawings with material lists or equipment lists which order material, not parts lists, or for Removal drawings.) The data shall be calculated in accordance with the instructions in NAVSEA 0902-018-2010, NAVSEA S9AA0-AB-GOS-010, or other documentation invoked in the contract or tasking documentation. The following entries shall be made for each SHIPALT reflected on the drawing:

a. Drawing revision that the calculations support.

b. SHIPALT number. If more than one SHIPALT is shown on the drawing, the weight calculations for each SHIPALT shall be shown on separate lines.

c. Weight group (located in S9040-AA-IDX-010/SWBS5D). (Weight group system shall be the same as originally used on the new construction drawings for the applicable class of ships.)

d. Weight added (in pounds, to the nearest pound). E. Weight removed (in pounds, to the nearest pound).

e. Vertical center of Gravity (VCG) above the ship baseline (in feet, to the nearest tenth of a foot).

f. Longitudinal Center of Gravity (LCG) from a specified reference point (longitudinal center of buoyancy, if known) (in feet, to the nearest tenth of a foot).

g. Transverse Center of Gravity (TCG) identified with an (S) for starboard, a (P) for port or (CL) for centerline (in feet, to the nearest tenth of a foot).

For drawings which do not order material, the weight control data block shall be crossed out, corner to corner, with the statement *NOT APPLICABLE* written over it.

3.5.4.9. Verification Shipcheck Block.

The verification shipcheck block shall be in accordance with 3.4.3 and shall be prepared, signed and dated by a responsible Planning Yard official when a high risk or complex SHIPALT drawing is shipchecked against an applicable ship to verify applicability and adequacy of design. In those instances where complex or critical SAD preparation is an overhaul activity responsibility, a verification shipcheck may be performed at the discretion of the overhaul activity upon notification of the cognizant NAVSEA SLM/SPM. Drawings shall only be verified when the drawing may have significant impact on an availability and the Planning Yard (or overhaul activity for locally prepared SADs) has reason to believe that the drawing or the design presented on the drawing is inadequate. (See also 3.3.1 (c).) (For drawings which have not had a verification shipcheck, this block shall be omitted.)

3.5.4.10. Proofing Shipcheck Block.

The proofing shipcheck block shall be in accordance with 3.4.3 and shall be prepared, signed and dated by a responsible Planning Yard official when proofing of a SHIPALT is required by a SHIPALT Record. The shipcheck is normally conducted after completion of a specified first-time SHIPALT as part of the formal proofing requirements. The formal proofing demonstrates that the SHIPALT satisfies its intended purpose and the proofing shipcheck certifies that the successful SHIPALT is accurately reflected in the SHIPALT drawings. (For drawings which do not require a proofing shipcheck, this block shall be omitted.)

3.5.4.11. List of Parts/Material/Equipment Blocks.

Blocks for parts, material and equipment lists shall be in accordance with 3.4.3 and 3.5.5.

3.5.5. Parts/Material/Equipment Lists.

For purposes of NAVSEA drawings, parts lists, material lists and equipment lists shall be defined as follows:

a. Parts List - Parts lists (Figure 20) shall be utilized on fabrication drawings only and shall list all items required to fabricate one assembly. They shall be utilized for ordering material but shall not be utilized for calculation of weight and moment changes.

b. Material List - Material lists (Figure 21) shall be utilized on all drawings (except those listed in 3.5.5(a) and 3.5.5 (c)) which order material. They shall list all material, equipment and assemblies required for one ship. Where assemblies are utilized, the assembly part and the fabrication drawing shall be listed as the material specification.

Material lists shall be utilized for ordering material and for calculating weight and moment changes.

c. Equipment List - Equipment lists (Figure 22) shall be utilized on arrangement drawings and machinery drawings and shall only list components except spares, support equipment, etc. (See 3.5.5.3).

3.5.5.1. Additional drawings. **here

In order to prevent possible loss of information, parts, material and equipment lists shall be integrated into applicable drawings (see 3.5.5(a), 3.5.5(b) and 3.5.5(c)) to the maximum extent possible. If a material, parts or equipment list is too voluminous to be accommodated on a drawing, it may be prepared separately as a size "D", or "F" drawing provided that:

a. The list is in the form of a separate drawing and is assigned a unique NAVSEA drawing number.

b. A statement SEE SEPARATE LIST OF MATERIAL/PARTS/EQUIPMENT, REF. ___, shall be placed on the drawing in the space on the title sheet normally reserved for the material, parts or equipment list.

c. The separate list is clearly identified by cross-referencing back to the parent drawing.

3.5.5.2. 3.5.5.2 Required information.

Parts and material lists (3.5.5(a) and (b)) shall contain all material required to accomplish the work shown on the drawing. The following information, as a minimum, shall be provided (other required data shall be as specified in 3.5.6 through 3.5.11.)

a. Item number. Item numbers are assigned sequentially to each of the different items in the list, excluding electrical cables.

b. Quantity required. The total quantity of each item for one ship shall be entered in the Quantity Required column. An effort shall be made to specify exact quantities, but in those where they cannot be derived, approximations shall be made and specified as such. Use of phrases such as ‘as required’ shall not be used except for items such as cable clamps, paint, etc. If incidental items are covered by other drawings, those other drawings shall be referenced.

c. Description. A complete description (noun name and size) as described in the material specification (as applicable) shall be provided. For items such as structural shapes, the overall dimensions (width and height) shall be provided and shall be referenced to detail sketches on the drawing or shall be assigned assembly numbers and referenced to an assembly or detail drawing in the Part Number Column.

d. Material Specification. The applicable military or other approved specification for each item of material being ordered by the drawing shall be entered in this column. Do not list the specification revision letter or date unless only a specific revision is applicable. Do not indicate an item in this column as being COMMERCIAL or identify an item by a proprietary or commercial name or trademark unless it is found that no standard

specification is available. In such cases, the REMARKS column may be used to indicate SIMILAR OR EQUAL TO ____.

e. Material Requirements. Applicable type, grade, class, condition or other classification, as applicable, is shown in this column when a specification or standard is referenced and the specification lists alternate choices. If necessary to fully describe the material required, the REMARKS column shall provide the additional data or a General Note shall be referenced which shall provide such information.

f. National Stock Number or Manufacturer's Part Number. Unless otherwise directed by NAVSEA, the National Stock Number (NSN) or manufacturer's part number for each item shall be entered into this column. Maximum effort shall be exerted to utilize standard stock items and to minimize or preclude the use of one-of-a-kind or unsupportable items.

g. Source. The source of material ordered by the drawing shall be indicated as follows:
   1. **Existing Material.** When the parts or material list contains existing, relocated and/or modified items, identify each of these items by the use of one of the following symbols:
      E - Existing item (not relocated)
      R - Existing item relocated
      M - Existing item modified (not relocated)
      MR - Existing item modified and relocated
   2. **New Material.** Identify all new items in the parts or material list by use of the following symbols:
      GFM - Government Furnished Material (provided as part of the SHIPALT)
      IAF - Installing Activity Furnished (not long lead time)
      CP - Centrally Procured (not long lead time)
      LLTM(CP) - Centrally Procured Long Lead Time Material
      LLTM(IAF) - Installing Activity Furnished Long Lead Time Material
   3. The source of all material required by the drawing (e.g. "2GFM" for two items, both Government Furnished Material, or "2R/IIAF" for three items, two relocated and one installing activity furnished, etc.) shall be accounted for. The total material in the SOURCE column must equal the total in the QUANTITY column.

h. Allowance Parts List. (INCREASE COLUMN WIDTH) The Allowance Parts List (APL) number for each item, as applicable, shall be provided in this column when a standard APL is available. Where no standard APL exists or the APL is to be prepared during the ship's availability, this requirement shall be omitted and the column space left blank for each applicable item.

i. Unit Weight. The operating weight, including required fluids (oil, water, etc.) (not ordering weight) in pounds for one item shall be provided. (For those items ordering in running feet, square feet, gallons, etc., the weight of one unit of measure shall be provided.)

j. Remarks. Any clarifying statements shall be entered in this column.

k. For multi-SHIPALT drawings (Integrated Designs), a column titled SHIPALT shall be added to the left of the Part Number column. This column shall indicate the authority responsible for the purchase of each item of new material in the List of Material. (Exception: Drawings utilizing many piece-parts common to more than one SHIPALT where separate identification of quantities is impractical (e.g., foundation drawings), may specify the quantities for the group of SHIPALTs.)

3.5.5.3. 3.5.5.3 Equipment lists.

Equipment lists (3.5.5(c)) shall contain all equipment in the compartment, space or area depicted on the arrangement drawing. The following information, as a minimum, shall be provided:

a. Item Number. Item numbers are assigned sequentially, to each of the different equipment in the list.

b. Quantity. The total quantity of each equipment shown on the drawing shall be entered.

c. Description. A complete description of the item shall be provided (noun name and type designation, e.g., R-1051/URR HF RECEIVER).

d. Source. The source of each item shown on the drawing shall be indicated in the three SOURCE columns, N (New), R (Relocated) and E (Existing), as appropriate. The appropriate quantity shall be entered into the applicable column for each equipment (columns which are not applicable to a specific item shall be left blank: do not enter a quantity of "0").

e. Ordered on reference. The drawing(s) which order(s) the equipment shall be referenced. For spares, support equipment (fire extinguishers, furniture, etc.) and other miscellaneous equipment which may be ordered by the arrangement drawing, a General Note shall be referenced which states, EQUIPMENT REFERENCED TO THIS NOTE IS ORDERED BY THIS DRAWING.

f. Foundation shown on reference. The drawing which provides the equipment's foundation shall be referenced. (For equipment not requiring foundations, "N/A" shall be entered in this column.)

g. Allowance Parts List. The Allowance Parts List (APL) number for each item, as applicable, shall be provided in this column when a standard APL is available. When no standard APL exists or the APL is to be prepared during the ship's availability, this requirement shall be omitted and the column space left blank for each applicable item.

h. Unit Weight. The installed operating weight (not ordering weight) in pounds for one item shall be provided. (For those items ordering in running feet, square feet, gallons, etc., the weight of one unit of measure shall be provided.) (This shall only apply to items, not ordered on another drawing (spares, support equipment, etc.).)

i. Heat dissipation. The heat dissipation of one unit, in watts, shall be entered. (For those items not dissipating heat, a "O" shall be entered in this column.)

j. Remarks. Any clarifying statements shall be entered in the Remarks column. For equipment being ordered by the arrangement drawing, the Remarks column shall provide ordering information (part/identification number, source etc.) or shall reference General Notes which shall provide such information.

3.5.6. 3.5.6 Hull/Structural Drawings.

Hull/structural drawings consist of structural, foundation, penetration, arrangement (outfitting), welding, painting, hull and compartment insulation, deck covering, stowage, inspection and weld documentation drawings. They shall provide for fabrication, installation, modification, or removal of such things as hull, deck and superstructure components, compartment arrangements, painting, accesses, ladders and stairs, rigging, fittings, equipment foundations, label plates, access cuts, masts, etc.

3.5.6.1. 3.5.6.1 Symbols.

Symbols used on hull/structural drawings shall be as follows:

a. MIL-STD-25 provides structural symbols for use on ship drawings and is to be used to assure uniformity in the preparation of structural drawings.

b. MIL-STD-22 provides symbols to be used for welded joint design.

c. ANSI/AWS A2.4 provides symbols for welding and non-destructive testing. (In case of conflict between ANSI/ASW A2.4 and MIL-STD-22, MIL-STD-22 shall take precedence.)

3.5.6.2. 3.5.6.2 List of Material.

Lists of Material on all hull/structural design drawings ordering material shall provide the following data:

a. All material required to accomplish the task shown on the drawing shall be identified by Item Number, Quantity Required, Description, Material Specification, Material Requirements, Stock or Part Number, Source and APL number (see 3.5.5.2).

b. If split piece bubbles are used, the following information shall also be required:
    1. **Last Number Used.** Enter the total number of pieces to be cut from the Quantity Required (applies to sheets, plates and lengths of steel, aluminum, etc.).
    2. **Sizes Required.** Enter the total number of different sizes to be cut from the Quantity Required (applies to sheets, plates and lengths of steel, aluminum, etc.).

3.5.6.3. 3.5.6.3 General Content.

Hull/structural drawings shall be sufficiently detailed so that no decisions affecting the features or testing of the completed installation are required by production personnel. All construction dimensions and test requirements shall be controlled by realistic tolerances consistent with function and original ship fabrication and installation design tolerances. Foundation drawing requirements are as follows:

a. Machinery equipment foundation. Complete details of foundations are required for all machinery equipment weighing fifty pounds or more. For machinery equipment weighing

less than fifty pounds, complete foundation/mounting details are required if the foundation is fabricated or if the mounting requirements are critical, unusual or complex. The location of machinery foundations shall be referenced to the applicable machinery arrangement drawing which shall provide specific mounting dimensions for the foundations.

b. Electrical/Electronic equipment foundations. Complete details of fabrications, mounting plates, racks, etc., are required for all electrical/electronic equipment. Complete locating dimensions/requirements shall be provided on the foundation drawing to enable shop fabrication and installation of foundations, plates, racks, etc., without referring to arrangement drawings. The outline of the equipment to be supported by the foundation, plate etc., shall be shown in phantom line if it does not confuse detail.

3.5.7. 3.5.7 Machinery, Piping and Heating, Ventilation and Air Conditioning (HVAC) Drawings.

Machinery, (including all deck machinery) piping and HVAC drawings include piping, ventilation, , air conditioning and machinery arrangements, diagrams and manufacturing drawings for associated parts and assemblies. They shall provide for the installation, modification and removal of machinery, piping, hull and compartment insulation, and HVAC systems and associated equipment. Fluid power diagrams shall generally be in accordance with ANSI Y14.17. Other machinery, piping and HVAC drawings shall be in accordance with NAVSEA 0902-018-2010, NAVSEA S9AA0-AB-GOS-010 or other direction provided in the contract or tasking documentation.

3.5.7.1. 3.5.7.1 Symbols.

a. Pipe fitting, valve and piping graphic symbols for diagrammatic drawings shall be in accordance with NAVSEA Drawing No. 803-5001049, except fluid power systems, which shall be in accordance with ANSI/ASME Y32.10. A symbol legend shall be included for all fitting, valve and piping symbols used on the diagram.

b. Welding graphic symbols shall be in accordance with MIL-STD-22 and ANSI/ AWS A2.4. In case of conflict between these specifications, MIL-STD-22 shall take precedence.

c. Heating, ventilation and air conditioning graphic symbols for diagrammatic drawings shall be in accordance with ANSI Y32.2.4. A symbol legend shall be included for all symbols used on the drawing.

3.5.7.2. 3.5.7.2 List of Material.

List of material on piping drawings shall have material grouped by piping, valves and fittings, sequenced in that order, from the top of the list of material down. Each pipe size (for submarines - each pipe run) and each valve size shall be listed as a separate line item. Fittings shall be listed by type. Other lists for instruments, tanks, and hoses and flexible fittings, etc., may also be required and shall be kept on separate lists on submarine drawings, but may be placed in any sequence after the fittings list. (On surface ship drawings, these items may be included on the fittings list.) Machinery and HVAC drawings shall have one list of material. Lists of material on all machinery, piping and HVAC drawings ordering material shall provide the following data:

a. All material required to accomplish the task shown on the drawing shall also be identified by Item Number, Quantity Required, Description, Specification, Material Requirements, Stock or Part Number, Source and APL Number (see 3.5.5.2).

b. In addition, the following information shall also be required:
   1. **Classification.** All piping, machinery and pressure vessels shall be classified according to application in accordance with NAVSEA Pub S9074-AQ-GIB-010/278 and NAVSEA 0900-LP-001-7000.
   2. **Casting Category.** All castings which are to be used with piping, machinery and pressure vessels shall be categorized according to application in accordance with NAVSEA Pub S9074-AQ-GIB-010/278.
   3. **Material Identification and Control**. Piping system components, as applicable, shall be classified for Material Identification and Control (MIC) level in accordance with NAVSEA 0948-LP-045-7010. Any drawing which has Level I piping material indicated in the List(s) of Material shall so note above the Weight Control Data block (or title block of "A" size drawings) and shall have the following General Note added:

      ITEMS (list Item numbers) SHALL COMPLY WITH LEVEL I MATERIAL IDENTIFICATION AND CONTROL MARKINGS, INSPECTION, MATERIAL TESTING, PROCUREMENT AND DOCUMENTATION REQUIREMENTS OF NAVSEA 0948-LP-045-7010.
   4. Service (Submarine Drawings only). Piping, valves and fittings shall identify the service use of each item. Items for piping runs shall provide descriptions similar to *RETURN DRAIN LP BEARING SSTG NO. 1.* Valves shall provide descriptions similar to *LOG-117 {Lube Oil, Generator (Valve Identification)) DRAIN SPEED CHANGER AND SERVO MTR LOW SPEED STBD.* Fittings shall be identified to the pipes and valves that they are applied to. If the quantity of a fitting is shown as (4), then four applications must be indicated in the service column (P7, P8, P9, P10). If a pipe run or valve uses more than one of the same fitting item, the number of occurrences shall be placed in parenthesis (a gate valve using the same type of flange on both ports would be indicated as LOG-117(2) in the Service column). All components shall be accounted for in the service column.
   5. **Test Pressure (Submarine Drawings only).** The test pressure for the specific pipe run shall be indicated.

3.5.7.3. 3.5.7.3 General Content.

Mechanical drawings shall be sufficiently detailed so that no decisions affecting the features or testing of the completed installation are required by production personnel. All dimensions and test requirements shall be controlled by realistic tolerances consistent with the original ship fabrication and installation design tolerances. Specific requirements are as follows:

a. General mechanical drawings. Completed details, dimensions and tolerances shall be provided to allow installation of all required components as well as any required manufacture and/or assembly of components. Basic test criteria for all required testing and any special cautions and/or warnings shall also be noted.

b. Piping drawings. Piping installation drawings shall be either line-type diagrammatic drawings or piping arrangement drawings. When pipe runs are complex or there are space constraints, a piping arrangement drawings shall be developed . For piping drawings, piping up to and including 2 inch I.P.S. (Iron Pipe Size), piping shall be represented as a single line. Piping greater than 2 inches I.P.S. shall be drawn to scale.. In complex or restricted area piping, piping arrangement drawings shall provide details of pipe, valve, hanger and fitting configuration as well as key dimensions to locate pipes, components, hangers and pipe bends whose locations are critical due to pipe stress, space constraints, etc. A tolerance of plus or minus 1/2 inch shall be applied to the dimensions unless otherwise specified and shall be so stated on the drawing.

c. HVAC drawings. Except for simple duct runs in non-congested areas, duct installation drawings shall be prepared as two-line diagrammatic drawings and all complicated fittings and plenums shall be detailed on the drawings. (Simple duct runs may be represented by single lines.) Key dimensions and all critical hangers, fittings, etc. shall be detailed on the drawings.

3.5.8. 3.5.8 Electrical/Electronic Drawings.

Electrical and electronic drawings shall provide for the installation, modification and removal of electrical power and lighting distribution systems, fire control, interior communications, electronic systems such as radar, sonar, radio communications, IFF and electronic countermeasures, and control systems for various onboard machinery systems and equipment. Electrical/Electronics diagrams shall generally be in accordance with ANSI/ASME Y14.5, and ANSI Y14.15a, as applicable.

3.5.8.1. 3.5.8.1 Symbols.

a. Electrical and electronic graphic symbols for use on schematic diagrams shall be in accordance with ANSI/ASME Y32.2.

b. Symbols for electrical and interior communications (IC) circuit diagrams shall be in accordance with currently accepted industrial practices and each drawing shall have a symbol legend identifying each symbol used on the drawing. Symbol numbers, where used with standard electrical and IC equipment, shall be in accordance with MIL-HDBK-290.

3.5.8.2. 3.5.8.2 List of Material.

Lists of material on all electrical and electronic drawings ordering material shall provide the following data:

a. All material required to accomplish the task shown on the drawing shall also be identified by Item Number, Quantity, Required, Description, Specification, Material Requirements, Stock or Part number, source and APL Number (see 3.5.5.2).

b. In addition, the following information shall also be required:
    1. **Symbol Number.** Where items are identified on the body of the drawing by Symbol Number, the number shall be included in the description.

3.5.8.3. 3.5.8.3 General Content.

Electrical/Electronic drawings shall be sufficiently detailed so that no decisions affecting the features or testing of the completed installation are required by production personnel. All dimensions and test requirements shall be controlled by realistic tolerances consistent with function and original ship fabrication and installation design tolerances. Drawings shall be in accordance with NAVSEA 0902-018-2010 and S9AA0-AB-GOS-010 as applicable.

a. General electrical/electronic drawings. Complete details, dimensions and tolerances shall be provided to allow installation of all required components as well as any required manufacture and/or assembly of components. Basic test criteria for all required testing and any special cautions and/or warnings shall also be noted.

b. Power and lighting system drawings. Power and lighting system drawings shall generally be prepared as line-type diagrammatic drawings. These are to be prepared as cabling diagrams, elementary wiring diagrams, wiring deck plans and power distribution diagrams as required. Isometric wiring diagrams shall not be prepared for power and lighting system drawings unless specifically required by the contract or tasking documentation. . Where cableway modifications or new cableways or penetrations are required, they shall be designed in accordance with DOD-STD-2003-5, and cableway installation drawings shall be prepared. These drawings shall be based on all known cabling changes required as the result of S/A's to be accomplished during that availability. The drawings shall identify all material requirements to accomplish the installation (i.e. stuffing tubes, multiple cable penetrators, kickpipes, hangers, etc.).

c. Electronic and interior communication (IC) system drawings. Electronic and IC system drawings shall generally be prepared as line-type diagrammatic drawings. These are to be prepared as cabling diagrams, elementary wiring diagrams, isometric wiring diagrams and schematic diagrams, as required. Electronic and IC system drawings shall not be prepared as wiring deck plans unless specifically required by the contract or tasking documentation.

3.5.9. 3.5.9 Arrangement Drawings.

