JOINT FLEET MAINTENANCE MANUAL

VOLUME II

INTEGRATED FLEET MAINTENANCE

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VOLUME II

PART I

CHAPTER 1

INTRODUCTION

REFERENCES.

(a) OPNAVNOTE 4700 - Representative Intervals, Durations, Maintenance Cycles, and Repair Mandays for Depot Level Maintenance Availabilities of U.S. Navy Ships
(b) OPNAVINST 4780.6 - Policy for Administering Service Craft and Boats in the U.S. Navy
(c) OPNAVINST 4700.7 - Maintenance Policy for U.S. Naval Ships
(d) OPNAVINST 3120.32 - Standard Organization and Regulations of the U.S. Navy
(e) NAVSEAINST C9094.2 - Submarine Valve Operation Requirements for Builders and Post-Overhaul Sea Trial Test Dives
(f) COMLANTFLTINST 5400.2 - U.S. Atlantic Fleet Regulations
(g) COMPACFLTINST 5400.3 - U.S. Pacific Fleet Regulations
(h) NAVSEAINST 4790.8/OPNAVINST 4790.4 - Ships' Maintenance and Material Management (3-M) Manual
(i) SSPINST 4720.1 - Policies and Procedures for Alteration of Strategic Weapon System Equipment

LISTING OF APPENDICES.

A List of Acronyms
B Glossary of Terms

1.1 PURPOSE. The purpose of this volume is:

a. To provide guidance for implementing and executing the management of an integrated fleet maintenance process for all Navy ships throughout their life cycle. This includes establishing policies and responsibilities for determining, authorizing, planning, scheduling, performing and evaluating maintenance of ships, to ensure quality, safety and maximum operational and material readiness. References (a) through (i) shall be used in conjunction with this volume in establishing an effective maintenance program.

b. To outline current maintenance process policies and responsibilities for all maintenance availabilities and delineate programs and associated data management systems required for accomplishing this maintenance.

1.2 SCOPE.

a. This volume applies to all ships of the Navy (active and reserve); it does not apply to civilian operated ships assigned to the Military Sealift Command. Throughout this manual, the term "ship" refers to all surface ships, aircraft carriers, submarines and those patrol and service craft specified in reference (a). Reference (b) provides policy and guidance for maintenance of service craft and boats not addressed in reference (c).

b. The Foreword of this manual contains a master list of references. These references are arranged in alphanumeric order to facilitate the ordering of documents. References used in specific chapters are listed at the beginning of that chapter. Appendices A and B of this chapter contain a list of acronyms and glossary of terms used in this specific volume.

c. Equipment under the cognizance of Naval Sea Systems Command Nuclear Propulsion Directorate (NAVSEA 08) is maintained in accordance with NAVSEA 08 directives.

d. Nuclear-Powered Ballistic Missile Submarine (SSBN) Strategic Weapon System (SWS) and Nuclear-Powered Guided Missile Submarine (SSGN) Attack Weapons Systems (AWS) equipment under the cognizance of Strategic Systems Programs (SSP) is operated, maintained, modified and/or modernized in accordance with approved SSP directives/instructions.

(1) Reference (i) defines policies, controls, processes and procedures for the accomplishment of all SSP Alterations (SPALT) issued by the Director, Strategic Systems Programs for all SSP cognizant equipment on both SSBNs and SSGNs. Reference (i) further defines the methodology and processes to plan, document, coordinate, install, and test SWS/AWS hardware, software and/or modernization SPALTs.

(2) Adherence to reference (i) ensures that all related or affected Equipment, Fleet Documentation, Training, Logistic and Maintenance functions under the cognizance of SSP are fully integrated as part of the SPALT. Only SSP authorized SWS/AWS SPALTs are installed on SSBNs and SSGNs.

(3) Applicable and required local support services such as Crane, Riggers, Power Isolation/Tag-Out, Hazardous Material, Quality Assurance/Critical Skill requirements, etc., for the conduct of a SPALT shall be identified within the Director, Strategic Systems Programs SPALT document, related Ordnance Document, and/or SPALT installation pre-briefings (as appropriate). This information shall be communicated/provided to all involved and affected local activities in accordance with the SPALT process no later than forty-five (45) days prior to the conduct of a SPALT, as outlined and defined within reference (i).

(4) An SSP Contractor/Government Team shall provide the required operational and engineering support for all SPALT, Maintenance and Repair Activities to SWS/AWS equipment under the cognizance of SSP. The respective responsibilities of SSP Contractor/Government Teams, the Fleet Maintenance Activity and other local Commands for the execution of the SSP SPALT program shall be documented in an overarching Memorandum of Agreement in order to define areas of responsibility for all activities involved in the accomplishment of authorized alterations in a timely, efficient, and coordinated manner.

1.3 CHANGES AND CORRECTIONS. Changes and corrections will be issued as required. Comments and suggestions for improving or changing this volume are invited. Address comments, recommendations, and requested changes to Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) Activity utilizing the change request form located in the front of this manual. If changes are submitted in electronic format, facsimile or E-mail, each change request shall contain the information required on the change request form.

1.4 REQUEST FOR COPIES OF THE MANUAL. Activities on distribution for the Joint Fleet Maintenance Manual (JFMM) that require additional copies or activities wanting to be added to distribution should submit a letter to their applicable Type Commander (TYCOM), identifying CD-ROM/paper requirements along with justification for the request. To the maximum extent possible, technical publications libraries at each activity will receive all copies of the manual for that activity and coordinate local distribution and updates.

APPENDIX A

LIST OF ACRONYMS

2-Kilo (2K)	3-M Maintenance Action Form
3-M	Maintenance and Material Management
A&I	Alteration and Improvement
ACRN	Accounting Classification Reference Number
AERP	Advanced Equipment Repair Program
AIT	Alteration Installation Team
AMCA	Automated Machinery Condition Analysis
ARRS	Analysis, Record and Report Section
ASF	Assist Ship's Force
AWP	Availability Work Package
AWR	Automated Work Request
AWS	Attack Weapons Systems
BAWP	Baseline Availability Work Package
BCP	Ballast Control Panel
BQC	Emergency Underwater Telephone
CARPER	Aircraft Carrier Planned Equipment Replacement
CASREP	Casualty Report
CBM	Condition Based Maintenance
CJ	Critical Job
CM	Continuous Maintenance
CMAV	Continuous Maintenance Availability
CMP	Class Maintenance Plan
CNO	Chief of Naval Operations
CO	Commanding Officer
COMNAVSEASYSCOM	Commander Naval Sea Systems Command
COMSUBDEVRON	Commander Submarine Development Squadron
COMSUBLANT	Commander Submarine Force, United States Atlantic Fleet
COMSUBPAC	Commander Submarine Force, United States Pacific Fleet
COSAL	Coordinated Shipboard Allowance List
CPA	Central Planning Activity
CPJ	Critical Path Job
CS/CCS	Command and Control Systems
CSMP	Current Ship's Maintenance Project
CVN	Nuclear Powered Aircraft Carrier
DSS	Deep Submergence System
DSU	Deep Submergence Unit
EA	Executing Activity
EAB	Emergency Air Breathing
ECM	Electronic Counter Measure
EDL/ESL	Equipment Deficiency/Status Log
EM	Emergent Availability
EMBT	Emergency Main Ballast Tank
EOC	Engineered Operating Cycle
EOG	Electrolytic Oxygen Generator
ESM	Electronic Warfare Support Measures
FAC	Funding Activity Code

FBW SCS	Fly-By-Wire Ship Control Systems
FFP	Firm Fixed Price
FMA	Fleet Maintenance Activity
FMP	Fleet Modernization Program
FMPMIS	Fleet Modernization Program Management Information System
FWP	Formal Work Procedure
FY	Fiscal Year
HM&E	Hull, Mechanical and Electrical
IDD	Interim Drydocking
IDIQ	Indefinite Delivery, Indefinite Quantity
IEM	Inactive Equipment Maintenance
IFF	Identification Friend or Foe
ILO	Integrated Logistics Overhaul
IMA	Intermediate Maintenance Activity
INSURV	Board of Inspection and Survey
ISE	Individual Ships Exercises
ISEA	In-Service Engineering Activity
ISIC	Immediate Superior In Command (Group or Squadron)
IWS	Integrated Work Schedule
JCN	Job Control Number
JFMM	Joint Fleet Maintenance Manual
LLTM	Long Lead Time Material
LMA	Lead Maintenance Activity
LOA	Light-Off Assessment
MA	Maintenance Activity
MACHALT	Machinery Alteration
MARMC	Mid Atlantic Regional Maintenance Center
MBT	Main Ballast Tank
MCA (Submarines)	Material Condition Assessment
MCA (Surface Ships)	Machinery Condition Analysis
MCAI	Material Condition Assessment Inspection
MCAP	Material Condition Assessment Process
MDCO	Maintenance Document Control Office
MDS	Maintenance Data System
MIP	Maintenance Index Page
MJC	Master Job Catalog
MM	Maintenance Manager
MMBP	Maintenance and Modernization Business Plan
MOA	Memorandum/Memoranda of Agreement
MRC	Maintenance Requirement Card
MSC	Master Specification Catalog
MSCMO	Master Specification Catalog Maintenance Office
MS/MO	Multi-Ship/Multi-Option
MSR	Master Ship Repair Contractor
MST	Maintenance Support Team
MT	Maintenance Team
MTT	Mobile Training Team
MWO	Maintenance Work Order
NAVAIR	Naval Air Systems Command
NAVIMFAC	Naval Intermediate Maintenance Facility

NAVSEA	Naval Sea Systems Command
NAVSEA 08	Naval Sea Systems Command Nuclear Propulsion Directorate
NEC	Navy Enlisted Classification
NEMAIS	Navy Enterprise Maintenance Automated Information System
NMD	Navy Maintenance Database
NNSY	Norfolk Naval Shipyard
NPEB	Nuclear Propulsion Examining Board
NRL	Naval Research Laboratory
NRMD	Nuclear Regional Maintenance Department
NRRO	Naval Reactor Representative Office
NSA	Naval Supervisory Authority
NSWC	Naval Surface Warfare Center
NSWCCD	Naval Surface Warfare Center, Carderock Division
NSY	Naval Shipyard
NWRMC	Northwest Regional Maintenance Center
OIC	Officer In Charge
OMMS-NG	Organizational Maintenance Management System - Next Generation
OPNAV	Naval Operations
OPORD	Operational Order
OPTAR	Operating Target
ORDALT	Ordinance Alteration
PAC	Pre-Arrival Conference
PARM	Participating Managers
PB4M	Planning Board for Maintenance
PCD	Production Completion Date
PCO	Primary Contracting Officer
PEO	Program Executive Officer
PHNS	Pearl Harbor Naval Shipyard
PIRA	Pre-Inactivation Restricted Availability
PLAD	Plain Language Address Directory
PMA	Phased Maintenance Availability
PMR	Periodic Maintenance Requirement
PMS	Planned Maintenance System
PMT	Performance Monitoring Team
POET	Point of Entry Testing
PORSE	Post Overhaul Reactor Safeguards Examination
PPEA	Propulsion Plant Engineering Activity
PRC	Project Review Conference
PTD	Provisioning Technical Documentation
QA	Quality Assurance
RCC	Request for Contract Change
RCD	Required Completion Date
REC	Re-Entry Control
RMAIS	Regional Maintenance Automated Information System
RMC	Regional Maintenance Center
RMO	Reactor Maintenance Officer
RMT	Regional Maintenance Team
ROV	Repair of Other Vessels
RPCCR	Reactor Plant Configuration Change Report
RPM	Revolutions Per Minute
RRC	Regional Repair Center
RSE	Reactor Safeguards Examination

RSG	Regional Support Group
SBAT	SUPSHIP Bath
SC	Ship Change
SCA	System Certification Authority
SDI	Ship's Drawing Index
SDM	Ship Design Manager
SEIE	Submarine Escape Immersion Ensemble
SERMC	Southeast Regional Maintenance Center
SHIPALT	Ship Alteration
SID	Ship Installation Drawing
SITREP	Situation Report
SJM	Selected Job Management
SNAP	Ship's Non-Tactical Automated Data Processing System
SNPMTT	Surface Nuclear Propulsion Mobile Training Team
SOE	Submerged Operating Envelope
SOSMIL	Safety of Ship Maintenance Item List
SPALT	Strategic Systems Programs Alteration
SPM	Secondary Propulsion Motor
SPM	Ship Program Manager
SRA	Selected Restricted Availability
SRDRS	Submarine Rescue Diving Recompression System
SSBN	Nuclear-Powered Ballistic Missile Submarine
SSCA	SUBSAFE Certification Audit
SSES	Ship System Engineering Station
SSGC	SUPSHIP Gulf Coast
SSGN	Nuclear-Powered Guided Missile Submarine
SSP	Ship Specification Package
SSP	Strategic Systems Programs
SSPINST	Strategic Systems Programs Instruction
SSR	Ship Selected Records
SSRAC	NAVSEA Standard Specification for Ship Repair and Alteration Committee
SUBLANT	Submarine Atlantic
SUBMEPP	Submarine Maintenance Engineering, Planning and Procurement Activity
SUBPAC	Submarine Pacific
SUBSAFE	Submarine Safety
SUPSHIP	Supervisor of Shipbuilding
SUPSHIP NN	Supervisor of Shipbuilding Newport News
SURFMEPP	Surface Maintenance Engineering, Planning and Procurement Activity
SWLIN	Ships Work List Item Number
SWRMC	Southwest Regional Maintenance Center
SWS	Strategic Weapon System
SYSCOM	Systems Command
T/A	Type Availability
TAMS	TYCOM Alteration Management System
TEMPALT	Temporary Alteration
TEMPEST	National Policy on the Control of Compromising Emanations
TEMPMOD	Temporary Modification
TRIPER	TRIDENT Planned Equipment Replacement
TWD	Technical Work Document
TYCOM	Type Commander
UIC	Unit Identification Code
UNF	Unfunded
UQC	Underwater Telephone

URO	Unrestricted Operation
WDC	Work Definition Conference
WOO	Window of Opportunity
WPER	Work Package Execution Review
WQC	Underwater Telephone
WSS	Work Sequence Schedule
XAZ	Scheduled Continuous Maintenance Availability
XCM	Unscheduled Continuous Maintenance Availability
XCZ	CNO Scheduled Availability
XEM	Year-long Emergent Work Availability
YLCM	Year Long Continuous Maintenance

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APPENDIX B

GLOSSARY OF TERMS

TERM	DEFINITION
Charging to a Unit Identification Code (UIC)	The action describing a person, who is normally categorized as direct support labor, charging his time to a ship's UIC and while not working on a specific work item/Maintenance and Material Management Maintenance Action Form (2K). When recording charges in this manner, he will charge to a Maintenance Work Order (MWO) that was created for that specific purpose. The nature of that MWO will be directly related to production but not to one specific job or 2K.
Deep Dive	The first dive to maximum operating depth. This depth will not necessarily coincide with the design test depth of the hull. See definition of Maximum Operating Depth.
Direct Labor Category	Assigned to those production personnel who charge their time to a MWO that originated from a specific 2K.
Direct Support Labor Category	Assigned to those personnel who are first line supervisors of direct personnel or who directly support production and charge to a UIC use Direct Support Labor. Also includes administrative personnel assigned to production; however, they will normally charge to overhead. Some examples of personnel likely to charge as Direct Support Labor: Port Engineer, Ship Supervisors, Production Quality Assurance, Engineers, Technical Assist Personnel, Planners.
Dock Trials	Dock Trials are those ship trials conducted at the industrial activity to determine the ability of the ship, from a material standpoint, to conduct Sea Trials safely.
Fast Cruise	A period immediately prior to underway trials during which Ship's Force operates the ship for dockside training. Fast Cruise shall, as far as is practical, simulate at-sea operating conditions.
Fleet Maintenance Activity (FMA)	FMAs include tenders, shore based maintenance activities (Regional Maintenance Activities, Naval Ship Repair Facilities, Naval Submarine Support Facilities, Naval Intermediate Maintenance Facilities (NAVIMFAC), TRIDENT Refit Facilities, Weapons Repair Facilities and other activities of that type) and supporting activities (port services, etc. that perform maintenance on Fleet assets). Regional Repair Centers and Regional Maintenance Teams are treated as FMAs and funded by their respective Fleets.
Indirect Labor Category	Assigned to those personnel who charge their time to a cost center as overhead and do not charge to a UIC or MWO. Some examples of personnel that are considered Indirect: Master At Arms, Training, Career Councilor.
Industrial Activity	The activity responsible for accomplishing construction or repair of ships whether private or public. This includes Naval shipyards, private shipyards, shipbuilders, vendors, Naval Aviation Depots, Naval Ship Repair Facilities and other Naval Repair/Technical Activities (Naval Underwater Weapons Center, Naval Ships Weapons Center, etc.).
Initial Dive	For purposes of seawater valve and system testing, as defined in reference (e), the first dive to a depth not previously reached during the trials.

Lead Maintenance Activity	The single activity responsible for integrating all maintenance and modernization on U.S. Naval ships during any type of availability.
Long Lead Time Material	Material which is not normally available in local stock and may not be received prior to the start of the availability if not ordered prior to the Work Definition Conference (WDC).
Maintenance Manager	Those persons, such as Port Engineers, Ship Superintendents, Ship's Coordinator and Maintenance Planning Managers, assigned to assist Ship's Force in the tracking of work candidates, development of work packages and tracking of FMA/Industrial Activities assigned jobs.
Maintenance Support Team (MST)	Military team that performs the function of Ship's Force, and reports to the supported ship's Immediate Superior In Command (ISIC) and the Operational Commander.
Maintenance Work Order (MWO)	The Navy Enterprise Maintenance Automated Information System object that personnel use in order to charge time to a work item/2K.
Major Chief of Naval Operations (CNO) Maintenance Availability	An availability of six months or greater duration performed by industrial activities under NAVSEA management or contract administration or as designated by the TYCOM or NAVSEA.
Master Specification Catalog (MSC)	Database of templates for all Naval Ship Classes. It is a module located within NMD.
Maximum Operating Depth (Also Maximum Authorized Operating Depth)	The depth to the keel for a particular submarine which is authorized by Commander Submarine Force, United States Atlantic Fleet/Commander Submarine Force, United States Pacific Fleet (COMSUBLANT/COMSUBPAC) upon the recommendation of NAVSEA, as the depth not to be exceeded in operations. This depth is normally the Test Depth but may be reduced in specific cases. The depth authorized by COMSUBLANT/COMSUBPAC may be less than, but in no case exceed, the depth recommended by NAVSEA.
Minor CNO Maintenance Availability	An availability of less than six months in duration scheduled by and under Type Commander management.
Moderate Speed	The range of speed that allows the submarine optimum recovery (as shown on applicable submerged operating envelope curves) if loss of stern plane control and/or flooding occurs. Normally 8-15 knots.
Naval Supervisory Authority/Supervisory Authority	The officer designated to represent the Navy Department at an industrial activity; normally a Supervisor of Shipbuilding (new construction), Regional Maintenance Center (Conversion and Repair) or the Commander of a Naval Shipyard.
Navy Maintenance Database (NMD)	Worldwide database used for all repairs across Naval Ship Classes. Used to develop work items for repair or modernization.
Refurbishment Level Maintenance	The actions taken to return a component to "A" condition (like-new condition). Normally done under rotatable pool (Advanced Equipment Repair Program, TRIDENT Planned Equipment Replacement, etc.) programs by Designated Overhaul Points. Designated Overhaul Points must be certified to have the industrial capability to meet the program requirements for performing quality work and have the capacity to meet established Refurbishment Turnaround Times.

Regional Maintenance Team	A site specific, multi-disciplined group of people normally accomplishing "outside shop" or on-platform work. An RMT may be platform or technology specific (e.g., submarines or nuclear) to facilitate necessary worker training and competency. An RMT is generally comprised of both military and civilian workers.
Regional Repair Center	An "inside shop" focusing on a particular product line (e.g., motors) or technology (e.g., machinery). An RRC is generally comprised of both military and civilian workers.
Restoration Level Maintenance	The minimum planned inspection, maintenance and testing criteria to be applied to ensure a component will function satisfactorily until the next planned accomplishment of the maintenance requirement.
Ship's Force	Members assigned as a ship's permanent or rotational crew.
Test Depth (TD)	For the purpose of the proper method of measuring and specifying Test Depth, the following applies: Test Depth shall be measured to the bottom of the keel for all types of submarine operations. Builders trials and trials following major industrial activity availabilities greater than six months, shall be at a tolerance of plus zero (0), minus twenty (20) feet of Test Depth when specified. All other trials can be conducted at 95% to 100% of Test Depth to satisfy all the requirements specified for 100% Test Depth.
Work	a. Any action that actually or potentially changes (including disassembly for the purposes of inspection or repair) the approved configuration of any part, component or ship's system. b. Any action that removes or affects the ship's ability to operate ship's systems or components in accordance with ship's systems/operating manuals or reactor plant manuals. c. Any testing or inspections required to establish, maintain or reestablish certification. d. Any design, engineering, planning or configuration management functions that involve the final review and/or approval of technical information. Examples of work include the following: 1. Action which disassembles or removes any part, component or ship's system. 2. Action specified in a Technical Work Document. 3. Any action that removes or affects the ship's ability to operate ship's systems or components in accordance with ship's systems manuals, operating manuals or reactor plant manuals, excluding tagout in accordance with the Tagout Users Manual, including but not limited to: (a) Component or system tests. (b) Intrusive inspections (such as breaking the plane of electrical panels requiring electrical safety). (c) Valve line ups that alter the normal system line up not governed by operating procedures.

Work (Cont'd) (d) Removing valve hand wheels, disconnecting of reach rods.

VOLUME II

PART I

CHAPTER 2

MAINTENANCE AND MODERNIZATION PROGRAM

REFERENCES.

(a) NAVSEA Technical Specification 9090-310 - Alterations to Ships Accomplished by Alteration Installation Teams
(b) NAVSEAINST 5400.95 - Waterfront Engineering and Technical Authority Policy
(c) OPNAVINST 4700.7 - Maintenance Policy for U.S. Naval Ships
(d) NAVSEA S9002-AK-CCM-010/6010 - Industrial Ship Safety Manual for Submarines
(e) SSPINST 4720.1 - Policies and Procedures for Alteration of Strategic Weapon System Equipment
(f) NAVSEA 4350.2 - Contract Work Onboard Nuclear-Powered Ships
(g) NAVSEA T0300-AA-MMI-010 - Commercial Industrial Services (CIS) Manual
(h) NAVSEAINST 4710.6 - Submarine Advanced Equipment Repair Program (AERP); Assignment of Responsibilities for and Administration of
(i) SSN21-081-PMS350L-035 - Rotatable Pool Management Plan for the SEAWOLF Class SSN
(j) OPNAVINST 4720.2 - Fleet Modernization Program (FMP); Policy for
(k) NAVSEAINST C9210.4 - Changes, Repairs and Maintenance to Nuclear Powered Ships
(l) NAVSEAINST 4720.23 - Deep Submergence Systems Temporary Modifications
(m) NAVSEA SL720-AA-MAN-010 - Fleet Modernization Program (FMP) Management and Operations Manual
(n) NAVSEAINST 4130.9 - Configuration Control Procedures for Preparation of Ordnance Alterations (ORDALTS) to Expendable and Non-Expendable Items
(o) NAVSEAINST 4720.15 - Machinery Alterations on HM&E Equipment and Systems
(p) MIL-STD-2039 - Field Changes and Field Change Kit Preparation
(q) COMLANTFLTINST 4700.10 - Policies and Procedures for Fleet Technical Support (FTS) (Cancelled)
(r) COMPACFLTINST 4341.1 - Fleet Technical Assistance (FTA) Program (Cancelled)
(s) NAVSEA 0989-LP-043-0000 - Commissioned Surface Ship General Reactor Plant Overhaul and Repair Specification
(t) NAVSEAINST 4730.2 - Shipyard Inspection and Required Conditions of Propulsion Plant Systems (Non-Nuclear) for Nuclear-Powered Surface Ships
(u) NAVSEA STD DWG 605-5529700 - CVN 68 Class Commissioned Ships Reactor Plant Paint Schedule
(v) NAVSEA S9086-VD-STM-010-NSTM Chapter 631 - Preservation of Ships in Service - General
(w) TMIN SL700-AB-GYD-010 - Pictorial Guide for Painting Ships Interiors
(x) NAVSEA STD DWG 213-4362626 - Lagging and Insulation Schedule for Reactor Plant Systems
(y) CNAP/CNALINST 9210.4 - Nuclear Propulsion Note 9200-2
(z) NAVSEAINST 9304.1 - Shipboard Electric Cable and Cableway Inspection and Reporting Procedures
(aa) DOD-STD-2003 - Military, Standard, Electric Plant Installation Standard Methods for Surface Ships and Submarines
(ab) NAVSEA 0989-LP-062-4000 - Naval Nuclear Quality Control Manual for Shipyards
(ac) NAVSEA 0989-031-4000 - Reactor Plant Instrumentation and Control Equipment Maintenance
(ad) NAVSEA 0989-LP-026-1000 - A4W/A1G Reactor Plant Manual
(ae) OPNAVINST 3120.32 - Standard Organization and Regulations of the U.S. Navy
(af) COMLANTFLTINST 5400.2 - U.S. Atlantic Fleet Regulations
(ag) COMPACFLTINST 5400.3 - U.S. Pacific Fleet Regulations
(ah) OPNAVNOTE 4700 - Representative Intervals, Durations, Maintenance Cycles, and Repair Mandays for Depot Level Maintenance Availabilities of U.S. Navy Ships
(ai) OPNAVINST 4780.6 - Policy for Administering Service Craft and Boats in the U.S. Navy
(aj) MIL-P-24534 - Planned Maintenance System: Development of Maintenance Requirement Cards, Maintenance Index Pages, and Associated Documentation

(ak) MIL-STD-1388 - Logistic Support Analysis
(al) OPNAVINST 3120.33 - Submarine Extended Operating Cycle (SEOC) Program
(am) NAVSEAINST 4790.19 - Submarine Engineered Operating Cycle (SEOC) Program
(an) NAVSEA TL710-AB-MAN-010 - Depot Modernization Period (DMP) Procedures Manual
(ao) OPNAVNOTE 4710 - Fleet Depot Maintenance Schedule
(ap) NAVSEAINST 4790.16 - SSBN Extended Operating Cycle (EOC) Program; Policy, Procedures and Responsibilities for
(aq) SSPINST 5600.11 - Preventive Maintenance Management Program for Strategic Weapon Systems Equipment and Associated Material
(ar) NAVSEA SL720-AA-MAN-010 - Fleet Modernization Program (FMP) Management and Operations Manual

LISTING OF APPENDICES.

A Material Condition Assessment Process Timeline
B CVN Propulsion Plant Material Condition Assessments
C Scope of Visual Inspections of Reactor Plant Fluid Systems

2.1 PURPOSE. The purpose of this chapter is to provide Fleet Commanders' guidance for the maintenance of ships throughout their operating cycle in accordance with references (a) through (ar). This includes maintenance levels, strategies, programs and modernization which define and support all maintenance accomplished in accordance with technical specifications and standards during a ship's operating cycle.

2.1.1 Naval Supervisory Authority.

a. Naval Supervisory Authority Definition. The Naval Supervisory Authority (NSA) is the single Naval activity, as indicated in Table 2-1 of this chapter, responsible for the integration, oversight and verification of all work accomplished by all activities (i.e., Naval Shipyards (NSY), Regional Maintenance Centers (RMC), Supervisors of Shipyards (SUPSHIP) contractors, Type Commander (TYCOM) sponsored contractors, Intermediate Maintenance Activities (IMA), Alteration Installation Teams (AIT) 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 (e.g., Chief of Naval Operations (CNO) availabilities, Continuous Maintenance Availability, Emergent Availability) is authorized and completed in compliance with applicable technical requirements and maintenance/modernization policy, and that all work meets schedule, quality and environmental/safety requirements. The NSA must possess a Naval Sea Systems Command (NAVSEA) technical warrant.

b. NSA Assignment. In most cases, the NSA is assigned by the Fleet Maintenance Officer and TYCOM in accordance with Table 2.1. An NSA must be assigned to all CNO availabilities and to all work that is contracted out to a private executing activity where the majority of the work is performed onboard the ship.

(1) Alterations installed by Alteration Installation Teams (AIT) per reference (a) can only be executed in availabilities that have a designated NSA. If the AIT install is being performed outside a CNO availability, the AIT Sponsor may propose NSA responsibility be assigned to any organization that is qualified as an NSA for the type of work being performed.

(2) An NSA is not required if the work is being performed by a U.S. Navy Lead Maintenance Activity (LMA) outside a CNO availability.

(3) The NSA will normally be the activity assigned based on the geographic area covered by the assigned RMC, NSY or SUPSHIP, as indicated in Volume VI, Chapter 2, Table 2-1 of this manual. If this is not practical, the NSA assignment will be made based on the area of responsibility of the cognizant Chief Engineer as delineated in reference (b).

c. NSA Qualification. In order to be qualified to perform the functions of an NSA, the organization must have a Chief Engineer holding a NAVSEA Technical Warrant. For this reason, the only organizations qualified to perform the functions of NSA are the NSYs, the RMCs and the SUPSHIPs.

(1) Facilities such as the Tenders, Naval Submarine Support Facility New London, TRIDENT Refit Facility Kings Bay and Ship's Force cannot be considered NSAs.

(2) When designated by written Memorandum of Understanding, the Chief Engineer at a qualified NSA may delegate certain NSA responsibilities to qualified individuals at these facilities, however the overall responsibility remains with the assigned NSA.

NOTE: DELEGATION OF NSA RESPONSIBILITIES CAN BE ACCOMPLISHED THROUGH A MEMORANDUM OF AGREEMENT (MOA) THAT IDENTIFIES DUTIES, RESPONSIBILITIES AND OVERSIGHT FUNCTIONS. THE NSA IS RESPONSIBLE FOR ALL WORK ACCOMPLISHED BY ALL ACTIVITIES AND ACTS AS THE SINGLE POINT OF CONTACT.

d. NSA Responsibilities. These responsibilities include but are not limited to:

(1) Coordination with other Maintenance Activities (e.g., NSY, RMC, SUPSHIP, AIT, Ordnance Alteration (ORDALT)/Temporary Alteration (TEMPALT) Installation Teams) through an authorized MOA.

(2) Single point of contact for the LMA and shipboard personnel.

(3) Verify completion of work for milestones, key events, end of availability, availability departure report based on documentation provided by all maintenance activities.

(4) Based on the amount of work accomplished, the NSA may also assume the role of the LMA per paragraph 2.1.2 of this chapter.

(5) For CNO availabilities, the NSA shall:

(a) (For NSY only) Also serve as the LMA.

(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 shall address work definition, key 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.

(d) Prior to Fast Cruise, Sea Trials and availability completion, verify all authorized work has been completed unless waived. For work performed by contractors, ensure all provisions of the contract have been fully executed.

(e) 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.

(f) Participate in critiques and problem investigations (e.g., Trouble Reports) as necessary.

(6) For alterations installed by AITs, the NSA, as designated in Table 2-1, as required by reference (a) shall:

(a) Monitor the effectiveness and the quality of AIT managers' execution of Quality Assurance oversight responsibilities by assessing their execution of Quality Assurance oversight responsibilities and by Quality Sampling. Request Qualification Records as needed in support of spot checks.

(b) Perform inspections of installations, on a sampling basis, and use the sampling evidence to indicate conformance or nonconformance with NAVSEA requirements.

(c) Conduct AIT In/Out briefs and coordinate with the AIT Manager and Ship's Force to ensure satisfactory completion of alterations.

(d) Receive copies of Integrated Logistics System products from the AIT and verify they were properly distributed.

(e) Ensure completion reports are issued and for any work not accomplished, assure a Current Ship's Maintenance Project (CSMP) Job Control Number is issued.

Table 2-1

Maintenance Availability	NSA	LMA
CNO Public (1)	NSY	NSY
CNO Private (1)	RMC/SUPSHIP (2)	Contractor (KTR)
Non-CNO Public (3) (4)	RMC/NSY	RMC/NSY Fleet Maintenance Activity (FMA)
Non-CNO Private (3)	RMC/SUPSHIP (2)	KTR
Emergent/Voyage repair (4)	RMC/SUPSHIP/NSY	FMA/RMC/NSY/KTR
New Construction	SUPSHIP	KTR
AIT availabilities	RMC/SUPSHIP/NSY	FMA/RMC/NSY/AIT KTR
Other (4)	N/A	FMA/Ship's Force

NOTES:

1. Per reference (c).
2. Pearl Harbor NSY and Intermediate Maintenance Facility and Puget Sound NSY and Intermediate Maintenance Facility are also considered RMCs.
3. Examples of Non-CNO availabilities are located in Part I, Chapter 4 of this volume.

4. The Tenders, Naval Submarine Support Facility New London, TRIDENT Refit Facility Kings Bay and Ship's Force are not NSAs. If the FMA is executing work the FMA will be the LMA. The Fleet Maintenance Officer may designate a NSA if necessary.

NOTE: THE LMA IS RESPONSIBLE TO THE NSA WHEN AN NSA IS ASSIGNED OR THE IMMEDIATE SUPERIOR IN COMMAND (ISIC) IF NO NSA IS ASSIGNED.

2.1.2 Lead Maintenance Activity. The single activity responsible for work being accomplished on U.S. Naval ships during any type of availability. For work conducted during periods in which the NSYs or RMCs do not have oversight, an LMA will be designated. LMAs are responsible for:

a. Conduct or attend routine progress review meetings with all assigned repair activities. Identify and resolve coordination problems and work conflicts. Advise the appropriate maintenance sponsors (e.g., NSA, NAVSEA, TYCOM, AIT Sponsor, Ship's Program Manager, etc.) of significant quality, cost and schedule impacts and problems.

b. (CNO Availabilities only) Coordinate work and testing controls to include Work Authorization Forms, tagouts and test sequencing per Volume IV, Chapter 10, paragraphs 10.3 and 10.4 of this manual.

c. Integrate the work of all repair activities. For CNO availabilities, this includes an integrated schedule. For non-CNO availabilities, an integrated schedule 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.

d. Report work status to Maintenance Brokers.

e. Request assistance via Maintenance Broker as needed for outside activity performance.

f. (CNO Availabilities only) Coordinate preparations by assigned repair activities for all key events (e.g., docking, undocking, hot ops, dock trials, fast cruise, sea trials, etc.) to include verification signature checklists of readiness to start.

g. Track progress of all maintenance activities.

h. (Submarines only) Provide management oversight of a ship safety council per reference (d).

i. (Submarines and CNO Availabilities only) Coordinate sail safety and sail closeout efforts among the assigned repair activities conducting work.

j. (CNO Availabilities only) Coordinate crane operations, pier laydown areas, dry dock work areas and resolve other real estate conflicts which may impede efficient execution of the availability.

k. (CNO Availabilities only) Provide sea trials agenda, with all repair activity input, for ship Commanding Officer's concurrence and Type Commander approval.

l. Maintain a list of activities authorized to work on the ship the LMA is responsible for and ensure the list is updated weekly or on an as-needed basis. Ensure activities working on ship have the proper credentials, work schedule and pedigree (authorized maintenance activity) prior to being added on the work authorization list (e.g., Submarine Safety, Scope of Certification, Fly-By-Wire, Radiological).

m. Ensure maintenance activities performing maintenance on assigned ships have proper MOA, Standard Work Practices, NAVSEA standard items and/or Strategic Systems Programs Alteration authorization per reference (e) in place and that the MOA, Standard Work Practices, NAVSEA standard items and/or

Strategic Systems Programs Alteration authorization address required support for work authorizations and work control. For SUBSAFE, Deep Submergence Systems (DSS), Scope of Certification and Fly-By-Wire work, ensure that the MOA identifies the certifying activity.

n. Direct maintenance providers to their proper points of contact.

o. Attend all production/maintenance management meetings to communicate/resolve priorities, problems, job interferences and issues.

p. Define, identify and provide resolution to coordination problems and work conflicts between the Maintenance Managers, Maintenance Activities, Maintenance Brokers and the ship.

q. Provide a copy of all Departures From Specifications to Ship's Force Quality Assurance Officer and the Type Commander (TYCOM) N43 organization.

r. Participate in critiques and problem investigations (e.g., Trouble Reports) as necessary.

s. Conduct Ship's Force and contractor orientation briefings and training per references (a) or (f), as applicable prior to commencement of shipboard work.

t. (CNO Availabilities only) Appoint a Ship Safety Officer to chair the Ship Safety Council and coordinate work that affects control of a ship's control system.

2.1.3 Ship's Responsibility. The ship is responsible to:

a. Monitor all maintenance activities to ensure they are on the master authorization list.

b. Ensure a current master authorization list is maintained by the Ship's Duty Officer.

c. Provide the LMA with information on ship brokered work so all activities are placed on the master authorization list.

2.2 MAINTENANCE ACCOMPLISHMENT LEVELS.

2.2.1 Fleet Maintenance. Fleet maintenance encompasses Organizational and Intermediate level maintenance as defined in reference (a). It includes, but is not limited to:

a. Ship's Force maintenance that is planned and corrective maintenance which is within the capability and the responsibility of the ship's crew or Maintenance Support Team (if assigned). The work is a blend of equipment operation, condition monitoring, planned maintenance and repairs ranging from simple equipment lubrication to component changeout, and in some cases complete disassembly and repair in-place. The thrust of Ship's Force maintenance is to take advantage of operator experience and onboard rating skills and to ensure the ship is as maintenance self-sufficient as possible.

b. FMA maintenance is that requiring specialized ratings, skill training in special maintenance processes and technical proficiency or equipment/instrumentation not available to Ship's Force. FMA maintenance normally consists of calibration, repair, refurbishment or replacement of damaged or unserviceable parts, components or assemblies, the emergency manufacture of unavailable parts within the FMA capability, and providing technical assistance.

(1) FMAs will accomplish refurbishment level maintenance beyond Ship's Force capability to the maximum extent possible within the policies of this chapter and other directives consistent with the availability of funds, material and skilled manpower.

(2) TRIDENT Refit Facilities are additionally tasked and resourced to accomplish industrial restoration level maintenance to SSBN/SSGN 726 Class submarine components as part of the integrated overhaul maintenance strategy for these ships.

(3) FMAs include Regional Repair Centers and Regional Maintenance Teams which are capable of conducting in-depth maintenance on their assigned components using the latest available technology.

c. Strike Force Intermediate Maintenance Activity is composed of the collective StrikeForce elements capable of performing maintenance beyond the organizational level. A Strike Force Intermediate Maintenance Activity maximizes the Strike Force's ability to operate and sustain itself at sea during extended periods in forward areas through improved repair capabilities and material self-sufficiency.

d. The Commercial Industrial Services program accomplishes Fleet maintenance for essential Fleet repairs that the FMAs have the capability to accomplish but not the shop capacity. The Commercial Industrial Services concept provides a means of using commercial industrial activities to provide maintenance services on a rapid response basis while observing approved commercial contracting procedures. Reference (g) fully describes policies and procedures for Commercial Industrial Services.

2.2.2 Industrial Maintenance. Industrial maintenance is that restoration level maintenance which encompasses Depot level maintenance as defined in reference (c). It includes but is not limited to:

a. Industrial maintenance that is restoration level work requiring complex industrial processes, journeyman level technician skills, facilities, capabilities or manpower capacity not available at FMAs or to Ship's Force. This capability is provided within the Navy by naval industrial activities, ship repair facilities, Naval Aviation Depots, and commercial industrial activities and repair facilities under contract.

b. Ship maintenance work scheduled for accomplishment by industrial facilities that in the judgment of the TYCOM, Commander NAVSEA or Commander Space and Naval Warfare Systems Command in their specific areas of responsibility, is not feasible to be accomplished by FMAs or Ship's Force, due to:

(1) Having insufficient time or manpower.

(2) Being beyond the capabilities of the FMAs.

(3) Being of such a nature that split responsibility between Fleet and industrial maintenance activities may occur.

2.3 RELIABILITY CENTERED MAINTENANCE.

a. Reliability Centered Maintenance is a systematic analysis approach where the system design is evaluated for possible failures, the consequences of these failures, and the recommended maintenance procedures that should be implemented. The objective is to design a planned maintenance program to address possible failure consequences. The emphasis here is on the establishment of planned maintenance requirements (versus corrective maintenance requirements).

b. Maintenance plans for in-service ships, systems and equipments should be reviewed and modified to incorporate Reliability Centered Maintenance principles in areas where it can be determined that the expected results will be commensurate with associated costs.

2.4 CONDITION BASED MAINTENANCE. Condition Based Maintenance (CBM) is maintenance based on objective evidence of actual or predictable failure of ship's installed systems or components. This includes condition-directed maintenance and periodicity adjustments to time-directed planned maintenance.

a. A thorough knowledge and assessment of actual equipment condition in relation to its designed condition is the basis for most maintenance decisions. Equipment condition is a broad term which includes static parameters, such as size and shape, and dynamic parameters, such as speed, temperature, pressure, voltage, etc. While each Ship's Force is in the best position to know the condition of its ship and equipment, the complexities of modern design and engineering dictate that specialized assistance be utilized to determine the condition of much of the equipment. Diagnostics, inspections, non-intrusive monitoring for trending/analyses and tests shall be utilized to the maximum extent possible to determine performance and material condition of, and to predict and schedule required corrective maintenance action on, ships systems and equipment.

b. Further information on CBM is provided by reference (c).

c. Programs and organizations that are available to assess equipment conditions are described in paragraphs 2.4.1 through 2.4.8 of this chapter. Deficiencies identified by these and other programs and organizations shall be documented in the CSMP.

2.4.1 Unrestricted Operations (Submarines Only). The Unrestricted Operation (URO) program is designed to ensure continued safe submerged operations to design test depth. URO requirements shall be accomplished as scheduled and as described in Volume VI, Chapter 25, and Volume V, Part I, Chapter 5 of this manual.

2.4.2 Periodic Maintenance Requirements Program (Submarines Only). The Periodic Maintenance Requirement program has been established to integrate test, inspection, and maintenance directives from various Systems Commands and to control their input into each ship's CSMP for the required accomplishment by means of the Master Job Catalog. The phrase, "Periodic Maintenance Requirement" encompasses the URO program and the Submarine Engineering Management, Monitoring and Fleet Support Program Office Performance Monitoring Program. All requirements due for accomplishment shall be included in the CSMP at least six months prior to the due date to allow sufficient time for material procurement and maintenance planning. Specific requirements of the Periodic Maintenance Requirement program are described in Volume VI, Chapter 24, of this manual.

2.4.3 Material Condition Assessment Feedback Program (Submarines Only).

a. The submarine Material Condition Assessment (MCA) program is coordinated by NAVSEA and Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) Activity and is used to improve the maintenance efficiency of critical, non-nuclear Hull, Mechanical and Electrical (HM&E) components by optimizing component refurbishment periodicities. This assessment of a component's condition at refurbishment, along with other pertinent component data such as performance monitoring and corrective maintenance data, provides the foundation for extension or reduction of component refurbishment periodicity. Further, it allows for consideration of modification of component design configuration and/or the revision or elimination of component maintenance requirements with confidence that component reliability will not be diminished.

b. The MCA data collection program consists of MCA data sheets and pre-availability test and inspection information. Other feedback programs and sources of material condition data include, but are not limited to, UROs, Maintenance and Material Management (3-M) System, Casualty Reports, Advanced Equipment Repair Program (AERP), Performance Monitoring Program, etc.

c. The Integrated Maintenance Analysis Profile database displays planned and corrective maintenance feedback, historical configuration, job completion and alteration installation data in support of the MCA program.

2.4.4 Machinery Condition Analysis (Surface Ships Only).

2.4.4.1 General. The TYCOM Machinery Condition Analysis (MCA) and Ship's Force Machinery Vibration Analysis programs provide an objective assessment of the mechanical condition of propulsion plant and auxiliary rotating machinery. MCA surveys and Ship's Force Machinery Vibration Analysis and testing directly support the CBM strategy by determining specific maintenance requirements and priorities.

2.4.4.2 Automated Machinery Condition Analysis. The advent of real-time machinery digital sensors, analysis tools, data recording and data transfer has brought Automated Machinery Condition Analysis (AMCA) to the forefront of CBM. AMCA systems are being employed and installed on new ships-of-the-line and back-fitted where practicable on existing ships. The AMCA tools and systems support the MCA programs and MCA surveys. The systems are implementing prognostic, diagnostic and maintenance capabilities for both shipboard and off-ship personnel to utilize to enhance understanding of the mechanical condition of propulsion plant and auxiliary rotating machinery.

2.4.4.3 Machinery Condition Analysis Surveys. MCA surveys combine vibration analysis, visual inspections and a review of operating and maintenance records to objectively determine each machine's condition.

a. Surveys are conducted before and after each scheduled CNO maintenance availability period. The survey preceding the availability provides a comprehensive list of machines which require repair. The MCA survey after the availability allows time for corrective maintenance actions prior to the ship's deployment and, if applicable, repairs while machinery is still under the availability warranty period. The post-availability survey also establishes a baseline to which future surveys can be compared.

b. The key to the MCA program is onboard analysis of vibration data. MCA surveys identify machinery problems. A written report details prioritized repair recommendations with appropriate diagnostic and visual inspection data for all machines tested. The report also summarizes machinery repair history.

c. Reports of failure trends and recurring or continuing mechanical problems are available along with MCA history reports. These reports can be generated based on machine type, ship, ship class, and Fleet.

2.4.4.4 Ship's Force Machinery Vibration Analysis Program. The Ship's Force Machinery Vibration Analysis program uses a fully capable automated diagnostics system to provide many ships with the ability to perform vibration testing. A set of computer programs in the diagnostics system provides the equivalent of a full time vibration engineer so that Ship's Force can test and analyze machinery at any time. Periodic training is provided to Ship's Force.

2.4.5 Ship Assessment, Groom and Evaluation. Ship Assessment, Groom and Evaluation is an existing TYCOM program which provides assessment of the material condition of selected shipboard systems and equipment. Ship Assessment, Groom and Evaluation includes identification of discrepancies to support development of a comprehensive conditioned based industrial availability work package. This program is fully described in Volume VI, Chapter 42 of this manual.

2.4.6 Performance Monitoring Team. The Performance Monitoring Team provides technical support to the Fleet by obtaining data using CBM methodology to monitor mission/safety critical systems and material conditions of selected HM&E systems. Performance Monitoring Team functions include, but are not limited to, the following:

a. Collecting and analyzing equipment data.

b. Establishing and maintaining a master database to track equipment performance.

c. Providing feedback and technical guidance using trend analysis.

d. Making equipment repair and deferral recommendations.

2.4.7 Combat Systems Readiness and Review Program. Combat Systems Readiness and Review program is a TYCOM program which provides maintenance training and a comprehensive review and assessment of a ship's Combat Systems prior to deployment. It includes identification of discrepancies to support development of a comprehensive condition based availability work package for a ship's Combat Systems. For a complete description of the Combat Systems Readiness and Review program refer to applicable TYCOM instructions.

2.4.8 Electronic Systems Review (SSBN/SSGN 726 Class Submarines Only). Fleet Training Support Center Detachments perform periodic Electronic Systems Reviews on SSBN/SSGN 726 Class submarines. The major emphasis of the Electronic Systems Review is on the job training of Ship's Force personnel in the performance of the Planned Maintenance System and maintenance of selected electronic equipment. Areas of review include monitoring for safety related issues, monitoring of the Planned Maintenance System and verifying equipment operability for the following systems: Radar, Electronic Warfare Support Measures, Periscopes, Fire Control, Central Atmosphere Monitoring System, Gyrocompass, Radio, Sonar, Launchers, Torpedo tubes and handling equipment. Additionally, the Electronic Systems Review team will assist division 3-M Coordinators in administrative reviews, perform National Policy on the Control of Compromising Emanations (TEMPEST) inspections or small arms inspections if requested.