Arrangement drawings are scale drawings (usually 1/4" = 1' or larger) of the outline of, and components within a space, area or compartment. Arrangement drawings of machinery areas shall be referred to as *MACHINERY ARRANGEMENTS*, whereas arrangements of nonmachinery areas shall be referred to as *GENERAL ARRANGEMENTS.* Arrangements of piping, wireways, penetrations, antennas, etc., shall be referred to as such *(e.g., ARRANGEMENT OF PIPING,* etc.), but may be required to be shown in a smaller scale due to large areas of the ship which may be covered by the drawing. Arrangement drawings shall include, but are not limited to, the following:

a. Key plan. The key plan shows the location of the compartment, space or area and it shows the area of the ship near the affected area, usually relative to the ship's centerline and frame numbers. On drawings showing more than one deck, a separate key plan is required for each deck. (Key plans are not required on arrangements of entire deck levels.)

b. Bar scale. Bar Scales are optional. If used, each sheet shall have a bar scale (graphic scale) for each scale utilized on that sheet. Bar scales shall show both vertical and horizontal dimensions.

c. References. The list of references shall include references to all drawings which provide equipment/material shown in the arrangement as well as any applicable foundation drawings.

d. Content. Machinery and General Arrangements shall include, but are not limited to, machinery and/or equipment in the area, space or compartment, electrical equipment, main wireways, large pipes or piping banks, ladders and stairs, bilge line, accesses and pull space for equipment maintenance, removable plates for shipping and unshipping equipment, lifting or handling gear and trolley arrangements, major structures/foundations, manholes and reserved space. Knobs, handles, piping connections, and other permanently attached protrusions shall be included in the envelope depicting all equipment as well as access, service and operator areas, shock excursions and all critical dimensions. Machinery Arrangements shall also include all required information for installation of machinery foundations.

e. List of equipment. Each arrangement drawing shall have a List of Equipment in accordance with 3.5.5.3.

f. Weight control data. Arrangement drawings do not generally order material except for spares, support equipment (fire extinguishers, furniture, etc.) and other miscellaneous equipment which would not be ordered by a. system or structural drawing. In instances where the arrangement drawing does not order any material, the weight control block shall be crossed out, corner to corner, with the statement NOT APPLICABLE written over it. Arrangement drawings shall not provide weight/ moment calculations for any item, component or equipment ordered on any other drawing.

3.5.10. 3.5.10 Removal drawings.

Removal drawings shall be prepared only when it is necessary to depict removal of equipment and material in the way of new installations or when removal information is too complex to be discussed in removal notes on the installation drawing. The drawing shall usually be a mark-up of the existing system or arrangement drawing showing the specific components to be removed. A *LIST OF MATERIAL TO BE REMOVED* shall be included as part of the drawing and shall include disposition instructions for all removed material. These instructions shall be one of the following:

a. REMOVE & SCRAP. This notation shall be used for all material to be disposed of locally by the installing activity. (For private shipyards, this material is to be turned over to the Property Administrator designated in the contract.)

b. REMOVE & FORWARD. This notation shall be used for all material not being scrapped or retained for reinstallation. This material is to be removed and forwarded for disposition. Reference to General Note providing the name and address of the activity the material is to be forwarded to shall be provided in the Remarks column if a specific activity has been designated by the cognizant material manager. If no activity has been so

designated, the General Note shall read, MATERIAL REFERENCED TO THIS NOTE SHALL BE TURNED-IN TO THE NEAREST NAVAL PROPERTY ADMINISTRATOR.

c. REMOVE & RETAIN. This notation shall be used for all material to be removed and retained by the installing activity for reinstallation. Reference to a General Note providing reference to the drawing which will reinstall the material shall be provided in the Remarks column.

3.5.10.1. 3.5.10.1 Master Removal Drawing.

When foundation removal information is too complex to be discussed in removal notes on the drawing, but not complex enough to warrant a complete removal drawing (see 3.5.10), a Master Removal Drawing shall be prepared. The drawing shall list the foundations affected, the name of the equipment mounted on the foundation, the compartment and the location within the compartment,' foundation installation drawing (if known), and extent of removal. Equipment status shall be designated as deleted or relocated. For relocated equipment, the arrangement drawing that reinstalls the equipment shall be listed along with the new arrangement item number.

3.5.10.2. 3.5.10.2 Weight Control Data.

A Weight Control Data Block shall be completed in accordance with 3.5.4.8 on all Removal Drawings or any drawing providing removal information.

3.5.10.3. 3.5.10.3 List of material to be removed.

As discussed in 3.5.10, all Removal Drawings shall have a *LIST OF MATERIAL TO BE REMOVED.* The format shall be the same as that of a *LIST OF EQUIPMENT* (see 3.5.5.3) except that *SCRAP, FORWARD,* AND *RETAIN* shall be used in lieu of *NEW, RELOCATED* and *EXISTING* under *SOURCE.*

3.5.10.4. 3.5.10.4 Support Drawings.

Support drawings (sometimes referred to as *non-working* drawings) are drawings which do not order material or provide specific installation data but are used as aids in design or records of design criteria which is vital to the development and accuracy of working drawings and logistic support. These drawings are not normally forwarded to production areas, but are used by designers and planners at installing activities, by stocking and material support activities for logistic support and by Ship's Force, Planning Yards and NAVSEA to maintain configuration control. Non-working drawings include, but are not limited to the following:

3.5.10.5. 3.5.10.5 Interference Control Drawings.

Interference Control Drawings shall be generally prepared as arrangement drawings and reflect all work to be accomplished in a space or compartment so that any interferences will become readily apparent. These drawings are not to be considered *working drawings* in that they do not order or install material, but like arrangement drawings are to be used as guides to prepare other drawings. Interference Control Drawings shall only be prepared when required by the number or complexity of the SHIPALTs authorized for the availability as determined by the Planning Yard.

3.5.10.6. 3.5.10.6 Installation Control Drawings.

Installation Control Drawings are used to specify the form, fit and function of non-standard equipment to be purchased by the installing activity or by a central procurement activity such as SPCC. These drawings also provide information required to formulate an adequate Allowance Parts List (APL). (These drawings are not to be confused with Shipboard Electronics Equipment Installation Control Drawings (sometimes referred to as "RE" Drawings) which are controlled by the Naval Engineering Drawing Support Activity, Norfolk.) Installation Control Drawings shall be prepared generally in accordance with MIL-D-23140 except as modified herein, when specifically required by the SAR.

a. Although MIL-D-23140 is intended for electronic equipment, sections 3.4.7, 3.4.8, 3.4.9, 3.4.10, 3.4.11, and 3.4.13 of MIL-D-23140 shall be applied to machinery and electrical equipment whereas 3.4.6 through 3.4.13 of MIL-D-23140 shall be applied to electronic equipment.

b. Sections 1 through 3.4.5 and 4 through 6.4 of MIL-D-23140 do not apply to SHIPALT Installation Control Drawings.

c. Drawing sizes and format specified in MIL-D-23140 shall not be used. Drawing size and format shall be in accordance with paragraph 3.4 of this specification.

d. Weight Control Data. Installation Control Drawings do not order material and therefore shall not be utilized for calculation of weight and moment data. The weight control data block shall be prepared in the same manner as an Arrangement Drawing which-does not order material (see 3.5.9(f)).

e. List of Equipment. A List of Equipment shall be prepared in accordance with 3.5.5.3. This listing shall provide information on the basic equipment and material, including technical manuals, fittings, etc. A separate listing shall detail special equipment, fitting, etc., required by the installing activity to install the equipment.

3.5.10.7. 3.5.10.7 Engineering Data Drawing.

The SHIPALT drawing package shall contain and describe the engineering data/rationale used in preparing the drawings. This information shall normally be included on the individual drawings. However, when the data are of significant volume or when the drawing package is of significant size, the engineering data for the SHIPALT shall be placed on an Engineering Data Drawing. (For submarines - The engineering data shall be retained on a separate Engineering Data Drawing prepared for each SHIPALT.) The drawing shall be applicable to one SHIPALT and shall include, but is not limited to, the following:

a. Engineering considerations (such as criticality on equipment location, EMI, corrosion/coating, special non-standard access closure required, etc.).

b. Calculations (such as those associated with heat transfer, load flow stress, sizing, electrical feeder load, stability, etc.).

c. Requirements necessary to demonstrate satisfactory installation and performance of the SHIPALT including any necessary prerequisite testing.

3.5.10.8. 3.5.10.8 Special Drawings.

Special drawings may be required for a particular system or ship type. These drawings may be invoked by NAVSEA S9AA0-AA-SPN-UI0/GEN-SPEC, NAVSEA 0902-018-2010, NAVSEA 0902-LP-041-2010 or NAVSEA S9AA0-AB-GOS-010 as invoked by the contract or tasking document. It shall be incumbent on the Planning Yard to review these documents and the applicable Ship's Drawing Index to verify that special drawings such as *List of Motors, Controllers and Master Switches, Master Instrument List, Cargo Handling Flow Diagram, Storeroom Capacity,* etc., as applicable, are updated as required when SHIPALTs are accomplished.

4. 4. QUALITY ASSURANCE PROVISIONS

4.1. 4.1 Responsibility for Inspection.

Unless otherwise specified in the tasking documentation or contract, the Planning Yard shall be responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the tasking documentation or contract, the Planning Yard may use its own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by NAVSEA. NAVSEA reserves the right to perform any of the applicable inspections set forth in the documents referenced herein, which are deemed necessary to assure engineering drawings and associated lists conform to prescribed requirements.

4.1.1. 4.1.1 Sampling.

NAVSEA will normally perform inspection of drawings on a sampling basis and will normally use the evidence of this sampling as indicating conformance or nonconformance to these specifications.

4.1.2. 4.1.2 Planning Yard's Drawing Control System.

The Planning Yard shall provide and maintain a system for the detailed examination and technical review of all engineering drawings and associated lists to be supplied under the terms of the contract or tasking documentation. The system shall assure the conformance of the engineering drawings and associated lists to all requirements specified herein. The system, including the procedures, shall be documented and shall be subject to review by NAVSEA or its designated representative. The control system is subject to the disapproval of NAVSEA or its designated representative, whenever it can be demonstrated that it fails to assure conformance to the requirements specified herein.

4.1.3. 4.1.3 Availability of Supporting Data.

The Planning Yard shall permit NAVSEA to review the supporting data normally retained by the Planning Yard in the original format that the Planning Yard used to make its design decisions, in order to aid the NAVSEA representative in the review of the Planning Yard's design.

4.1.4. 4.1.4 Drawing Control Procedures.

The Planning Yard's drawing control procedures shall cover:

a. Assignment of responsibility for detail examination, review, and signature authority of drawings for the Planning Yard.

b. Required qualifications of personnel performing detail examination, review, and signature authority of drawings for the Planning Yard.

c. Procedural flow of drawings and other associated documentation.

d. Check lists to be used in the detail examination and review of drawings. The checklists shall specify each examination to be performed to verify conformance of drawings to the applicable requirements of this specification and the contract or tasking documentation.

e. Method of safeguarding classified information.

f. Methods providing for the prevention and ready detection of discrepancies and for timely and positive corrective action.

g. Method of safe storage of Master File Drawings, reference drawings, and other ship design documentation, as well as the electronic files for these items where applicable.

h. Methods providing for control issue of drawing copies, both reproducible and nonreproducible.

4.2. 4.2 Nonconforming Data Items.

4.2.1. 4.2.1 Format Defects (See Glossary).

There may be random sampling by NAVSEA for quality of drawing format of all Planning Yard drawings as they are issued. When numerous format defects are discovered on Planning Yard drawings, the Planning Yard shall correct its process to prevent recurrence of defects found, but need not correct or redraw drawings or portions of drawings already issued unless they are illegible, do not meet the reproducibility requirements, or affect usability.

4.2.2. 4.2.2 Engineering/Technical Defects (See Glossary).

Selected drawings subordinate to each system diagram or system drawing may be reviewed by NAVSEA to determine whether they describe a system which will meet the specified requirements.

4.2.2.1. 4.2.2.1 Significant Engineering/Technical Defects.

When, as a result of this review, it is determined that a drawing contains significant engineering/technical defects, such defects will be identified to the Planning Yard. The Planning Yard will then review all other drawings subordinate to the next higher level of drawing (for example, system diagram or system drawing), for similar defects and then correct promptly all defects found.

4.2.2.2. 4.2.2.2 Minor Engineering/Technical Defects.

When, as a result of this review, it is determined that a drawing contains minor engineering/technical defects, such defects will be identified to the Planning Yard, which shall correct them.

4.2.2.3. 4.2.2.3 Numerous Engineering/Technical Defects.

Numerous engineering/technical defects, whether significant or minor, will be considered as an indication of poor Planning Yard quality control, and the Planning Yard shall correct its process.

The Planning Yard shall advise NAVSEA of the results of its process review, including drawings examined, the number of like deficiencies found, and the steps taken to prevent recurrence.

4.3. 4.3 Inspection of Preparations for Delivery.

Packaging and packing of documents to be delivered under this specification shall be inspected to insure that the preparation-for-delivery requirements are met.

5. 5. PREPARATION FOR DELIVERY

5.1. 5.1 Packaging.

All drawings and lists delivered under this specification shall be packaged for mailing or shipping in accordance with level A requirements of MIL-PRF-5480. Prints of size "D", "F" or "H" drawings (see 3.4.14.3) forwarded to NAVSEA, its designated representative or an installing activity, shall be folded, accordion fashion, to 8 1/2" by 11" height, with the title block completely visible.

5.1.1. 5.1.1 Classified Material.

Classified material shall be packaged in accordance with SECNAVINST 5510.36.

5.2. 5.2 Packing.

All drawings and lists delivered under this specification shall be packed in accordance with level C of MIL-PRF-5480.

5.3. 5.3 Marking of Shipments.

Identification and address markings for interior packages and shipping containers shall be in accordance with MIL-STD-129.

6. 6. NOTES

6.1. 6.1 Intended Use.

Ship Alteration Drawings are intended for use by installing and support activities as well as Ship's Force and Headquarters to plan and carry out accomplishment of specific alterations to ships and ship systems, to support ships and ship systems, and to provide configuration records of work accomplished.

6.2. 6.2 Ordering Data.

6.2.1. 6.2.1 Procurement Requirements.

Procurement documents should specify:

a. Title, number and date of this specification.

b. When Government design activity drawing numbers are to be assigned, identify the assigning activity, and if Government drawing formats are to be supplied, identify the source.

c. The applicable Data Item Description (DID).

d. That the metric system shall not be used.

e. Whether company drafting standards are accepted.

f. Kinds of associated lists required.

g. Drawing assembly level at which associated lists will be prepared.

h. Identify whether the mono-detail system will be used.

i. Selection of types of engineering drawings if different than 3.4.3 of MIL-DTL-31000.

j. Quantity and type of reproduction.

k. Whether delivery of original drawings and undimensioned drawings are required.

l. What special packaging of originals, when ordered, is required.

m. Delivery schedule, and to whom the engineering drawings and supporting documents are to be delivered.

6.2.2. 6.2.2 Data Requirements.

When this specification is used in a contract procurement, the provisions of 52.277-7015 (Rights in Technical Data-Specific Acquisition) of the Department of Defense (DOD) supplement to the Federal Acquisition Regulation (FAR) shall be invoked and the data requirements identified below will be developed as specified by an approved Data Item Description (DID) (DD Form 1664) and delivered in accordance with the approved Contract Data Requirements List (CDRL) (DD Form 1423) incorporated into the contract. Deliverable data required by this specification is cited in the following paragraphs:

Paragraph	**Data Requirements**	**Applicable DID**
3.4.15.1	Proposed Final Drawings	DI-E-7031
3.4.15.2	Final Drawings	DI-E-7031

(Copies of Data Item. Descriptions required by the contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

6.3. 6.3 Definitions.

For the purpose of this specification, the following definitions shall apply:

6.3.1. 6.3.1 Allowance Parts List.

A list of parts developed by the Department of the Navy for specific components which are installed on Naval Ships (Allowance Parts Lists are not yet available for all components). The

parts breakdown includes all parts allowed on board and other parts stocked in the supply system.

6.3.2. 6.3.2 Approval.

The act of formally acknowledging legal responsibility by the Government (the Planning Yard (or NAVSEA if required)) for the accuracy, adequacy, and completeness of the technical data (engineering drawings and associated lists) in question to the extent/limitation specified. If the extent/limitation is not specified, it is to be assumed that the approval applies to all information disclosed.

6.3.3. 6.3.3 Assembly.

A number of parts or subassemblies or any combination thereof joined together to perform a specific function, (examples: power shovel-front, fan assembly, audio-frequency amplifier). NOTE: The distinction between an assembly and a subassembly is determine by individual application. An assembly in one instance may be a subassembly in another where it forms a portion of a larger assembly.

6.3.4. 6.3.4 Associated list.

A tabulation of pertinent engineering information pertaining to an item depicted on an engineering drawing or on a set of engineering drawings.

6.3.5. 6.3.5 Authorize.

The act of sanctioning an action (as used in this specification, the act of directing (and funding) the preparation of drawings).

6.3.6. 6.3.6 Baseline Arrangement Drawings (submarines).

A series of submarine class drawings, controlled by NAVSEA 92, which depict the approved arrangement of components in specific compartments, spaces and areas which are used by Planning Yards to develop SHIPALT arrangement drawings. Any deviation from an approved baseline drawing must be approved by NAVSEA 92.

6.3.7. 6.3.7 Basic Alteration Class Drawings (BACDs).

The first complete set of drawings prepared for a SHIPALT; they are specifically applicable to the ship for which they are prepared and generally applicable to specific follow ships of a class.

6.3.8. 6.3.8 Bulk material.

Necessary constituents of any assembly or part such as oil, wax, solder, cement, ink, damping fluid, grease, powered graphite, flux, welding rods, thread, twine and chain from which the quantity required is not readily determinable or if knowing the quantity, the physical nature of the material is such that it is not adaptable to depiction on a drawing; or which can be cut to finished size by the use of such hand bench tools as shears, pliers, knives, etc., without any further machining operations and the configuration is such that it can be fully described in writing without the necessity of pictorial representation. In addition, high usage, low cost items and hardware generally available, such as, hinges, locks, light bulbs, fan belts, clamps, rivets, terminals, sleeving, wire, nuts, bolts, screws and washers, etc., are considered bulk materials providing such material are normally available in commercial channels and are normally procured in bulk quantities.

6.3.9. 6.3.9 Caution.

An examining or testing procedure which must be followed or risk damage to, or destruction of, equipment. Cautions shall be short, concise and used only to emphasize important or critical data. Cautions may be worded positively or negatively and shall state hazard and result or reason, unless obvious.

6.3.10. 6.3.10 Commercial item.

A term which includes both supplies and services of a class of kind which (a) regularly are used for other than Government purposes and (b) is sold or traded in the course of conducting normal business operations. NOTE: Services, per se, normally are not subject to delineation on engineering drawings.

6.3.11. 6.3.11 Contract.

All types of agreements and orders for the procurement of supplies or services.' It includes awards and notices of award; contracts of a fixed-price, cost, cost-plus-a-fixed-fee; or incentive type; contracts providing for the issuance of job orders, task orders, or task letters thereunder; letter contracts, and purchase orders. It is also includes supplemental agreements with respect to any of the foregoing.

6.3.12. 6.3.12 Contract drawing.

A NAVSEA drawing identified as a *Contract Drawing* which delineates design features of a ship. No departure from a contract drawing is permissible without specific NAVSEA approval. Contract drawings are not modified by or referenced on SHIPALT drawings.

6.3.13. 6.3.13 Contract guidance drawing.

A NAVSEA drawing identified as a *Contract Guidance Drawing* which illustrates design features of a ship. A contract guidance drawing does not necessarily depict, nor is it intended to depict, all features and details of the system and structures to which it relates. It serves the purpose of providing information which, when utilized in conjunction with applicable specification requirements, contract drawings, project-peculiar documents, and other information, may assist in detail design. Contract guidance drawings will not necessarily be updated or revised to reflect modifications. Contract guidance drawings are not modified by or referenced on SHIPALT drawings.

6.3.14. 6.3.14 Deficiencies.

Deficiencies are of two types: (1) conditions of characteristics in any hardware/software which are not in compliance with specified configuration, or (2) inadequate (or erroneous) configuration identification which has resulted, or may result, in configuration items that do not fulfill approved operational requirements.

6.3.15. 6.3.15 Design activity.

An activity having responsibility for the design of an item. The activity may be a Government activity or a contractor, vendor or others.

6.3.16. 6.3.16 Design agent.

An activity contracted or tasked to develop details of a design for which the design activity retains responsibility.

6.3.17. 6.3.17 Engineering data.

Engineering documents such as drawings, associated lists, accompanying documents, manufacturer specifications and standards, or other information prepared by a design activity and relating to the design, manufacture, procurement, test, or inspection of items or services.

6.3.18. 6.3.18 Engineering drawing.

An engineering document that discloses (directly or by reference) by means of pictorial and/or textual presentations the physical and functional end-product requirements of an item.

6.3.19. 6.3.19 Engineering/technical defect.

Defective drawing resulting from an error in engineering judgement, or data preparation, such as misinterpretation of a technical requirement in a specification or standard, producibility, assembly, installation, test, operation, maintenance or logistic support of an item.

6.3.19.1 A significant engineering/technical defect, as used in this specification, is defined as a defect in a drawing which, if reflected in the ship or equipment when built, could cause damage in either one, or would require more than five man-days of effort to correct in the ship or equipment.

6.3.19.2 A minor engineering/technical defect, as used in this specification, is defined as a defect in a drawing which, if reflected in the ship or equipment when built, would require an effort of five mandays or less to correct in the ship or equipment.

6.3.20. 6.3.20 In-process review.

A review of drawings in the process of preparation. The contractor or the Government or both may perform the review. In-process reviews are performed primarily to assure that drawings are being prepared in accordance with contract or tasking specification requirements. In-process reviews may be conducted at the contractor's (or Planning Yard's) facility (as applicable) at any time during the development of the drawing.

6.3.21. 6.3.21 Installation Control Drawing (ICD).

A drawing that sets forth information for an item in terms of parameters such as area, mass, weight, space, access clearance, drainage, mounting, ship service requirements, cleaning, testing, clearance, and pipe, waveguide and cable attachments required for the installation and co-functioning of the installed item with related items.

6.3.22. 6.3.22 Installing activity.

A generic term applying to any activity which may be called upon to install SHIPALTs. This includes, but is not limited to Shipyards, Intermediate Maintenance Activities (IMAs) and Ship's Force.

6.3.23. 6.3.23 Integrated Design Drawings.

See Multi-SHIPALT drawings.

6.3.24. 6.3.24 Manufacturer's drawing.

A ship equipment drawing identified by manufacturer's drawing number.

6.3.25. 6.3.25 Master file drawing.

A final, approved drawing which is designed to be the permanent file drawing.

6.3.26. 6.3.26 Modification drawing.

A drawing which modifies the engineering information presented on an existing drawing. Modification drawings are generally prepared instead of revising the existing drawing when the Master File Drawing is not available or revision of the existing drawing would cause confusion. Less than 25% of the existing drawing is affected by a modification drawing. (If more than 25% of the existing drawing is affected, a new, superseding drawing shall be prepared.)

6.3.27. 6.3.27 Multi-SHIPALT drawings.

Drawings prepared to incorporate more than one SHIPALT on one set of drawings in cases where SHIPALT interfaces are complex and render separate sets of drawings to support each involved interfacing SHIPALT impractical. These may also be referred to as Integrated Design drawings.

6.3.28. 6.3.28 NAVSEA drawing.

Contractor/Government-prepared original drawings acquired or revised by or for the Naval Sea Systems Command. These drawings are assigned a NAVSEA drawing number and may be modified by or referenced on SHIPALT drawings.