2.5 SYSTEM/COMPONENT MAINTENANCE PROGRAMS (SUBMARINES AND AIRCRAFT CARRIERS ONLY).

2.5.1 Advanced Equipment Repair Program (Submarines Only).

a. AERP is a system for providing new or refurbished non-nuclear components to support specific programmed industrial activity availability and Engineered Operating Cycle (EOC) maintenance requirements. A programmed requirement is one that is identified, budgeted and funded for ultimate end use on a specific submarine hull. Industrial activity availability and EOC requirements are defined as those assets necessary to support the accomplishment of a planned availability work package during scheduled CNO maintenance availabilities. Although similar in concept to the usual rotatable pool or repairable items, the AERP differs in that pool requirements are not determined by usage data. By its nature, the AERP is limited to items of significant value for which it would not be economical to stock on the basis of `normal' usage. Instead, requirements are specific and are determined by the overall schedule of submarine industrial activity availability and EOC requirements. Only so much material is provided as will meet the programmed needs of the specific ships involved. Range and depth of AERP assets will normally not exceed projected requirements for a two year period.

b. Components are furnished as Government Furnished Material to maintenance activities performing industrial activity availabilities and maintenance of submarines. The AERP provides the flexibility and speed-of-response required to ensure timely logistic support and engineering direction of complex maintenance planning.

c. Components selected for management under the AERP are those complex, high value items required to effect the accomplishment of programmed submarine industrial activity availability or EOC requirements in the shortest possible time. However, other factors may also affect the decision to manage certain items under the AERP. Reference (h) provides specific guidance for selection of components.

d. Various activities may initiate action to include additional components into the AERP. Such action may stem from independent study or the recognition of some Fleet requirement. In identifying potential AERP components, close coordination must be maintained with the Fleet and with the activity assigned responsibility for producing the availability work package for each submarine's availability. The final decision regarding inclusion of an item in the AERP rests with NAVSEA 07.

2.5.2 TRIDENT Planned Equipment Replacement Program (SSBN/SSGN 726 Class Submarines Only). Shipboard equipment which requires significant maintenance during the planned operating cycle, industrial level maintenance, which is beyond the capability of Ship's Force, and which cannot be accomplished during the refit period (without

unacceptable impact on other refit requirements), will be supported by TRIDENT Planned Equipment Repair (TRIPER) program. TRIPER equipment will be removed from the ship for refurbishment ashore, replaced with pre-tested, Ready for Issue units and the affected system restored to full operational condition prior to completion of the refit period. Replacement will be accomplished on a planned basis at intervals designed to preclude the failure of the equipment or significant degradation of its associated system. Deviations of greater or less than one refit from established TRIPER change-out periodicities shall require ISIC concurrence. A planned change to shelf stock TRIPER equipment will be accomplished only when sufficient change kits are available to effect the change in all units of a given model of the equipment held in shelf stock. Shelf stock TRIPER equipment is represented in configuration status accounting databases maintained by SUBMEPP.

2.5.3 Aircraft Carrier Planned Equipment Replacement Program (Nuclear Powered Aircraft Carriers Only). The Aircraft Carrier Planned Equipment Replacement (CARPER) program is designed to ensure that the planned incremental availabilities of the USS NIMITZ (CVN-68) class aircraft carriers are completed on time and within cost by having a pool of historically critical, hard-to-get equipment and components available both for planned replacement and for emergent issue if needed.

2.5.4 SEAWOLF Class Rotatable Pool Program.

a. The SEAWOLF Rotatable Pool is part of the class maintenance and availability planning process. The purpose of the program is to provide replacement components as scheduled by the Planned Maintenance Cycle Schedule, prior to failure or unacceptable degradation of installed components. Components which have been replaced are refurbished at a Designated Overhaul Point and returned in Ready for Issue status to repeat a similar cycle.

b. Reactor plant system and equipment under the cognizance of the NAVSEA Nuclear Propulsion Directorate (08) are excluded from the SEAWOLF Rotatable Pool Program.

c. SUBMEPP has been designated as the SEAWOLF Class Rotatable Pool Program Manager. Reference (i) provides specific guidance for managing the SEAWOLF Rotatable Pool program.

2.6 MODERNIZATION.

2.6.1 Fleet Modernization Program. The Fleet Modernization Program (FMP) is a CNO managed program to develop, plan, fund and accomplish Ship Alterations (SHIPALT), Machinery Alterations (MACHALT), ORDALT, Nuclear Alterations and Electronic Field Changes in accordance with policies mandated in reference (j). It is executed in accordance with Volume VI, Chapter 3 of this manual and applies to all alterations to commissioned ships and craft of the Navy except as follows:

a. Alterations to those portions of naval nuclear propulsion plants and facilities under the cognizance of the NAVSEA 08 identified in reference (k).

b. Strategic Systems Program Alterations affecting the configuration and/or capabilities of systems and equipments under the cognizance of the Strategic Systems Programs (SSP). Reference (e) defines the policies, controls, processes and procedures for the accomplishment of all SSP Alterations issued by the Director, SSP for all SSP cognizant equipment on both SSBNs and SSGNs.

c. TEMPALTs required for mission support or installed for test and evaluation or research and development programs.

d. Alterations affecting configuration of hardware, software and support equipment of a TRIDENT system is under the cognizance of NAVSEA PMS 392.

e. Temporary Modifications (TEMPMOD) are required for mission support or installed for test and evaluation or research and development programs associated with DSS and craft in accordance with reference (l). DSS systems on submarines and various craft such as Dry Deck Shelters and Advanced

Seal Delivery Vehicles are managed by NAVSEA PMS 399. DSS systems on various craft for Deep Submergence Rescue Systems are managed by NAVSEA PMS 394. TEMPMODs are managed in the same manner as a TEMPALT.

NOTE: TEMPORARY MODIFICATIONS TO DSS SYSTEMS PERMANENTLY INSTALLED ON SUBMARINES ARE MANAGED AS TEMPALTS.

2.6.2 Types of Ship Improvements. There are two types of improvements, each having their own approving authorities, managed under the FMP as outlined in reference (j).

a. Military Improvement. An improvement that results in a change of ship operational or military characteristics, qualities, or features, and increases the ability of the ship to perform its required operational capacities. Proposed military improvements are submitted to CNO (OP-03).

b. Technical Improvement. An improvement that results in a change to improve the safety of personnel and equipment and/or provides increased reliability, maintainability and efficiency of installed equipment. Proposed technical improvements are submitted to the cognizant NAVSEA program manager or the cognizant Naval Air Systems Command (NAVAIR) program manager for Aircraft Launch and Recovery Equipment.

2.6.3 Fleet Modernization Program Management Information System. FMP management functions are supported by a Fleet Modernization Program Management Information System (FMPMIS) containing all the planning and status information needed for timely and accurate decision making in evaluating proposed alterations. FMPMIS contains Ship Alteration Financial Execution, Ship Alteration Budget Reporting and Evaluation System and other management information systems supporting separately funded line items; i.e., ORDALTs, MACHALTs, etc. FMPMIS is the authoritative source of information used by FMP managers and activities to carry out their responsibilities in accordance with reference (j). All FMP managers are responsible to ensure that respective data contained in FMPMIS is current and accurate.

2.6.3.1 Proposed Alterations. Proposed alterations that have been approved are submitted to the cognizant NAVSEA program manager for development of a Justification/Cost Form. The Justification/Cost Form is the baseline document that consolidates all known technical material and cost information. Upon completion of the Justification/Cost Form the alteration will be given a number and placed in the Amalgamated Military and Technical Improvement Plan system for Title "K" and "KP" alterations or in the TYCOM Alteration Management System (TAMS) for Title "D" and "F" SHIPALTs. TEMPALTS may be managed on TAMS or any equivalent tracking system meeting TAMS criteria.

2.6.3.2 Alteration Development. ORDALTs, MACHALTs and Electronic Field Changes are developed and programmed separately from SHIPALTs. ORDALTs are programmed and developed by references (m) and (n), MACHALTs in accordance with reference (o) and Electronic Field Changes in accordance with reference (p). TEMPALTs on all ships and submarines (including DSS systems) converted to permanent conditions will be managed as a SHIPALT in accordance with reference (m) via the applicable program offices. TEMPMODs on DSS craft converted to a permanent condition will be managed as a Field Change in accordance with reference (p) via the applicable program offices.

2.6.4 Alterations. Approved alterations are issued as SHIPALTs, TEMPALTS, MACHALTs, ORDALTs, TEMPMODS, Nuclear Alterations or Electronic Field Changes depending on application and classification.

2.7 INTEGRATED FLEET MAINTENANCE MANAGEMENT. Integrated Fleet Maintenance Management is the business management model that allows for continuous maintenance by providing a seamless interface between all associated processes. It provides for processing work candidates including storage and retrieval of historical data and feedback to improve the process. The intent is to have a standard management model applicable to all platforms at all maintenance levels encompassing the following:

a. Discover and document work.

b. Validate and diagnose work.

c. Integrate and screen work.

d. Estimate and task work.

e. Plan work.

f. Execute work.

g. Collect feedback and analyze data.

2.7.1 Continuous Maintenance. Continuous Maintenance is a process that involves the near continuous flow of maintenance candidates to the most appropriate level and maintenance activity for accomplishment. Timed to best support operations, it migrates from a centralized timed based batch process to a decentralized condition based nearly continuous process.

2.7.1.1 Continuous Screening Process. Continuous Screening is a process of screening work as it is discovered. Continuous Screening:

a. Begins with identification and documentation of work candidates.

b. Includes validation, estimation and integration of work candidates and the screening of work candidates to availabilities.

c. Ends with the assignment and release of an availability or individual work candidate to a specific maintenance activity for execution during a specific maintenance period.

2.7.1.2 Continuous Planning Process. Continuous Planning is a process in which work is planned when tasked. Continuous Planning:

a. Begins with tasking of a work candidate to a planning activity for preparation of a work specification and cost estimate.

b. Ends when the specification is approved for execution. There is overlap between Continuous Screening and Continuous Planning.

2.7.1.3 Continuous Execution Process. Continuous Execution is a process in which selected emergent and non-emergent work candidates are executed outside of scheduled availabilities. Continuous Execution will not replace the current availability system. Availabilities will still be necessary to accomplish major repairs and extensive configuration changes, as well as provide the ship with a specific period of time to concentrate on maintenance and training. Continuous Execution will assist planning activities and repair activities in leveling their workload while providing the ships with a means of accomplishing repairs when needed with a minimum level of interruption to the ship's inport routine that is acceptable to the ship. The process is used when:

a. The work candidate is ready for execution.

b. Capacity exists in the selected repair activity.

c. Ship's inport schedule supports the required level of repair effort.

2.8 TECHNICAL ASSISTANCE.

2.8.1 Regional Maintenance Center.

a. The RMCs provide direct support to Fleet and TYCOMs in matters of waterfront technical assistance, maintenance training and logistics services associated with the installation, operation, maintenance, and readiness of shipboard equipment and systems. The RMCs promote Fleet readiness and maintenance self-sufficiency in shipboard systems and equipment through direct technical help in troubleshooting, maintenance and repair, on-the-job maintenance training, logistics reviews, and technical documentation support. These services help correct operational and maintenance problems which are beyond the technical capability or capacity of fleet units or FMAs.

b. References (q) and (r) have been cancelled. Volume VI, Chapter 2 of this manual fully describes policies and procedures for the RMCs.

2.8.2 Ship Assessment, Groom and Evaluation.

a. This program is managed and funded by the TYCOM and provides technical assistance to Ship's Force personnel in maintaining a select list of shipboard equipment and systems.

b. Volume VI, Chapter 42 of this manual provides further explanation of this program.

2.8.3 Carrier and Field Service Unit.

a. Carrier and Field Service Unit is a branch of the Naval Air Warfare Center designed to provide technical assistance to Fleet personnel for all launch, recovery, and visual landing aids systems.

b. Volume IV, Chapter 16 of this manual provides further explanation of this program.

2.8.4 Elevator Support Unit.

a. Elevator Support Unit is an element of NAVSEA's Weapons and Cargo Elevator Improvement Program funded and scheduled by the TYCOM to provide technical assistance for the maintenance, modernization and repair of weapons and cargo handling elevators.

b. Volume IV, Chapter 8 of this manual provides further explanation of this program.

2.8.5 Propulsion Plant Engineering Activity (Aircraft Carriers Only). CVN 68 Class aircraft carrier technical assistance is available from the Propulsion Plant Engineering Activity (PPEA) for non-nuclear propulsion plant systems. The PPEA provides an additional technical resource for assisting operating aircraft carriers with technical and/or operational issues not associated with SHIPALT installation and configuration control. PPEA Liaison services are requested using the Steam Plant Action Request per reference (s). The Steam Plant Action Request is not intended to replace the Liaison Action Request or Departure from Specifications processes described in Volume V, Part I, Chapter 8 of this manual. The PPEA, using the Steam Plant Liaison Inquiry described in reference (s), will request information, disseminate technical information and direct work that does not require a drawing change or affect system configuration control.

2.8.6 Waterfront Corrective Action Program.

a. Waterfront Corrective Action Program is a subprogram of the Shipboard Electromagnetic Compatibility Improvement Program, and is part of the RMCs, designed to provide training and technical assistance to Ship's Force in Electromagnetic Interference recognition and reduction.

b. Volume VI, Chapter 4 of this manual provides further explanation of this program.

2.8.7 Fleet Maintenance Support Branch.

a. Fleet Maintenance Support Branches' charter is to improve the Fleets ability to perform nuclear maintenance. This is accomplished by the following:

(1) Training.

(2) Providing on-site technical support.

(3) Acting as corporate memory.

b. Fleet Maintenance Support Branch support should be coordinated through the respective Surface Nuclear Maintenance Training Group and, for submarines, coordinated through the parent ISIC.

2.9 PROPULSION PLANT MATERIAL CONDITION (AIRCRAFT CARRIERS ONLY).

2.9.1 Purpose. This section presents a comprehensive approach to assessing and maintaining propulsion plant material condition on Nuclear Powered Aircraft Carriers (CVN). The cornerstone of this program is the Material Condition Assessment Process (MCAP) which employs incremental maintenance concepts to apply inspections, maintenance, training and both depot and afloat assets toward the consistent identification, evaluation, tracking and correction of propulsion plant material condition deficiencies. The program assigns specific duties to both Ship's Force and the TYCOM staff to ensure the ship has the assets, processes and support in place to effectively manage propulsion plant material condition over the life of the ship. The effectiveness of this process is measured by the material condition of the propulsion plants.

2.9.2 Applicability. The guidance provided in this section focuses on CVNs.

2.9.3 Ship's Force Requirements.

2.9.3.1 Reactor Maintenance Officer. The Reactor Maintenance Officer (RMO) is responsible for the long range planning and management of propulsion plant maintenance throughout the ship's cycle. Specific responsibilities include:

a. Coordinate with other Reactor Department Principal Assistants to ensure divisions are continuously identifying, evaluating and correcting material deficiencies in the propulsion plants. The RMO will periodically review the MCAP Database (Equipment Deficiency Log (EDL)) and the Equipment Status Logs (ESL) to ensure deficiencies are being identified and documented.

b. Coordinate with other Reactor Department Principal Assistants to ensure divisions are submitting work requests for inclusion into future availabilities and up-keeps, as necessary to correct significant or overly burdensome material deficiencies.

c. Function as the ship's liaison for all outside maintenance activities. The RMO shall be the primary point of contact for all matters pertaining to maintenance of the propulsion plants to include coordinating with the TYCOM in the planning, prioritizing and execution of scheduled repairs.

d. Request assistance as necessary, via the TYCOM, to accomplish nuclear and non-nuclear planned maintenance inspections.

e. Coordinate (with Reactor Training Assistant/Training Officer) all required shipyard and TYCOM training for the Reactor Department prior to the start of availabilities.

f. Request training, via the TYCOM, on the execution of material inspections. The training, conducted by a small (a notional five person team consisting of shipyard nuclear and non-nuclear engineers and a MCAP Zone Manager/Coordinator) group of shipyard MCAP experts, is normally conducted in conjuction with the pre-deployment Material Condition Assessment Inspection (Pre- Deployment MCAI). The primary goal of the training is to provide focused information and training to Ship's Force personnel on MCAP inspection attributes and techniques. The RMO shall be the single point of contact for scheduling TYCOM provided and/or funded maintenance and inspection training.

g. Coordinate, via the TYCOM, the use of groom teams, as needed. Groom teams may be shipyard or contractor personnel who can be scheduled to find and fix discrepancies associated with specific systems or components. Groom teams employ standard tests to evaluate system performance and may assist in the correction of deficiencies as well as their identification and documentation.

h. Coordinate, with other Reactor Department Principal Assistants, to ensure that deficiency lists generated by groom and inspection teams are incorporated into the MCAP Database (EDL).

i. During CNO availabilities, perform actions necessary for certification of Reactor Plant Support Systems required to support principal propulsion plant evolutions in accordance with reference (t). Prior to performing work on these components/systems, the RMO shall consult with the shipyard project team to ensure that a clear path to re-certification (or interim certification) is identified.

j. Assist the Reactor Officer and the other Principal Assistants in the planning and management of SHIPALTS and modifications to reactor plant systems and support systems.

k. Ensure that non-propulsion plant deficiencies identified as part of the MCAP are passed to the Ship's Maintenance Manager for action. The Ship's Maintenance Manager is responsible for coordinating and reporting the correction of these deficiencies in a timely manner. Increased emphasis on deficiency correction and reporting may be required by the Ship's Maintenance Manager during key event readiness periods.

2.9.3.2 Material Condition Assessment Process. Appendix A presents a notional, 27 to 36-month, MCAP Timeline. This timeline provides visibility of the many areas requiring consideration and action by both the ship and associated Project Team, both inside and outside of CNO availabilities. The timeline provides a template capturing the minimum efforts that should be undertaken throughout the ship's operational cycle to support improvement of propulsion plant material condition. It was developed by a detailed review of associated source documents and experience in MCAP implementation across the fleet and should be tailored by the RMO to suit the ship's individual schedule and circumstances. The following are events from the MCAP Timeline that are of particular significance to Ship's Force that are not specifically addressed in other source documents:

a. Pre-Deployment Material Condition Assessment Inspection. The Pre-Deployment MCAI is a non-intrusive walk through inspection of propulsion plant spaces conducted by Ship's Force (with shipyard support) prior to deployment. This inspection is conducted as a joint effort in conjunction with pre-inspection training provided by shipyard engineers and inspectors. The scope of the pre-deployment MCAI exceeds that of the ship's periodic zone inspections and is intended to be a mid-cycle assessment of propulsion plant material condition.

(1) The objectives of the inspection are:

(a) To validate the standards used in the material condition assessment process. This is accomplished through the pre-inspection training provided by shipyard engineers and inspectors. This training is intended to be the most significant opportunity to train and educate Ship's Force personnel with regard to inspection attributes and material standards.

(b) To identify deficiencies prior to deployment in time to order and receive material before departure. This ensures that Ship's Force has the material on hand to correct deficiencies while on deployment.

(c) To provide a mid-cycle review and validation of the health of the MCAP.

(d) To set the tone for continuing inspections during the ship's deployment. Aggressive identification and correction of deficiencies during deployment will result in an overall improved propulsion plant material condition and reduce work package churn in the subsequent CNO availability.

(2) Scheduling of the Pre-Deployment MCAI must balance the benefits of early identification of material issues against operational requirements. However, whenever possible, the inspection should be completed no later than three months prior to deployment. The TYCOM Maintenance Program Manager will fund a shipyard MCAP training team (notionally five to ten people in size), when requested by the RMO, to assist in the performance of the MCAI. The training team provides (1) targeted training and deckplate feedback to Ship's Force in support of the inspection, and (2) acts as an independent check for both the ship and the TYCOM that the ship's MCAP program is being administered in a manner that supports the intent of the program. The ship's Commanding Officer retains responsibility for determining the impact and required actions for deficiencies identified during this inspection.

b. Production Completion Date. Production Completion Date (PCD) is a CNO availability key event that is scheduled two weeks prior to the respective plant hot-operations key event and marks the Project Team's transition from production work to preparations for test events and plant operations. It is intended that all propulsion plant work, deficiency correction and associated testing required for hot-operations (Light Off Assessment) be completed by PCD. However, PCD requires a subjective evaluation by the ship's Commanding Officer, Reactor Officer and Project Superintendent that production work, testing and deficiency correction has been reduced to a level and/or area of the plant such that required key event preparations can proceed satisfactorily, to completion, in the ensuing two-week period. Upon reaching PCD, the Reactor Officer and the rest of the Project Team must be able to shift their focus away from production work and testing to preparations for plant operations. These preparations include but are not limited to:

- Pre-event certifications and resulting discrepancy correction
- Danger Tag removal and system restoration
- Ship's Force Startup Maintenance
- System Valve lineups
- Continued deep cleaning and small valve maintenance
- Use of Groom Teams in areas requiring special emphasis
- Temporary Service Removal
- Training on Hot Operations/Non-Critical Steaming
- Transition to an operational environment and focus

(1) Previous availabilities have shown that if excessive production work and testing is still ongoing at the time PCD is evaluated as complete, key event preparations will be adversely affected and the hot operations key event date will usually be negatively impacted.

(2) If it is necessary to delay PCD, strong consideration should be given to moving the hot operations key event accordingly, in order to protect the integrity of the two-week preparation period. Otherwise, it must be recognized that the transition from a maintenance intensive environment to an operationally focused environment may be negatively impacted.

(3) In the event that some production work and testing will be ongoing, the Project Team will generate an exceptions list detailing all work and associated testing that is intended to continue after PCD. The Project Team must **formally** agree that the intensity and/or volume of the items on the exceptions list will not adversely impact the Project's ability to complete preparations for the upcoming event, in an orderly and timely manner.

(4) Some specific questions that should be considered when determining whether a project has reached PCD include:

(a) Are major system piping and valves intact?

(b) Are propulsion plant damage control and fire-fighting systems and the associated repair lockers stocked and operational?

(c) Are ladders installed? Are space accesses and at least one of the two escape trunks in each space clear for passage?

(d) Are doors, hatches and scuttles installed and operational?

(e) Are temporary services removed with the exception of essential support systems and systems installed to support remaining work?

(f) Are all deck plates and associated supports installed?

(g) Has loose industrial material and debris been removed?

(h) Have major lagging repairs been completed? Is the extent of any remaining lagging work minimal (not including temporary lagging installed to support later testing)?

(i) Are pre-test inspections and correction of associated deficiencies complete?

(j) Has major preservation and painting been completed? Is the extent of remaining touch-up painting acceptable?

(k) Have deficiencies identified by the MCAI, weekly walk-throughs, associated cold plant testing, and any rework/retest associated with the testing, been completed or resolved? If not, are the remaining deficiencies at a low enough level that they can be corrected without impacting event preparations?

(l) If applicable, has System Turnover been completed? Have all discrepancies identified during the turnover process been corrected?

c. Deficiency Identification and Correction. The basic organization of a CVN Reactor Department has long established programs in place to support the day-to-day identification and tracking of material deficiencies (3M system, Zone Inspection Programs, MCAP Database, EDL, CSMP, etc.). However, experience has shown that successful programs are those that support **continuous** identification and correction of propulsion plant deficiencies, that have incorporated the timelines of Appendix A and have placed increased emphasis on known problem areas. Some of the propulsion plant maintenance areas that have historically required special attention are listed below. Each CVN may identify additional areas as they progress through the maintenance cycle.

(1) Valve Maintenance and Inspection. All valves in the propulsion plant are required to be inspected and maintained in accordance with the applicable chapters of the component technical manual. Special emphasis should be placed on the early identification and correction

of stem packing leakage in conjunction with the MCAP inspection program. All valves having less than two valve isolation from high-energy systems should be inspected annually at a minimum. Prior to availabilities that will include a plant cool down, particular attention should be given to steam generator isolation valves, safety valves, blowdown and sampling system valves and all 500 series main feed and main steam system valves. Any valve that shows signs of packing leakage or has minimal packing gland adjustment remaining should be entered into the MCAP Database (EDL) for further evaluation.