6.3.29. 6.3.29 Notes.

a. General Notes. Notes which state conditions under which a drawing was prepared and highlighting conditions, procedures or general information necessary for complete understanding of the work to be accomplished by the drawing.

b. Removal Notes. Notes providing information on the removal and disposition of equipment components and/or structures which must removed from a ship prior to the installation of other equipment, components and/or structures. Removal notes are normally placed after the General Notes on a drawing and sequentially numbered "R-1", "R-2", etc.

c. Special Notes. Examining or testing procedures or conditions which should be highlighted. Special notes are included as part of general, removal or test notes which require special attention and are not normally listed separately. Special notes shall be short, concise and used only to emphasize important or critical data.

d. Test Notes. Notes which state the testing criteria which must be met to certify the work to be accomplished by a drawing. Test notes shall not take the place of or reference specific test procedures but may invoke test criteria established by other documents such as 0902-018-2010,0902-LP-041-2010, S9AA0-AA-SPN-101/ GENSPEC or S9AA0-AB-GOS-010. Test notes are normally placed after the Removal Notes on a drawing and sequentially number "T-1", "T-2", etc. On drawings not having Removal Notes, Test Notes shall be placed after the General Notes.

6.3.30. 6.3.30 Proofing.

The process by which the Planning Yard assures the adequacy of the SHIPALT design by actual

test of the hardware and the accuracy of associated drawings by actual comparison with the completed installation.

6.3.31. 6.3.31 Review.

The process wherein technical data is checked, inspected or examined for conformance to specified requirements.

6.3.32. 6.3.32 Revision.

A second or subsequent edition of a drawing or document which supersedes the proceeding edition.

6.3.33. 6.3.33 Revision symbol.

An identifying letter which may be accompanied by a suffix number and enclosed in a circle or may be the printed letter in a revision column or block.

6.3.34. 6.3.34 Right Reading.

Term to describe an image which is directly readable as opposed to a mirror image.

6.3.35. 6.3.35 Selected record drawings (SRDs).

Drawings (usually structural or system diagrams) which have been selected because they contain basic information on hull, mechanical and electrical equipment and systems. These drawings are selected for their value for operational, maintenance, training and consulting purposes to Ship's Force, fleet commands, shipyard personnel, training centers and other naval activities. The drawings designated as Selected Record Drawings are maintained current and up-to-date throughout the life of the ship. The SRDs applicable to each class of ship are listed in NAVSEA SL720-AA-MAN-010.

6.3.36. 6.3.36 Ship construction drawings.

Drawings which are necessary for construction of the ship and other related drawings as required by Section 085 of NAVSEA S9AA0-AA-SPN-010/ GENSPEC.

6.3.37. 6.3.37 SLM.

Ship Logistics Manager

6.3.38. 6.3.38 SPM.

Ship Acquisition Project Manager

6.3.39. 6.3.39 Specification, government.

A government document identified as a Federal Specification (Fed. Spec.), a Department of Defense Specification (DOD Spec.), a Military Specification (Mil. Spec.) or a NAVSEA Technical Specification (NAVSEA Tech. Spec.) which describes the technical requirements for items, materials or services, including the procedures by which it will be determined that the requirements have been met.

6.3.40. 6.3.40 Standard.

A document which establishes engineering and technical limitations and applications for items, materials, processes, methods, designs and engineering practices.

6.3.41. 6.3.41 Standard drawing.

A NAVSEA drawing designated as a *Standard Drawing* delineates arrangements or details of systems, equipment or components. No departure from details of a standard drawing shall be made without the specific written approval of NAVSEA. Departures from a referenced standard drawing on a working drawing shall be noted on that drawing and the authority for the departure shall be indicated.

6.3.42. 6.3.42 Standard, government.

A standard developed by or for a Government activity.

6.3.43. 6.3.43 Standard, non-government.

A nationally recognized standardization document is- sued with intent to establish common technical requirements by a non-government organization which conducts professional standardization activities and which is not organized for profit. (Does not include *COMPANY STANDARDS).*

6.3.44. 6.3.44 Superseding drawing.

A drawing which is prepared to totally replace an existing drawing.

6.3.45. 6.3.45 Supplementary Alteration Drawings (SADs).

Drawings which modify design details presented on a BACD; required to depict individual ship differences or extend applicability of BACDs to specify follow ships.

6.3.46. 6.3.46 System (electrical - electronics).

A combination of two or more sets, generally physically separated when in operation, and such other assemblies and parts necessary to perform an operational function or functions. For example: AEW electronic system, antiaircraft defense system, telephone carrier system, GCA electronic system, fire control system including the tracking radar, computer, and gun mount.

6.3.47. 6.3.47 System (general).

A combination of parts, assemblies and sets joined together to perform a specific operational function or functions. (Examples: piping system, refrigeration system, air conditioning system).

6.3.48. 6.3.48 Technical data, limited rights.

The right to use, duplicate or disclose technical data, in whole or in part, by or for the Government, with the express limitation that, without the written permission of the party furnishing the data, such technical data shall not be:

a. Released or disclosed in whole or in part outside the Government

b. Used in whole or in part by the Government for manufacture, or in the case of computer software documentation, for preparing the same or similar computer software, or

c. Used by a party other than the Government, except for:
    1. Emergency repair of overhaul work only, by or for the Government, where the item or process concerned is not otherwise reasonably available to enable timely performance of the work, provided that the release or disclosure thereof outside

the Government shall be made subject to a prohibition against future use, release or disclosure; or

2. Release to foreign government, as the interest of the United States may require, only for information or evaluation within such government or for emergency repair or overhaul work by or for such government under the conditions of (1) above.

6.3.49. 6.3.49 Technical data, unlimited rights.

The right to use, duplicate or disclose technical data or computer software in whole or in part, in any manner and for any purpose whatsoever, and to have or permit others to do so.

6.3.50. 6.3.50 Type drawing.

A NAVSEA drawing designated as a *Type Drawing* which delineates or illustrates design features of systems or components. No departure from any feature identified as *Mandatory* shall be made without the specific written approval of NAVSEA. Departures from mandatory features of a referenced type on a working drawing shall be noted on that drawing and the authority for the departure shall be indicated. The illustrative features are subject to detail design development to assure full compliance with these specifications.

6.3.51. 6.3.51 Validation.

The process by which the Planning Yard or overhaul activity assures the technical accuracy and adequacy of a drawing and that it represents the current configuration of the applicable ship by actual inspection.

6.3.52. 6.3.52 Warning.

An examining or testing procedure or practice which must be closely observed or risk either loss of life or injury to personnel. Warnings may be worded positively or negatively and shall state the hazard and result or reason. Warnings shall be short, concise and used only to emphasize specific dangers. Warnings are generally included as part of a General or Test Note, view, etc., which requires special attention and are not normally listed separately.

6.3.53. 6.3.53 Working drawing.

Those drawings which enable the following key functions to be accomplished.

a. Order material.

b. Plan manufacturing, fabricating, assembly operations, tooling and manufacturing facilities.

c. Estimate the cost of material and labor.

d. Inspect and control quality and reliability.

e. Perform fabrication, assembly and installation.

f. Prepare system tests.

TECHNICAL SPECIFICATION
TITLE: SHIP SELECTED RECORD DRAWINGS
NO.: TS9090-800A
DATE: JUNE 2002
SUPERSEDES: TS9090-800, dated MAY 86

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Published By
Commander, Naval Sea Systems Command

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SHIPS SELECTED RECORD DRAWINGS

1. SCOPE

1.1 Introduction. This specification establishes the procedures for preparation of technically adequate Selected Record Drawings (SRDs) and consistent format and revision methodology for all active fleet ships of the U. S. Navy. This specification does not apply to Selected Record Drawings under the technical cognizance of NAVSEA 08.

2. APPLICABLE DOCUMENTS

2.1 General. The following documents of the issue in effect on the date specified in the data of the tasking correspondence form a part of this specification to the extent specified herein.

2.1.1 Government documents.

2.1.2 Specifications, standards, and handbooks. The following specifications, standards, and handbooks of the exact revision listed below form a part of this document to the extent specified herein.

SPECIFICATIONS

MIL-DTL-31000	Technical Data Packages, General Specifications for.
NAVSEA Technical Specification 9090-600	Ship Alteration Drawing Preparation, Technical Specification

STANDARDS

DOD-STD-100	Engineering Drawing Practices
MIL-STD-129	Marking for Shipment and Storage

2.1.3 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications of the exact revision level shown form a part of this document to the extent specified herein.

MANUALS

NAVSEA 0902-018-2010	General Overhaul Specifications for Deep Diving SSN/SSBN Submarines
NAVSEA SL720-AA-MAN-010	Fleet Modernization Program Management and Operations Manual

NAVSEA 0924-LP-062-0010	Submarine Safety Requirements Manual
NAVSEA S9040-AA-IDX-020/SWBS 5D	Expanded Ship Work Breakdown Structure
NAVSEA S9AAO-AA-GSO-010	General Specifications for Overhaul of Surface Ships (GSO) Including the Aegis Supplement
NAVSEA 0902-LP-041-2010	Standard Specification for U. S. Navy Craft

INSTRUCTIONS

NAVSEAINST 9085.2	Naval Sea Systems Command Engineering Drawing Management Program (EDMP): Policy and Responsibilities for
SECNAVINST 5510.36	Department of the Navy (DON), Information Security Program (ISP)
SECNAVINST 5510.30	Department of Navy Personnel Security Program
COMSCINST 9000.1	Preparation, Maintenance and Distribution of Selected Record Plans and Booklets for MSC Ships (USNS)

2.2 Precedence. In the event of conflict between the requirements of this specification and the documents referenced herein, the requirements of this specification shall apply; except that in the event of conflict between the requirements of this specification and the requirements of NAVSEA 0902-018-2010, NAVSEA 0902-LP-041-2010, or NAVSEA S9AA0-AB-GOS-010, the requirements of those documents shall apply.

3. REQUIREMENTS

3.1 General. SRDs are a group of ships drawings specifically selected for their reference value which illustrate important features, systems and arrangements applicable to an individual ship, which are maintained current throughout the life of the ship. Appendix A specifies the drawings required for each ship type.

The increasing sophistication of ships systems and equipment requires that the supporting SRDs be as clear, accurate and complete as possible. Figure I is an example of drawing detail required.

Ships Selected Record Drawings (SRDs) shall conform to the applicable documents listed and additional requirements specified herein. Within the requirements of DOD-STD-100,

MIL-DTL-31000, NAVSEA S9AA0-AB-GOS-010 (Sect 085), and the direction contained herein, Planning Yards shall provide Selected Record Drawings services as tasked.

Selected Record Data for ships operated by the Military Sealift Command shall be in accordance with COMSCINST 9000.1.

3.2 Responsibilities. The Planning Yard for each ship class is the Engineering Design Agent for SRDs. Unless otherwise directed by NAVSEA, the Planning Yard is responsible for the development, maintenance and update of SRDs.

3.3 Drawing Requirements and Guidelines.

3.3.1 General. Selected record drawings shall be prepared for each ship. Each drawing shall show the official number of that ship only. Individual NAVSEA drawing numbers shall be assigned to each drawing for each ship. Selected record drawings shall be validated to ensure they reflect the as-delivered configuration of the ship. SRDs shall be drawn to show the actual arrangement, configuration of systems, and other technical data, following a configuration validation trackwalk onboard the individual ship. (Some SRDs, such as Tank Capacity Drawings, may have to be developed from other documentation instead of trackwalked.)

SRDs shall be drawn for each specified propulsion plant system and arrangement and statements such as *Similar for Engine Room No. 2* or such an equivalent note or sketch are not acceptable.

SRDs shall be user oriented in that they provide sufficient detail and engineering support data for operational, testing, inspection, maintenance, training, and consulting purposes to individual ship's forces, fleet commands, shipyard personnel, and other activities.

3.3.1.1 Format. Physical layout shall be correct to the precision required for such a drawing; i.e., proper relationship of ships systems and equipment and include bulkhead numbers and compartment and deck identification, by name and number. The format for Title Blocks shall be in accordance with NSTS 9090-600, Sections 3.5.4.1 and 3.5.4.2 excepting drawing title information specified in Section 3.5.4. l(a). Drawing titles shall be in accordance with Appendix A of this specification.

3.3.1.2 "F" and "H" drawings. New SRDs of ships systems and arrangements shall be developed on size "F" (28" x 40") sheet(s) for most large drawings. Drawings which must be prepared as a single continuous drawing (not multiple sheets) such as some complex piping and wiring system diagrams, docking drawings, and compartment and access drawings which would exceed the length of size "F" sheets, shall be prepared as size "H" drawings. Size "H" drawings shall only be used for drawings which must display information on one continuous sheet or would be confusing if prepared as a multiple sheet drawing. Size "A" or "B" sheets may be used for intermediate size drawings, such as *Flexible Connections List*, where the data is not appropriate for, or the quantity of information does not justify size "F" sheets.

3.3.1.3Level of detail. General guidelines for determining the level of detail required for development of SRDs shall be similar, but not limited to those indicated in example system categories listed below:

a. **Piping.** A single-line drawing shall be used to depict the diagrammatic configuration of the system, showing valves, special fittings and components in their proper relationship. Additional features to be incorporated shall normally include the following:

1. Pipe size identification (e.g., 1 1/2", 2", 2 1/2", etc.)
2. Component identification numbers (e.g. 1MS-V1, 1MS-F25, IMS-GA10, 1MS-TH15, etc.)
3. Component List (See 3.3.1.4)
4. Identification of all interface systems
5. System flow arrows if appropriate (Not appropriate where system flow direction varies under different operating conditions.)
6. List of Symbols
7. List of Applicable References

b. **Ventilation.** A single-line drawing shall be used to depict ventilation and air conditioning recirculation system showing locations of fans, heaters and cooling coils and areas served by the system. Additional features to be incorporated shall include the following:

1. Fan Data Table (with following)

   a) Fan number and size

2. List of Applicable References

c. **Electrical.** A single-line diagram shall be used to depict the ships power system and shall also include enough specific data as follows:

1. **60 and 400 Hertz Power** Systems. Single-line diagram to power panels and distribution boxes with loads stubbed off.
2. **60 and 400 Hertz Metering and Control.** Single-line diagram between switchboards and wiring diagram.
3. Index of sheets
4. List of Applicable References

d. **Tank Capacity.** Curves of capacity, centers of gravity and moments of inertia for Main Ballast Tank, Bow Tank, Fuel Oil, Auxiliary, Trim, Negative, Water Around Torpedo Tubes (WRT), Hydraulic Oil, Lubricating Oil, Potable Water, Sanitary and Fresh Water shall be provided as follows for use in determining ship stability:

1. Capacity
2. Vertical center of gravity
3. Longitudinal center of gravity
4. Transverse center of gravity

5. Moment of Inertia (where applicable)
6. Residual Water including Items 1-4 inclusive (where applicable)
7. Cavity Drain including items 1-4 inclusive (where applicable)

e. **Naval Architecture Characteristics.** Various drawings that depict the principal static naval architectural characteristics of a submarine should include:

1. Displacement and Other Curves
2. Lead Ballast stowage
3. Moment Diagram
4. Longitudinal *Flotational* Diagram

f. **Hull/Structural.** Hull/Structural drawings shall provide such things as deck superstructure components, compartment arrangements, accesses, ladders, fittings, mast, etc. These drawings shall also include compartment/tank numbers, tank service identification, deck heights, etc.

g. **Flexible Connections List.** Format shall be similar to Figure 3-3 of NAVSEA manual 0924-062-0010 and contain as a minimum the following:

1. Service and system in which installed
2. Location (pipe" or equipment)
3. Size (normal)
4. Required replacement date
5. Appropriate specifications
6. Vendor model and part numbers for parts in assemblies.

h. **Special Drawings.** Sub-Safe Certification mapping drawings, Sub-Safe Penetration drawings, Asbestos Removal drawings, Noise Review road maps, and other Special Drawings shall be as specified by NAVSEA 0902-018-2010, NAVSEA S9AA0-AB-GOS-010, or S9AA0-AA-SPN-010/GEN-SPEC, as applicable.

i. **Arrangement Drawings.** Arrangement drawings shall be prepared in accordance with NAVSEA Technical Specification 9090-600, Section 3.5.9.

3.3.1.4 Component List. A Component List shall be incorporated into the applicable SRDs. This includes, functionally significant piping, valves, fittings, special fittings, instrument list, etc., as defined by NAVSEA S9040-AA-IDX-020/SWBS 5D.

a. The format for the Component List shall include the following:

1. Piece number (ex. 1MS-V33A, 1MS-F42, 1MS-GA55)
2. Quantity of pieces identified by quantity of one.
3. Description of item size and noun name (ex. 5", gate valve)
4. Expanded Ship Work Breakdown Structure (ESWBS) 5 digit number for configuration worthy items as identified in NAVSEAINST 4790. 1A.
5. Functional description/service (1MS-33A Mn Stm COV. #1 Mn Fd Pmp)

* When authorized and invoked by the Ships Logistics Manager (SLM) or Ship Acquisition Project Manager (SHM).

3.3.1.5 General notes. SRDs shall contain a complete list of General Notes. The first general note shall read similar to the following:

"This is a Selected Record Drawing developed from conditions existing on the USS *(SHIP* NAME & HULL NUMBER) during shipcheck on (DATE) and includes all modifications up to and including the FY (YEAR. TYPE of Availability)."

3.3.1.6 Ship Drawing Index (SDI). Each Selected Record Drawing shall be listed in the Ships Drawing Index (SDI) under BSCI/SWAB/SWBS number "000" in addition to the applicable BSCI/SWAB/SWBS number assigned to drawing.

3.3.1.7 Shipcheck block. As each Selected Record Drawing is updated, the Shipcheck Block on the drawing above the title block shall also be updated to indicate that the drawing has been checked and corrected to show conditions actually existing on the ship.

3.3.2 Safeguarding Classified Information and Unclassified Information. SRDs and associated lists containing classified information shall be marked in accordance with SECNAVINST 5510.36 and SECNAVINST 5510.30. Further, those drawings and associated lists containing Naval Nuclear Propulsion Information, as defined in Enclosure (1) of NAVSEAINST C5511.32, shall be marked pursuant to the requirements established in NAVSEAINST C5511.32.

3.3.3 Guidelines for Updating SRDs. The following guidelines should be followed to determine the action required in the updating of SRDs.

a. A revised drawing is authorized if the following conditions are met: The original tracing of the drawing is available and reproduction quality is acceptable. In preparing the revision, the original tracing shall be revised if alteration changes can clearly be shown without the loss of existing clarity, detail and engineering support data and the original meets the drawing requirements specified herein.
b. A superseding drawing is required if any of the following conditions apply:

    1. The original tracing of the drawing is missing or is not available.
    2. The original tracing does not meet the drawing requirements specified herein and changes to the drawing are required to suit the subject ship. SRDs are not to be redrawn for the sole purpose of meeting the drawing requirements specified herein.
    3. Whenever the original of an SRD, because of age, extensive corrections or other reasons, deteriorates so that legible prints cannot be made, a new drawing must be prepared. When preparing new drawings for any of the above reasons and the original does not meet the drawing requirements herein, they shall be developed in accordance with these requirements and the drawings assigned a new NAVSEA drawing number.

c. A new drawing is authorized when alterations have been accomplished that would normally require correction of SRDs as specified herein, but where these drawings have not been previously prepared, the following procedures shall be adhered to:

1. Where only a class drawing exists, a reproducible copy is to be made provided it can be corrected to meet the drawing requirements specified herein and to reflect the specific hull configuration (Class Docking Drawings excepted per NSTM, Chapter 997 - Docking Instructions and Routine Work in Drydock (NAVSEA S9086-7G-STM-000)). This drawing shall be assigned a new NAVSEA drawing number and designated as the SRD applicable only to the subject ship.
2. When a specific SRD does not exist or was never provided by the Planning yard or the ship, a new original drawing shall be prepared in accordance with the drawing requirements specified herein by the Planning Yard (Class Docking Drawings excepted per NSTM, Chapter 997 - Docking Instructions and Routine Work in Drydock (NAVSEA S9086-7G-STM-000)).

3.3.3.1 Inactive Ships SRD Preparation**.** When inactive ships are being activated for assignment to the active fleet, the SRDs are to be corrected as necessary to suit requirements specified herein.

3.3.3.2 Nuclear-Powered Ship Docking Drawing**.** Docking drawing for nuclear-powered ships must be prepared and/or revised in conformance with the requirements of Naval Ships Technical Manual, Chapter 997 - Docking Instructions and Routine Work in Drydock (NAVSEA S9086-7G-STM-000) and additional requirements of FMP Manual SL720-AA-MAN-010.

3.3.3.3 Reactor Plant SRD Requirements. Requirements relative to Reactor Plant Selected Record Drawings are provided in Subsection 4.13 of FMP Manual SL720-AA-MAN-010.

3.3.3.4 Submarine Rescue and Salvage Drawings. The Salvage System Arrangement and Booklet of General Drawings for submarines are designated as Rescue and Salvage Drawings. These drawings must be accurate and available at all times for use in the event of a submarine disaster. The Booklet of General Drawings is to be modified to include a compartment flooding effect tabulation and bulkhead holding depths as follows:

a. Each main watertight compartment
b. Floodable volume of each compartment in gallons and tons
c. Vertical and horizontal centers of gravity for specific flooding levels for each main compartment
d. Maximum holding depth for which the internal main division bulkheads are designed

Whenever changes affecting the Rescue and Salvage Drawings are made by a shipyard, the shipyard will furnish prints of such drawings to the Commanding Officer of the submarine concerned. The Commanding Officer will be responsible for certifying that these prints either conform to the actual arrangement, or are marked up to show differences, and then return them to the shipyard. Prior to the submarine's departure, the shipyard will furnish the Commanding Officer two reproducible copies of the corrected drawing and additional prints as requested. If an

alteration is made by Forces Afloat, the Commanding Officer of the submarine will mark up his drawing accordingly, submit the drawing to the Planning Yard for update and distribution, and notify operational commands as specified by Type Commanders. To avoid confusion in identifying revisions by alteration number, the reproducible copies of Rescue and Salvage Drawings will not be altered except by shipyards.

3.3.4 SRD Revisions.

3.3.4.1 General. Revisions to SRDs shall be made in accordance with DOD-STD-100 with particular attention to areas amplified herein.

3.3.4.2 Revision Methods. Revisions shall be made by erasure, addition of information, or by redrawing. Revisions to CAD-generated drawings shall be developed by CAD systems only.

3.3.4.3 Identifying Revisions on SRDs. Revision locations shall be identified by all of the following methods:

a. Revision symbols on field of drawing.
b. Description in the revision block.
c. Zone in the zone column within the revision block.
d. Revision authorization document referenced on drawing.

3.3.4.4 Multiple Changes. All changes to a SRD incorporated at one time shall be identified by the same revision letter. The changes shall be numbered sequentially to permit ready identification of a specific change. In this case, the appropriate sequence number will appear as a suffix to the revision letter.

3.3.4.5 Required Revisions. Any change to an SRD shall be recorded as a revision. When security classification is changed on a drawing, this will also constitute a revision to the drawing.

3.3.4.6 Recording Revision Description on SRDs. Revision description shall be written as briefly and concisely to provide sufficient detail as necessary to accurately define the change in the description column.

3.3.4.6.1 Zoning. When changes are recorded by zoning, the zone in which each change is made shall be entered in the zone column on the same line as the description of the change.

3.3.4.7 Revision Of Multi.Sheet SRDs.

3.3.4.7.1 Requirement. Concurrent changes made upon any or all sheets of a multiple-sheet drawing shall be identified on each sheet so revised by the same revision letter. Each revision affecting any or all sheets shall be identified on the revision record sheet or status of sheets block.

3.3.4.7.2 Procedure.

a. Revision upon any sheet of the drawing shall be made and recorded in the usual manner except that the sequence of revision letters and serial suffixes shall apply to the drawings as a whole rather than to each individual sheet. Sheet 1 shall include a tabulation to indicate the revision status of each sheet comprising the group. Whenever a change is made on any sheet, the revision letter applicable to that change shall be entered in the revision status block on Sheet 1, both in the column for the revised sheet and for Sheet 1 (regardless of whether there is any other change on Sheet 1). No revision symbols are required to indicate these entries in the revision status block. For each other sheet, the last applicable revision letter shall be entered in the appropriate column of the revision status block. For all sheets that have never been revised, a dash shall be entered in the appropriate columns.
b. In the case of computer prepared multi-sheet drawings all sheets shall be identified by the same revision letter regardless of which sheet the revision applies to.

3.3.5 Signature Responsibilities. SRDs shall have (as a minimum) the signature entries listed below in the title block region of the drawing as delineated by NAVSEA Technical Specification 9090-600. The person signing for each of the signature entries is responsible for the following functions:

a. Drawn or Prepared by. This shall consist of the printed name of the person who prepared the drawing.
b. Reviewed or Checked by. This shall consist of the printed name of the person who reviewed or checked the drawing and the responsible Technical Code Number.
c. Approved by. This shall consist of the signature of the person responsible for the lead on the project in the Planning Yard Technical Code (i.e., Lead Engineer, Group Leader, or Supervisor). This person shall: (a) be responsible for properly invoking the engineering and technical requirements (i.e., MIL-STD, MIL-SPECS, etc.); (b) ensure compliance with engineering drawings standards; (c) be knowledgeable of the ships system configuration validation shipcheck and initial drawing preparation; and (d) perform the final independent review of the completed SRD for all aspects of quality (i.e., procedural, technical, engineering, and incorporation of shipcheck information).

If the SRD is prepared by a Contractor, the approval line shall be signed by the senior Navy person responsible (see (c) above) for the content of the drawings. In all cases a Navy Title Block shall be used.

3.3.5.1 Product quality. Personnel responsible for SRD preparation, reviewing or checking and approval shall utilize drawing checklists and audits, as necessary, to ensure product quality in accordance with specifications herein and established procedures for other drawings in consonance with governing requirements (e.g., NAVSEA TL855-AA-STD-010 - Shipyard Quality Program Manual).

3.3.5.2 Overall quality. In the event that SRD preparation is performed by an activity (Government or Private) other than the cognizant Planning yard, the overall quality of the SRD effort remains the responsibility of the Planning Yard.

3.3.5.3 Submarines. For submarines, the above does not relieve the overhaul shipyard of the responsibility, as set forth in NAVSEA 0902-018-2010, to:

a. furnish the ship prior to fast cruise with one full sized print of each selected record drawing reflecting the end of overhaul configuration.
b. provide written certification, prior to fast cruise, to the submarine commanding officer, with copies to the appropriate Type Commander and Squadron Commander and NAVSEA, that the selected record drawings affected during overhaul/conversion have been updated and reflect, as a minimum, all accomplished SHIPALTs and all changes wrought by the Ship's Force.

3.3.6 SRD Distribution. SRDs shall be distributed in accordance with NAVSEA SL720-AA-MAN-010.

4. QUALITY ASSURANCE

4.1 Responsible For Inspection. Unless otherwise specified in the tasking documentation or contract, the Planning Yard shall be responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the tasking documentation or contract, the Planning Yard may use its own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by NAVSEA. NAVSEA reserves the right to perform any of the applicable inspections set forth in the documents referenced herein, which are deemed necessary to assure engineering drawings and associated lists conform to prescribed requirements.

4.1.1 Sampling. NAVSEA will normally perform inspection of drawings on a sampling basis and will normally use the evidence of this sampling as indicating performance or nonconformance to these specifications.

4.1.2 Planning Yard's Drawing Control System. The Planning Yard shall provide and maintain a system for the detailed examination and technical review of all engineering drawings and associated lists to be supplied under the terms of the contract or tasking documentation. The system shall assure the conformance of the engineering drawings and associated lists to all requirements specified herein. The system including the procedures shall be documented and shall be subject to review by NAVSEA or its designated representative. The control system is subject to the disapproval of NAVSEA or its designated representative, whenever it can be demonstrated that it fails to assure conformance to the requirements specified herein.

4.1.2.1 Availability of Supporting Data. The Planning Yard shall permit NAVSEA to review the supporting data normally retained by the Planning Yard in the original format that the Planning Yard used to make its design decisions, in order to aid the NAVSEA representative in the review of the Planning Yard's design.

4.1.2.2 Drawing Control Procedures. The Planning Yard's drawing control procedures shall cover:

a. Assignment of responsibility for detail examination, review, and signature authority of drawings for the Planning Yard.
b. Required qualifications of personnel performing detail examination, review, and signature authority of drawings for the Planning Yard.
c. Procedural flow of drawings and other associated documentation.
d. Check lists to be used in the detail examination and review of drawings. The check lists shall specify each examination to be performed to verify conformance of drawings to the applicable requirements of this specification and the contract or tasking documentation.
e. Method of safeguarding classified information.
f. Methods providing for the prevention and ready detection of discrepancies and for timely and positive corrective action.
g. Method of safe storage of Selected Record Drawings, reference drawings, and other ship design documentation.
h. Methods providing for controlled issue of drawing copies, both reproducible and non-reproducible.

4.2 Nonconforming Data Items.

4.2.1 Format Defects. There may be random sampling by NAVSEA for quality of drawing format of all Planning Yard drawings as they are issued. When numerous format defects are discovered on Planning Yard drawings, the Planning Yard shall correct its process to prevent recurrence of defects found, but need not correct or redraw drawings or portions of drawings already issued unless they are illegible, do not meet the reproducibility requirements, or affect usability.

4.2.2 Engineering/Technical Defects. Selected drawings subordinate to each system diagram or system drawing may be reviewed by NAVSEA to determine whether they describe a system which will meet the specified requirements.

4.2.2.1 Significant Engineering/Technical Defects. When, as a result of this review, it is determined that a drawing contains significant engineering/technical defects, such defects will be identified to the Planning Yard, which shall review all other drawings subordinate to the next higher level of drawing (for example, system diagram or system drawing), for similar defects and then correct promptly all defects found.

4.2.2.2 Minor Engineering/Technical Defects. When, as a result of this review, it is determined that a drawing contains minor engineering/technical defects, such defects will be identified to the Planning Yard, which shall correct them.

4.2.2.3 Numerous Engineering/Technical Defects. Numerous engineering/technical defects, whether significant or minor, will be considered as an indication of poor Planning Yard quality

control, and the Planning Yard shall correct its process. The Planning Yard shall advise NAVSEA of the results of its process review, including drawings examined, the number of like deficiencies found, and the steps taken to prevent recurrence.

4.2.3 Microfilm. Those microfilm system elements described herein which, after inspection by NAVSEA or its designated representative, are found not to be in compliance with specification requirements shall be replaced at no additional cost to the Government.

4.3 Inspection of Preparations for Delivery. Packaging and packing of documents to be delivered under this specification shall be inspected to insure that the preparation for-delivery requirements are met.

5. PREPARATION FOR DELIVERY

5.1 Packaging. All drawings and lists delivered under this specification shall be packaged for mailing or shipping in accordance with Level A requirements of MIL-PRF-5480, except that blueline prints of size "D", "F" or "H" drawings forwarded to NAVSEA, its designated representative, or an installing activity shall be folded, accordion fashion, to 8 1/2" by II" height, with the title block completely visible.

5.1.1 Classified Material. Classified material shall be packaged in accordance with SECNAVINST 5510.36.

5.1.2 Packing. All drawings and lists delivered under this specification shall be packed in accordance with level C of MIL-PRF-5480.

5.2 Marking of Shipments. Identification and address markings for interior packages and shipping containers shall be in accordance with MIL-STD-129.

6. NOTES

6.1 Intended Use. Ship Selected Record drawings are used to provide a record of important features, systems and arrangements applicable to an individual ship, which are maintained current throughout the life of the ship.

6.2 Ordering Data.

6.2.1 Procurement Requirements. Procurement documents should specify:

a. Title, number and date of this specification.
b. When Government design activity drawing numbers are to be assigned, identify the assigning activity, and if Government drawing formats are to be supplied, identify the source.
c. The applicable Data Item Description (DID).
d. That the metric system shall not be used.
e. Whether company drafting standards are accepted.

f. Kinds of associated lists required.
g. Drawing assembly level at which associated lists will be prepared.
h. Identify whether the mono-detail system will be used.
i. Selection of types of engineering drawings if different from MIL-DTL-31000.
j. Quantity and type of reproduction.
k. Whether microfilm is required, and if so, what type is required.
l. Whether delivery of original drawings and undimensional drawings are required.
m. What special packaging of originals, when ordered, is required.
n. Delivery schedule, and to whom the engineering drawings and supporting documents are to be delivered.

6.2.2 Data Requirements. When this specification is used in a contract procurement, the provisions of 52.277-7015 (Rights in Technical Data-Specific Acquisition) of the Department of Defense (DOD) supplement to the Federal Acquisition Regulation (FAR) shall be invoked and the data requirements identified below will be developed as specified by an approved Data Item Description (DID) (DD Form 1664) and delivered in accordance with the approved Contract Data Requirements List (CDRL) (DD Form 1423) incorporated into the contract. Deliverable data required by this specification is cited in the following paragraphs:

Paragraph	**Data Requirement**	**Applicable DID**
3.3	Selected Record Drawings	DI-E-7031

(Copies of Data Item Descriptions required by the contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

APPENDIX A TO NSTS 9090
SELECTED RECORD DRAWINGS FOR SHIP CLASSES

Table I
Section A
AOE-AS

Section B
CG-DDG

Section C
LCC-MHC

Table II
CV, CVN

Table III
SS, SSN, SSBN

Table IV
Other Ships

TABLE I, SECTION A
SELECTED RECORD DRAWINGS
(Note: For MSC operated ships, refer to COMSCINST 9000.1)

DRAWING TITLE	SHIP: CLASS:	AOE 1	AOE 6(TBD)	ARS 50	AS /39
Docking Drawings		X		X	X
Booklet of General Drawings		X		X	X
Schedules of Watertight Integrity Tests & Inspections		X		X	X
Tank Capacity and Vertical Center of Gravity Curves		X		X	X
Booklet of Tank Sounding Tables		X		X	X
Running, Signal and Anchor Lights (Location drawing) (To be included in Booklet of General Drawings.)		X		X	X
Main Steam Systems Diagrams		X			X
Auxiliary Steam System Diagram		X			X
High Pressure Steam Drain Systems Diagram		X			X
Condensate System Diagrams		X			X
Feed System Diagrams and Reserve and Makeup Feed		X			X
Main Sea Water Cooling System Diagrams		X			X
Auxiliary Sea Water Cooling System Diagrams		X			X
Steam Operated Distilling System		X			X

TABLE I-A-1

TABLE I, SECTION A
SELECTED RECORD DRAWINGS

DRAWING TITLE	SHIP: CLASS:	AOE 1	AOE 6	ARS 50	AS 39
Steering Gear Hydraulic Systems Diagram		X			X
High Pressure Air System Diagrams (Ind MP)		X		X	X
60HZ A.C. Power Distrn System Diagrams		X		X	X
400 HZ A.C. Power Distrn System Diagrams		X		X	X
Low Pressure Steam Drain System Diagrams		X			X
Fresh Water Drain Collecting System Diagrams		X			X
Steam Plant Control System Diagrams (Including Steam Plant Control Panel and Benchboards)		X			X
Ships Service Auxiliary Cooling Water Diagrams		X			X
Ships Service Power Sources Diagram (Including equipments such as SSTGs, SSMGs, CTG, Diesel Generators, Batteries that are not included in Power Distribution Systems above)		X			X
Main Lube Oil System Diagrams		X		X	X

TABLE I-A-2

TABLE 1. SECTION A
SELECTED RECORD DRAWINGS

DRAWING TITLE	SHIP: CLASS:	AOE 1	AOE 6	ARS 50	AS 39
Lube Oil Fill, Transfer and Purification System Diagrams		X		X	X
Ships Service Circulating Water System Diagrams (Those portions associated with the Propulsion Plant)		X			X
Steam Plant Salinity Indicator System Diagrams		X			X
Service and Control Air Systems Diagrams (Those portions associated with the propulsion plant)		X			X
Asbestos Removal Drawings		X			X
HVAC Diagrammatic and System Control Drawings		X			X
Ordnance Handling Drawings		X			
Fire Fighting Systems Diagrams		X			X
Electronic Cooling Water Systems Diagrams		X			X
Helo Landing and Signal Lighting System Diagrams		X			X
H.P. Auxiliary Steam System Diagrams		X			X
Auxiliary Exhaust Steam System Diagrams		X			X

TABLE I-A-3

TABLE I, SECTION A
SELECTED RECORD DRAWINGS

DRAWING TITLE	SHIP: CLASS:	AOE 1	AOE 6	ARS 50	AS 39
Gland Sealing Steam System Diagrams		X			X
Auxiliary Gland Leak-Off System Diagrams		X			X
Air Vent Piping System Drawings		X			X
LP Air System Diagrams		X			X
Flooding Effect and Liquid Loading		X			X
Sub-Division First Platform and Below		X			X
Sub-Division Main Deck and Above		X			X
JP-5 Filling, Transfer, and Overflow Systems		X			X
Casualty Power Supply Systems		X			X
Casualty Communications Systems		X			X
Vital DMG CTL Elect Eqpt and Power Supply Chart		X			X
Communications Directory		X			X
Potable (Propulsion Plant) Support Water Fill, Transfer Service and Purification System		X			X
Chilled Water Systems Drawings		X			X

TABLE I-A-4

TABLE I, SECTION A
SELECTED RECORD DRAWINGS

DRAWING TITLE	SHIP: CLASS:	AOE 1	AOE 6	ARS 50	AS 39
Main and Secondary Drainage System Drawings		X			X
Oily Water Transfer System Drawings		X			X
CIC Arrangement of Eqpt		X			X
Boiler Blow System Diagrams		X			X
Pilot House and Bridge Wing Arrangement of Eqpt		X		X	X
Computer Room Arrangement of Eqpt					X
Communications Central Arrangement of Eqpt		X		X	X
Topside Arrangement Drawings		X		X	X
Compartment and Access Drawings		X			X
Topside Ant Sys Arrangement		X			X
Deep Submergence System (DSS) Drawings (as specified in Certification Milestones)				X	
Fuel Oil Transfer Systems Diagrams		X			X
Fuel Oil Stripping System Diagrams		X			X
Fuel Oil Service System		X			X
Electrical Load Analysis		X			X

TABLE I-A-5

TABLE I, SECTION A
SELECTED RECORD DRAWINGS

DRAWING TITLE	SHIP: CLASS:	AOE 1	AOE 6	ARS 50	AS 39
Pumping, Drainage and Ballasting System Drawings		X			X
H.P. Air Start System Drawings (Gas Turbine and Diesel Propulsion Only)					
Dirty Oil Drain System Drawings (Gas Turbine and Diesel Propulsion Only)					
Air Inlet System Drawings (Gas Turbine and Diesel Propulsion Only)					
Air Inlet Separator System Drawings (Gas Turbine and Diesel Propulsion Only)					
Muffler System Drawings (Gas Turbine and Diesel Propulsion Only)					
ACC/FWC Systems Diagrams		X			X
Underway Replenishment Drawings (AO, AOR, AOE, AFS,AE)		X			

TABLE I A-6

TABLE I, SECTION B
SELECTED RECORD DRAWINGS

DRAWING TITLE	SHIP: CLASS:	CG 47	DD 963	DDG 51
Docking Drawings		X	X	X
Booklet of General Drawings		X	X	X
Schedules of Watertight Integrity Tests & Inspections (except service craft)		X	X	X
Tank Capacity and Vertical Center of Gravity Curves		X	X	X
Booklet of Tank Sounding Tables		X	X	X
Flexible Connections List		X	X	X
Running, Signal and Anchor Lights (Location drawing) (To be included in Booklet of General Drawings)		X	X	
Main Steam Systems Diagrams				
Auxiliary Steam System Diagrams				
High Pressure Steam Drain Systems Diagrams				
Condensate System Diagrams				
Feed System Diagrams and Reserve and Makeup Feed				
Main Sea Water Cooling System Diagrams		X	X	
Auxiliary Sea Water Cooling System Diagrams	X	X	X	

TABLE I-B-1

TABLE I, SECTION B
SELECTED RECORD DRAWINGS

DRAWING TITLE	SHIP: CLASS:	CG 47	DD 963	DDG 51
Steam Operated Distilling System		X	X	
Steering Gear Hydraulic Systems Diagrams		X	X	X
High Pressure Air System Diagrams (Incl MP)		X	X	X
60 HZ A.C. Power Distrn System Diagrams		X	X	X
400 HZ A.C. Power Distrn System Diagrams		X	X	X
Low Pressure Steam Drain System Diagrams				
Fresh Water Drain Collecting System Diagrams				
Steam Plant Control System Diagrams (Including Steam Plant Control Panel and Benchboards)				
Ships Service Auxiliary Cooling Water Diagrams				
Ships Service Power Sources Diagram (Including equipments such as SSTGs, SSMGs, CTG, Diesel Generators, Batteries that are not included in Power Distribution Systems above)		X	X	X

TABLE I-B-2

TABLE I, SECTION B
SELECTED RECORD DRAWINGS

DRAWING TITLE	SHIP: CLASS:	CG 47	DD 963	DDG 51
Electric Plant Temperature Monitoring System Diagrams				
Electric Plant Control System Diagrams (Including Electric Plant Control Panel and Benchboard)		X	X	X
Main Lube Oil System Diagrams		X	X	X
Lube Oil Fill, Transfer And Purification System Diagrams		X	X	X
Propulsion Plant Temperature Monitoring System Diagrams				
Propulsion Speed Indicator System Diagrams				
Steam Plant Alarm System Diagrams				
Steam Plant Salinity Indicator System Diagrams				
Air Conditioning System and Ventilation Diagrams (Those portions associated with propulsion spaces less reactor compartment)				
Steam Plant Pneumatic Control Air System Diagrams				

I-B-3

TABLE I, SECTION B
SELECTED RECORD DRAWINGS

DRAWING TITLE	SHIP: CLASS:	CG 47	DD 963	DDG 51
Service and Control Air Systems Diagrams (Those portions associated with the propulsion plant)				
Displacement And Other Curves				
Tank Capacity Curves, Curves of Center of Gravity, and Curves of Moments of Inertia				
Asbestos Removal Drawings		X	X	
HVAC Diagrammatic and System Control Drawings		X	X	X
Ordnance Handling Drawings		X	X	
Fire Fighting Systems Diagrams		X	X	
Electronic Cooling Water Systems Diagrams		X	X	X
Helo Landing and Signal Lighting System Diagrams		X	X	X
H.P. Auxiliary Steam System Diagrams				
Dirty Drain System Diagrams				
Auxiliary Exhaust Steam System Diagrams				
Gland Sealing Steam System Diagrams				

TABLE I-B-4

TABLE I, SECTION B
SELECTED RECORD DRAWINGS

DRAWING TITLE	SHIP: CLASS:	CG 47	DD 963	DDG 51
Auxiliary Gland Leak-Off System Diagrams				
Air Vent Piping System Drawings				
LP Air System Diagrams			X	X
Flooding Effect and Liquid Loading		X	X	
Sub-Division First Platform and Below		X	X	
Sub-Division Main Deck and Above		X	X	
JP-5 Filling, Transfer, and Overflow Systems		X	X	X
Casualty Power Supply Systems		X		
Casualty Communications Systems		X	X	
Vital DMG CTL Elect Eqpt and Power Supply Chart		X	X	
Communications Directory			X	
Potable (Propulsion Plant) Support Water Fill, Transfer, Service and Purification System (Mchry Space)		X	X	
Chilled Water Systems Drawings		X	X	X
Main and Secondary Drainage System Drawings			X	X

TABLE I-B-5

TABLE I, SECTION B
SELECTED RECORD DRAWINGS

DRAWING TITLE	SHIP: CLASS:	CG 47	DD 963	DDG 51
Oily Water Transfer System Drawings		X	X	
Auxiliary Boiler Support System Drawings		X	X	
Reboiler Systems Diagrams				
CTC Arrangement of Equipment		X	X	X
Boiler Blow Systems Diagram			X	
Pilot House and Bridge Wing Arrangement of Eqpt		X	X	X
Computer Room Arrangement of Eqpt		X	X	
Communications Central Arrangement of Eqpt		X	X	X
Topside Arrangement Drawings		X	X	
Compartment and Access Drawings		X	X	X
Topside Ant Sys Arrangement		X	X	X
Ships Service Circulating Water System Diagrams (Those portions associated with the Propulsion Plant)				
Deep Submergence System (DSS) Drawings (as specified in Certification Milestones)				
Lead Ballast Stowage Arrangement Drawings		X	X	

TABLE I-B-6

TABLE I, SECTION B
SELECTED RECORD DRAWINGS

DRAWING TITLE	SHIP: CLASS:	CG 47	DD 963	DDG 51
Propulsion Control System Diagrams		X	X	
Service Air System Diagrams (Those Portions Associated with the Propulsion Plant)		X	X	
150 #Auxiliary Steam System Diagrams		X	X	
Fuel Oil Transfer Systems Diagrams		X	X	
Fuel Oil Stripping System Diagrams		X	X	
Fuel Oil Service System		X	X	
Prairie/Masker Compressed Air System Drawings		X	X	
Waste Heat Hot Water Circulating System Drawings		X	X	
Electrical Load Analysis		X	X	X
Equipment Removal Route and Instructions Drawings		X	X	X
Pumping, Drainage and Ballasting System Drawings		X	X	
Auxiliary Thrust Bearing Assembly and Detail Drawings		X	X	
Bleed Air System Drawings (Gas Turbine Propulsion Only)		X	X	