(2) Structural Preservation. Areas of the propulsion plant are to be inspected for structural corrosion on a rotating basis in conjunction with the ship's MCAP inspection plan. Particular emphasis should be placed on areas exposed to salt spray (ventilation spaces, weather deck fittings), equipment foundations, low traffic areas, and all out of plant spaces owned by Reactor Department or that contain reactor support equipment. References (u), (v) and (w) provide additional guidance on applying and resurfacing plant structural components and coating color schemes.

NOTE: REFERENCE (w) WAS DISTRIBUTED TO ALL CVNs BY NAVSEA LTR 92T124/0418 DATED 5 NOV 01 AND PROVIDES AN EXCELLENT STANDARDIZED GUIDE OF THE VISUAL CONDITION OF PAINTED COMPONENTS AND SURFACES IN THE INTERIOR OF SHIPS DURING MAINTENANCE AVAILABILITIES OR CONTRACTED PRESERVATION TEAM WORK. ADDITIONAL COPIES ARE AVAILABLE IN SPIRAL BOUND BOOK FORM AND ON CD-ROM FROM THE NAVAL LOGISTICS LIBRARY (http://nll.navsup.navy.mil/). ACCESS THE P2003 SHOPPING CART AND INPUT EITHER TECH MANUAL NUMBER SL700-AB-GYD-010 OR NSN 0910-LP-100-4420.

(3) Lagging and Insulation. Damaged or worn lagging/insulation should be inspected and upgraded using the guidance of references (c), (g), and the CVN 68 Class Incremental Maintenance Plan, Sequencing Plan in conjunction with the ship's MCAP inspection program. Ships should consider maintaining a separate list of lagging removed by Ship's Force as a result of maintenance, wetting or becoming oil soaked. Guidance for installing and maintaining insulation can be found in reference (x). Painting of insulation is covered by the aforementioned Reactor Plant Paint Schedule.

(4) Paint and Preservation. In conjunction with the structural preservation and bilge preservation inspections discussed in this section, the ship must ensure that the paint and preservation status of general propulsion plant spaces is maintained over time with emphasis placed on the work that will be done during availabilities. The CVN 68 Class Incremental Maintenance Plan, Sequencing Plan provides guidance on rotation plans for propulsion plant spaces. Ships should consider maintaining a list of spaces annotating the dates when spaces were last painted/preserved to assist in long term planning. References (u), (v) and (w) (see NOTE in paragraph 2.9.3.2.c.(2) of this chapter) provide additional guidance on applying and resurfacing plant structural components and coating color schemes.

(5) Bilge Preservation. Invasive, below the deck level, inspections are the key to maintaining the integrity of bilges and bilge structural members. Ships should ensure that regular bilge inspections are scheduled in conjunction with the ship's MCAP inspection program with increased emphasis during the Pre-Availability and Pre-Deployment MCAI inspections. Progressive maintenance techniques are required for coatings in the propulsion plant bilges to wear as projected and must be resurfaced at the appropriate intervals. Guidance on inspection criteria and establishment of inspection zones can be found in CVN 68 Class Depot Maintenance Requirement Card MRC 631-01. References (u), (v), (w) and (y) (see NOTE in paragraph 2.9.3.2.c.(2) of this chapter) provide additional guidance on applying and resurfacing plant structural components and coating color schemes.

(6) Oil Leak Identification and Correction. Ships should aggressively identify and correct oil leaks, with particular attention to areas underneath the main engines, turbine generators, lube oil purifiers and in the vicinity of lube oil pumps. Inspection plans should divide the propulsion plant spaces into zones to ensure all areas are inspected annually at a minimum. The list of identified oil leaks can then be prioritized in the MCAP Database (EDL) for correction.

(7) Electrical Cableway Inspection. Shipboard electrical cableways for the most part are taken for granted. Improperly installed cables in the propulsion plant can not only damage existing cables but may also impact watertight/airtight integrity. Cableways must be properly installed and maintained in accordance with the requirements of references (z) and (aa). Additional guidance for conducting cableway assessments in conjunction with the ship's MCAP inspection program is available in Volume VI, Chapter 28 of this manual.

(8) Typical Recurring Deficiencies. The ship should actively pursue the identification, documentation and correction of typical recurring deficiencies through the periodic MCAP inspections. Listed below are examples of the types of items that should be continuously identified and corrected. TYCOM will provide funding during availabilities, Planned Incremental Availabilities and Docking Planned Incremental Availabilities for the shipyard or other activity to provide assistance in resolution, as required.

(a) defective/missing spray shields

(b) missing deck plate screws

(c) lockwire/locking cable deficiencies

(d) mixed/missing/corroded fasteners

(e) small valve maintenance deficiencies

(f) loose/damaged stuffing tubes

(g) missing/damaged pipe hangers

(h) missing/misaligned/leaking funnels

(i) missing gage fasteners and gage line supports

(j) electrical cable and lighting deficiencies

(k) missing/damaged label plates

d. Acceptable-As-Is items. The MCAP database has the ability to provide the ship with information concerning material conditions that have been previously classified as "Acceptable As Is". Each entry should identify the equipment and its location, provide a description of the acceptable condition and a reference to the technical documentation that accepted the condition. Shipyards can use this data during depot availabilities to preclude repetitive research for acceptable, existing conditions that would otherwise be considered deficiencies. The shipyard will provide the ship with electronic copies of all waiver letters, Liaison Action Request responses, Departures from Specifications and any other acceptance documentation generated during an availability. The RMO with the assistance of the Reactor Plant Planning Yard should ensure the data is kept up to date between depot availability periods.

2.9.3.3 Methods for Assessment of Material Condition. There are several methods used to periodically assess and improve the material condition of the propulsion plants for CVN outside of depot availabilities. The existing programs provided by the fleet commanders to improve material condition are addressed in Volume VI, Chapter 42, of this manual. Other methods include:

a. Material inspections conducted by the Surface Nuclear Propulsion Mobile Training Teams (MTT).

b. Material inspections conducted by the Board of Inspection and Survey.

c. Material inspections conducted by the Nuclear Propulsion Examining Board (NPEB).

d. Periodic inspections conducted by shipyard engineering and inspection groups, usually in conjunction with availability planning. These inspections include Carrier Availability Planning System, Point of Entry Testing (POET), MCAIs and zone inspections of the propulsion plant spaces.

e. Carrier Engineering Material Assessment Team coordinators groom systems to include Leslie valves, high pressure air compressors, low pressure air systems, governor control systems, distilling plants, etc.

f. Periodic Ship's Force Zone Inspections.

g. Pre-Deployment Material Condition Assessment Inspection.

The table shown in Appendix B is a compilation of propulsion plant inspections and references.

2.9.3.3.1 Attributes and Acceptance Standards for Material Condition Inspections. The inspection criteria used for material inspections throughout the ship's operational cycle shall be uniform and consistent to provide an accurate assessment of the material condition of the propulsion plant.

a. Reference (t) shall be used to inspect non-nuclear propulsion systems and components.

b. References (ab), (ac) and (s) shall be used to inspect nuclear propulsion systems and components. Inspection criteria for nuclear mechanical systems is listed in Appendix C. Inspection criteria for nuclear electrical systems is listed in reference (ac).

2.9.3.4 Propulsion Plant Planned Maintenance. Reference (ad) lists the planned maintenance pertinent to reactor systems and includes numerous inspections and checks to review material condition. It can be advantageous for the ship to request shipyard quality control inspector or production shop assistance when conducting the annual inspections of the Reactor Compartment and Pressurizer Shed. In addition, the ship should consider requesting assistance when performing periodic inspections of piping hangars, piping and supports in bilges, load centers and reactor vessel shielding.

2.9.3.5 Training for Ship's Force. The TYCOM, in conjunction with other activities (e.g., NSY, Fleet Maintenance Support Branch, Shore Intermediate Maintenance Activity (SIMA), Trident Training Facility), has developed specific training courses to enhance technical maintenance capabilities and inspection techniques. In addition, shipyard personnel can provide training on subjects such as lagging replacement, lockwire/locking cable installation and inspection techniques. Ship's Force requests for specific training topics (e.g., shipyard inspection training prior to conducting the pre-deployment MCAI) shall be processed through the TYCOM. Ship's Force should schedule this training early and ensure sufficient personnel are trained.

2.9.4 Type Commander Responsibilities.

a. Budget and plan for correction of both typical recurring deficiencies and other material deficiencies during all upkeeps, availabilities, Planned Incremental Availabilities and Docking Planned Incremental Availabilities.

b. Assign groom teams as necessary, to assist Ship's Force in maintaining the material condition of the propulsion plant.

c. Provide the maintenance and inspection training requested by Ship's Force. This provisioning of training will include funding a shipyard MCAP team requested by the RMO in support of the pre-deployment MCAI. This small team (five to ten person notional size) provides (1) targeted training and deckplate feedback to Ship's Force in support of the inspection, and (2) acts as an independent check for both the ship and the TYCOM that the ship's MCAP program is being administered in a manner that supports the intent of the program.

d. Provide training for RMOs through the TYCOM N9 and N43 organizations to ensure they understand common maintenance problems among carriers, the requirements of this chapter and how to better plan for availabilities.

e. For CNO Availabilities, maintain, with Ship's Force and shipyard input, an Availability Parts Support List containing special parts and routinely required support equipment necessary to support Ship's Force work (e.g., breaker locking clips, valve locking devices, tygon tubing, flexes, thread protectors, foreign material exclusion plugs, valve stems). These material items can then be ordered and procured early so that production work will not be disrupted.

f. Meet periodically with the Reactor Officer and/or RMO to review the ship's material condition. The need for TYCOM support in identifying and correcting material deficiencies should be addressed at this time.

g. Provide timely review and scheduling of deficiency correction for items identified during the inspections and grooms of paragraph 2.9.3.3 of this chapter.

2.9.4.1 Type Commander Mobile Training Team Visits. The MTT should periodically evaluate the ship's material condition including a review of the ship's MCAP Database (EDL) to ensure the ship has an effective program for identifying and correcting material condition deficiencies. It is important that the MTT does not critique lists that are too large, since this chapter specifically encourages ship's to document deficiencies that are beyond the capability of the ship or are too numerous to fix considering the ship's operational commitments. Attributes that should be checked include:

a. Ensure that the MCAP Database (EDL) is current and accurate based on MTT material condition inspections (i.e., is the ship's MCAP Database (EDL) an accurate representation of propulsion plant material condition based on the number, type and severity of items identified by the MTT? Are the plans for corrections realistic?)

b. Ensure that deficiencies have not remained in the MCAP Database (EDL) for an excessive amount of time (i.e., the turnover rate of the deficiencies). Large backlogs indicate the need for increased Ship's Force attention and/or TYCOM assistance to correct deficiencies.

2.9.5 Assessing Deficiency Impact and Scheduling Corrective Action. During scheduled CNO availabilities shipyard personnel must review applicable plans and specifications in order to determine whether correction of a deficiency is required to support propulsion plant testing key events. Factors that must be considered in making this determination are type and severity of the defect, service of the component involved, accessibility of the defect for repair during shipyard availability versus upkeep period, effect on personnel or equipment safety, impact on system operation and cleanliness or preservation (i.e., required to restore cosmetic appearance versus resistance to corrosion). Every attempt should be made to correct all deficiencies during scheduled CNO availabilities, however, propulsion plant testing key events shall not be delayed in order to correct deficiencies that are not required to support that event. Such deficiencies can be deferred and may be scheduled for correction outside of the

availability. Deficiencies that are primarily cosmetic are ideal candidates for deferral consideration. When material condition deficiencies are identified outside of CNO scheduled availabilities, the Reactor Officer determines whether corrective action is necessary and when it should be accomplished. Appendix A provides guidance regarding deficiency disposition in either case.

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APPENDIX A

MATERIAL CONDITION ASSESSMENT PROCESS TIMELINE

PURPOSE: The timeline of this Appendix lays out the material condition assessment process throughout the ship's Inter-Deployment Training Cycle. The plan also includes descriptions of the various events that occur and who is responsible for the actions outlined. With this information, the various stakeholders in the project team can develop a clear understanding of the process. This will encourage better communication, planning and completion of all required actions.

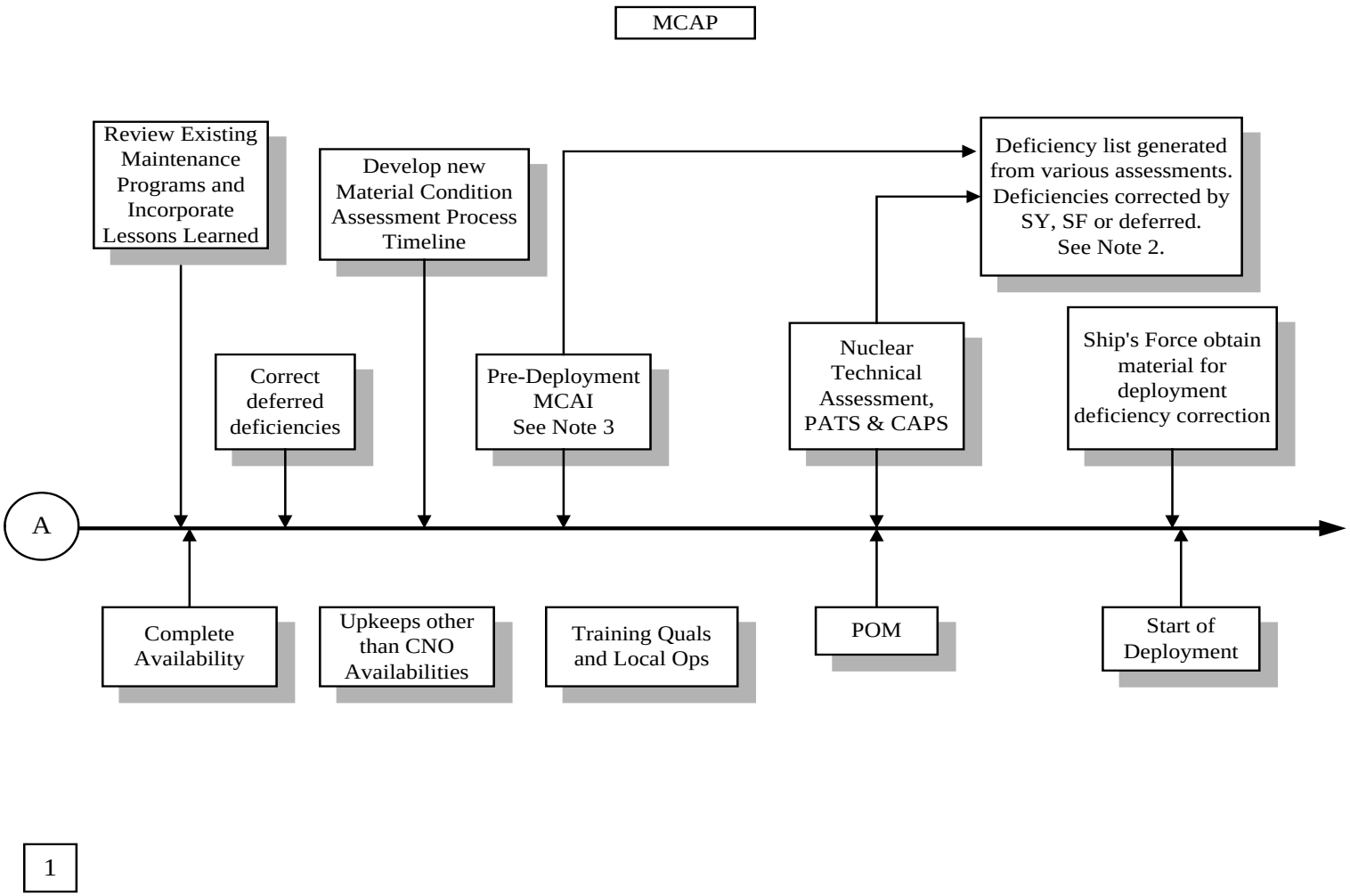
This timeline is provided as a guide to be used for development of a CVN 68 class ship specific timeline for a Planned Incremental Availability or Docking Planned Incremental Availability. The timeline is not applicable to a Refueling Complex Overhaul availability.

Notes:

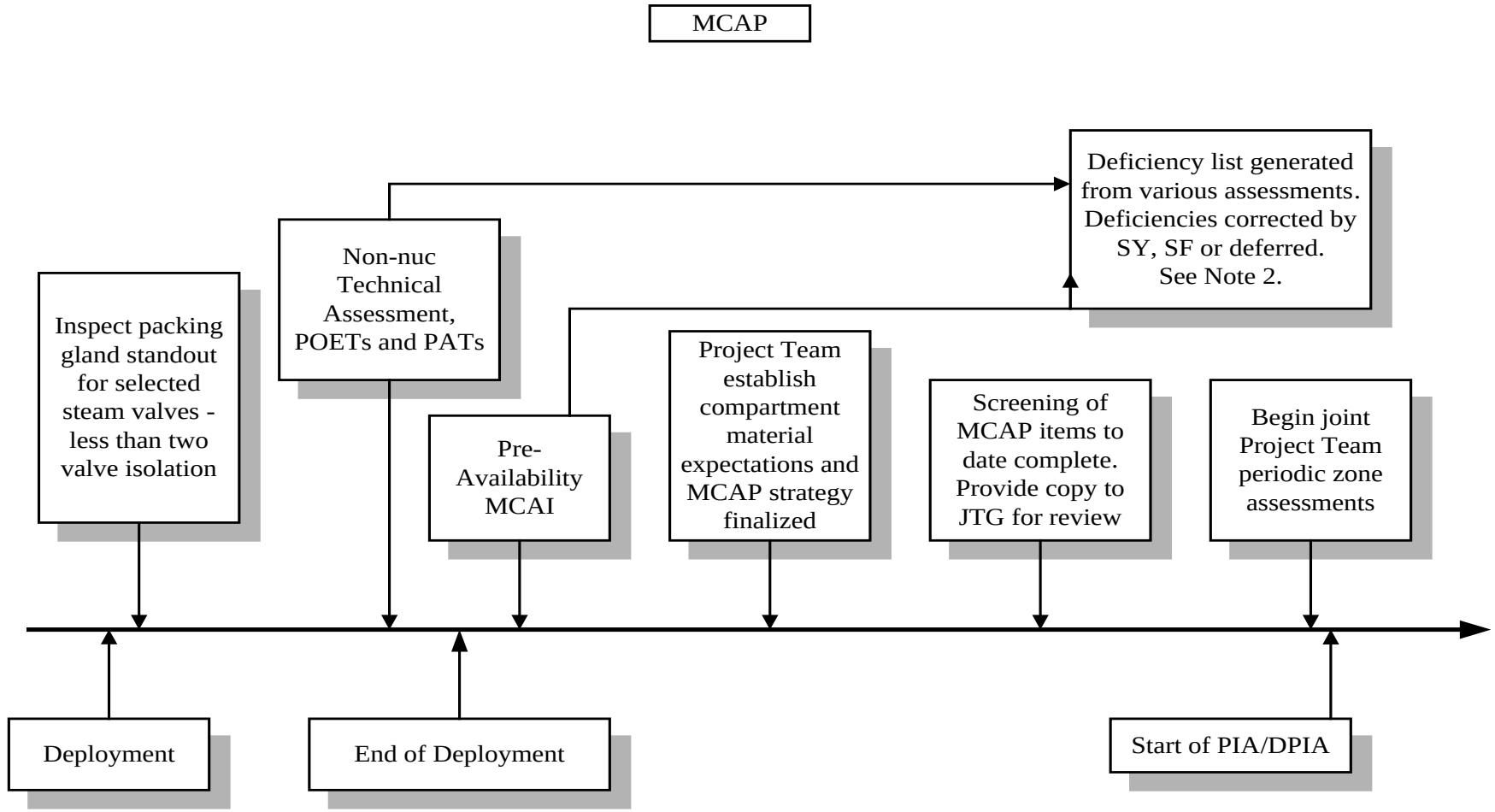
1. The following timeline is a generic version of a Project Material Condition Assessment Process. The project team will develop a timeline and plan specific to each availability taking into account the ship's schedule (deployment, transit periods, upkeeps and early start periods). The plan includes descriptions of the events (purpose of inspection/action, which activity performs the action, results, etc). The timeline and plan allows the Project Team (shipyards, Ship's Force, TYCOM) to develop a clear understanding of the process. Timeline should be developed to present at the first project planning meeting (target 15 months prior to start of availability).

2. Deficiencies identified during the MCAI and following assessments will be evaluated per the attached Deficiency Evaluation Flowchart.

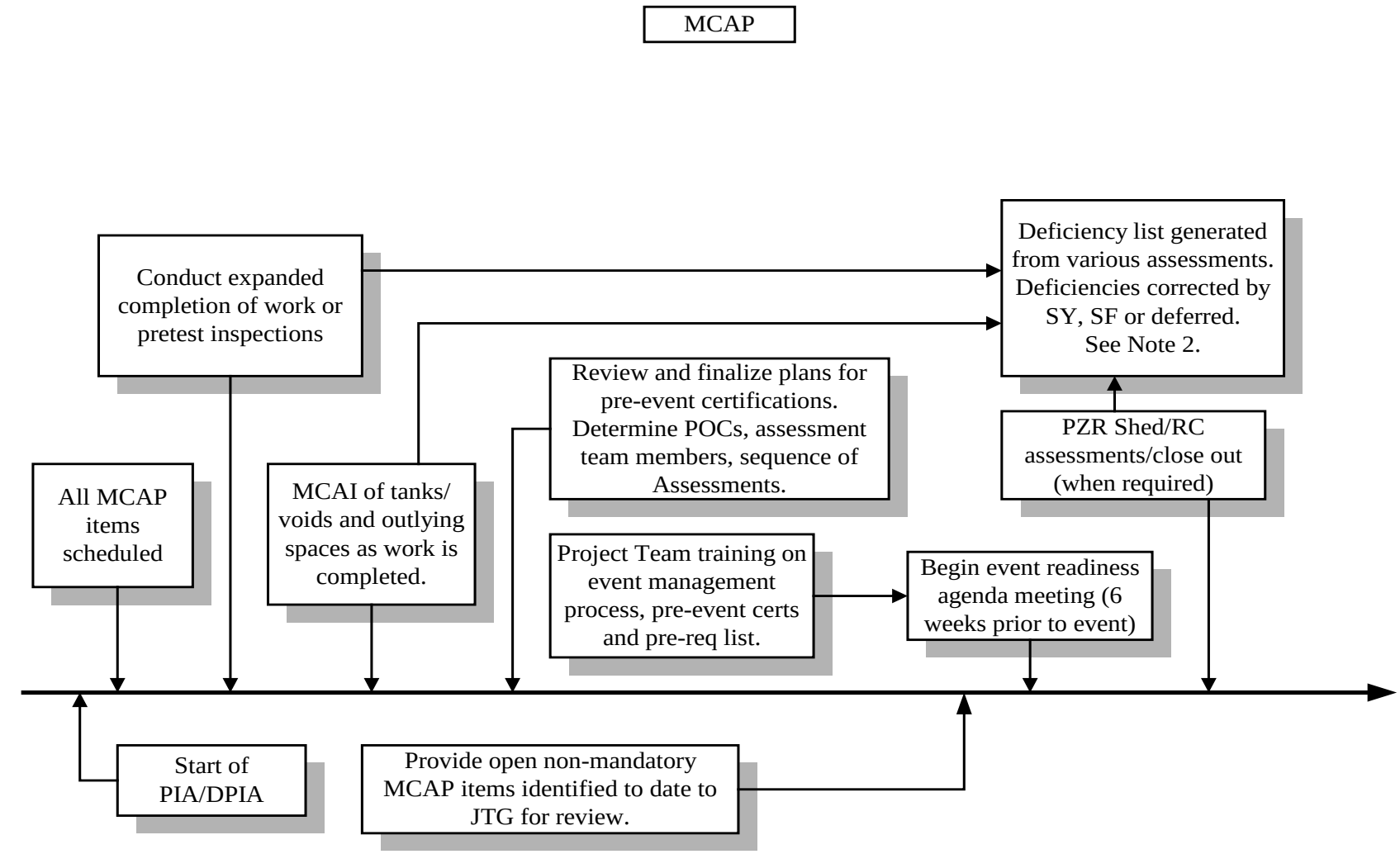
3. The Pre-deployment MCAI may be required more than once in an MCAP "cycle" given that two (more) deployments may be planned for a carrier in the interval between CNO availabilities. In this instance, the RMO should request the shipyard MCAP training team in conjunction with each performance of the Pre-deployment MCAI.