TABLE I-B-7

TABLE I, SECTION B
SELECTED RECORD DRAWINGS

DRAWING TITLE	SHIP: CLASS:	CG 47	DD 963	DDG 51
H.P. Air Start System Drawings (Gas Turbine and Diesel Propulsion Only)		X	X	
Dirty Oil Drain System Drawing (Gas Turbine and Diesel Propulsion Only)		X	X	
Air Inlet System Drawings (Gas Turbine and Diesel Propulsion Only)		X	X	X
Air Inlet Separator System Drawings (Gas Turbine and Diesel Propulsion Only)		X	X	X
Muffler System Drawings (Gas Turbine and Diesel Propulsion Only)				
Seawater service systems (firemain, sprinkling, washdown SSGTG cooling) systems diagrams				X
Machinery Centralized Control System major function drawings				X
Door, hatch and scuttle list				X
SSGTG cooling system diagrams				X
Gas turbine mounts and measurements list				X
Potable water (propulsion plant support) and vital space protection support, fill, transfer, service and purification systems diagrams				X

PRAIRIE/MASKER, bleed, anti-icing and starting air systems diagrams	X
Fill connection drawing	X
Sonar dome pressurization system control panel drawings	X
Remote monitoring and control pnel mimic and indicator layout drawing for fuel transfer	X
Hose list drawing	X
Centralized seawater cooling systems drawings	X
Oily waste drain collecting system diagram	X
Oily waste transfer system drawing	X
Chart Room – arrangement of equipment	X
Radio communication system block diagram	X
CSER #1 and Sonar Control Room – arrangement of equipment	X
CSER # 2 and TOMAHAWK Equipment Romm – arrangement of equipment	X
CSER #3 – arrangement of equipment	X
Sea connections drawings	X
Ships fuel fill, transfer, service and compensating systems diagram	X
Panama canal drawing	X
Ships Signal Exploitation Space (SSES) – arrangement of equipment	X

Arrangement of special coating materials	X

TABLE I-B-8

TABLE I, SECTION C
SELECTED RECORD DRAWINGS

SHIP: DRAWING TITLE	LCC 19	LHA	LHD 1(TBD)	LHD 8(TBD)	LPD	LPD 17(TBD)	LSD 36	LSD 41/49	MCM	MHC (TBD)	MSO
Docking Drawings	X	X			X		X	X	X		X
Booklet of General Drawings	X	X			X		X	X	X		X
Schedules of Watertight Integrity Tests & inspections	X	X			X		X	X	X		X
Tank Capacity and Vertical Center of Gravity Curves	X	X			X		X	X	X		X
Booklet of Tank Sounding Tables	X	X			X		X	X	X		X
Running, Signal and Anchor Lights (Location Drawing) (To be included in Booklet of General Drawings.)	X	X			X		X	X	X		X
Main Steam Systems Diagrams	X	X			X		X				
Auxiliary Steam System Diagrams	X	X			X		X	X			X
High Pressure Steam Drain Systems Diagrams	X	X			X		X				
Condensate System Diagrams	X	X			X		X				
Feed System Diagrams and Reserve and Makeup Feed	X	X			X		X				
Main Sea Water Cooling System Diagrams	X	X			X		X	X	X		X
Auxiliary Sea Water Cooling System Diagrams	X	X			X		X	X	X		X
Steam Operated Distilling System	X	X			X		X	X			X

TABLE I-C-1

TABLE I, SECTION C
SELECTED RECORD DRAWINGS

DRAWING TITLE / SHIP:	LCC 19	LHA	LHD 1	LHD 8(TBD)	LPD	LPD 17	LSD 36	LSD 41/49	MCM	MHC	MSO
Steering Gear Hydraulic Systems Diagrams	X	X			X		X	X			X
High Pressure Air System Diagrams (Inci MP)	X	X			X		X	X			X
60 HZ A.C. Power Distrn System Diagrams	X	X			X		X	X	X		X
400 HZ A.C. Power Distrn System Diagrams	X	X			X		X	X	X		X
Low Pressure Steam Drain System Diagrams	X	X			X		X				
Fresh Water Drain Collecting System Diagrams	X	X			X		X				
Steam Plant Control System Diagrams (Including Steam Plant Control Panel and Benchboards)	X	X			X		X				
Ships Service Power Sources Diagram (Including equipments such as SSTGs, SSMGs, CTG, Diesel Generators, Batteries that are not included in Power Distribution Systems above)	X	X			X		X	X	X		X
Main Lube Oil System Diagrams	X	X			X		X	X			X
Lube Oil Fill, Transfer And Purification System Diagrams	X	X			X		X	X			X

TABLE I-C-2

TABLE I, SECTION C
SELECTED RECORD DRAWINGS

SHIP: / DRAWING TITLE	LCC 19	LHA	LHD 1	LHD 8(TBD)	LPD	LPD 17	LSD 36	LSD 41/49	MCM	MHC	MSO
Ships Service Circulating Water System Diagrams (Those Portions associated with the Propulsion Plant)	X	X			X		X	X			X
Steam Plant Salinity Indicator System Diagrams	X	X			X		X				
Service and Control Air Systems Diagrams (Those portions associated with the propulsion plant)	X	X			X		X	X			
Asbestos Removal Drawings	X	X			X		X	X			X
HVAC Diagrammatic and System Control Drawings	X	X			X		X	X	X		X
Ordnance Handling Drawings		X			X		X	X			
Fire Fighting Systems Diagrams	X	X			X		X	X	X		X
Electronic Cooling Water Systems Diagrams	X	X			X		X	X			
Helo Landing and Signal Lighting System Diagrams	X	X			X		X	X			
H.P. Auxiliary Steam System Diagrams	X	X			X		X	X			X
Dirty Drain System Diagrams											
Auxiliary Exhaust Steam System Diagrams	X	X			X		X	X			X
Gland Sealing Steam System Diagrams	X	X			X		X				

TABLE I-C-3

TABLE I, SECTION C
SELECTED RECORD DRAWINGS

SHIP: / DRAWING TITLE	LCC 19	LHA	LHD	LHD 8(TBD)	LPD	LPD 17	LSD 36	LSD 41/49	MCM	MHC	MSO
Automated Assault System Drawings (All LHA Ships Only)		X									
Automated Propulsion System Drawings (All LHA Ships Only)		X									
Auxiliary Gland Leak-Off System Diagrams	X	X			X		X				
Air Vent Piping System Drawings	X	X			X		X	X			
LP Air System Diagrams	X	X			X		X	X			X
Flooding Effect and Liquid Loading	X	X			X		X	X			X
Sub-Division First Platform and Below	X	X			X		X	X			X
Sub-Division Main Deck and Above	X	X			X		X	X			X
JP-5 Filling, Transfer, and Overflow Systems	X	X			X		X	X			
Casualty Power Supply Systems	X	X			X		X	X			X
Casualty Communications Systems	X	X			X		X	X			
Vital DMG CTL Elect Eqpt and Power Supply Chart	X	X			X		X	X			
Communications Directory	X	X			X		X	X			

TABLE I-C-4

TABLE I, SECTION C
SELECTED RECORD DRAWINGS

SHIP: DRAWING TITLE	LCC 19	LHA	LHD	LHD 8(TBD)	LPD	LPD 17	LSD 36	LSD 41/49	MCM	MHC	MSO
Potable (Propulsion Plant) Support Water Fill, Transfer, Service and Purification System (Mchry Space)	X	X			X		X	X	X		X
Chilled Water Systems Drawings	X	X			X		X	X			
Main and Secondary Drainage System Drawings	X	X			X		X	X			
Oily Water Transfer System Drawings	X	X			X		X	X			X
CIC Arrangement of Eqpt	X	X			X		X	X	X		
Boiler Blow System Diagram	X	X			X		X	X			X
Pilot House and Bridge Wing Arrangement of Eqpt	X	X			X		X	X	X		X
Computer Room Arrangement of Eqpt	X	X									
Communications Central Arrangement of Eqpt	X	X			X		X	X	X		X
Topside Arrangement Drawings	X	X			X		X	X	X		X
Compartment and Access Drawings	X	X			X		X	X	X		X
Topside Ant Sys Arrangement	X	X			X		X	X	X		X
Propulsion Control System Diagrams									X		
150 # Auxiliary Steam System Diagrams											

TABLE I-C-5

TABLE I, SECTION C
SELECTED RECORD DRAWINGS

DRAWING TITLE / SHIP:	LCC 19	LHA	LHD	LHD 8(TBD)	LPD	LPD 17	LSD 36	LSD 49	MCM	MHC	MSO
Fuel Oil Transfer Systems Diagrams	X	X			X		X	X			X
Fuel Oil Stripping System Diagrams	X	X			X		X	X			X
Fuel Oil Service System	X	X			X		X	X			X
Prairie/Masker Compressed Air System Drawings											
Electrical Load Analysis	X	X			X		X	X	X		X
Bleed Air System Drawings (Gas Turbine Propulsion Only)											
H.P. Air Start System Drawings (Gas Turbine and Diesel Propulsion Only)								X			
Dirty Oil Drain System Drawings (Gas Turbine and Diesel Propulsion Only)								X			
Air Inlet System Drawings (Gas Turbine and Diesel Propulsion Only)								X			
Air Inlet Separator System Drawings (Gas Turbine and Diesel Propulsion Only)								X			
Muffler System Drawings (Gas Turbine and Diesel Propulsion Only)								X			

TABLE I-C-6

TABLE I, SECTION C
SELECTED RECORD DRAWINGS

DRAWING TITLE / SHIP:	LCC 19	LHA	LHD	LHD 8(TBD)	LPD	LPD 17	LSD 36	LSD 41/49	MCM	MHC	MSO
Sonar, MNV and Electronics Room Arrangement of Equipment									X		
Degaussing Coils Location Drawings									X		
Mine Countermeasures Handling									X		
ACC/FWC System Diagrams	X	X			X		X				

TABLE I-C-7

TABLE II
SELECTED RECORD DRAWINGS

DRAWING TITLE	SHIP: CLASS:	CV ALL	CVN ALL
Docking Drawings		X	X
Booklet of General Drawings		X	X
Tank Capacity and Vertical Center of Gravity Curves		X	X
Booklet of Tank Sounding Tables		X	X
Steering Gear Hydraulic System Diagrams & Related I.C. Systems Diagrams		X	X
High Pressure Air System Diagrams (Including MP)		X	X
60HZ A.C. Power Distribution System Diagrams (From Load Center Boards to Vital Service Panels)		X	X
400HZ A.C. Power Distribution System Diagrams & Aircraft Servicing Diagram		X	X
Ships Service Power Sources Diagram (Including equipment such as SSTGs, SSMGs, CTGs, Diesel Generators, Batteries that are not included in Power Distribution Systems above. Generators to Main Boards to Load CTR Boards)		X	X
Electric Plant Control System Diagrams (Including Electric Plant Control Panel and Benchboard)		X	X
Main Lube Oil System Diagrams		X	X
Control Air System Diagrams (Steam Plant)		X	X
Asbestos Removal Drawings		X	X

TABLE II-1

TABLE II
SELECTED RECORD DRAWINGS

DRAWING TITLE	SHIP: CLASS:	CV ALL	CVN ALL
HVAC Diagrammatic & System Control Drawings		X	X
JP-5 Service Diagram (From Service Pump Disch to Aircraft Fuel Stations)		X	X
Firemain System Diagram		X	X
Firefighting System Diagrams (Fixed Systems including AFFF, Flight Deck Conflagration, Hangar Deck Sprinkling, Mchry Space Halon Systems and C02 Hose Reel w/50# Bottles)		X	X
Visual Landing Aids & Signal Lighting System Diagrams		X	X
Auxiliary Steam System Diagrams (CV; Propulsion Plant Support, no hotel services. CVN: Includes reduced pressure steam and auxiliary exhaust, escape & extraction steam)		X	X
LP Air System Diagrams		X	X
Fuel Oil Service System Diagram		X	
CIC Arrangement of Equipment		X	X
CATCC (ICA) Arrangement of Equipment		X	X
Pilot House & Bridge Wing Arrangement of Equipment		X	X
Communication Central Arrangement of Equipment		X	X
Fly Control Arrangement of Equipment		X	X
Tactical Flag Command Center Arrangement of Equipment (TFCC)		X	X
Aircraft and Weapons Elevator System Hydr & Elect Control Diagrams		X	X

TABLE II-2

TABLE II
SELECTED RECORD DRAWINGS

DRAWING TITLE	SHIP: CV CLASS: ALL	CVN ALL
Catapult Steam System Diagram	X	X
Catapult Blowdown Steam Drain/Steam Blowdown System Diagram	X	X
Catapult Fill Valve Control System Diagram	X	X
Lifeboat Arrg't & Stowage Drawing	X	X
Ordnance Handling Diagrams (Including Stowage in space and route of weapons in/out)	X	X
Most Recent Catapult Slot Expansion Data	X	X
Low Pressure Steam Drain System Diagrams		X
		X
Steam Plant Control System Diagrams (Including Steam Plant Control Panel and Switch Boards)	X	X
Electric Plant Temperature Monitoring System Diagrams	X	X
Shaft Lube Oil System Diagrams	X	X
Propulsion Plant Temperature Monitoring System Diagrams	X	X
Propulsion Speed Indicator System Diagrams	X	X
Steam Plant Alarm System Diagrams	X	X

Steam Plant Salinity Indicator System Diagrams	X	X

TABLE II-3

TABLE II
SELECTED RECORD DRAWINGS

DRAWING TITLE	SHIP: CLASS: CV ALL	CVN ALL
Topside Antenna Arrangement Diagram	X	X
Electric Load Analysis	X	X
Displacement & Other Curves		X

TABLE II-4

TABLE III
SELECTED RECORD DRAWINGS

SHIP:	SSBN	SSN	SSN
CLASS:	726	/637	688/21/774
DRAWING TITLE			
Docking Drawings	X	X	X
Booklet of General Drawings	X	X	X
Compartment and Tank-Testing Requirements	X	X	X
T,ead Ballast Stowage Arrangement Drawings	X	X	X
Salvage System Drawings and Diagrams	X	X	X
Escape and Rescue Arrangement (Note: Where this information is duplicated by a corresponding diagram in the General Information Book (GIB) or Ship Information Book (SIB) this drawing is not required)	X	X	X
SUBSAFE Mapping Drawings	X	X	X
Flexible Connections List	X	X	X
Consolidated Hull Zinc List	X	X	X
Running, Signal and Anchor Lights (Location drawing) (To be included in Booklet of General Drawings.)	X	X	X
Main Steam Systems Diagrams	X	X	X
Auxiliary Steam System Diagrams	X	X	X
High Pressure Steam Drain Systems Diagrams	X	X	X
Condensate System Diagrams	X	X	X
Feed System Diagrams	X	X	X
Main Sea Water Cooling System Diagrams	X	X	X

TABLE III-1

LEGEND: X = Required by FMP Manual
*** = SUBSAFE**

TABLE III
SELECTED RECORD DRAWINGS

SHIP:	SSBN	SSN	SSN
CLASS:	726	637	688/21/774
DRAWING TITLE			
Auxiliary Sea Water Cooling System Diagrams	X	X	X
Steam Operated Distilling System Diagrams	X	X	X
Test Data On Items Subject To Sea Pressure	X	X	X
Hydraulic System Diagrams (Main Vital and External)	X	X	X
Hydraulic System Diagrams Missile (SSBNs Only)	X		
Steering and Diving Gear Hydraulic Systems Diagrams	X	X	X
Main Oxygen System Diagrams	X	X	X
Trim and Drain Systems Diagrams	X	X	X
High Pressure. Air System Diagrams	X	X	X
High Pressure Ballast Tank Blow System Diagrams	X	X	X
60 HZ A.C. Power Distrn System Diagrams	X	X	X
400 HZ A.C. Power Distrn Systems Diagrams	X	X	X
DC and Propulsion Power Distrn System Diagrams	X	X	X
Low Pressure Steam Drain System Diagrams	X	X	X
Fresh Water Drain Collecting System Diagrams	X	X	X
Steam Plant Control System Diagrams (Including Steam Plant Control Panel and Benchboards)	X	X	X

TABLE III-2

LEGEND: X = Required by FMP Manual

TABLE III
SELECTED RECORD DRAWINGS

SHIP:	SSBN	SSN	SSN
CLASS:	726	637	688/21/774
DRAWING TITLE			
Ships Service Circulating Water System Diagrams (Those portions associated with the Propulsion Plant)	X	X	X
Engine Room Fresh Water Coolant System (Auxiliary Fresh Water) Diagrams	X	X	X
Ships Service Power Sources Diagrams (Including equipments such as SSTGs, SSMG, CTGs, Diesel Generators, Batteries that are not included in Power Distribution Systems above)	X	X	X
Electric Plant Temperature Monitoring System Diagrams	X	X	X
Electric Plant Control System Diagrams (Including Electric Plant Control Panel and Benchboard)	X	X	X
Main Lube Oil System Diagrams	X	X	X
SSTG Lube Oil System Diagrams	X	X	X
Shaft Lube Oil System Diagram's	X	X	X
Clutch Control Oil System Diagrams	X	X	X
Lube Oil Fill, Transfer and Purification System Diagrams	X	X	X
Propulsion Plant Temperature Monitoring System Diagrams	X	X	X
Propulsion Speed Indicator System Diagrams	X	X	X

TABLE III-3

LEGEND: X = Required by FMP Manual

TABLE III
SELECTED RECORD DRAWINGS

SHIP:	SSBN	SSN	SSN
CLASS:	726	637	688/21/774
DRAWING TITLE			
Steam Plant Alarm System Diagrams	X	X	X
Steam Plant Salinity Indicator System Diagrams	X	X	X
Air Conditioning System and Ventilation Diagrams (Those portions associated with reactor compartment and other propulsion spaces)	X	X	X
Service Air System Diagrams (Those portions associated with the Propulsion Plant)	X	X	X
Steam Plant Pneumatic Control Air System Diagrams	X	X	X
Depth Detecting System Diagrams	X	X	X
Noise Review Road Map for Noise Critical Systems	X	X	X
Control Air Systems Diagrams (Those portions associated with the propulsion plant)	X	X	X
Moment Diagram and Ship's Polygon	X	X	X
Displacement and Other Curves	X	X	X
Tank Capacity Curves, Curves of Center of Gravity and Curves of Moments of Inertia	X	X	X
Asbestos Removal Drawings(except 21 & 774 cl)	X	X	X
Propulsion Lube Oil Diagrams		X	
Gland Seal and Exhaust Diagrams	X		X
Composite Hull Penetration Drawings	X		X

TABLE III-4

LEGEND: X = Required by FMP Manual

TABLE III
SELECTED RECORD DRAWINGS

SHIP:	SSBN	SSN	SSN
CLASS:	726	637	688/21/774
DRAWING TITLE			
Missile Tube Capacity and Other Curves	X		X
List of Resilient Mounts	X		X
List of Grease Fittings	X		
List of Throated Plugs in Sea Connected Systems	X		X
Defensive Weapon Handling and Launching Systems	X		
Strategic Weapon Fluid System Diagrams	X		
Strategic Weapon Electrical System Diagrams	X		
Strategic Weapon Electrical System Wiring Tables	X		
Low Pressure Ballast Tank Blow Diagrams	X		X
Diesel Generator Sea Water Cooling Diagrams	X		X
Potable Water Diagrams	X		
Electronics and Auxiliary Fresh Water Cooling Diagrams	X		
Refrigeration Diagrams	X		
Chilled Water Diagrams	X		
Fuel Oil Diagrams	X		
Compensating Systems Diagrams	X		
Plumbing Diagrams	X		
Vertical Launch System Flood and Drain System Diagram			X
Towed Sonar Array Stowage Tube Arrangement			X

TABLE III-5

LEGEND: X = Required by FMP Manual

TABLE IV
SELECTED RECORD DRAWINGS FOR
ALL SHIPS NOT SPECIFIED IN TABLES I THRU III

Docking Drawings	X
Schedules of Watertight Integrity Tests and Inspections (except service craft)	X
Tank Capacity and Vertical Center of Gravity Curves	X
Booklet of Tank Sounding Tables	X
Booklet of General Drawings	X
Asbestos Removal Drawings	X
Underway Replenishment Drawings (UNREP)*	X

LEGEND: X = Required by FMP Manual
*** = AO, AOR, AOE, AFS, AE**

CFT 4 Metrics

Purpose: This section is intended to provide the definitions of each CFT4 metric.

Discussion: In order for Navy Modernization Process (NMP) metrics to be effective, they must meet several attributes. They must be standard across a wide spectrum of organizations, they must be a consistent reflection of the process they measure, they must be understood by many levels within the modernization community and they must be timely in delivery. The following paragraphs will provide the name, definition, calculation, source of data and proposed updates for each CFT 4 metric. It is important for the user to recognize that the usefulness and accuracy of any metric is dependent upon the integrity of the data utilized in the computation of the measurement. CFT 4 metrics utilize data primarily from NDE-NM and NDE-EP. As such they are reflection of the modernization process based upon the data contained in those databases.

CFT4 Metrics Definitions:

Panel 1

Panel Name: ALTs Not Installed within Three Years (Panel 1)

Metric Name: Percent ALTs Not Installed within Three Years

Definition: This is the primary metric for Panel 1. Metrics is the percentage of all active Alts exceeding 3 years from the Alt approval date. If the Alt type is SA, then the Alt Approval date is the date of signature of the Ship Alteration Record (SAR). If the Alt type is AER, then the Alt approval date is the AER Approval date. An active alteration is defined as one, which is not cancelled, not superseded, or not completed on all applicable ships.

Source of Data: NDE-NM

Calculation:

$$\frac{\text{Number of Active Alts Exceeding 3 Years from Approval}}{\text{Total Number of Active Alterations}} * 100\%$$

Status/Planned Updates: Metric is currently active and produced monthly. Planned improvements include adding DP3 as the SCD approval date.

Draft

Panel 2

Panel Name: Sunk Cost (Panel 2)

Metric Name: Sunk Cost – Roll-up

Definition: For all SCDs that are entered into NDE under the entitled process (Process Map Block 2), identify and measure the total resources (dollars) invested in SCDs that are subsequently voted to be Inactive and Hold (Recommended but not funded) at various process decision points. Metric data will be collected and analyzed monthly, and tallied by type of appropriation on an annual basis.

Source of Data: Unavailable

Calculation:
Total of actual dollars expended in all FY for an SDC with Alt Status = Inactive or Hold less Actual Cost expended for Alts returning from Hold to Active. Sum the following data.

Sunk Cost =
∑ CDC_Cost_Act + PEC_Cost_Act + DDC_Cost_Act + Proc_Cost_Act + Install_Cost_Act + Shutdown_Cost_Act for Alts with Alt_Status_Dt within the reporting period AND (Alt_Status = Hold OR (Alt_Status = Inactive AND Off_Hold_Dt ≠ Alt_Status_Dt)) –∑ CDC_Cost_Act + PEC_Cost_Act + DDC_Cost_Act + Proc_Cost_Act + Install_Cost_Act for Alts with Off_Hold_Dt within the reporting period AND (Alt_Status = Active)

Status/Planned Updates: Metric is currently inactive; waiting on implementation of the EP module for access to SCD financial data.

Draft

Panel 3

Panel Name: Churn (Panel 3)

Metric Name: Churn (Percent Alterations Added and Deleted vs.Total ALTs in the Availability Package each month)

Definition: This is a Primary metric for Panel 3. Percentage of alterations added to or deleted from the availability package during the reporting month. The initial data point is the total Alterations in the Avail package at A-360. The percentage is calculated for each ship monthly from
A -360 through EOA.

Source of Data: All data originates from the planning yards. The basis for the initial and follow-on data will be the "Alterations in Availability" spreadsheets submitted by the planning yards directly into the NMP CFT4 Metrics database. The Planning Yards will submit the data monthly to NSLC via the Data Management System (DMS). All ship availabilities within A-360 and EOA will be reported monthly. Availabilities originate in the Navy Data Environment (NDE) database according to the data queries outlined on pages 4-7 of this document.

Calculation:

$$\frac{\text{Number of Alterations Added Plus Alterations Deleted from Avail Package}}{\text{All Alterations in the Availability Package at EOM}} \times 100\%$$

Status/Planned Updates: Metric is currently active and produced monthly. Data is collected manually from Planning Yards; uploaded via the Database Management System (DMS). Planned improvements include automating data collection utilizing NDE-NM.

Draft

Panel 4

Panel Name: SCD Estimate Accuracy

Metric Name: SCD Cost Estimate by Phase

Definition: For all SCDs approved at DP3; calculate the average percentage change of all SCD total cost estimates recorded in the CBA from DP1 to DP3.

Source of Data: NDE-EP (CBA Module)

Calculation:

For all SCDs approved at DP3 during the month:

$$\frac{\left(\sum\left(\frac{\text{DP3 estimate} - \text{DP1 estimate}}{\text{DP1 estimate}}\right) * 100\%\right)}{\text{Number of SCDs approved at DP3}}$$

Status/Planned Updates: Metric is currently inactive; waiting on implementation of the EP module for access to SCD financial data. Planned updates include tracking the accuracy of SCD estimates from DP3 through procurement and installation.

Draft

Panel 5

Panel Name: Process dCT (Dynamic) (Entitled Process)

Metric Name: Dynamic Process Cycle Time (dCT)

Definition: The metric is sum of the dynamic CT measured for each of the phases of the SCD. The metric does not include alterations in Hold status. The Dynamic Cycle Time of a phase is defined as the WIP (Alts actively being worked) divided by the Process Speed (Alts Approved or cancelled in the phase per day). WIP is calculated as Alts coming into a phase either through approval from the previous phase or coming out of Hold status from the previous phase less the Alts approved or cancelled in the phase. The dynamic cycle times are multiplied by 30 to change the units from months.

Source of Data: NDE-EP

Calculation:

dCT =
((Phase I WIP / Phase I SCD_COMPLETE) * 30) +
((Phase II WIP / Phase II SCD_COMPLETE) * 30) +
((Phase IIa WIP / Phase IIa SCD_COMPLETE) * 30) +
((Phase III WIP / Phase III SCD_COMPLETE) * 30)

Status/Planned Updates: Metric is currently active and produced monthly. Data is collected manually from NSLC Fairfield; uploaded via the Database Management System (DMS). Planned improvements include automating data collection utilizing NDE-EP.

Draft

Panel 6

Panel Name: First Pass Yield (FPY

Metric Name: First Pass Yield (FPY)

Definition: For all Ship Change Documents (SCDs), the percentage of how many are being reviewed for the first time at each major decision point and of these how many are "approved". "Approved" are those that are not "killed" or sent back for rework. Metric data will be collected and analyzed monthly, and tallied by SYSCOM on an annual basis. Note: FPY is plotted two graphs, Phase I and II on the top graph; Phase IIa and III on the bottom graph.

Source of Data: NDE- EP

Calculation:

Plot 1

$$\frac{\text{Total Number of Phase I SCDs Approved at DP1 without Rework}}{\text{Total Number of Phase I SCDs Apporved at DP1}} * 100\%$$

Plot 2

$$\frac{\text{Total Number of Phase II SCDs Approved at DP2 without Rework}}{\text{Total Number of Phase II SCDs Apporved at DP2}} * 100\%$$

Plot 3

$$\frac{\text{Total Number of Phase IIa SCDs Approved at DP3 without Rework}}{\text{Total Number of Phase IIa SCDs Apporved at DP3}} * 100\%$$

Plot 4

$$\frac{\text{Total Number of Phase III SCDs Approved at DP1 without Rework}}{\text{Total Number of Phase III SCDs Apporved at DP1}} * 100\%$$

Status/Planned Updates: Metric is currently active and produced monthly. Data is collected manually from NSLC Fairfield; uploaded via the Database Management System (DMS). Planned improvements include automating data collection utilizing NDE-EP.

Draft

Panel 7

Panel Name: Milestone Conformance

Metric Name: Percent Milestone Conformance

Definition: This is the primary metric for this panel. Metric is the percentage of Availability Planning Milestones completed on schedule and is recorded for each hull during the month in which the milestone should have occurred. This metric is intended to track process improvements and adherence planning milestones. A positive slope is a result of improving process On-Time Delivery (OTD) through the various key milestone targets.

Planning Milestones count towards the total if they are completed on schedule as outlined in the Availability Planning Guideline (A – timeline).

Alt Approval Date is the SAR Approval Date for Alt type SA, and the AER Approval Date for Alt Type AER. The A-11 milestone does not apply to AER Alts.

Source of Data: NDE-NM

Calculation:

$$\frac{\text{Number of milestones completed on schedule for an availability}}{\text{Total number of milestones reached for an availability}} \times 100\%$$

Status/Planned Updates: Metric is currently active and produced monthly. Planned improvements include adding NMP critical milestones, replacing SAR Approval date with DP3 approval for the SCD and developing a Milestone Conformance Report.

Draft

Panel 8

Panel Name: Process Efficiency (Panel 8 Entitlement Process)

Metric Name: Process Efficiency

Definition: Measure the percentage of Active Alterations that are being worked and the percentage of Active Alterations that are on Hold in each phase. The panel will display a segmented bar graph for each month with segments for the Concept Development, Preliminary Engineering, Detailed Design, Acquisition, and Installation phases. The order of the segments from top to bottom will be Percent HOLDcdc, Percent HOLDpec, Percent HOLDddc, Percent WIPcdc, Percent WIPpec, Percent WIPddc, Percent WIPacq, Percent WIPinstall. The Base line and Entitled line will be compared to the top of the Percent WIPcdc (indicating the total percentage of WIP).

Source of Data: NDE-EP

Calculation:

For each phase I through IV:

$$\frac{\text{Number of Alts in each Phase (WIP)}}{\text{Total number of Alts (WIP)}} \times 100\%$$

The sum of all the percentages will be 100%.

Status/Planned Updates: Metric is currently active and produced monthly. Data is collected manually from NSLC Fairfield; uploaded via the Database Management System (DMS). Planned improvements include automating data collection utilizing NDE-EP.

Draft

Panel 9

Panel Name: Process Effectiveness

Metric Name: Process Effectiveness Priority Value Index (P-Value) Distribution

Definition: The distribution of SHIP Change Documents in Phase IV into four P-Value numerical categories;
1 to 25
26 to 50
51 to 75
75 to 100
Each category expressed as a percentage of the total distribution.
To ensure that all Ship Change Documents (SCDs) are measured on a common scale for merit, each SCD is assigned a Priority Value Index (P-Value) based upon the following factors; Technical Merit, AFOM, Cost Benefit Analysis, and number of hulls modernized by the SCD. P-Value has been established to assist decision makers in prioritizing which SCDs to approve for installation. Over time, especially during periods of diminishing modernization resources, the proportion of SCDs approved for procurement and installation in the higher P-Value numerical categories will increase.

Source of Data: NDE-EP

Calculation:

Number of SCDs with P-Value <26 / total number of SCDs in Phase IV * 100%
Number of SCDs with P-Value >26<=50 / total number of SCDs in Phase IV * 100%
Number of SCDs with P-Value >51<=75 / total number of SCDs in Phase IV * 100%
Number of SCDs with P-Value >76<=100 / total number of SCDs in Phase IV * 100%
The sum of all percentages will be 100%

Status/Planned Updates: Metric is currently inactive; waiting on implementation of the EP module for access to SCD P-value data.

Draft

APPENDIX L

Concept of Operations

For
Management and Oversight
of the Navy Modernization Process

November 1, 2007

FOREWORD

The Entitled Process (EP) for Navy Modernization was promulgated by the Commander, Naval Sea Systems Command in 2006 as a common, disciplined process to deliver operational and technical modifications to the fleet in an effective and cost efficient fashion. The authoritative document is the Surface Ships and Carriers Entitled Process for Modernization (SSCEPM) Operations and Management Manual (SL720-AA-MAN-030) commonly referred to as the "*One Book*". Upon adoption, the EP became known as the Navy Modernization Process (NMP) to recognize its broad application and permanence. The terms EP and NMP are synonymous in that they both refer to the process that grew from the Navy's SHIPMAIN initiative which began work to reengineer modernization processes in 2003. A key tenet of the NMP is a permanent structure comprised of process stakeholders who provide strategic oversight and operational management.

At present the NMP applies to surface ships and aircraft carriers. It is not applicable to modernization programs for submarines, ships of the Military Sealift Command, small craft, or U.S. Coast Guard vessels. Measures to include all Navy ship modernization in the NMP are underway.

The current version of the *"One Book"* and its letter of promulgation are maintained on the FMP web page (www.fmp.navy.mil) by NAVSEA 04RP.

This Concept of Operations (CONOPS):

1. Implements the policy published in the "*One Book*".
2. Identifies roles and responsibilities of major process participants and describes the high-level interactions that must occur among them in order for the NMP to operate in an effective and cost efficient manner.
3. Focuses on the interface between the Warfare Enterprises (WFEs), the hierarchical Boards and the NMP Administrator. Specific process requirements for effecting ship changes are detailed in the *One Book*.

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1. Purpose. The NMP has reached a maturity level with clearly defined processes and business rules, including the appropriate structures and governance, to allow specific functions and responsibilities to be transferred from the Cross Functional Team (CFT4) that developed the NMP to permanent ownership. This document outlines the NMP Concept of Operations (CONOPS) for governance and operations required to plan and execute modernization concepts, and provides for the continuous improvement of the NMP from the submission of the Ship Change Document (SCD) to installation execution and closeout. It also provides for: (1) the development of modernization policy and procedures that were left unresolved by CFT 4, and (2) the operations of the Navy Modernization Process Team (NMPT) as the designated working group for the NMP Decision Boards.

The primary process stakeholders who will assume high-level ownership and oversight roles are the Warfare Enterprises (WFEs), the hierarchical Decision Boards and the NMP Administrator (NAVSEA 04RP).

2. Background. The Fleet Modernization Program (FMP) provides the structure for the orderly identification, approval, design, installation, life cycle support and configuration control of military, technical, and survivability improvements to all ships of the active and reserve fleets. The Fleet Modernization Program (FMP) also provides an input to the OPNAV planning, programming, and budgeting process.

The FMP was re-engineered by the SHIPMAIN process to require Fleet and Program Ship Changes to be submitted in a Ship Change Document (SCD) for Surface Ships and Carriers. SCDs are subject to a well-defined review process and are voted upon by decision stakeholders based upon the capability provided, technical merit, and cost effectiveness. The voting results are reflected in the NMP Modernization Plan and tracked within Navy Data Environment (NDE). The Modernization Plan reflects all approved and funded legacy ship alterations and Ship Changes.

The NMP supports the Enterprise construct approved by Navy leadership. The primary objective of the NMP is to effectively and efficiently sustain the Enterprise goal of "Warships Ready for Tasking" with a process compatible with the desire to transition the Navy from a ***"consumption based model"*** to an ***"output-based model"*** by allocating resources to requirements that meet specific readiness objectives.

The governance structure and process ownership was constructed to support the broad requirements of the NMP and was approved by the SHIPMAIN Process Improvement Team (PIT) and the O-6, 1&2 Star and the 3 Star Boards. Modernization policy and strategic direction of the NMP is the responsibility of the 3-Star Board, as directed by Navy leadership. As outlined in this document, the O-6 and 1&2 Star Boards also assumed responsibilities for directing and managing the NMP.

3. Organization and Interactions. As shown in Figure 1, there are four main organizational components of the NMP: the Enterprises, the Decision Boards (3 Star, 1&2 Star and O-6 Boards), the NMP Administrator, and the NMPT. The focus of each organizational component is:

a. The Enterprises focus on policy, guidance, and process execution to meet enterprise-centric readiness requirements.

b. The Decision Boards focus on Navy-wide strategic definition, process governance and requirements definition, while providing process oversight.
c. The NMP Administrator, supported by the NMP Functional Support, focuses on working issues, providing support for the process, and developing continuous improvement concepts.
d. The NMPT continues to work issues left unresolved by CFT4 and also serves as a functional work group for the NMP Decision Boards, NMP Administrator, and Warfare Enterprises. Activities of the NMPT are coordinated with the NMP Administrator and its Functional Support.

NMP Structure and Relationships

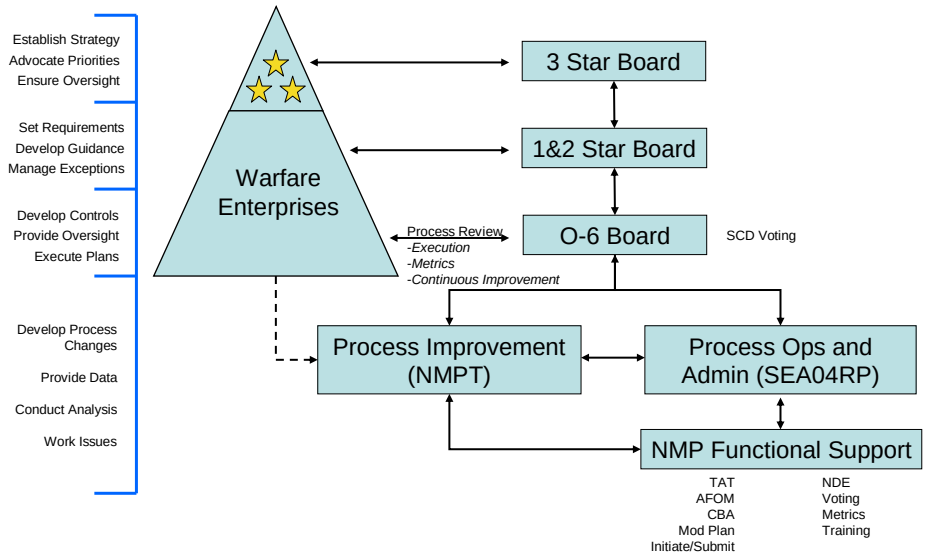

Figure 1

The NMPT reviews and adjudicates process change issues. These issues may be developed internally by the NMPT or they may be identified within a Warfare Enterprise or Decision Board. Tasking can occur directly from the Enterprises, Boards, or the Process Administrator. The NMPT leverages the work of the NMP Functional Support, who are process experts in their respective areas, and coordinates efforts with the Process Administrator.

The NMP Process Administrator manages the process and resolves administrative issues such as software support, documentation and training.

The major flow of information and requirements through the NMP Board structure and support organizations is highlighted below in Figure 2. In general, Strategic Requirements, Vision and Direction flow down from the 3 Star Board through the hierarchical Decision Boards to the NMPT and to the Functional Support. Execution

and performance information flows up through the hierarchical Decision Boards for information and / or adjudication.

NMP Information Flows

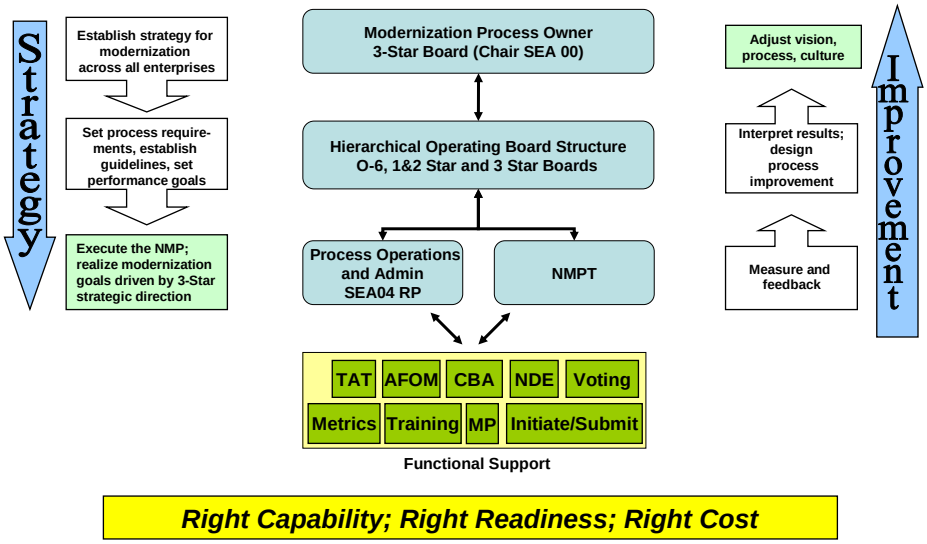

Figure 2

Each WFE has significant roles in developing and implementing a Modernization Plan responsive to the strategic requirements of their Enterprise, as well as across all Enterprises in support of Navy-wide requirements as outlined below in Figure 3.

Modernization management at the intersection of the NMP with the Enterprises is critical to ensure the process delivers the appropriate Ship Change (SC) at the right time and at the right cost. Process synergy occurs at the intersections allowing NMP capabilities to be leveraged by applying common resources and solutions across all Enterprises. The organizational structure illustrated in Figure 3 ensures the mission, strategy, execution, policy and metrics of the NMP are aligned with resources (financial, human capital and technical).

The role of the Decision Boards is to ensure consistent application of the NMP across all the WFE stakeholders, incorporating the priorities of the Enterprise leaders and the senior leadership of the Navy. By design, the membership of the Decision Boards includes the leadership of each Enterprise's internal team structure. For example, the leader of the Surface Warfare Enterprise (SWE) Modernization Team is also a member of the O-6 Board. The Chief Executive Officer of the SWE is a member of the 3-Star Board. This design enables unfiltered delivery of Enterprise execution issues, metrics, and process improvement work to the respective Board for discussion and resolution. General system level responsibilities of major participants in the NMP are outlined in Section 2 of the *One Book*. Responsibilities pertaining to specific functions

at the interface of the WFEs to the NMP Decision Boards and the Functional Support are covered by this document.

Modernization Enterprise Organization

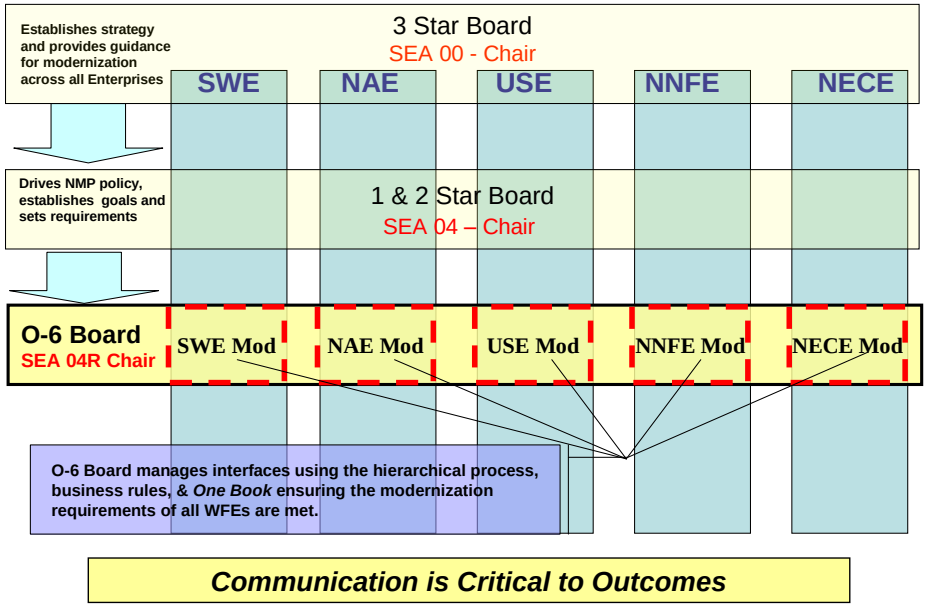

Figure 3

4. Roles & Responsibilities. Governance of the NMP is provided by the Enterprises, hierarchical Decision Boards, Process Administrator, and the NMPT. Communication, coordination and cooperation among the organizational components are essential to achieve informed decision making and process management. This structure enables Navy-wide solutions by ensuring all stakeholders have visibility of cross-Enterprise modernization activities.

a. Enterprises: As illustrated in Figure 4, the Warfare Enterprises (WFE) are responsible for executing the NMP within their Enterprise and providing policy and process consistency for Modernization. Additionally, active Enterprise participation on the NMP Decision Boards is critical to establish and provide constant governance for the process, and to work with the NMPT and/or the Process Administrator to identify issues, improve the process, and support process governance. Detailed responsibilities of the Enterprises in management of the NMP within and across enterprises are provided in Appendix 1 of this document.