MCAP
Review Existing Maintenance Programs and Incorporate Lessons Learned
Develop new Material Condition Assessment Process Timeline
Deficiency list generated from various assessments. Deficiencies corrected by SY, SF or deferred. See Note 2.
Correct deferred deficiencies
Pre-Deployment MCAI See Note 3
Nuclear Technical Assessment, PATS & CAPS
Ship's Force obtain material for deployment deficiency correction
A
Complete Availability
Upkeeps other than CNO Availabilities
Training Quals and Local Ops
POM
Start of Deployment

1

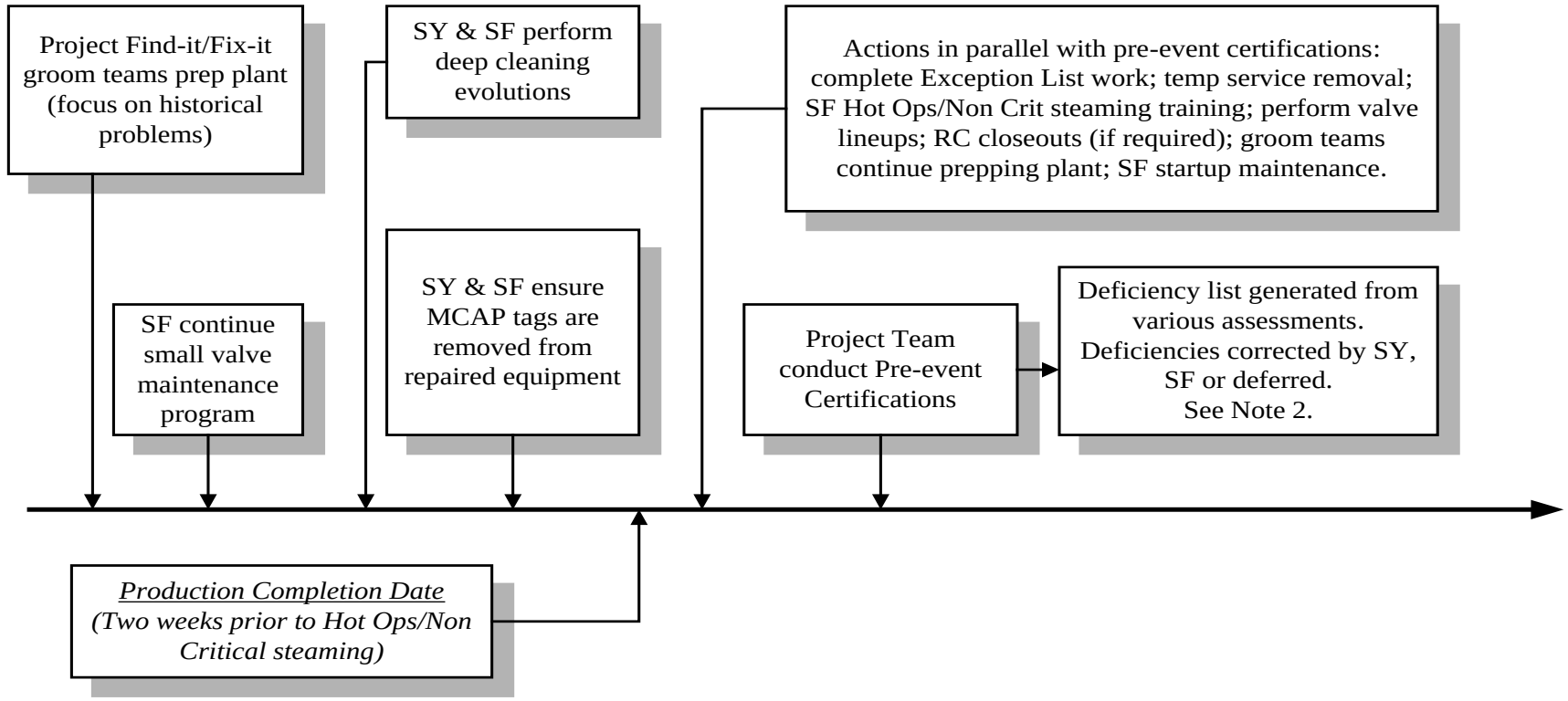

MCAP
Deficiency list generated from various assessments. Deficiencies corrected by SY, SF or deferred. See Note 2.
Non-nuc Technical Assessment, POETs and PATs
Inspect packing gland standout for selected steam valves - less than two valve isolation
Pre-Availability MCAI
Project Team establish compartment material expectations and MCAP strategy finalized
Screening of MCAP items to date complete. Provide copy to JTG for review
Begin joint Project Team periodic zone assessments
Deployment
End of Deployment
Start of PIA/DPIA

2

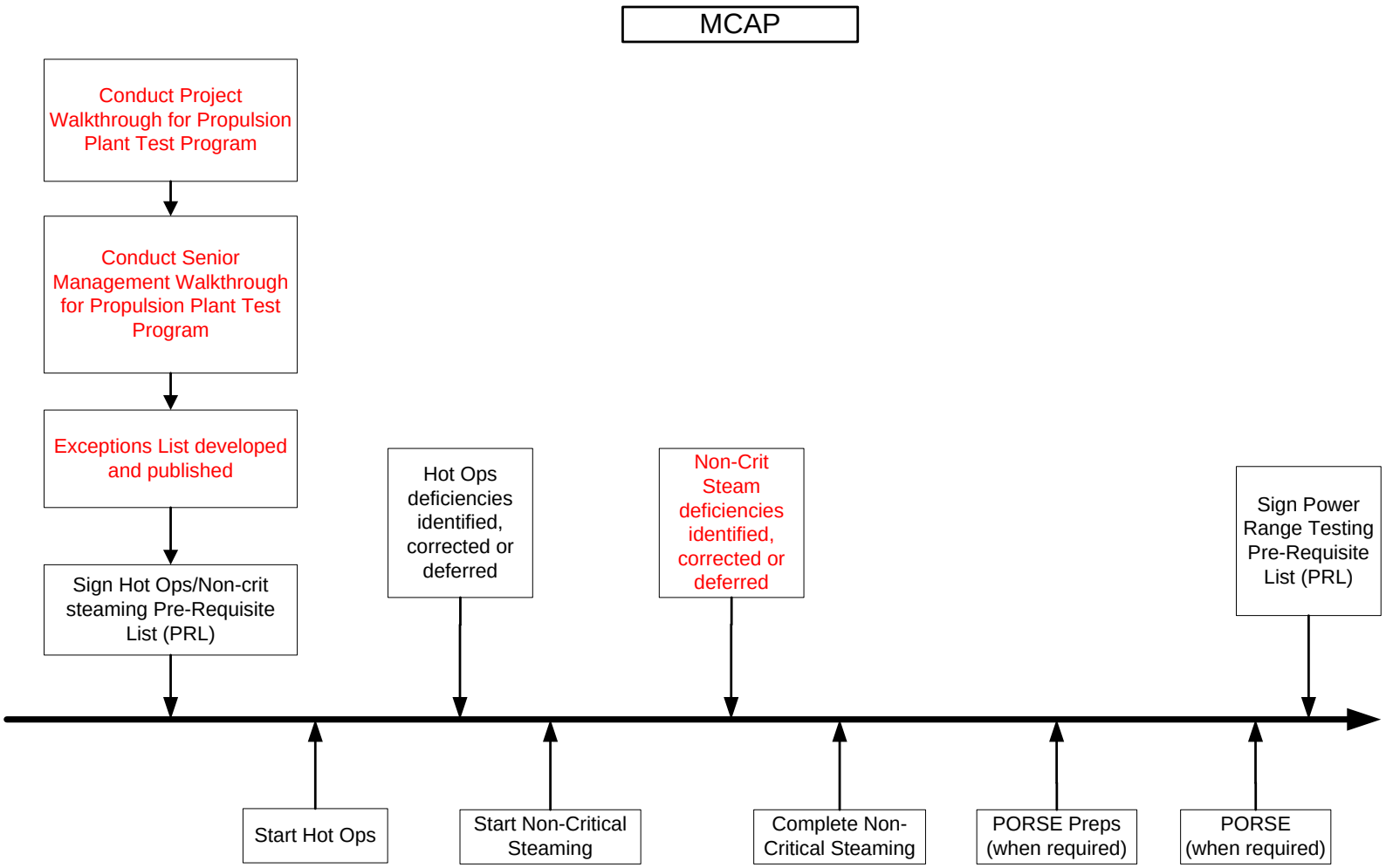

MCAP
Conduct expanded completion of work or pretest inspections
Deficiency list generated from various assessments. Deficiencies corrected by SY, SF or deferred. See Note 2.
Review and finalize plans for pre-event certifications. Determine POCs, assessment team members, sequence of Assessments.
PZR Shed/RC assessments/close out (when required)
All MCAP items scheduled
MCAI of tanks/ voids and outlying spaces as work is completed.
Project Team training on event management process, pre-event certs and pre-req list.
Begin event readiness agenda meeting (6 weeks prior to event)
Start of PIA/DPIA
Provide open non-mandatory MCAP items identified to date to JTG for review.

3

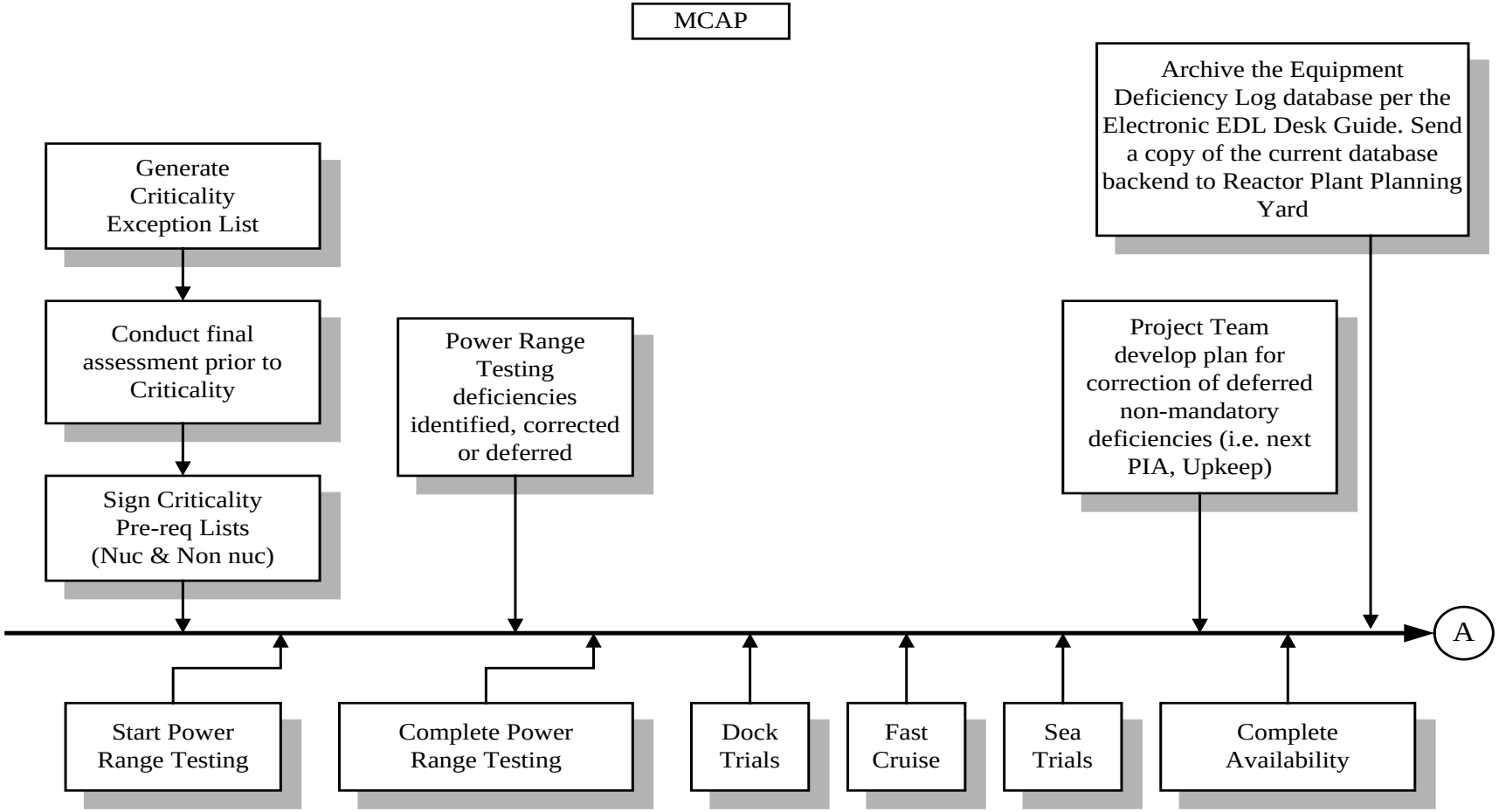
MCAP


Project Find-it/Fix-it groom teams prep plant (focus on historical problems)
SF continue small valve maintenance program
SY & SF perform deep cleaning evolutions
SY & SF ensure MCAP tags are removed from repaired equipment
Actions in parallel with pre-event certifications: complete Exception List work; temp service removal; SF Hot Ops/Non Crit steaming training; perform valve lineups; RC closeouts (if required); groom teams continue prepping plant; SF startup maintenance.
Project Team conduct Pre-event Certifications
Deficiency list generated from various assessments. Deficiencies corrected by SY, SF or deferred. See Note 2.
Production Completion Date
(Two weeks prior to Hot Ops/Non Critical steaming)

4

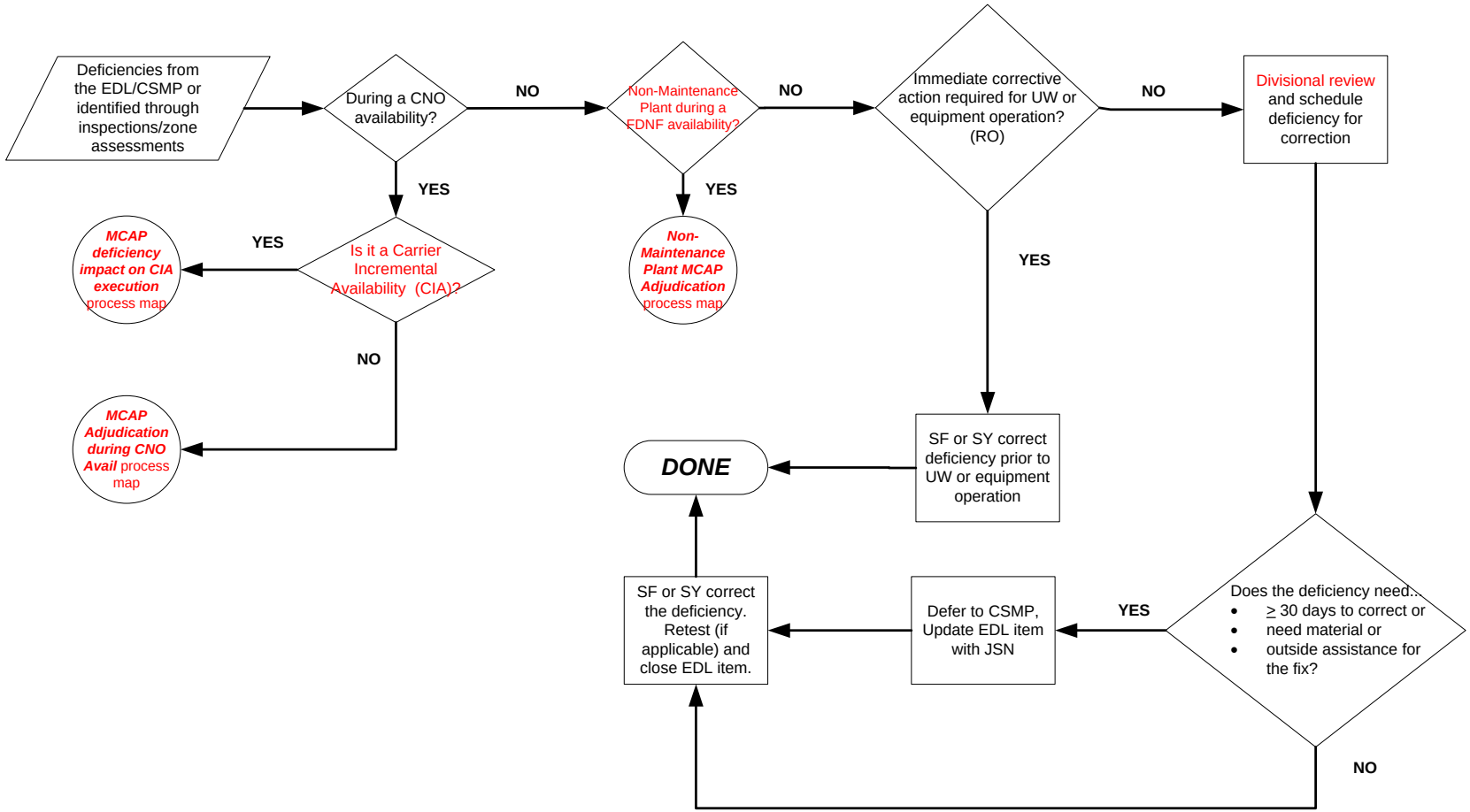

MCAP
Conduct Project Walkthrough for Propulsion Plant Test Program
Conduct Senior Management Walkthrough for Propulsion Plant Test Program
Exceptions List developed and published
Sign Hot Ops/Non-crit steaming Pre-Requisite List (PRL)
Hot Ops deficiencies identified, corrected or deferred
Non-Crit Steam deficiencies identified, corrected or deferred
Sign Power Range Testing Pre-Requisite List (PRL)
Start Hot Ops
Start Non-Critical Steaming
Complete Non-Critical Steaming
PORSE Preps (when required)
PORSE (when required)

5


MCAP
Generate Criticality Exception List
Conduct final assessment prior to Criticality
Sign Criticality Pre-req Lists (Nuc & Non nuc)
Power Range Testing deficiencies identified, corrected or deferred
Archive the Equipment Deficiency Log database per the Electronic EDL Desk Guide. Send a copy of the current database backend to Reactor Plant Planning Yard
Project Team develop plan for correction of deferred non-mandatory deficiencies (i.e. next PIA, Upkeep)
A
Start Power Range Testing
Complete Power Range Testing
Dock Trials
Fast Cruise
Sea Trials
Complete Availability

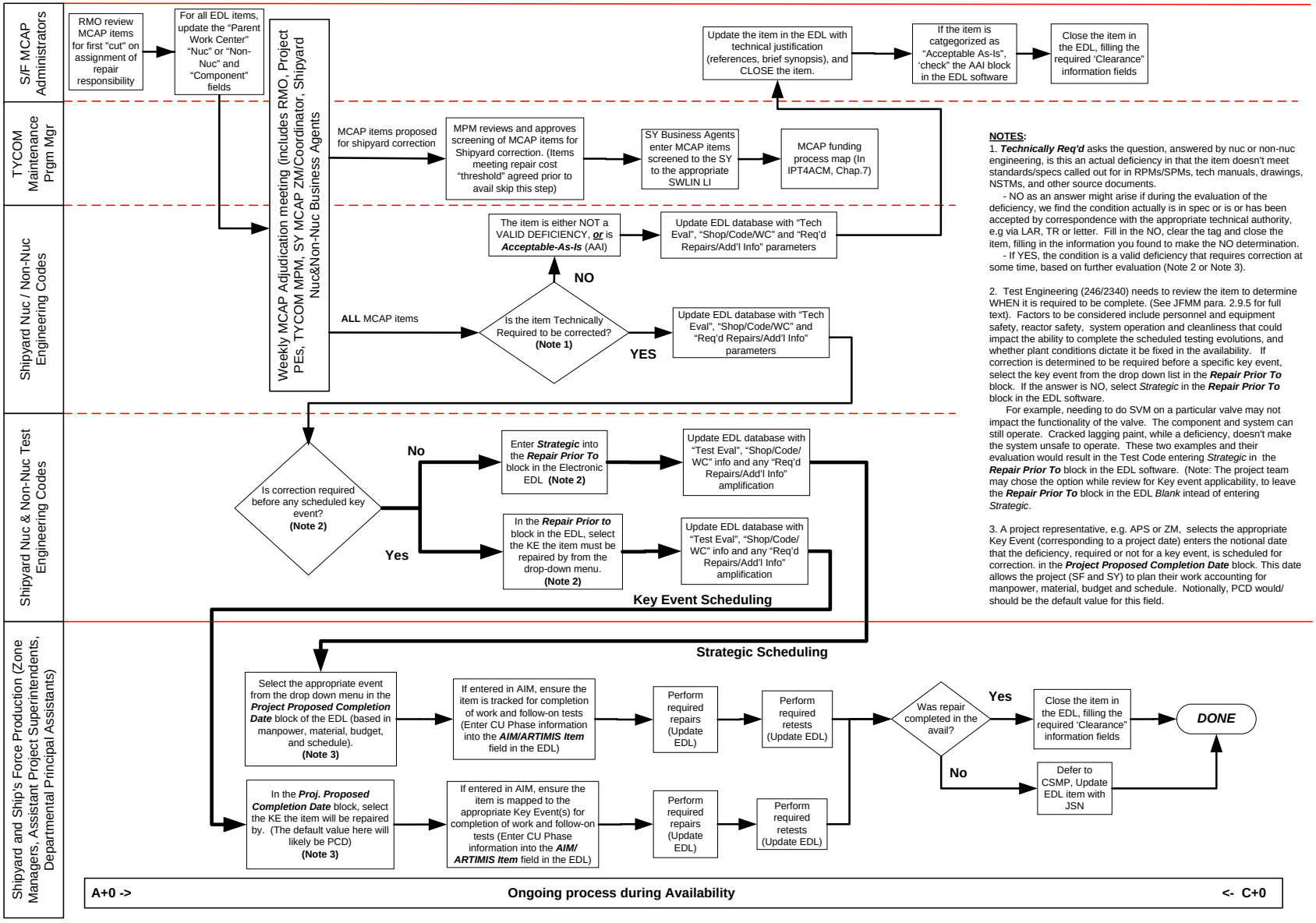
6

MCAP Deficiency Evaluation Flowchart



General Notes:
An effort should be made to fix any and all deficiencies as soon as possible. Generally, deficiency correction will fall within one of three general, generic "paths"...
1. The item doesn't meet technical requirements in one or more parameters, and must be fixed prior to the next startup, or a Key Event in a maintenance period.
2. The item doesn't meet technical requirements, and it's preferable to fix the item during the maintenance period in question. You could, however, operate the plant safely with the item as it stands.
3. While not meeting technical requirements, it's an item requiring a small (usually < 8 hours to fix) expenditure of time/labor to correct. Examples include minor paint touchup, small lagging tears, a lagging "button" missing from a sheet of bulkhead lagging.