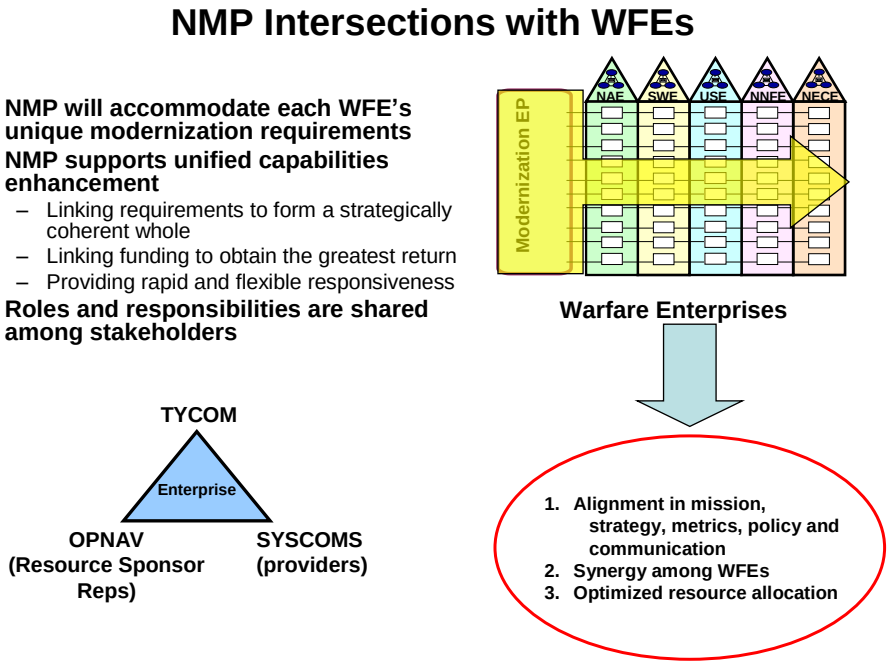

Figure 4

b. Boards: The Decision Boards exercise NMP process ownership and oversight, and SCD voting as established in Section 2 of the *One Book*. Specific roles and responsibilities are outlined in the charters for each Board. (See Appendices 2-4 of this document.

c. NMP Administrator (NAVSEA 04RP): In addition to the general system level responsibilities outlined in Section 2 of the *One Book*, the NMP Administrator shall provide policy and process consistency for the development, approval and installation of modernization, including the management of specific interface functions involving the WFEs, the NMP Decision Boards, the NMPT and the Functional Support. These interface functions include:

(1) Establishing and maintaining NMP functional support resources, as required.
(2) Providing management oversight to the NMP functional support resources.
(3) Coordinating task assignment and process improvement activities with the NMPT
(4) Providing data to drive the hierarchical Decision Boards.
(5) Providing support materials for the Decision Boards including coordination of agendas, minutes, briefing material, and task lists.
(6) Measuring process effectiveness and provide process improvements through 'Root Cause' analysis and analysis of performance and process metrics.
(7) Capturing completion data and lessons learned, including process improvement recommendations that originate from post-availability

reviews (e.g. the Surface Warfare Enterprise's Navy Modernization Analysis Team).

(8) Defining specific support requirements, including resources, and articulate these requirements to the Enterprises via the O-6 Board.

d. Navy Modernization Process Team (NMPT): The NMPT exists as a process improvement resource for the WFEs and the NMP Decision Boards. NMPT activities are coordinated with the Process Administrator as it reviews and resolves process issues identified by any of the process owners. The NMPT also supports and guides Enterprises in NMP implementation as they increase their participation in the NMP. Specific NMPT responsibilities are outlined in Appendix 5 of this document.

e. Functional Support: There are numerous Functional Support areas within the NMP (see Appendix 6 of this document) which tie together modernization requirements and activities. These resources conduct the day-to-day operations of the specific NMP activities outlined in Section 3 of the *One Book*. They also assess O-6 Board feedback regarding the effectiveness and utility of their functional area and propose process changes via the NMP Administrator. General roles and responsibilities include:

(1) Functional Leads: Collecting and collating comments, feedback and data from functional members to support process changes, internal model changes, and "lessons learned" synopsis; providing results to the NMP Administrator for adjudication and consideration by the appropriate Board.

(2) Functional Members: Providing comments, feedback and data collected through 'root cause' analysis, completion data capture, and process reviews to the Functional Leads.

Enterprises are expected to sustain NMP Functional Support areas by providing representation, as required.

f. PARM and PEO Organizations: The Program Acquisition Resource Managers (PARMs) participate in process development and are responsible to monitor the Modernization Plan, track NMP actions and ensure NMP Modernization milestones are achieved. PEO organizations collaborate with appropriate Systems Commands (SYSCOMs) and PEOs in the development, scheduling and conduct of modernization concepts within their scope of responsibility. In addition to roles outlined in Section 2 of the *One Book,* the principle duties are:

(1) Provide cost estimates.

(2) Deliver modernization products within cost, schedule and performance as defined in the Ship Change Document (SCD).

(3) Conduct oversight of installation contracts, delivery orders, statement of work and funding.

(4) Coordinate installation production schedules with installing activities.

(5) Manage the Change Order Process for afloat installations.

(6) Coordinate installations with the Regional Modernization Maintenance Control Office (RMMCO).

(7) Report installation cost, schedule and performance actuals, as required.

5. Continuous Improvement. Every process degrades over time unless concerted effort is applied to refresh and improve it. The NMP relies on process stakeholders to maintain a culture of continuous improvement wherein measures of process drivers and process results are analyzed and acted upon. Continuous improvement is a core responsibility of each Enterprise and each Decision Board. Meeting agendas are constructed to give ample time for process performance review, analysis and improvement. Figure 5 graphically illustrates the steps of a continuous improvement program. All of the NMP Boards must maintain a focus on the "speed to capability" provided by the NMP to ensure all processes are synchronized to meet the readiness requirements of the Enterprises.

NMP Continuous Improvement Program Steps

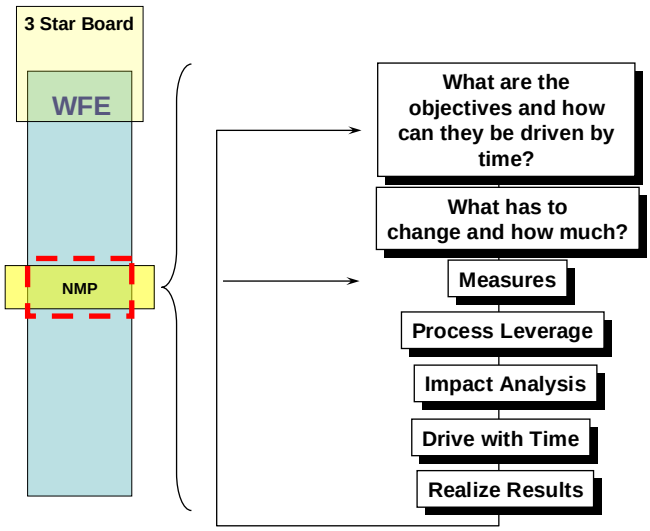

Figure 5

Suggestions for process improvement can be made by any individual through the Warfare Enterprises, the Decision Boards, the Process Administrator, or the NMPT. The aforementioned have the responsibility for introducing the suggested improvement(s) for consideration.

Appendix 1

Enterprise Roles and Responsibilities

Enterprise Roles and Responsibilities

Planning	• **Align modernization with WFE long range planning** ✓ *Establish and validate requirements* ✓ *Establish and validate class / hull applicability* ✓ *Coordinate with Resource Sponsors* ✓ *Coordinate with OPNAV for availability planning* • **Develop Modernization Plan (MP)** ✓ *Prioritize & align requirement with budget within individual Resource Sponsors* ✓ *Prioritize & align requirements across applicable 2-digit Resource Sponsors within a WFE* ✓ *Periodic review and validation of MP content* • **AFOM (per MOU)** ✓ *Support the annual SEA Power 21 health assessment* ✓ *Provide update to strategic weights* • **Liaise with PEOs and SYSCOMs** ✓ *Participate in cross-SYSCOM and cross-WFE long range planning (e.g. NCMC, APC, MRA)* ✓ *Coordinate with various PEOs for SCD fielding plan development*
Execution	• **Actively participate in Decision Boards and represent their WFE perspective** ✓ *SCD voting* ✓ *Process oversight and control* • **Manage and track expectations** ✓ *Emergent changes* ✓ *Non-permanent changes* ✓ *Late-adds* ✓ *Risk assessment* • **Manage WFE performance** ✓ *Shepherd Enterprise-owned SCDs through NMP* ✓ *Support NMP metrics collection and perform analysis at the WFE level* ✓ *Ensure metrics performance targets are met* • **Coordinate with the RMCs**
Continuous Improvement	• **Review and analyze metrics** • **Perform root-cause analysis / identify process requirements to Boards** • **Support barrier removal activities** • **Active participation on Boards, Functional Support, and ad-hoc working groups**

Appendix 2

Navy Modernization 3-Star Decision Board

Board Name: Navy Modernization 3-Star Decision Board

Board Chair: COMNAVSEA (SEA 00)

Frequency: Semi-annual **Day/Time:** As scheduled by SEA04RP

Membership	
COMNAVSEA	**COMNAVNETWARCOM**
COMNAVAIR	**COMNECC**
ASN RDA	**OPNAV N4**
COMNAVAIRFOR	**OPNAV N6**
COMNAVSURFOR	**OPNAV N8**
COMSUBFOR	**COMSPAWAR**

MISSION

The Navy Modernization 3-Star Decision Board exercises process ownership and oversight over the Navy Modernization Process (NMP) as established in the Surface Ships and Carrier Entitled Process for Modernization (SSCEPN) Operations and Management Manual (SL720-AA-MAN-030). The Board's responsibilities are to:

- Establish strategy for modernization across all Warfare Enterprises (WFEs).
- Ensure oversight and compliance with strategic modernization plans.
- Advocate annual modernization priorities.
- Approve the annual Modernization Plan (MP).
- Measure progress of the NMP and ensure continuous improvement.
- Adjudicate/approve Ship Change Documents (SCDs) forwarded for Board action by the NMP 1&2 Star Decision Board.

DELIVERABLES

The Board will provide:

- Strategic direction for the NMP based on Department of the Navy strategy, goals and objectives.
- Input to OPNAV Resource Sponsors for a fiscally balanced and prioritized Modernization Plan for each POM/PR cycle.
- Direction to the 1&2 Star Decision Board and the O-6 Decision Board that ensure the NMP operates efficiently and effectively, and that a culture of continuous improvement based on process measurements is in place.
- Decisions for those SCDs which are forwarded to the Board by the 1&2 Star Decision Board for action based on either value threshold or non-concurrence at the lower Board.

Roles and Responsibilities

Owner	Role/Responsibility	Subtasks
3-Star Board	**Establish Strategy for Modernization across all Enterprises**	✓**Establish annual strategic plan for Modernization based on policy guidance from CNO** ✓**Insure that priorities for Modernization investments are established within each Enterprise and are delivered from an operational perspective** ✓**Link capability requirements to resource availability** ✓Provide overall direction and resource requirements to OPNAV ✓Ensure that funding and priorities are synchronized ✓**Provide strategic guidance for the NMP**
	Ensure oversight and compliance with strategic/modernization plans	✓**Continuously monitor Modernization Process to ensure strategic objectives are being achieved** ✓Review and approve O-6/1-2Star Boards ✓Operate NMP within budgetary limitations ✓Provide accountability for operational compliance with all NMP plans, schedules, certifications, and logistics requirements
	Approve Annual Modernization Plan (MP)	✓**Assure senior level visibility and engagement in Modernization investment decisions** ✓**Create, promulgate, and implement annual Modernization Plan in accordance with hull specific installation requirements at the waterfront** ✓Ensure execution in accordance with plan
	Measure progress of NMP and ensure Continuous Improvement (CI)	✓**Using Hierarchical Board structure:** ✓Provide adequate procedures to encourage continuous process review and improvement ✓Ensure that adequate procedures to capture install activity are in place and followed
	Adjudicate/approve all SCDs proposed at lower level Boards	✓**Deliberate SCD merits and provide recommendations to Milestone Decision Authority, as required** ✓**Determine value and priorities**

Appendix 3

Navy Modernization 1&2-Star Decision Board

Board Name: Navy Modernization 1&2-Star Decision Board

Board Chair: SEA 04

Frequency: Quarterly **Day/Time:** As scheduled by SEA04RP

Membership	
NAVSEA 04	**NAVAIR 1.0**
CNAL	**SPAWAR 04**
CNSL	**SPAWAR 05**
COMSUBPAC	**USFFC representative**
Deputy CNNWC	**PEO Ships**
COMNECC representative	**PEO Carriers**
DASN C4I and Space	**PEO Subs**
DASN Ships	**PEO C4I & Space**
DASN IWS	**PEO LMW**
OPNAV N43B	**PEO IWS**
OPNAV N6F	**NAVSEA 05**
OPNAV N85	**NAVSEA 07**
OPNAV N86	**NAVSEA 21**
OPNAV N87	**Marine Corps representative**
OPNAV N880	**NAVSEA 04R***

*Non-voting position

MISSION

The Navy Modernization 1&2 Star Board manages and provides oversight of the Navy Modernization Process (NMP) as established in the Surface Ships and Carrier Entitled Process for Modernization (SSCEPM) Operations and Management Manual (SL720-AA-MAN-030) focusing on planning, execution and continuous improvement. Process oversight and management is a responsibility of all Board members; SCD voting is assigned to members in accordance with the *One Book*. The Board's responsibilities are to:

- Set process requirements, develop guidance for NMP stakeholders, and approve process changes recommended by the O-6 Board.
- Set process resource levels needed to support/maintain NMP performance objectives. Systematically assess process effectiveness and remove process barriers to promote a culture of continuous improvement.
- Provide oversight of the "exception" processes (Emergent Changes and Non-Permanent Changes) to ensure these paths are not overused/abused.
- Adjudicate/approve SCDs proposed by the O-6 Board. Serve as SCD decision authority for SCDs or recommend approval to the 3-Star Board in accordance with the *One Book*.

Provide oversight in development of the annual Modernization Plan (MP) and ensure that modernization investment priorities are aligned with strategic readiness and capability requirements and are reconciled with financial resources.

DELIVERABLES

The Board will provide:

- Decisions for process changes recommended by the O-6 Board to ensure the NMP operates efficiently and effectively.
- Direction to the O-6 Board.
- An annual, reconciled and prioritized Modernization Plan for each POM/PR cycle to the 3 Star Board for approval to serve as an input to OPNAV Resource Sponsors in concert with PPBE timelines.
- Decisions for those SCDs which are forwarded to the Board for action.
- Resource requirements to support the NMP.
- The 3 Star Board agenda.

Roles and Responsibilities

Owner	Role/Responsibility	Subtasks
1-2 Star Board	**Adjudicate/approve O-6 proposed SCDs**	**✓Deliberate SCD merits and provide recommendations to the 3-Star Board and Milestone Decision Authority, as required** **✓Determine value and priorities**
	Review Ship Changes (SCs) within threshold; and approve or recommend to higher board for approval	**✓Ensure that broad fleet operations needs are met** **✓Ensure that conjunctivity is applied** **✓Monitor SCD content for congruence with requirements, both adequacy and economy**
	Set Process Requirements / Develop Guidelines and Process Performance Requirements	**✓Audit hull level Modernization Plans (HMPs)** •Establish process through RMCs **✓Review process performance based on metrics evaluation and update process as required** **✓Develop and revise Business Rules as needed**
	Set Process Resource Levels	**✓Monitor and establish resource requirements to support/maintain NMP performance objectives** **✓Using NMP metrics, systematically remove process barriers to maintain NMP performance criteria**
	Manage exception process (Emergent / NPC)	**✓Evaluate Emergent/NPC SCDs** **✓Balance resources**
	Compare Budget with requirements to ensure compliance	**✓Adjudicate SCDs against POM and requirements**
	Provide MP Oversight	**✓Advocate Modernization investment priorities are being achieved with respect to readiness and capabilities** **✓Establish a spot review process to ensure delivery of HMP objectives as approved** **✓Establish regional inspection programs**

Appendix 4

Navy Modernization O-6 Decision Board

Board Name: Navy Modernization O-6 Decision Board

Board Chair: SEA 04R

Frequency: Quarterly or as required **Day/Time:** As scheduled by SEA04RP

Membership	
NAVSEA 04R	**Team Ships (SPM)**
CNSF/SWE	**PEO Carriers (SPM)**
CNAF/NAE	**Team Subs (SPM)**
CSF/USE	**PEO IWS**
NNWC/NNFE	**PEO LMW**
NECC/NECE (future)	**PEO C4I & Space**
OPNAV N41	**SPAWAR**
OPNAV N43	**NAVSUP (NAVICP)**
OPNAV N6F	**NAVAIR**
OPNAV N85	**NAVSEA 05**
OPNAV N86	**DASN Ships representative**
OPNAV N87	
OPNAV N88	
Non-voting Members	
NMPT Action Officer	
NAVSEA 04RP (Process administrator)	

The Board membership listed above represents NMP stakeholders with voting rights for process changes within the Board's purview.

SCD voting occurs electronically. Voting authority is dictated by the EP Business Rules and the *One Book*.

MISSION

The Navy Modernization O-6 Board manages the Navy Modernization Process (NMP) as established in the Surface Ships and Carrier Entitled Process for Modernization (SSCEPM) Operations and Management Manual (SL720-AA-MAN-030) focusing on planning, execution and continuous improvement. Process oversight and management is a responsibility of all Board members; SCD voting is assigned to members in accordance with the *One Book*. The Board's responsibilities are to:

- Develop process controls for management of the NMP and provide oversight to achieve modernization objectives.
  - Establish/maintain process metrics; and as appropriate, identify root cause barriers and develop action plans for their removal,
  - Actively manage the process, identifying process shortfalls and continuous improvement opportunities, and tasking working groups as appropriate,
  - Review and approve all changes to the NMP and, when required, forward recommended changes to the 1&2 Star Decision Board for concurrence,
  - Manage the "exception" processes (Emergent Changes and Non-Permanent Changes) to ensure these paths are not overused/abused,
  - Ensure that a robust training program is in place and available to meet all stakeholder requirements,
  - Ensure all appropriate documentation to support the NMP is current.
- Support the Fleets' prioritized requirements.
  - Ensure that Alteration Figure of Merit (AFOM), Cost Benefit Analysis (CBA), Technical Assessment Team (TAT), and cost estimation processes are supportive of the decision making process,
  - Ensure NMP capabilities and systems are sustainable and maintained,
  - Avoid unique or tailored infrastructures to support singular requirements.
- Vote electronically on all Ship Changes (SCs) in accordance with the *One Book*.
- Balance resources against requirements to develop a prioritized annual Modernization Plan.
  - Ensure that allocated funds are used and that Budget Line Items (BLIs) are appropriately applied.
- Manage execution of the approved Modernization Plan.
  - Manage the process to ensure well-coordinated development and delivery of mature SCs.
  - Take measures needed to prepare plans for following FYs.

SCOPE

The Board shall manage all internal and external influences to the NMP so that process output is optimized, barriers are identified and removed, and the NMP is well integrated with other Navy/DoD programs.

DELIVERABLES

The Board will provide:

- Process oversight in support of the Warfare Enterprises and other NMP Stakeholders, ensuring consistent, effective and efficient operation of the NMP.
- Process controls by tasking SEA04RP, the NMPT, process owners, and other chartered teams for program reviews, metrics drill-downs, root-cause analysis, and continuous improvement requirements as required to assess the NMP's operations.
- Decisions for routine process changes which do not significantly alter the NMP or associated business rules, and recommendations for significant changes, which in the Board's opinion, require Flag Board concurrence.
- The 1&2 Star Board agenda that includes recommendations for process changes.
- Decisions for those SCDs which are forwarded to the Board for action.
- Provides input for an annual, reconciled and prioritized Modernization Plan in each POM/PR cycle for review by the 1&2 Star Board in concert with PPBE timelines.

Roles and Responsibilities

Owner	Role/Responsibility	Subtasks
O-6 Board	**Develop Process Controls and provide oversight to achieve Modernization objectives across the Enterprises**	**✓Establish/maintain process metrics; and as appropriate, identify root cause barriers and develop action plans for their removal** **✓Actively manage the process, tasking working groups as appropriate** **✓Ensure that a robust training program is in place and available to meet all stakeholder requirements** **✓Maintain all appropriate documentation to support the NMP**
	Support Fleet's prioritized requirements	**✓Ensure that AFOM, CBA, TAT, and cost estimation processes are supportive of the decision making process** **✓Ensure that all SCDs needed to meet requirements are applied** **✓NMP capabilities and systems are sustainable and maintained in place** **✓Avoid unique or tailored infrastructures to support singular requirements**
	Review Ship Changes (SCs) against requirements; approves or recommends to higher board for approval	**✓Ensure that broad fleet operations needs are met** **✓Ensure that conjunctivity is applied** **✓Monitor SCD content for congruence with requirements, both adequacy and economy**
	Provide input to OPNAV Resource Sponsors to balance resources against requirements	**✓Ensure that allocated funds are used and that BLIs are appropriately applied**
	Execute Plan	**✓Manage the process to ensure well-coordinated development and delivery of mature Ship Changes** ✓Eliminate unplanned late delivery of Ship Changes **✓Take measures needed to prepare plans for following FYs**

Appendix 5

Navy Modernization Process Team (NMPT)

TEAM NAME: Navy Modernization Process Team (NMPT) **Formation Date:** 19 Jun 2007

TEAM LEADER: Paul Murphy/SEA04RP **Phone #** 202-781-3173

Frequency: Monthly **Day:** 3rd Tuesday **Time:** 1230-1430 **Location:** VTC

Executive Leaders	Position	Command	Telephone #	E-mail
RDML McCoy	Flag Advisor	NAVSEA 05	202-781-1710	kevin.m.mccoy@navy.mil
TBD	Chair O6 Board / Advisor	NAVSEA 04R		
Core Members	**Position**	**Command**	**Telephone #**	**E-mail**
Paul Murphy	Action Officer	SEA21-F1	202-781-3173	paul.r.murphy@navy.mil
John Eghtessad	NMP Process Admin / Asst Action Officer	NAVSEA 04RP	202-781-2024	john.eghtessad@navy.mil
Bob Stout	Software & Process Administration	NAVSEA 04RPL	202-781-0888	robert.l.stout@navy.mil
CAPT(s) Jordan	SEA21	SEA21-F1	202-781-2718	pernell.jordan@navy.mil
CDR Christensen	Metrics Officer	SEA21-PMS470R	202-781-3068	john.a.christensen@navy.mil
CDR Stone	CNSF/SWE Rep	CNSF	619-437-2383	leon.stone@navy.mil
Marvin Meade	CNAF/NAE Rep	CNAF	757-444-0324	marvin.meade@navy.mil
Patti Philipps	CSF/USE Rep	CSF	757-836-1280	patti.philipps@navy.mil
Scott Gordon	NNWC/NNFE Rep	NNWC	757-417-7925	scott.gordon@navy.mil
Seth Riggins	OPNAV Rep	OPNAV N86	703-604-7625	seth.riggins@navy.mil
Dale Davis	Surface Ship SPM	SEA21-400F	202-781-1839	robert.d.davis4@navy.mil
Darryl Sheedlo	Carrier SPM	PEO Carriers	202-781-0848	darryl.sheedlo@navy.mil
Scott Hetkey	PEO C4I & Space	PEO C4I & Space	858-537-6811	scott.hetkey@navy.mil
Penny Matter	PEO IWS	PEO IWS	202-781-2140	penny.matter@navy.mil
TBD	PEO LMW	PEO LMW		
Bill Rose	NAVAIR Rep	NAVAIR 1.2	301-342-9194	william.s.rose@navy.mil
Rich Santomauro	SPAWAR Rep	SPAWAR 04	619-524-7644	rich.santomauro@navy.mil
Paul Horacek	NAVSEA 05 (HM&E)	NAVSEA 05	202-781-0649	franklin.horacek@navy.mil
Billy Douglas	NAVSEA 05 (WSE)	NAVSEA 05W	202-781-3542	billy.douglas@navy.mil
Patricia Schwarz	Code 8341 - H	NAVICP	717 605-1444	patricia.schwarz@navy.mil
Doug Olivieri	Submarine SPM	NAVSEA 07	202-781-1521	douglas.olivieri@navy.mil
Yvonne Sullivan	Process Expert	Alion Science	202-777-1339	ysullivan@alionscience.com
Facilitators	**Position**	**Command**	**Telephone #**	**E-mail**
Jared Bennici	Scribe/PEO Ships Ktr	Alion Science	202-777-1482	jbennici@alionscience.com
Dean Rock	Facilitator/SEA 05 Ktr	Thomas Group	202-781-2755	drock@thomasgroup.com
Steve Nimitz	Facilitator/SEA 05 Ktr	Thomas Group	202-781-1822	snimitz@thomasgroup.com

Supporting Members	
NAVSEA 05H	CPA
CFFC	SUBMEPP
CPF	ISEAs/Warfare Ctrs
Planning Yards	CMWC

Functional Support	
CBA	Voting
AFOM	Software
TAT	Metrics
Training	Modernization Plan
Initiate/Submit	

MISSION

The Navy Modernization Process Team (NMPT) mission is to:

1) Serve as a standing working group for the NMP Decision Boards with responsibility for institutionalizing the NMP. It will support the operations of the NMP in the following areas:

a. Carry forward the unfinished work of SHIPMAIN CFT 4, including new/revised documentation, on an agreed list of deferred NMP issues (the "big rocks") and continue efforts to ensure Critical Success factors have been satisfactorily addressed;

b. Support and guide implementation of the entitled Navy Modernization Process in each of the applicable Warfare Enterprises (NAE, SWE, USE, and NNFE) and transition NMPT roles and responsibilities to permanent owners within those Enterprises;

c. Align directives and other supporting documentation to provide unambiguous guidance to all modernization stakeholders;

d. Provide for continuous improvement by focusing on the process and enhancement of the process tools.

2) Work with representatives of the Warfare Enterprises to designate the NMP as the operative modernization process in all Enterprises.

3) NMPT relationship with functional support areas is accomplished through each area lead being a member of the NMPT.

SCOPE

Start: 19 June 2007 **Stop:** The NMPT is a standing Team and will be tasked by the NMP Decision Boards accordingly.

BOUNDARIES

1) The following issues are within NMPT purview:

a. Tools for process execution and oversight (metrics, training, software, documentation) as listed among the "big rock" issues;

b. Work necessary to transition process ownership and oversight to the permanent organizations approved by the 3-Star Decision Board;

c. Proposed maintenance and updates to the *One Book* as pertain to the work items within the NMPT's purview;

d. Additional issues assigned by the NMP Decision Boards.

2) The NMPT receives tasking from the NMP Decision Boards and develops additional work items from its review of process operations.

DELIVERABLES

1) Resolutions to issues assigned to the NMPT by the NMP Decision Boards.

a. Solutions to the accepted list of "big rock" issues that form the NMPT's work list. This will include recommended revisions to the *One Book*, business rules, and software changes needed to implement the solutions.

b. Documentation to support the NMP to include process maps, business rules, and the *One Book*. This includes development and completion of verbiage for advance changes and revisions to the *One Book* in cooperation with SEA04RP.

2) An initial CONOPS (updated as required) that addresses the working relationships among the NMPT, modernization Decision Boards, Functional and Cross-Functional Teams, Working Groups, and SMEs across the Enterprises and supporting Domains.

3) Annual NMPT charter review with changes submitted to the O-6 Board for approval.

4) Each team member is responsible for identification of their replacement prior to their departure.

WHEN IS THE TEAM DONE?

1) The NMPT stands at the discretion of the 3-Star Decision Board and has no definitive end date or completion criteria.

Appendix 6

Functional Support

NMP Functional Support*

TAT	Paul Horacek
CBA	Yvonne Sullivan
AFOM	CDR Stone (CNSF)
Training	LT Chance
Metrics	CDR Christensen
Submit / Initiate	Bob Stout
Software/Documentation	Dr. Eghtessad's
Modernization Plan	Seth Riggins
Voting	Bob Stout

* The persons identified in this Appendix are the NMP Functional Support Area Leads. Each Enterprise is expected to sustain NMP Functional Support areas by providing representation/expertise, as required. As Enterprises identify their own Functional Support Leads, names and contact information will be maintained on the FMP web site, www.fmp.navy.mil.

APPENDIX M

NON-PERMANENT CHANGES

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NON-PERMANENT CHANGES (NPCs)

1. Scope

This document outlines the policy, process, and responsibilities for development and approval of NPCs proposed for accomplishment aboard operational Fleet ships. Detailed Business Rules on NPCs are located in Appendix D, Block 10, paragraph S.

2. Definitions

A NPC is defined as a change that will be installed for Test & Evaluation (T&E) purposes to demonstrate or aid in the demonstration of a new or improved capability for the fleet. A NPC may be installed on a specific hull(s) per class, Carrier Strike Group (CSG). The testing phase can be accomplished during an at-sea period or exercise, or at a land based test facility. Additionally, the testing phase can be accomplished during an acquisition program's technology demonstration for further development in pursuit of a Permanent Change fielding if the NPC reaches maturity. In some cases, for NPCs installed and demonstrated during a previous exercise, the systems/equipment may need to be re-installed and additional testing conducted during another exercise to meet the overall criteria for a new capability. Additionally, NPCs can be used to provide an interim capability to support operational and training requirements for Platform Type Commanders (TYCOMs), Naval Network Warfare Command (NETWARCOM), Operational Commanders, Immediate Superior In Command (ISIC), or Commander, US Fleet Forces Command (CFFC) when formal justification and approval is provided.

3. Categories

a. Demonstrates or aids in the demonstration of new technology to support Sea Trial Events or Fleet Exercises (i.e. Trident Warrior (TW), Ballistic Missile Defense (BMD), etc.)
b. Demonstrates a new technology that is or may become an acquisition Program of Record (POR) or to further SCD development
c. Fleet Driven and designed to provide a short-term operational capability
d. In Support of Acquisition Category (ACAT) program milestones

4. Drivers

a. Research and Development (R&D): Projects, typically Research, Development, Test & Evaluation funded, to support unique T&E requirements (evolutionary in design or capability)
b. Mission Essential: Fleet driven requirements not supported by an existing POR or R&D initiative
c. Testing Requirements: To demonstrate a new technology

5. Schedule

a. **Installation Planning:** Depending on the complexity, it is recommended that Phase I documentation be submitted as early as possible to meet the Availability Planning Milestones and to accommodate all the necessary approvals and authorizations for installation and removal.

b. **Operational Life Cycle:** NPCs are required to be removed within one year from the time the SC is installed. The NPC Submitter can request an extension that will have to be approved by the signatures on the original data package.

c. **Removal:** The Participating Acquisition Resource Manager (PARM) / Program Manager (PM) will ensure the NPC sponsor removes (if required) the NPC and the ship is restored to its original condition (condition prior to the change being installed). The removal costs must be included in the Cost Benefit Analysis (CBA) worksheets developed for the change.

6. Approval Milestones

The milestones listed below are required prior to installation of the NPC. If any action cannot be completed, a risk assessment form must be provided to the (TYCOM)/Commander Naval Network Warfare Command (CNNWC) for authorization to continue.

a. NPC SCD approved at Decision Point (DP) 1 (Preferred)

b. NPC SCD approved at DP 2

c. NPC Data Package approved by TYCOM, Ship Program Manager (SPM), and NPC Submitter which should contain the info delineated in the NPC data package template (figure 1). The NPC data package should be submitted and approved in conjunction with the review cycle of the Phase II SCD; however it is not mandatory. If NPC data package is not provided with the Phase II SCD it must be submitted no later than 6 months prior to installation.

d. Post DP-2 efforts required prior to install.
   1) Drawings: Planning Yard (PY) / Life Cycle Manager (LCM) approved Ship Installation Drawings (SIDs) are required. Sponsoring activity has the option of either tasking a third party for ship check/drawing development and submitting to the PY for approval, or tasking the PY with ship check and drawing development. If the NPC impacts shipboard combat systems/communication spaces, an additional review is required by the applicable program office technical code and/or the LCM (i.e. Naval Air Warfare Center Aircraft Division (NAWC-AD)/Lockheed Martin, etc.) prior to PY tasking for ship check and drawing development.
   NOTE: NPCs consisting of software and/or firmware only and internal equipment modifications will not require PY approved drawings

2) Top Side Study: If topside equipment is included in the NPC, appropriate technical authority (e.g. for Carriers, Naval Surface Warfare Center, Dahlgren Division (NSWCDD) shall be tasked to perform a topside study
3) Integrated Logistics Support (ILS): SPM approved interim ILS Certification is required
4) Defense Information Technology Security Certification and Accreditation Process (DITSCAP)/DoD Information Assurance Certification and Accreditation Process (DIACAP) Interim Authority to Operate (IATO): IATO or Platform IT Designation Letter shall be provided if applicable, for the NPC for system interfaces during the test period. System Security Authorization Agreement (SSAA) shall be developed and approved before operation
5) Warfare System Assessment: NAVSEA 05W will assess applicable NPCs against the warfare system certification criteria as defined in NAVSEA Instruction 9410.2 Naval Warfare Systems Certification Policy to characterize the impact upon the baseline warfare system
6) Testing will be identified in the Data Package (DP) but not required to be completed prior to installation. If Electromagnetic Control (EMC) / Electromagnetic Interference (EMI) testing is required, it will be conducted during the testing phase
7) For systems requiring frequency allocation to transmit, submission and approval of DD Form 1494: Application for Equipment Frequency Allocation

e. Command & Control, Communications, Computers, & Combat Systems Installation Master Plan (C5IMP) baseline approval as documented in CINCLANTFLT / CINCPACFLT Instruction 4720.3 series, is required for SFI CAT 1 and CAT 2 NPCs

f. Removal-drawing package is required for those NPCs whose intent is to remove the installation after evaluation.

7. NPC Process:

Fill out a Phase I and Phase II SCD (based on Initiators and Submitters evaluation of the maturity) listing a class(s) of ships in which this change will be installed. Submitter should specify the hull(s)/site that will be getting this NPC install. If NPC extension is required submit a revised data package Plan Of Action & Milestones (POA&M) and signature page.

a. **Phase I (If Applicable):**
1) Provide data on SCD
2) Provide cost data as outlined on the SCD for all applicable ships including removal costs
3) Submit SCD for Technical Assessment Team (TAT) review
4) A TAT review will be conducted and forwarded to the SPM with their recommendation. (This review will ensure the change is technically sound and interoperable.)
5) SPM will review and provide a recommendation and forward the SCD
6) A Cost Benefit Analysis (CBA) review is required, but an Alteration Figure Of

Merit (AFOM) review is not needed
7) Resource Sponsor will indicate if funding is available and will forward to the review board
8) Decision boards will approve/disapprove installation of the change on the hulls indicated on the SCD
9) If approved, the NPC will be moved to Phase II Preliminary Design
10) If not approved, the SCD will be closed and the NPC will not proceed

b. Phase II:

1) Provide required data on SCD, including the installation and removal dates
2) Provide cost data as outlined on the SCD for all applicable ships
3) Submit SCD
4) Attach Data Package if completed
5) A TAT review will be conducted and forwarded to the SPM with their recommendation. (This review will ensure the change is technically sound and interoperable.)
6) SPM will review, provide a recommendation, and forward the SCD
7) A CBA review is required, but an AFOM review is not needed
8) Resource Sponsor will indicate if funding is available and forward to the review board
9) Review boards will approve/disapprove installation of the change on the hulls indicated on the SCD
   a) If the NPC is approved the installation may proceed
   b) If not approved, the SCD will be closed and the NPC will not proceed

NOTE: All milestones must be met or an impact assessment submitted In Accordance With (IAW) Appendix G.

8. NPC Completion

Upon completion of the test period, the submitter will choose one of the following options and provide the required information to complete the NPC:

a. NPC removed

1) Update applicable SCD sections to include:

   a) Test Results

   b) Actual Costs

   c) Actual Date Removed

2) To document the removal of the NPC, revise the Phase III SCD and forward it through the TAT process

b. NPC testing completed - recommend making permanent change:

1) Phase III SCD will be completed for detailed design. Refer to Section 3-1.2.4.
2) Some of the major areas that must be updated are:
    a) Assign classes and hulls for POR installations to SCD
    b) Expand on Executive Summary, Description of Change, Impact if not Accomplished, and all Distributive Systems impacts. (If needed for mature design information and maturity impacts based upon a successful installation). Should include test results
    c) Provide AFOM data
    d) Provide complete cost data as outlined in the CBA
    e) Submitter must change the SCD from non-permanent to permanent in Navy Data Environment (NDE).

3) Submit SCD into the normal Phase III review process for Navy Modernization approval/disapproval to procure and install change
    a) If approved, NPC will become a permanent change and be moved into Phase IV for completion of the entitled process milestones prior to installation of the change
    b) If disapproved, the board will require the NPC be removed and the SCD resubmitted with removal information

NON–PERMANENT CHANGE DATA PACKAGE

TEMPLATE

Add Hull

Add SCD

Add SCD Title

(Add Distribution Statement)

Note: Page markings shall be in accordance with the highest classification of data within the data package.

FIGURE 1: DATA PACKAGE TEMPLATE

NON PERMANENT CHANGE

DATA PACKAGE

USS XXX (HULL #)

NON PERMANENT CHANGE BASELINE SPECIFICATION

(NPC TITLE)

Prepared By
(NAME AND ADDRESS OF PREPARING ACTIVITY)

APPROVE: _____ _____
(Add Name/Originator Activity and Code) DATE

CONCUR: _____ _____
(Add Name/Technical Warrant Holder Activity and Code) DATE

APPROVE: _____ _____
(Add Name/Ship Design Manager Activity and Code) DATE

APPROVE: _____ _____
(Add Name/Type Commander Activity and Code) DATE

APPROVE: _____ _____
(Add Name/Ship Program Manager Activity and Code) DATE

NOTE: Carrier NPCs shall include the signatures above. At a minimum provide signatures for the originator, SPM (or designated representative), and TYCOM.

(Insert the NPC Title Here) INSTALLATION BRIEF

(In this section the preparer shall describe the complete installation. Use of block diagrams and other illustrations is encouraged.)

SHIP APPLICABILITY

(List all applicable NPC ships by name and hull number.)

ALTERATION BRIEF

NPC Number:	NPC SCD xxxx
Project Title:	(NPC Title)
Security Classification:	(Identify classification of change)
Sponsoring Activity:	(Identify NPC Sponsor)
Applicable Ship:	(List NPC ships by name and hull number)
Applicable TYCOM	(List TYCOM)
Alteration Site:	(Geographic location where NPC will be installed)
Alteration Activity:	(List activity name, address, Point Of Contact (POC), and phone number)
Alteration Planned Date:	(Fiscal Year (FY) and List Planned Incremental Availability (PIA), Post Shakedown Availability (PSA), etc)
Alteration Duration:	(Estimated duration the installation will remain onboard)
Alteration Technical Supporting Requirements:	(List any supporting requirements)
Alteration Exit Plan:	(Brief one sentence plan, i.e. left onboard)

ATTACHMENTS

(The following attachments are required for all NPC Data Packages.)

A. Plan of Action and Milestones A-1
B. Non Permanent Change Impact Data (Distributive Systems and Other Ship Systems)..... B-1
C. Integrated Logistics Support C-1
D. Test Plan (as applicable)..... D-1
E. Removal/Exit Plan E-1
F. Non Permanent Change Drawings and Documentation F-1

REFERENCES

(List all applicable reference documents; e.g. NAVSEA TECHSPEC 9090-310 Series, Alterations to Ships Accomplished by Alteration Installation Team; NAVSEA SL720-AA-MAN-030, Surface Ship and Carrier Entitled Process for Modernization (SSCEPM) Management and Operations Manual (One Book); NAVSEA S900A-AB-GOS-010/GHSO, General Specifications for the Overhaul of Surface Ships; others as applicable.)

ATTACHMENT A

PLAN OF ACTION AND MILESTONES

(The preparer shall develop a POA&M outlining the major tasks required to successfully execute the NPC. The below listing is meant to provide an example of such tasks, but in no way should the POA&M be limited to these tasks, nor does each NPC require all the example tasks. The developer should include a Microsoft Project or other software tool output which displays the POA&M in a graphical fashion if at all possible following the table to better enable tracking of the effort. These are notional milestones only and the milestones in Appendix G and the 9090-310 Series are still applicable. Add milestones, certifications, qualifications, and System Operational Verification Test (SOVT) as required.)

TASKS	**NOTIONAL COMPLETION DATE**
SCD Phase I Approved (If Applicable)	A-16
Conduct Ship Check	A-16
SCD Phase II Approved	A-12
SIDs Approved or Mark N/A	A-6
Late Add Message (If Applicable)	Required if Added to MP after A-6
Alteration Installation Team (AIT) POA&M Submittal	A-4.5
Approve ILS Certification	A-4
Submit Electronic Configuration Control Board (ECCB) / Target Completion Date (TCD) Waiver (if applicable)	Actual Target Completion Date
Perform Pre Installation Check Out (PICO) if Required	Actual Date of PICO
Perform Regional Maintenance & Modernization Coordination Office (RMMCO) Check-in	I-0
Perform Ship In-Brief	I-0
Start Installation	Actual Start Date of Installation
Perform SOVT if Required	Actual Date of SOVT
Deliver ILS	Prior to RMMCO Checkout
Complete Installation	Actual Completion Date of Installation
Conduct Ship’s Force Training	Prior to RMMCO Checkout

Perform RMMCO Checkout	End of Availability
Start Evaluation of NPC performance per Test Plan (if applicable) * Evaluation Period not to exceed 1 year without request for extension (submitted with Revised NPC Data Package and updated POA&M to the SPM. The SPM will coordinate a response from the TYCOM.)	End of Availability
Complete Evaluation of NPC performance	End of Installation + 1 Year
Provide Final Report of Evaluation (submit to all contacts on signature page)	Not to Exceed End of Evaluation + 2 months
Submit Phase III SCD (required to proceed with future permanent installations or to document removal of the NPC)	End of Evaluation + 4 months
Remove NPC installation from ship and return all systems to original configuration(If NPC test evaluated as unsuccessful or if purpose of NPC installation achieved with no further expected use)	Date Based on Removal Timeline in CBA

ATTACHMENT B

NON PERMANENT CHANGE IMPACT DATA (DISTRIBUTIVE SYSTEMS AND OTHER SHIP SYSTEMS)

1. Shipboard Location: (List all shipboard spaces that are affected)

2. Power Requirements: (List voltage/frequency/amperage) Locate under distributive systems?

3. Power Source: (List source, e.g. ship service, vital bus, etc.) Locate under distributive systems?

4. Data Interface Exchange Requirements: (List type of data, input or output, type of interface, etc.)

5. Impact on Distributive and other Ship's Systems:
   - 5.1 Weight / Moment:
     Weight Added / Removed (Est.): XX lbs.
     VCG: (Identify any impact or note "none")
     LCG: (Identify any impact or note "none")
     TCG: (Identify any impact or note "none")
   - 5.2 Ship Stability: (Identify any impact or note "none")
   - 5.3 Human Systems Integration (HSI): (Identify any impact or note "none")
   - 5.4 EMI/Radio Frequency Interference (RFI): (Describe EMC impact or note "none")
   - 5.5 Shock (Identify any impact or note "none"
   - 5.6 Vibration (Identify any impact or note "none")
   - 5.7 Communications Security (TEMPEST): (TEMPEST requirements if any).
   - 5.8 System(s) / Equipment(s) / Capability(ies) Disabled: (Identify any impact)
   - 5.9 Equipment Rip-out: (List if any required)
   - 5.10 Heat Load/Chill Water Requirements: (Total additional heat load introduced due to change in watts/kilowatts)
   - 5.11 Potable Water (List gallons per minute required)
   - 5.12 Firemain (List gallons per minute required)
   - 5. Other Ship System Impacts (List any other impacts on distributive or other Systems or note "none")

6. Impact on Safety:
   - 6.1 Watertight Integrity: (Identify any impact or note "none")
   - 6.2 SUBSAFE: (Identify any impact or note "none")
   - 6.3 Life Support: (Identify any impact or note "none")
   - 6.4 Personnel Safety: (Identify any impact or note "none")
   - 6.5 Existing Equipment Safety: (Identify any impact or note "none")

ATTACHMENT C

INTEGRATED LOGISTICS SUPPORT (ILS)

(The preparer shall outline ILS products to be delivered in sufficient detail to ensure Ship's Force is comfortable with the level of support to be provided. Refer to Section 6 of the One Book for amplifying information. As a minimum, the following products will be described:

- Training for Ship's Force Operators and Maintainers
- Manuals, drawings, parts lists and other technical configuration documentation
- Repair parts to be provided / arrangements for obtaining replacement parts
- Interim preventive maintenance (PMS) to be provided, if any
- Software and computer resources to be provided, if any)

ATTACHMENT D

TEST PLAN (If Applicable or Reference Previous SYSCOM approved Test Plan)

Background and Reporting Requirements

(The developer will provide a brief background statement outlining the intent of the Test Plan to be executed and the data required to be submitted (who, when, where, what) to allow evaluation of NPC success.)

Proposed Solution

(The developer will briefly outline the intended value added by installation of the NPC.)

First Article Testing

(The developer will describe any pre-installation testing required for installed NPC components and the associated success criteria for this testing.)

PICO and SOVT Testing

(The developer will describe appropriate PICO and SOVT testing and the associated success criteria for these tests.)

NPC Testing During Deployment

(The developer will outline in detail using written instructions and pre-formatted data sheets the data to be collected in support of evaluating the success of the NPC installation. Detailed instructions for forwarding data sheets including periodicity, mechanism for transmitting data, coordination required, etc., will be provided to Ship's Force to ensure the data is forwarded to the proper evaluation authority as required to fully evaluate the success or failure of the NPC installation.)

NPC Testing Success Criteria

(The developer will outline, in detail, the criteria for a successful test based on the data submission requirements. The developer will also indicate the organization responsible for declaring the NPC a success or failure, and how that result will be communicated to all involved parties.)

ATTACHMENT E

REMOVAL / EXIT PLAN

(The preparer shall outline the plan to remove the NPC if the NPC Test is evaluated as unsuccessful or if purpose of the NPC installation is achieved with no further expected use. This appendix shall outline the plan to coordinate with the respective TYCOM to remove the NPC and restore all ship systems to their original configuration.)

ATTACHMENT F

NON PERMANENT CHANGE DRAWINGS AND DOCUMENTATION

(The preparer will list all drawings to be used for the NPC installation and all documentation to be provided to both the installing activity and Ship's Force in support of the NPC. It should be noted that Planning Yard approval on installation drawings is required for NPC installations. SIDS are not required to be provided as part of this NPC data package. NPCs consisting of software and/or firmware only and internal equipment modifications will not require SIDs. In addition Commercial Off The Shelf (COTS) equipment (i.e. computer work stations, towers), which have a shipyard approved attachment method also will not require SIDs.)