MCAP Adjudication Process Map (during a CNO availability)



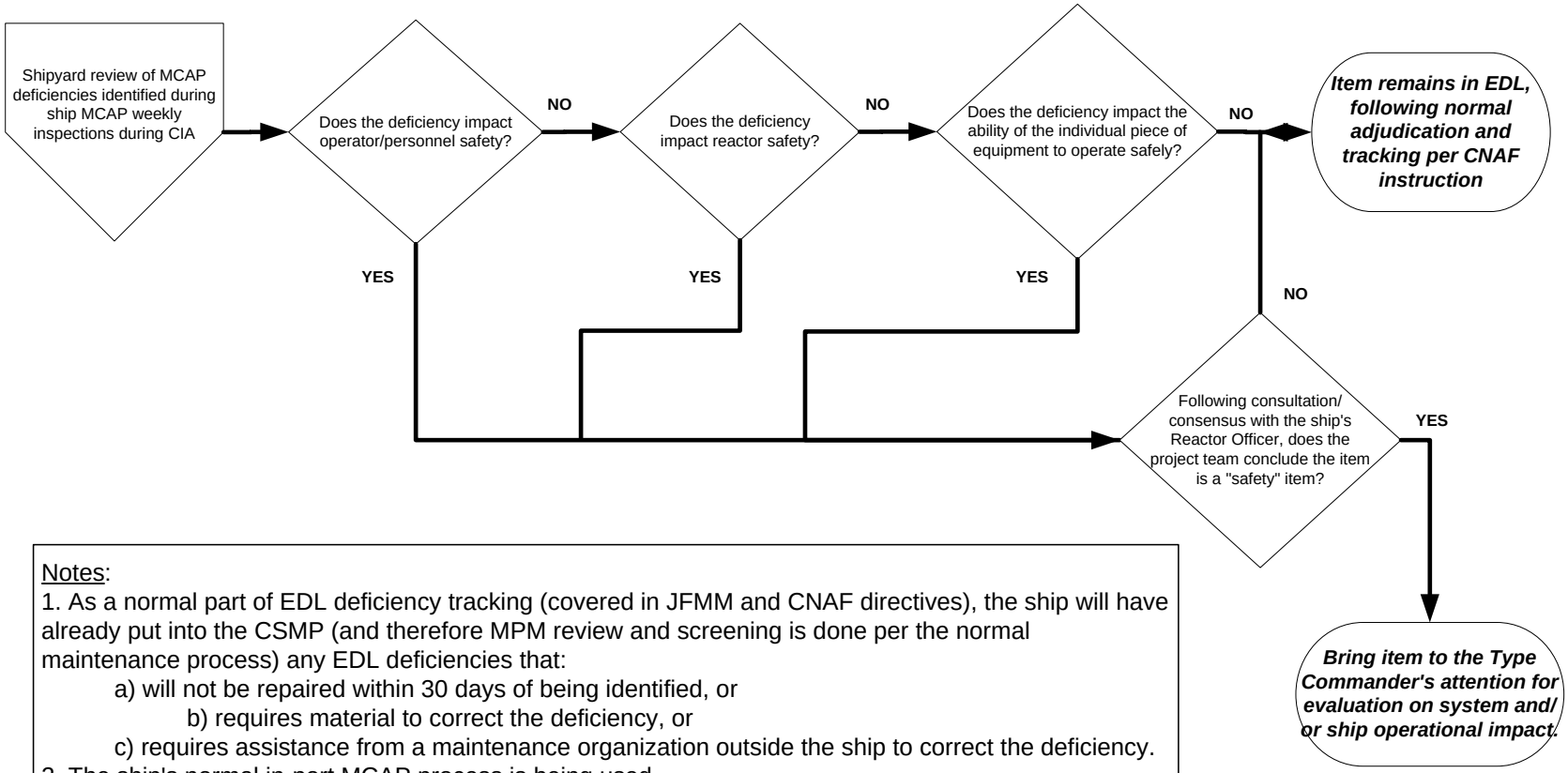
NOTES:

1. ***Technically Req'd*** asks the question, answered by nuc or non-nuc engineering, is this an actual deficiency in that the item doesn't meet standards/specs called out for in RPMs/SPMs, tech manuals, drawings, NSTMs, and other source documents.
   - NO as an answer might arise if during the evaluation of the deficiency, we find the condition actually is in spec or is or has been accepted by correspondence with the appropriate technical authority, e.g via LAR, TR or letter. Fill in the NO, clear the tag and close the item, filling in the information you found to make the NO determination.
   - If YES, the condition is a valid deficiency that requires correction at some time, based on further evaluation (Note 2 or Note 3).

2. Test Engineering (246/2340) needs to review the item to determine WHEN it is required to be complete. (See JFMM para. 2.9.5 for full text). Factors to be considered include personnel and equipment safety, reactor safety, system operation and cleanliness that could impact the ability to complete the scheduled testing evolutions, and whether plant conditions dictate it be fixed in the availability. If correction is determined to be required before a specific key event, select the key event from the drop down list in the ***Repair Prior To*** block. If the answer is NO, select *Strategic* in the ***Repair Prior To*** block in the EDL software.
   For example, needing to do SVM on a particular valve may not impact the functionality of the valve. The component and system can still operate. Cracked lagging paint, while a deficiency, doesn't make the system unsafe to operate. These two examples and their evaluation would result in the Test Code entering *Strategic* in the ***Repair Prior To*** block in the EDL software. (Note: The project team may chose the option while review for Key event applicability, to leave the ***Repair Prior To*** block in the EDL *Blank* intead of entering *Strategic*.

3. A project representative, e.g. APS or ZM, selects the appropriate Key Event (corresponding to a project date) enters the notional date that the deficiency, required or not for a key event, is scheduled for correction. in the ***Project Proposed Completion Date*** block. This date allows the project (SF and SY) to plan their work accounting for manpower, material, budget and schedule. Notionally, PCD would/ should be the default value for this field.

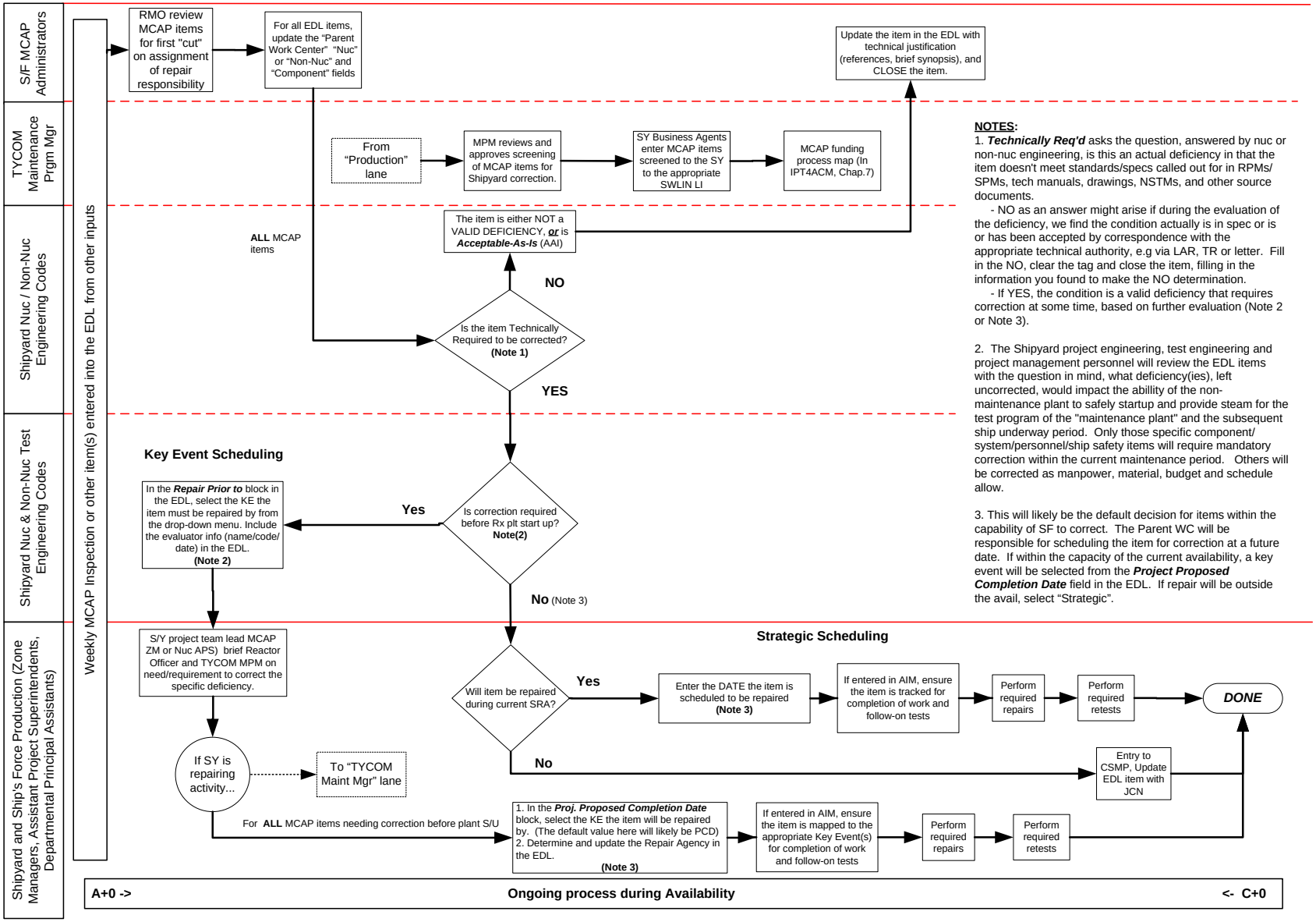
MCAP deficiency impact on CIA execution



Notes:

1. As a normal part of EDL deficiency tracking (covered in JFMM and CNAF directives), the ship will have already put into the CSMP (and therefore MPM review and screening is done per the normal maintenance process) any EDL deficiencies that:
   a) will not be repaired within 30 days of being identified, or
      b) requires material to correct the deficiency, or
   c) requires assistance from a maintenance organization outside the ship to correct the deficiency.
2. The ship's normal in-port MCAP process is being used.
3. The shipyard is assigned NSA roles and responsibilities for the maintenance period (CIA).
4. The shipyard's engineering and test engineering codes (246/2340) will review MCAP items identified from the weekly ship walkthroughs to determine if any items discovered require repair prior to the end of the inport maintenance period (CIA). Following consultation and consensus with the Reactor Officer/ Commanding Officer, the item is brought to the attention of the Type Commander to schedule the repair and evaluate it's impact on ship's schedule.

Non-Maintenance Plant MCAP Adjudication Process Map (during a CNO availability)

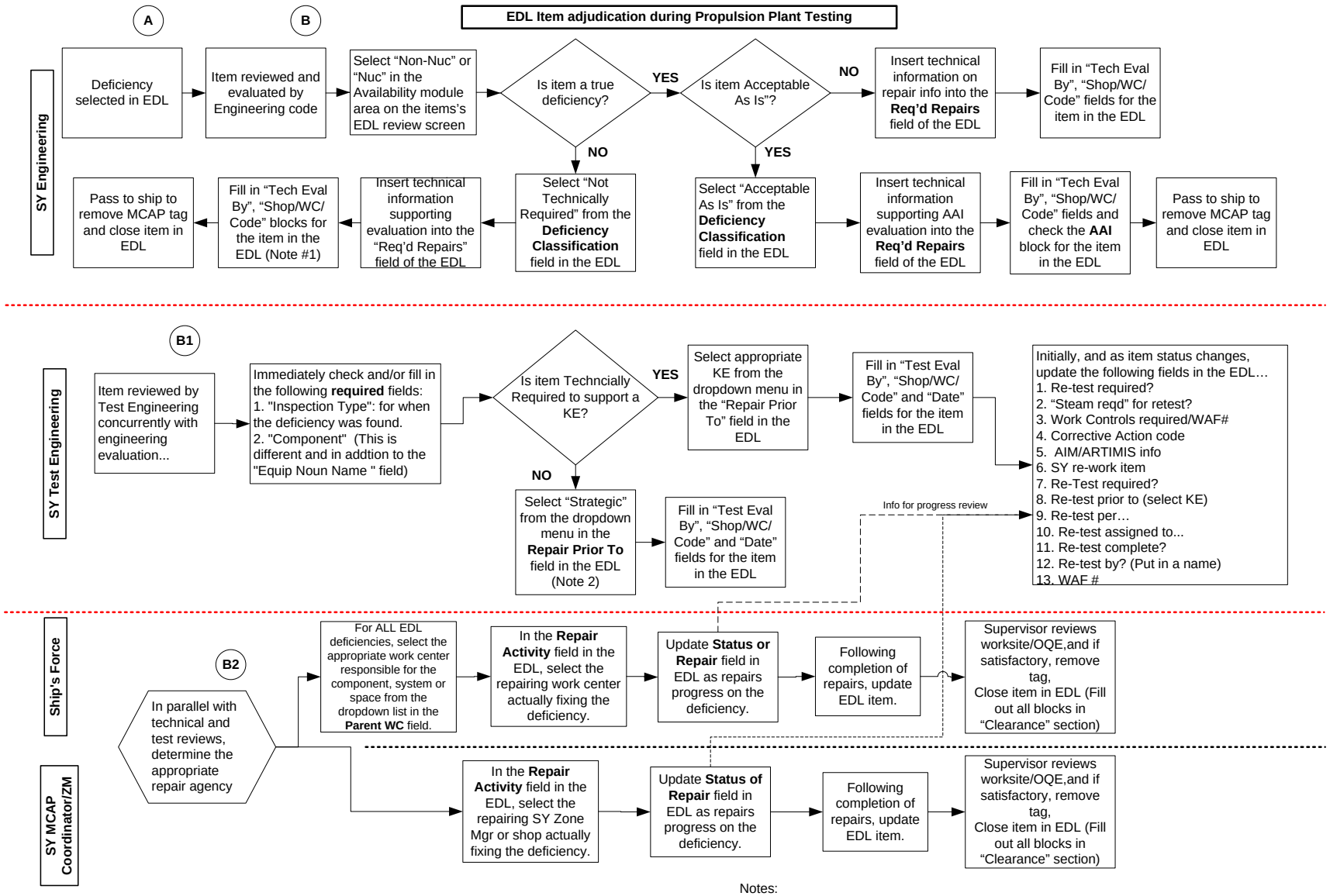


NOTES:

1. ***Technically Req'd*** asks the question, answered by nuc or non-nuc engineering, is this an actual deficiency in that the item doesn't meet standards/specs called out for in RPMs/ SPMs, tech manuals, drawings, NSTMs, and other source documents.
   - NO as an answer might arise if during the evaluation of the deficiency, we find the condition actually is in spec or is or has been accepted by correspondence with the appropriate technical authority, e.g via LAR, TR or letter. Fill in the NO, clear the tag and close the item, filling in the information you found to make the NO determination.
   - If YES, the condition is a valid deficiency that requires correction at some time, based on further evaluation (Note 2 or Note 3).

2. The Shipyard project engineering, test engineering and project management personnel will review the EDL items with the question in mind, what deficiency(ies), left uncorrected, would impact the abillity of the non-maintenance plant to safely startup and provide steam for the test program of the "maintenance plant" and the subsequent ship underway period. Only those specific component/ system/personnel/ship safety items will require mandatory correction within the current maintenance period. Others will be corrected as manpower, material, budget and schedule allow.

3. This will likely be the default decision for items within the capability of SF to correct. The Parent WC will be responsible for scheduling the item for correction at a future date. If within the capacity of the current availability, a key event will be selected from the ***Project Proposed Completion Date*** field in the EDL. If repair will be outside the avail, select "Strategic".



Notes:
1. If authorized to sign as Project Engineer, check the "SY PE" review block and enter the date in the "Review" area of the EDL screen for the item being reviewed.
2. Items coded as "Strategic" can continue to be repaired if manpower, material , budget and schedule permit.

APPENDIX B

CVN PROPULSION PLANT MATERIAL CONDITION ASSESSMENTS

			REQUIREMENT			WHO			
ASSESSMENT/ INSPECTION/ TEST	**REFERENCE & PARAGRAPH # OF REQUIREMENT(S)**	**TYPE OF ASSESSMENT**	**"WHY"**	**WHEN**	**WHEN TYPICALLY CONDUCTED**	**PERFORMS**	**EVALUATES**	**INSPECTION/ ACCEPTANCE CRITERIA**	**COMMENTS**
CAPS	A	OPERATIONAL TESTING	DEVELOP AWP	PRE-PRC	A-12 TO A-8	SY, SF, OTHERS AS ASSIGNED BY TYCOM	SY ENGR	A,B,C,D,E,F,G,J,K,O,W	CAPS TASKING ACCOMPLISHED VIA TYCOM LETTER
PRE-DEPLOYMENT NUCLEAR TECH ASSESSMENT	C (9020-0-g) O (3.1.1)	VISUAL ZONE INSPECTION & RECORDS REVIEW	VALIDATE AWP	POM	TYPICALLY BY A-9	SY NUC ENGR	SY NUC ENGR	A,B,C,D,E,F,G,H,O,W	
PRE-DEPLOYMENT MATERIAL CONDITION ASSESSMENT INSPECTION (MCAI)	V	VISUAL ZONE INSPECTION	MID-CYCLE ASSESSMENT OF PROP PLT MATERIAL CONDITION	PRIOR TO DEPLOYMENT	TYPICALLY 2-4 MONTHS PRIOR TO DEPLOYMENT	SF	SF	A,B,D,E,F,G,H,K,O,W	SHIPYARD TRAINING REGARDING INSPECTION ATTRIBUTES AND STANDARDS PROVIDED TO SF IN ADVANCE
PROPULSION PLANT **GROOM TEAM	P	DEFINED BY TYCOM	MAINTAIN HIGH LEVEL OF MATERIAL CONDITION	TYCOM TASKING	PERIODICALLY	RMC, CEMAT	TYCOM	B,D,E,F,G,W	GROOM TEAMS SHOULD BE REQUESTED AND ARRANGED THROUGH THE TYCOM
MACHINERY CONDITION ANALYSIS (MCA) TESTING	L, S (#), U	COMPONENT VIBRATION ANALYSIS	SUPPORT CONDITION BASED MAINTENANCE DECISIONS	PMS AS SCHEDULED. FORMAL DLI MCA VISITS PRE	PERIODICALLY THROUGHOUT CYCLE	SSNN Code 1800, SF	SSNN Code 1800, SF	B,W	
SURFACE NUCLEAR PROPULSION MOBILE TRAINING TEAM (SNPMTT)	NONE	OPERATIONAL & VISUAL	ORSE/PORSE PREPS	ROUTINE	PERIODICALLY THROUGHOUT CYCLE	TYCOM N9	TYCOM N9	A,B,D,E,F,G,W	
ORSE	M	OPERATIONAL & VISUAL	OPNAV, NRC SAFEGUARD INSPECTION	EVERY 12 PLUS OR MINUS 3 MOS	TYPICALLY DURING WORKUPS AND RETURN FROM DEPLOYMENT	NPEB	NPEB	A,B,D,E,F,G,W	
INSURV	N, Q	OPERATIONAL & VISUAL (MI)	LIFECYCLE ASSESSMENT	36 - 54 MOS	AS SCHEDULED	BOARD OF INSPECTION AND SURVEY	BOARD OF INSPECTION AND SURVEY	B,D,E,F,G,N,W	
NON-NUCLEAR POINT-OF-ENTRY TESTING (POET)	R	COMPONENT VISUAL INSPECTION & OPERATIONAL TESTING	VALIDATES AWP & COMPONENT RELIABILITY TO SUPPORT CRITICALITY	PRE-AVAILABILITY	RETURN TRANSIT FROM DEPLOYMENT (A-2 TO A-4)	SY ENGINEERING AND PROJECT TEAM MEMBERS WITH ASSISTANCE FROM SF	SY ENGR	A,B,D,F,J,K,W	SOME GROOMING PERFORMED DURING POET
POST-DEPLOYMENT NUCLEAR TECH ASSESSMENT	C (9020-0-g) O (3.1.1)	VISUAL ZONE INSPECTION & RECORDS REVIEW	VALIDATE AWP	PRE-AVAILABILITY	AFTER RETURN FROM DEPLOYMENT	SY NUC ENGR	SY NUC ENGR	A,B,C,D,E,F,G,H,O,W	
NON-NUCLEAR TECH ASSESSMENT	K (4.a.(1)(a))	VISUAL ZONE INSPECTION & RECORDS REVIEW	VALIDATE AWP	PRE-AVAILABILITY	AFTER RETURN FROM DEPLOYMENT	SY ENGR	SY ENGR	A,B,D,F,J,K,W	
PRE-AVAIL MATERIAL CONDITION ASSESSMENT INSPECTION (MCAI)	C (9020-0-g) O (3.6) K (4.a.(1)(b))	VISUAL ZONE INSPECTION	IDENTIFY DEFICIENCIES FOR EARLY INCLUSION IN THE AWP	LESS THAN 90 DAYS PRIOR TO AVAILABILITY START	TYPICALLY AFTER RETURN FROM DEPLOYMENT	TEAM OF SF AND SY PROJ TM MEMBERS, ENGINEERS, NUCLEAR INSPECTORS	SY ENGR	A,B,C,D,E,F,G,H,K,O,W	
PMS	A, S	VARIOUS	MAINTAIN MATERIAL CONDITION	CONTINUOUS	CONTINUOUS	SF	SF	A,S,W	
NUCLEAR PRETEST INSPECTION	C (9020-0-g) O (3.1.1.(2))	VISUAL OF WORK PERFORMED	CERTIFY READINESS FOR TESTING	PRE-TEST	DURING AVAIL	SY NUC INSPECTORS	SY NUC ENGR	A,B,C,D,E,F,G,H,W	

			REQUIREMENT			WHO			
ASSESSMENT/ INSPECTION/ TEST	**REFERENCE & PARAGRAPH # OF REQUIREMENT(S)**	**TYPE OF ASSESSMENT**	**"WHY"**	**WHEN**	**WHEN TYPICALLY CONDUCTED**	**PERFORMS**	**EVALUATES**	**INSPECTION/ ACCEPTANCE CRITERIA**	**COMMENTS**
NON-NUCLEAR PRETEST INSPECTION	K (4.a.(1)(c))	VISUAL OF WORK PERFORMED	CERTIFY READINESS FOR TESTING	PRE-TEST	DURING AVAIL	SY ENGR	SY ENGR	A,B,D,E,F,G,H,K,W	
PORSE	T (6.a)	VISUAL ZONE INSPECTION & RECORD REVIEW	OPNAV, NRC SAFEGUARD	PRE-CRIT DURING AVAILS SKED GREATER THAN 6 MONTHS	PRIOR TO REACTOR START-UP DURING AVAILS SKED GREATER THAN 6 MONTHS	NPEB	NPEB	A,B,D,E,F,G,W	
NUCLEAR/NON-NUCLEAR PRE-EVENT INSPECTIONS	C (9020-0-g) O (3.7.3) K (4.a.(1)(d))	VISUAL ZONE INSPECTION	VALIDATES PROPULSION PLANT MATERIAL CONDITION FOR AVAIL KEY EVENTS	PRIOR TO HOT OPS/NON-CRIT STEAMING	TYPICALLY AFTER PRODUCTION COMPLETION DATE (PCD)	TEAM OF SF AND SY PROJ TM MEMBERS, ENGINEERS, NUCLEAR INSPECTORS	SY ENGR	A,B,C,D,E,F,G,H,K,O,W	
NUCLEAR/NON-NUCLEAR PRE-CRITICALITY CERTIFICATION	C (9020-0-g) O (3.7) K (4.a.(1)(d))	VISUAL ZONE INSPECTION	VALIDATES PROPULSION PLANT READY FOR CRITICAL OPERATIONS	PRE-CRIT, POST NON CRIT STEAMING	PRIOR TO CRIT	TEAM OF SF AND SY PROJ TM MEMBERS, ENGINEERS, NUCLEAR INSPECTORS	SY ENGR	A,B,C,D,E,F,G,H,K,O,W	
NRRO PRE-EVENT/PRE-CRITICALITY WALKTHROUGHS	NONE	VISUAL ZONE INSPECTION	VALIDATE PROPULSION PLANT READY TO SUPPORT ASSOCIATED KEY EVENT	UPON PROJECT TEAM DETERMINATION THAT PROP PLANT IS READY FOR ASSOCIATED KEY EVENT	TYPICALLY 2 DAYS PRIOR TO KEY EVENT	NRRO REPS	NRRO/SY ENGR	A,B,C,D,E,F,G,H,K,O,W	A SY SENIOR MGMT WALKTHROUGH MAY BE SCHEDULED BETWEEN THE PRE-EVENT CERTIFICATION AND THE NRRO WALKTHROUGHS
AVAILABILITY PERIODIC ZONE ASSESSMENTS	O (3.7.4) K	VISUAL ZONE INSPECTION	ENSURE CONTINUOUS IDENTIFICATION AND CORRECTION OF PROP PLT DEFICIENCIES TO SUPPORT DOWNSTREAM KEY EVENTS	AT PERIODICITY TO BE DETERMINED BY THE PROJECT TEAM	COMMENCE AT AVAILABILITY START AND SCHEDULED PERIODICALLY UNTIL 2-3 WEEKS PRIOR TO PRODUCTION COMPLETION DATE (PCD)	TEAM OF SF AND SY PROJ TM MEMBERS, ENGINEERS, NUCLEAR INSPECTORS AS APPROPRIATE	SY ENGR	A,B,C,D,E,F,G,H,K,O,W	

References:

A) NAVSEA 0989-026-1000
B) Component Technical Manuals
C) NAVSEA 0989-043-0000
D) Various System Diagrams & Piping Plans
E) NAVSEA Instructions (9210.18, 9210.36, Etc.)
F) Military Standards (MIL-STD-767, MIL-STD-2041, Etc.)
G) NAVSEA Manuals 389-0317, 250-1500-1, 389-0288, 0989-150-0000
H) Off-Yard Correspondence
I) OPNAVINST C9210.2
J) NAVSEA 0989-036-0000
K) NAVSEAINST 4730.2
L) SSNN Code 1800 Tasking Letter, 4710
M) OPNAVINST 3540.3
N) INSURVINST 4730.1
O) NAVSEA 0989-062-4000
P) COMFLTFORCOMINST 4790.3, Volume VI, Chapter 42
Q) COMFLTFORCOMINST 4790.3, Volume IV, Chapter 26
R) S9220-AC-MAN-010
S) NAVSEAINST 4790.8/OPNAVINST 4790.4
T) OPNAVINST 9080.3
U) COMFLTFORCOMINST 4790.3, Volume II, Part I, Chapter 2, Paragraph 2.4.4
V) COMFLTFORCOMINST 4790.3, Volume II, Part I, Chapter 2, Paragraph 2.9.3.2.a
W) COMFLTFORCOMINST 4790.3, Volume II, Part I, Chapter 2, Paragraph 2.9.5

** INCREMENTAL MAINTENANCE PLAN (IMP) MANUAL SHOWS RECOMMENDED GROOM TIMELINE
# MCA COVERED BY PMS, e.g.: MIP 2550/003-76 FOR MAIN FEED PUMPS, SYSCOM MRC 84 C1ZQ N APPLIES

APPENDIX C

SCOPE OF VISUAL INSPECTIONS OF REACTOR PLANT FLUID SYSTEMS

INSULATION	- Wetted - Damaged - Missing
HANGERS	- Installed hangers are connected/welded and not damaged - Verify correct thread engagement on fasteners - Liners are acceptable
PIPING AND COMPONENTS	- Leakage - Arc strikes - Significant surface discontinuities - Corrosion/pitting - Dents, bends, visible cracks - Missing/damaged locking devices - Soundshorts (if applicable) - Missing/damaged/incorrect label plates - Proper clearance between vent and drain lines and associated funnels, funnel misalignment and clogged screens - Damaged or out of calibration gages and thermometers - Inadequate preservation - Foreign material on outside of piping/components
MECHANICAL CONNECTIONS	- Leaks - Missing or loose fasteners - Incorrect material (e.g., dissimilar materials) - Proper thread engagement - Misaligned flanged joints
VALVES	- Missing or damaged valve caps or vent plugs - Leaks - Loose, missing or non-functional handwheels - Damaged valve position indicators - Missing or damaged fasteners - Permanent identification of handwheels by system number and color coding (if required) - Bent stems - Packing glands with little or no remaining adjustment - Cocked packing glands - Corrosion
FOUNDATIONS	- Obvious damage - Corrosion/cracks - Integrity of attachment welds - Missing/loose fasteners and/or locking devices

LOCKING DEVICES	- Damaged, where installed - Serve intended function
SHIELDING	- Damaged shielding - Damaged or missing radiation area exclusion barriers (if applicable) - Corrosion/leaking of canning plate materials - Damaged viewing windows or periscopes - Missing/loose fasteners

VOLUME II

PART I

CHAPTER 3

CHIEF OF NAVAL OPERATIONS SCHEDULED MAINTENANCE AVAILABILITIES

REFERENCES.

(a) Integrated Project Teams for Aircraft Carrier Maintenance Handbook
(b) OPNAVINST C3000.5 - Operation of Naval Nuclear Powered Ships
(c) OPNAVNOTE 4700 - Representative Intervals, Durations, Maintenance Cycles, and Repair Mandays for Depot Level Maintenance Availabilities of U.S. Navy Ships
(d) OPNAVINST 4700.38 - Berthing and Messing During CNO Scheduled Maintenance Availabilities
(e) OPNAVINST 3120.32 - Standard Organization and Regulations of the U.S. Navy
(f) COMSUBLANT/COMSUBPACNOTE C3120 - Submarine Operating Restrictions and Depth Authorizations
(g) OPNAVINST 3120.33 - Submarine Extended Operating Cycle (SEOC) Program
(h) NAVSEA S9086-7G-STM-010 - NSTM Chapter 997 (Docking Instructions and Routine Work in Dry Dock)
(i) NAVSEAINST 4441.2 - Changes to Coordinated Shipboard Allowance List (COSAL); Procedures for
(j) COMNAVAIRLANTINST 9090.2 - Conduct of Shipyard Trials and Inspections Incident to Service Life Extension Program (SLEP), Overhauls or Availabilities of Conventionally Powered Aircraft Carriers
(k) COMNAVSURFLANT/COMNAVSURFPACINST 3502.2 - Surface Force Training Manual
(l) COMNAVAIRLANT/COMNAVAIRPACINST 3500.20 - Aircraft Carrier Training and Readiness Manual
(m) COMNAVAIRLANTINST 9080.2 - Conduct of Trials and Inspections Incident to Construction, Overhauls or Availabilities of Nuclear Powered Aircraft Carriers (CVN)
(n) OPNAVINST 9080.3 - Procedures for Tests and Trials of Navy Nuclear Powered Ships Under Construction, Modernization, Conversion, Refueling and Overhaul
(o) OPNAVINST 3540.3 - Naval Nuclear Propulsion Examining Boards
(p) OPNAVINST C9210.2 - Engineering Department Manual for Naval Nuclear Propulsion Plants
(q) COMNAVSUBFOR OPORD 2000
(r) NAVSEA S9086-DA-STM-000 - NSTM Chapter 100 (Hull Structures)
(s) NAVSEA S9086-C4-STM-000 - NSTM Chapter 094 (Trials)
(t) NAVSEA 0924-LP-062-0010 - Submarine Safety (SUBSAFE) Requirements Manual
(u) COMNAVSUBFORINST 5400.25 - Standard Submarine Supply Department Organization and Regulations Manual
(v) COMNAVSUBFORINST 5400.29 - Standard Submarine Navigation/Operations Department Organization and Regulations Manual
(w) COMNAVSUBFORINST 5400.40 - Standard Submarine Combat Systems Department Organization and Regulations Manual (SSN)
(x) COMNAVSUBFORINST 5400.41 - Standard Submarine SSBN 726 Class Weapons Department Organization and Regulations Manual
(y) COMNAVSUBFORINST 5400.47 - Standard Submarine Combat Systems Department Organization and Regulations Manual (SSGN)
(z) COMNAVSUBFORINST C3500.2 - Continuous Training Manual
(aa) OPNAVINST 9110.1 - Submarine Test and Operating Depths; Policy Concerning
(ab) COMSUBLANTINST 5400.4 - Submarine Force, U.S. Atlantic Fleet Regulations
(ac) COMSUBPACINST 5400.7 - Submarine Force, U.S. Pacific Fleet Regulations
(ad) COMLANTFLT OPORD 2000/COMPACFLT OPORD 201
(ae) NAVSEAINST C9094.2 - Submarine Valve Operation Requirements for Builders and Post Overhaul Sea Trial Test Dives

(af) NAVSEAINST 4790.8/OPNAVINST 4790.4 - Ships' Maintenance and Material Management (3-M) Manual
(ag) NAVSEAINST C9210.30 - Procedures for Administration of Nuclear Reactor Plant Preventive Maintenance and Tender Nuclear Support Facilities Preventive Maintenance on Ships
(ah) SSPINST 5600.11 - Preventive Maintenance Management Program for Strategic Weapon Systems Equipments and Associated Material
(ai) OPNAVINST 4700.7 - Maintenance Policy for U.S. Naval Ships
(aj) COMLANTFLTINST 5400.2 - U.S. Atlantic Fleet Regulations
(ak) COMPACFLTINST 5400.3 - U.S. Pacific Fleet Regulations
(al) NAVSEA 0989-LP-043-0000 - Commissioned Surface Ship General Reactor Plant Overhaul and Repair Specifications
(am) OPNAVINST 3540.4 - Propulsion Examining Boards for Conventionally Powered Ships
(an) NAVSEA 0989-LP-037-2000 - Commissioned Submarine General Reactor Plant Overhaul and Repair Specifications
(ao) NAVSEA 0989-064-3000 - Cleanliness Requirements for Naval Nuclear Plant Maintenance by Forces Afloat
(ap) NAVSEA S9AA0-AB-GOS-010 - General Specifications for Overhaul of Surface Ships (GSO) 2004 Edition
(aq) NAVSEA S9086-TX-STM-010 - NSTM Chapter 583 (Boats and Small Craft)
(ar) NAVSEA S9086-G9-STM-000 - NSTM Chapter 231 (Propulsion and SSTG Steam Turbines)
(as) NAVSEA S9086-GY-STM-010 - NSTM Chapter 221 (Boilers)
(at) NAVSEA S9086-HN-STM 010 - NSTM Chapter 244 (Propulsion Bearings and Seals)
(au) NAVSEA S9086-HK-STM-010 - NSTM Chapter 241 (Propulsion Reduction Gears, Couplings, Clutches and Associated Components)
(av) NAVSEA S9086-TV-STM-010 - NSTM Chapter 581 (Anchoring)
(aw) NAVSEA S9086-RK-STM-010 - NSTM Chapter 505 (Piping Systems)
(ax) NAVSEA S9086-TA-STM-010 - NSTM Chapter 562 (Surface Ship Steering)
(ay) NAVSEA S9086-TD-STM-010 - NSTM Chapter 565 (Surface Ship Stabilizing Systems)
(az) CNAFINST 3500.71 - Flight Deck Certification

LISTING OF APPENDICES.

A Typical CNO Availability Planning Milestones (Submarines Only)
B Typical CNO Availability Planning Milestones (Surface Force Only)
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N Minimum Sea Trials Requirements for Chief of Naval Operations Availabilities Less Than Six Months Duration (Submarines Only)
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P Summary of Significant Post Repair Sea Trial Requirements (Submarines Only)

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AB Sample Ship's Report of Fast Cruise Completion (Surface Ships Only)
AC Sample Supervising Authority Readiness for Sea Trial Message (Surface Ships Only)

SAMPLE MESSAGES FOR CNO SCHEDULED AVAILABILITIES OF LESS THAN SIX MONTHS IN DURATION (SUBMARINES ONLY)

BA Sample TYCOM Message Concerning Escort Services
BB Sample ISIC Message to TYCOM Concerning Crew Certification and Material Condition for Fast Cruise and Sea Trials
BC Major Trial and Inspection Milestones
BD Sample TYCOM Message to Ship Concerning Sea Trials Depth Authorization
BE Sample Ship Message to TYCOM Concerning Readiness for Follow-On Sea Trials
BF Sample ISIC Message to TYCOM Concerning Material Certification for Follow-On Sea Trials
BG Sample TYCOM Message to Ship Concerning Follow-On Sea Trials Depth Authorization
BH Sample Ship Message to ISIC Concerning Readiness for Fast Cruise
BI Sample ISIC Message to Ship Authorizing Commencement of Fast Cruise
BJ Sample Ship Message to ISIC and TYCOM Concerning Readiness for Sea Trials
BK Sample ISIC Message to TYCOM Concerning Final Material Certification Prior to Sea Trials
BL Sample Ship Message to ISIC and TYCOM Concerning Material Certification Upon Completion of Sea Trials
BM Submarine Sea Trial Situation Report (SITREP)
BN Sample Message Concerning Mod Alert Notification
BO Sample TYCOM Message to Ship Concerning URO for Industrial Activity Availabilities Less Than Six Months in Duration
BP Message Scenario for CNO Availabilities of Less than Six Months in Duration
BQ Sample ISIC Message to TYCOM Concerning Fly-By-Wire Crew Certification and Fly-By-Wire Material Condition for At-Sea Testing or Fast Cruise and Sea Trials
BR Sample TYCOM Message to Ship Concerning Authorization to Use Fly-By-Wire Ship Control Systems
BS Sample ISIC Message to TYCOM Concerning Fly-By-Wire Material Certification upon Completion of At-Sea Testing or Sea Trials
BT Sample TYCOM Message to Ship Concerning URO for Fly-By-Wire Ship Control Systems

SAMPLE MESSAGES FOR CNO SCHEDULED AVAILABILITIES OF GREATER THAN SIX MONTHS IN DURATION (SUBMARINES ONLY)

CA Sample SRDRS Support Services Message
CB Sample ISIC Message to TYCOM Concerning Crew Certification
CC Major Trial and Inspection Milestones
CD Sample TYCOM Message to Ship Concerning Completion Prerequisites
CE Sample TYCOM Message to NAVSEA Concerning Fast Cruise and Critical Reactor Operations
CF Sample TYCOM Message to Ship Concerning Sea Trials Depth Authorization
CG Sample TYCOM Message to Ship Concerning URO
CH Sample ISIC Message to TYCOM Concerning Material Certification Prior to Sea Trials
CI Sample ISIC Message to TYCOM Concerning Material Certification upon Completion of Sea Trials
CJ Sample Ship Message to TYCOM Concerning Readiness for Fast Cruise
CK Sample Ship Message to TYCOM Concerning Readiness for Sea Trials
CL Sample TYCOM Message Concerning Resumption of Sea Trials Completion Prerequisites
CM Sample ISIC Message to TYCOM Concerning Material Certification for Follow-On Sea Trials
CN Sample Ship Message to TYCOM Concerning Readiness for Follow-On Sea Trials
CO Sample TYCOM Message to Ship Concerning Follow-On Sea Trials Depth Authorization
CP Submarine Sea Trial Situation Report (SITREP)
CQ Sample Message Concerning Mod Alert Notification
CR Message Scenario for CNO Availabilities of Greater than Six Months in Duration
CS Sample ISIC Message to TYCOM Concerning Fly-By-Wire Crew Certification and Fly-By-Wire Material Condition for At-Sea Testing or Fast Cruise and Sea Trials
CT Sample TYCOM Message to Ship Concerning Authorization to Use Fly-By-Wire Ship Control Systems
CU Sample ISIC Message to TYCOM Concerning Fly-By-Wire Material Certification Upon Completion of At-Sea Testing or Sea Trials
CV Sample TYCOM Message to Ship Concerning URO for Fly-By-Wire Ship Control Systems

3.1 PURPOSE. This chapter provides guidance for the implementation of policies set forth in references (a) through (ao). Reference (a) was implemented by Naval Sea Systems Command (NAVSEA) letter Ser 04X2/008 dated 14 March 2000. Submarine Sea Trials will follow NAVSEA approved agendas. Requirements listed here apply unless otherwise approved by NAVSEA. Where differences may exist, NAVSEA requirements take precedence.

3.2 CHIEF OF NAVAL OPERATIONS SCHEDULED MAINTENANCE AVAILABILITIES.

a. Chief of Naval Operations (CNO) scheduled maintenance availabilities greater than six months in duration are:

(1) Overhaul. An availability scheduled for accomplishment of industrial maintenance and modernization. Types of availabilities include:

(a) Regular Overhaul.

(b) Complex Overhaul.

(c) Engineered Overhaul.

(d) Refueling Overhaul.

(e) Refueling Complex Overhaul.

(f) Engineered Refueling Overhaul.

(2) Other availabilities. An availability scheduled primarily for industrial maintenance and installation of major, high priority alterations. Types of these availabilities include:

(a) Depot Modernization Period.

(b) Planned Incremental Availability.

(c) Docking Planned Incremental Availability.

(d) Extended Drydocking Phase Maintenance Availability.

b. CNO scheduled maintenance availabilities less than six months in duration. Short, labor intensive availabilities scheduled for accomplishment of industrial maintenance and modernization. Types of these availabilities include:

(1) Selected Restricted Availability (SRA).

(2) Docking SRA.

(3) Phased Maintenance Availability (PMA).

(4) Docking Phased Maintenance Availability.

(5) Service Craft Overhaul.

(6) Extended SRA.

(7) Extended Docking SRA.

(8) Incremental SRA.

(9) Extended Refit Period.

3.2.1 Early Start. An "early start" is defined as that time when ships or submarines are made available by Type Commanders (TYCOM) for the execution of maintenance/modernization, including dry-docking, prior to a scheduled CNO availability start date. Other terms such as "fast start" or "smart start" are considered synonymous with "early start" within this policy.

3.2.2 Early Start Concurrence. TYCOMs shall provide the cognizant Naval Supervisory Authority (NSA) (e.g., Naval Shipyard, Ship Repair Facility, Regional Maintenance Center, Supervisor of Shipbuilding (SUPSHIP)) with written concurrence to execute an "early start" period not later than A-75 days, A-12 months, or A-7 months from scheduled availability start for surface ships, aircraft carriers, and submarines, respectively. The cognizant maintenance activity will formally document each "early start" period using applicable availability management control tools (e.g., Navy Data Environment, Final Review Estimate provided to the TYCOM, etc.), and include NSA acknowledgement that the availability cost to the TYCOM will be the same, as if no "early start" period was utilized, within that documentation.

3.3 MAINTENANCE POLICIES AND PROCEDURES.

3.3.1 Critical Path Jobs. Critical Path Jobs (CPJ) are those jobs or series of jobs that require special management attention and normally present the greatest risk to on time completion of the Key Event or availability. Industrial activities should be judicious in designating jobs as CPJs to prevent diverting management attention from those jobs which are, in fact, critical to on time completion of the availability. Consideration shall be given to, but not limited to, the following in determining the CPJs:

a. Little or no room for delay exists.

b. Establishing plant conditions.

c. Long Lead Time Material (LLTM).

d. Complexity of job or special skills or resources required.

e. Significant test requirements.

f. Not previously accomplished by a Fleet Maintenance Activity (FMA) (alterations, etc.).

3.3.2 Work Sequence Schedule. The Work Sequence Schedule is an integrated timeline (Pert Chart, Gantt Chart, etc.) that includes plant conditions, major work steps, tests and recertifications used to identify and progress CPJs. The Work Sequence Schedule should include:

a. Staging.

b. Establishing plant conditions.

c. Issuing work procedures.

d. Identifying major production steps.

e. Testing/Recertifying.

f. Closing out work procedures.

3.3.3 Milestones. Appendices A, B and C of this chapter are representative of Typical CNO Maintenance Availability milestones for ships.

a. Appendix A of this chapter is applicable to submarines only. Naval Sea Systems Command (NAVSEA) will issue specific advance planning milestones for each CNO Maintenance Availability.

b. Appendix B of this chapter is applicable to the surface force only. It is a guide to aid the Commanding Officer (CO) in planning and executing the availability. Specific advance planning milestones are developed jointly by the ship, the TYCOM, and the planning and executing activities (if possible). A particular availability may require development of a complete off-load/storage/security plan or a tailored list of Inactive Equipment Maintenance (IEM) items, or may require office/training/flammable storage space, etc. These items should be added to the milestones through coordination with the responsible planning and engineering activity.

c. Appendix C of this chapter is applicable to aircraft carriers only. For specific availabilities, a listing of milestones is included as an enclosure to Supervisor of Shipbuilding Newport News PMS 312C, as applicable, Maintenance Planning Tasking letter. Subsequent to this, the TYCOM sends out periodic revisions until availability completion. Various activities which have specific responsibilities for the maintenance of aircraft carriers, composite listings of milestones for the TYCOM, NAVSEA, PMS 312C, planning yard and the CO of the ship, imposed by the TYCOM and higher authority are found in reference (a). The milestones are arranged in order of occurrence through the planning, execution, and post-repair phases of CNO Maintenance Availabilities.

3.3.4 Production Completion Date. Main machinery space/propulsion plant Production Completion Date (PCD) is an availability key event that provides sufficient time for the necessary steps to be taken by Ship's Force to shift from a maintenance environment back to operations. It is the intent that all major propulsion plant work and cold plant testing will be complete by all maintenance providers by the scheduled propulsion plant PCD. The time reserved between PCD and propulsion plant light off is set aside to allow Ship's Force to complete pre-event certifications, clearance of tagouts, complete any remaining discrepancy corrections, continued deep cleaning, small valve maintenance, Ship's Force startup maintenance, valve lineups, temporary service removal, and, if required, any groom teams in areas requiring special emphasis. This time is necessary to allow Ship's Force to transition to an operational environment and focus necessary training and complete final preparations for the Light Off Assessment (LOA)/propulsion plant light off. For availabilities in excess of 120 days (140 days for forward deployed CVNs), PCD will be scheduled 14 days prior to the LOA. For availabilities 120 days or less (140 days for forward deployed CVNs), PCD will be scheduled between 3-14 days prior to propulsion plant light off. The ship's CO, Chief Engineer, and maintenance provider's senior Project Manager will determine the number of days needed between PCD and propulsion plant light off for availabilities 120 days or less (140 days for forward deployed CVNs) based on the scope of work, length of availability, and other pertinent factors. PCD will not be less than 3 days prior to propulsion plant light off regardless of whether a LOA is scheduled. Generally, LOAs will be scheduled for availabilities greater than 140 days. For availabilities 120 days and less (140 days for forward deployed CVNs), the requirement for a LOA will be determined by the TYCOM. The following list contains examples of items to be considered when deciding whether or not the ship is ready to call main machinery space/propulsion plant PCD and begin the shift from a maintenance environment back to operations:

a. Temporary services removed, except for those required by Ship's Force or late emergency industrial activity work required for LOA.

b. Access openings and ladders installed and clear for passage.

c. All damage control/firefighting systems operational.

d. Major lagging repairs completed. Some minor lagging repairs may remain.

e. All machinery in-place and assembled with cold checks completed satisfactorily in accordance with current instructions.

f. Missing deck plates and supports installed.

g. Boiler work completed including hydrostatic testing, with boiler under appropriate lay-up.

h. Loose industrial material and debris removed.

i. All main propulsion piping, valves, and systems intact, hydrostatic tightness tests completed satisfactorily and remote valve operator and associated/indicator tests completed satisfactorily.

In the event that the decision is made to delay the scheduled PCD, careful consideration should be given to ensure that the above listed times allotted for Ship's Force between PCD and the LOA/propulsion plant light off are preserved, even if the availability end date would be adversely affected. The ship's CO, Chief Engineer, and the availability senior Project Manager should carefully evaluate any and all work remaining within the main machinery spaces/propulsion plant that could impact Ship's Force ability to be successful in preparing for the LOA/propulsion plant light off. An exceptions list should be generated and agreed to by the ship's CO, Chief Engineer and the maintenance provider's senior Project Manager listing all outstanding propulsion plant work which will continue after PCD while the ship is preparing for the LOA/propulsion plant light off.

3.3.5 Memorandum of Agreement. The Memorandum of Agreement (MOA) shall be executed and jointly signed by the ship's CO, the NSA, the Immediate Superior In Command (ISIC) representative (if applicable) and the FMA representative (if applicable) prior to arrival. It is an agreement between the industrial activity and Ship's Force concerning the responsibilities of each party during the availability. It deals with a number of areas in which Ship's Force generally provides support to the industrial activity and vice versa. References (al) and (an) contain training requirements and additional guidance for MOAs involving nuclear powered surface ships. As a minimum the MOA shall include:

a. Purpose.

b. Applicability.

c. Responsibilities for control of plant conditions and work area isolation.

d. Responsibilities for accomplishment of work.

e. Responsibilities for Quality Assurance (QA).

f. Responsibilities for support services/equipment.

g. Responsibilities for testing requirements.

h. Responsibilities for waivers, deviations, or Departure from Specifications.

i. Precise delineation of the Submarine Safety (SUBSAFE) responsibility of each activity for all phases of SUBSAFE work prior to issuing Re-Entry Controls (REC) for SUBSAFE work.

j. Responsibilities for training.

k. Miscellaneous responsibilities (as required) (i.e., Radiological Control, Hazardous Material, etc.).

l. Signatures of all activities (signifying agreement with the terms and responsibilities of the MOA).

3.3.6 Responsibilities. Responsibilities for the Maintenance Policies and Procedures for CNO scheduled availabilities are as follows:

3.3.6.1 Fleet Commander.

a. Maintain the Availability Intervals and Cycles issued in reference (c) to the maximum extent practical within operational requirements.

b. Inform the Chief of Naval Personnel of any significant changes which would affect ship manning requirements during an extended CNO Maintenance Availability.

c. Coordinate with the Program Executive Office, Direct Reporting Program Manager or Ship Program Manager, as applicable, in the accomplishment of CNO Maintenance Availability planning.

d. Implement Docking Officer Qualification and Certification requirements as issued in NAVSEA instructions.

e. Plan for and monitor availability execution to achieve a balance of cost and schedule for the scope of work authorized. Ensure that any growth in the scope of work authorized is necessary to reasonably assure safe, reliable operation of the ship during the subsequent operating cycle.

f. Plan for and provide berthing, messing, offices, classrooms, equipment stowage space, and Ship's Force repair shop in accordance with reference (d) when shipboard facilities are expected to become unusable or uninhabitable.

3.3.6.2 Type Commander.

a. Coordinate the scheduling of availabilities at industrial activities with Fleet Commander, NAVSEA and CNO.

b. Initiate the required budgetary actions for funding availabilities.

c. Coordinate the work assignments between the FMA and the industrial activity.

d. Seek resolution of all class and major technical problems and coordinate industrial requirements for modernization and repair.

e. Authorize Availability Work Packages (AWP) prepared by Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) Activity (Submarines only)/PMS 312C (Aircraft Carriers only)/applicable TYCOM (all other Surface Ships) with recommendations from the ship's CO, Maintenance Manager (MM) and ISIC (if applicable). Exercise all work candidate screening and follow up actions relating to the availability directly with the ship concerned.

f. (Submarines Only) Coordinate the interface of the Maintenance and Material Management (3-M) system with the Periodic Maintenance Requirement (PMR) scheduling and feedback reporting system.

g. Designate a TYCOM representative for the WDC/PRC and Pre-Arrival Conference (PAC) when such conferences are scheduled.

h. Recommend to CNO any high priority fleet modernization desired to be accomplished.

i. (Submarines Only) Send a Sea Trials Support Services message, if required, to specify Submarine Rescue Diving Recompression System (SRDRS) "modified-alert" requirements (see Appendices BA or CA of this chapter).

j. (Submarines Only) For minor CNO Maintenance Availabilities send a Waiver of Escort Requirements Message to NAVSEA when requested by the ISIC in accordance with paragraph 3.6.8.3.9.b.(4) of this chapter.

k. Conduct a QA audit of Ship's Force and FMA Controlled Work Packages in accordance with Volume V, Part I, Chapter 9 of this manual.

l. (Submarines Only) For major CNO Maintenance Availabilities issue the required messages for Fast Cruise, Sea Trials and Unrestricted Operations (URO) Certification in accordance with paragraph 3.6.8.4 of this chapter.

m. (Submarines Only) For CNO scheduled availabilities of less than six months in duration issue the required message for Sea Trials in accordance with paragraph 3.6.8.3 of this chapter.

3.3.6.3 Type Commander/Immediate Superior In Command (Group or Squadron).

a. All Ships.

(1) Assist the TYCOM, SUBMEPP (Submarines)/PMS 312C (Aircraft Carriers) and Surface Maintenance Engineering, Planning and Procurement Activity (SURFMEPP) (Surface Ships) in the preparation of the AWP.

(2) Monitor corrective maintenance action taken by industrial activities and Regional Support Groups (RSG)/Regional Maintenance Centers (RMC).

(3) Schedule and conduct inspections of Forces Afloat.

(4) Monitor progress of CNO Maintenance Availabilities.

(5) Ensure that a MOA is executed prior to availability start in accordance with paragraph 3.3.5 of this chapter.

b. Submarines Only.

(1) Ensure timely accomplishment and reporting of PMR maintenance actions on assigned ships. This should include the use of the PMR scheduling system and the SUBMEPP scheduling tape for automatic interface between the Master Job Catalog, the Current Ship's Maintenance Project (CSMP), and the Automated Material Requisitioning system.

(2) Ensure industrial activities and ships maintain current copies of Maintenance Standards, PMR schedules and PMR inventories.

(3) Review Ship's Force submitted deferrals for industrial activity assistance to determine if restoration in accordance with Maintenance Standard criteria is warranted in lieu of, or in addition to, requested industrial activity corrective maintenance.

(4) Ensure industrial activities provide the 3-M and Maintenance Standards feedback necessary for analysis by SUBMEPP.

(5) Request assistance from SUBMEPP as necessary in resolving problems with PMR scheduling and software.

(6) Report to SUBMEPP the inability to perform PMRs due to software technical inadequacy, non-availability of overhauling spares, insufficient manpower or inadequate industrial activity facilities.

(7) Designate an Availability Coordinator to coordinate industrial activity, FMA drydock and Ship's Force work to meet the availability completion date.

(8) Provide updated Sea Trials status by telephone to Commander, Submarine Development Squadron (COMSUBDEVRON) FIVE if SRDRS "modified-alert" support services are in use.

(9) For minor CNO Maintenance Availabilities issue the required messages for Sea Trials escort requirements/waiver of escort requirements as applicable, Fast Cruise, Sea Trials and URO Certification in accordance with paragraph 3.6.8.3 of this chapter.

3.3.6.4 Submarine Maintenance Engineering, Planning and Procurement Activity/Planning Engineering Repairs and Alterations.

a. Develop plans for accomplishing periodic maintenance or equipment replacement.

b. Maintain Baseline AWPs configured to each ship class and type availability and include the standard 3-M data elements controlled by the TYCOM.

c. Prepare and issue all phases of AWPs and AWP Supplements (if applicable).

d. Maintain custody of shore based spares under the direction of NAVSEA and the TYCOM.

e. (Submarines Only) Prepare, issue and maintain PMR computerized inventories and scheduling reports and associated Master Job Catalog/PMR computer tapes.

f. (Submarines Only) Prepare, issue and maintain Maintenance Standards under the guidance of NAVSEA and the TYCOM.

3.3.6.5 Ship's Commanding Officer. The CO is the TYCOM representative for monitoring the progress and quality of industrial work. As such he should review availability progress during weekly conferences with Department Heads and others as necessary. The Supervising Authority meets weekly with the CO and other industrial activity officials as described in paragraph 3.6.3.1 of this chapter. The CO should be prepared to discuss and assist in the resolution of scheduling, design, material, and production problems. The CO's responsibilities are defined in reference (e). Additionally, COs shall:

a. All Ships.

(1) Review AWPs and provide comments to the TYCOM, ISIC and SUBMEPP/PMS 312C during the WDC/PRC.

(2) Assign a Ship Selected Records (SSR) Coordinator to perform the functions of paragraph 3.6.6.b. of this chapter.

(3) Publish policy concerning the number of duty sections, liberty, ship cleanliness, tagout procedures, tank closeout and blanking of otherwise exposed fluid systems, waveguides and air systems before availability start.

(4) Ensure non-conformances (Waivers/Deviations or Departures from Specification) submitted during the availability by any activity are approved prior to trials at sea (if held) and not later than the completion of the availability.

b. Submarines Only.

(1) Review the status of PMR maintenance schedules and CSMP reports with parent ISIC prior to CNO Maintenance Availabilities in order to assist in planning for accomplishment of the required planned maintenance and corrective maintenance. Additional information and requirements concerning PMR are discussed in detail in Volume VI, Chapter 24 of this manual.

(2) Maintain a current SUBMEPP PMR inventory of maintenance requirements and Maintenance Standards applicable to the ship class.

3.4 AVAILABILITY WORK PACKAGE PLANNING.

3.4.1 Forces Afloat Planning Sources. The majority of the Forces Afloat Work Package can be identified in advance from the following sources:

a. Ship's CSMP Integrated with the Life Cycle Maintenance Plan. This document contains work items deferred during the previous maintenance availabilities, outstanding Departures from Specifications, dry dock requirements, etc. To ensure the CSMP accurately reflects the required ships maintenance, the ISIC Material Officer/TYCOM will review each ship's CSMP in detail with the ship prior to the WDC/PRC for CNO Maintenance Availabilities. The ISIC/TYCOM 3-M Coordinator and Maintenance Document Control Office (MDCO) should provide the necessary technical assistance and training to facilitate CSMP updates.

(1) (Submarines Only) PMR/URO. The ISIC will load scheduled PMRs into each ship's CSMP for a specific availability.

(2) Alterations. The ISIC MDCO/TYCOM will enter alterations on the ship's CSMP which the TYCOM has authorized for accomplishment. The ISIC/TYCOM calls out alterations for a specific availability based on material availability as identified by the industrial activity. Within funding constraints and TYCOM guidance, all alterations authorized on the TYCOM Alteration Management System/Fleet Modernization Program are candidates for accomplishment during each availability.

(3) Condition Based Maintenance. (Machinery Condition Analysis/Technical Assessment, Repair, Groom and Evaluation Team/Performance Monitoring Team (PMT), Combat System Readiness Review, etc.). The ISIC/TYCOM Material Officer and Ship's Force shall ensure that all material deficiencies identified by Condition Based Maintenance programs as identified in Part I, Chapter 2, section 2.4 of this volume are loaded into the CSMP for a specific availability.

b. Work Routines. A set of Master Job Catalog standard work routines should be developed for every availability. The MDCO/TYCOM tailors each work routine package to the needs of the ship by calling out additional work routines to document periodic, interim drydocking, URO maintenance and calibration recall requirements, as applicable.

c. Pre-Availability Tests and Inspections. Ship's Force, PMTs and industrial activity inspectors perform and submit the results of these pre-availability tests and inspections to the industrial activity/SUBMEPP (Submarines)/PMS 312C (Aircraft Carriers)/applicable TYCOM (all other Surface Ships) for evaluation and inclusion in the AWP, as applicable. NAVSEA 07T provides results and recommendations for pre-availability tests performed by PMTs and Ship's Force.

d. Additional requirements for nuclear powered ships are contained in reference (b).

3.4.2 Forces Afloat Planning Actions. Ship's Force shall take the following maintenance availability planning actions, as applicable:

3.4.2.1 Forces Afloat Work Package Preparations.

a. Develop a Ship's Force concurrent Work Package that includes all major maintenance actions such as Planned Maintenance System (PMS), Reactor Plant PMS, repairs, PMRs, alterations, and testing to be conducted by Ship's Force during the availability, as applicable.

b. Identify CPJs in accordance with paragraph 3.3.1 of this chapter, and submit to the planning/industrial activity for integration into the availability schedule.

c. Establish a strategy for calibration of gages, instruments, and tools based on the Calibration Recall List.

d. Identify all industrial activity provided production and testing support equipment needed to accomplish Ship's Force work, or to recertify systems following Ship's Force work. Identify this equipment to the industrial activity prior to the start of the availability. This support equipment includes the following, as applicable:

(1) Reactor Plant PMS support equipment.

(2) System hydrostatic test equipment.

(3) Calibration equipment.

(4) Special tools.

e. Ship's Force should use Appendices A, B or C of this chapter as guidance to prepare for availabilities, as applicable. These appendices provide Typical CNO Maintenance Availability Planning Milestones for submarines, surface ships and aircraft carriers respectively.

3.4.3 Availability Work Packages.

3.4.3.1 Availability Work Package Content. The AWP includes all nuclear and non-nuclear authorized industrial work and associated Forces Afloat work for modernization, maintenance and repair during the availability. The work described is developed from NAVSEA and TYCOM instructions.

3.4.3.2 Availability Work Package Sources.

a. Class Maintenance Plan (CMP).

b. NAVSEA authorized alterations.

c. TYCOM authorized alterations, repairs, PMRs, Engineering for Reduced Maintenance Costs items and baseline AWPs.

d. Results of pre-availability tests and inspections.

e. CSMP.

3.4.3.3 Availability Work Package Development. The five stages of AWP development include Baseline, Preliminary, Proposed, Approved, and Completed.

a. SUBMEPP (Submarines)/PMS 312C (Aircraft Carriers)/SURFMEPP Activity (all other Surface Ships) develop and maintain Baseline AWPs for each ship class and type of availability.

b. SUBMEPP (Submarines)/PMS 312C (Aircraft Carriers)/applicable TYCOM (all other Surface Ships) consolidate the Baseline AWP, NAVSEA authorized alterations and TYCOM authorized alterations, repairs, PMRs and Engineering for Reduced Maintenance Costs items to produce the Preliminary AWP. This Preliminary AWP is issued approximately 12 to 14 months prior to the start of the availability.

c. Systems Command (SYSCOM), TYCOM, and the ship's CO should review the Preliminary AWP to ensure that it includes known work candidates and authorized alterations that will not be accomplished prior to availability start and for proposed work candidates, which in their opinion, are unnecessary. Appendix D of this chapter provides suggested guidelines for review of the AWP. Following the initial review of the Preliminary AWP, Ship's Force shall host a meeting with the TYCOM and SUBMEPP/ PMS 312C, as applicable to consolidate comments and recommendations for the WDC/PRC. This meeting is normally held early in the same week as the WDC/PRC.

d. SUBMEPP (Submarines only)/PMS 312C (Aircraft Carriers only)/TYCOM (other Surface Ships only) will host a WDC/PRC attended by NAVSEA, the Supervising Authority, FMA (if applicable), TYCOM, ISIC, PMT (Submarines Only), Strategic Systems Project Officer (SSBN/SSGN 726 Class submarines only) and Ship's Force when practical. During this meeting the Preliminary AWP is carefully reviewed and the SYSCOM and the TYCOM authorize the work. When actions are required before a decision is made, those actions are identified and subsequently monitored. The goal is to issue the Proposed AWP (one which represents all SYSCOM/TYCOM authorized work integrated and specifically tailored to the ship involved) within two months following this meeting. At this meeting, the SYSCOM/TYCOM authorizes the industrial activity to continue with planning on the basis of the work identified in the AWP. During this meeting any activity may submit new work candidates for consideration by the SYSCOM/TYCOM. The SYSCOM/TYCOM will authorize or reject each new work candidate submitted.

e. SYSCOM/TYCOM and the ship's CO should review the Proposed AWP to ensure that it contains all agreements made at the WDC/PRC. Appendix D of this chapter also provides suggested guidelines for review of this AWP.

f. The Supervising Authority will host a PAC attended by NAVSEA, FMA (if applicable), TYCOM, ISIC, SUBMEPP (Submarines)/PMS 312C (Aircraft Carriers), and Ship's Force when practical. During this meeting the Proposed AWP, with results of the pre-availability tests and inspections incorporated where possible, will be carefully reviewed and the SYSCOM/TYCOM will approve the work. The goal is to issue the Approved AWP at the conclusion of this meeting. During this meeting any activity may submit new work candidates for consideration by the SYSCOM/TYCOM. The SYSCOM/TYCOM will authorize or reject each new work candidate submitted.

g. Within six months after the completion of the availability, SUBMEPP (Submarines)/PMS 312C (Aircraft Carriers)/applicable TYCOM (all other Surface Ships) will issue the Completed AWP.

3.5 AVAILABILITY PLANNING.

3.5.1 Ship's Force Pre-Planning.

a. To effectively complete the Ship's Force and Maintenance Support Team (MST) (if assigned) responsibilities during the months preceding the start of the availability, it is necessary to assign an Officer/Chief Petty Officer as the Availability Coordinator, responsible for coordinating the completion of the milestones. The quality of the availability will be reflected in the preparations done by Ship's Force and MST (if assigned).

b. Prior to commencement of the availability, the industrial activity will request the ship to provide personnel Temporary Assigned Duty to the activity (approximately one month prior to the start date). The industrial activity will identify the personnel requirements of this pre-arrival team based on the type of availability and ship class.

NOTE: THE SUCCESS OF THE AVAILABILITY IS DIRECTLY RELATED TO THE QUALITY AND EXPERIENCE LEVEL OF THE TEAM MEMBERS ASSIGNED.

3.5.1.1 Industrial Activity Visit. The ship's CO, Executive Officer, MST Officer In Charge (OIC) (if applicable) and department heads will visit the industrial activity as soon as practical prior to the start of the availability. The CO shall meet key industrial activity managers involved in the availability, other COs of ships in availabilities at the same industrial activity and if applicable, the local Naval Reactors Representative. The Executive Officer, MST OIC (if applicable) and department heads shall meet their counterparts within the industrial activity Project Team and counterparts assigned to other ships in an availability at the same industrial activity. The Executive Officer shall also check available crew quarters and barge accommodations, if applicable. Ship's Force shall:

a. Coordinate with the industrial activity to conduct pre-availability training and indoctrination. The following are suggested topics for training:

(1) Industrial activity organization and Ship's Force/MST (if assigned) interface.

(2) Industrial activity procedures and practices, including:

(a) Operational Control Transfer.

(b) Tagout/Rip-Out/Work Authorization Form.

(c) SUBSAFE REC Procedures.

(d) Deficiency Reporting and Correcting.

(e) Radiological Controls Agreement.

(f) General Testing Requirements.

(g) Defueling/Fueling Requirements (Nuclear Reactor and Fossil Fuel).

(h) Industrial Activity Procedures for Accomplishing PMS of Equipment Under Their Cognizance.

(i) Nuclear Reactor/Radiological Accident Plan.

(j) Maintenance of Ship's Cleanliness.

(k) QA Interface with the Industrial Activity.

(3) General schedule of Key Events and phases of work and testing.

(4) Safety requirements including Ship's Force/MST (if assigned) industrial activity responsibilities for:

(a) Dry Dock Safety.

(b) Fire Watches.

(c) Watertight Integrity.

(d) Reactor Plant Safety.

(e) Personal Protective Equipment.

(5) Relationship with industrial activity management including responsibility regarding weekly management meetings.

(6) Functions and responsibilities of the joint test groups (Nuclear/Hull, Mechanical and Electrical/Combat Systems) and the Ship's Safety Council including the designation of Ship's Force group and council members.

(7) Control mechanism for work and tests affecting ship's conditions.

(8) Special evolutions and procedures to be conducted early in the availability such as dry docking and establishing plant conditions.

(9) QA.

(10) IEM.

(11) Hazardous Material Requirements.

(12) Special Environmental Requirements.

(13) Support of Trials and Inspections.

(14) System Experts.

(15) Space Turnover.

b. Develop training plan and watchstation requalification program in accordance with TYCOM directives.

c. Develop Plan of Action and Milestones for Ship's Force/MST (if assigned) responsibilities during the availability.

d. Review and prepare SSRs for turnover to the planning yard/industrial activity at the start of the availability (see paragraph 3.6.6 of this chapter).

e. Support the industrial activity's pre-availability shipchecks, tests and inspections.

3.5.1.2 Availability Coordinator (Submarines only). A submarine served, nuclear trained Limited Duty Officer will be assigned to augment the normal ship's complement during Depot Modernization Periods, Engineered Refueling Overhauls, or Engineered Overhauls and will act as the Availability Coordinator for the ship. Availability Coordinator responsibilities are specified in Volume V, Part I, Chapter 1, paragraph 1.5.6 of this manual.

3.5.2 Docking Conference. For availabilities involving a ship's dry docking, the industrial activity will conduct a Docking Conference prior to the ship entering the activity if scheduled to go directly into dry dock.

3.5.3 Ship's Force Administrative Preparations. Ship's Force administrative preparations for availabilities will include:

a. Necessary revisions to ship and department organization manuals to ensure compliance with established requirements.

b. Preparation of necessary ship and department directives to ensure that administration is formally supported in accordance with current requirements.

c. Formulation of procedures for qualification of underway/steaming watchstanders and maintenance of proficiency of inport watchstanders, including:

(1) Implementation of formal provisional qualification procedures.

(2) Establishment of qualification goals for Key Events, such as undocking, operational testing of ship and propulsion plant systems, steam testing, initial criticality, space turnover, etc.

(3) Incorporation of qualification requirements necessitated by alterations to ship or propulsion plant systems.

d. Procedures for maintenance and security of Ship's Force/MST (if assigned) barge or office spaces.

e. General overhaul plan for Ship's Force/MST (if assigned) responsible actions including provisions for:

(1) Ship off-load.

(2) Establishment of barge, berthing and messing facilities.

(3) Establishment of routine ship and barge watch bills.

(4) Scheduling of required shore based schools and leave for personnel.

(5) Provision for accomplishment of known Ship's Force/MST (if assigned) corrective maintenance.

(6) Establishment of Ship's Force PMS routines.

(7) Establishment of Integrated Logistics Overhaul (ILO) procedures.

(8) Provisions for shift work during known periods of intensive testing (e.g., Engine Room Steaming Operations, Hot Operations, Power Range Testing).

(9) Ship load-out.

(10) Target dates for completion of key ship and department directives and procedures.

f. Assignment of ship system experts, or QA Inspectors, capable of monitoring industrial activity work on assigned systems.

3.6 AVAILABILITY EXECUTION.

3.6.1 Responsibilities. Responsibilities for CNO scheduled Maintenance Availabilities are as follows:

3.6.1.1 Fleet Commander.

a. Monitor availability execution to achieve a balance of cost and schedule for the scope of work authorized. Ensure that any growth in the scope of work authorized is necessary to ensure safe, reliable operation of the ship during the subsequent operating cycle.

b. Ensure that testing of all systems and equipment installed or repaired during the availability, which require at sea testing, is conducted prior to availability completion.

c. Provide berthing, messing, offices, classrooms, equipment stowage space, and Ship's Force repair shops in accordance with reference (d), when shipboard facilities are unusable or uninhabitable.

3.6.1.2 Type Commander/Immediate Superior In Command (Group or Squadron).

a. Authorize new items and growth industrial work items.

b. Monitor and approve all changes in established milestones, not internal to industrial activity, including LOA and completion dates.

c. Issue direction when the quality or completeness of industrial activity work is in question.

d. Monitor off-ship crew messing and berthing arrangements when required.

e. Notify the TYCOM when essential Ship's Force work cannot be completed on the scheduled contract or Key Event completion date. Make recommendations for assistance where appropriate.

f. (Surface Ships Only). Periodically assess and monitor shipboard conditions using Appendix E of this chapter for guidance.

g. (Submarines Only). Periodically assess and monitor shipboard conditions in accordance with paragraph 3.6.8.4.4 of this chapter.

h. Monitor Ship's Force/MST (if assigned) preparation for LOA (if applicable).

i. (Nuclear Powered Ships Only). Conduct a Pre-Critical Inspection of the Engineering Department to determine the ship's readiness for either the Reactor Safeguards Examination (RSE) or the Fleet Commander Post-Overhaul Reactor Safeguards Examination (PORSE) as applicable.

j. (Submarines Only). Schedule a salvage inspection by Forces Afloat in time to have discrepancies corrected prior to the start of Fast Cruise. Normally, the salvage inspection should be completed not less than one week prior to the scheduled start of the Fast Cruise.

k. Conduct formal Phase I crew certification inspection(s) of the Ship's Force in accordance with the TYCOM Training Manual (when required). The purpose of this inspection shall be to audit the readiness and training of the Ship's Force, particularly in the areas of watchstander qualifications, damage control readiness, status of operational and emergency bills, presence on board of essential technical manuals, and general operational knowledge. This inspection shall be scheduled about one month prior to Fast Cruise and should include written examinations and personal interviews with officers and key enlisted personnel to determine their readiness and status of training as outlined for Phase I. A comparison of personnel allowance (including Navy Enlisted Classification requirements) versus onboard count shall be made to ensure that the ship is adequately manned.

l. (Submarines Only). Prior to Fast Cruise, the ISIC QA Officer shall conduct a formal audit of Ship's Force REC, Departure from Specification Records and CSMP. Using the SUBMEPP PMR and URO Maintenance Requirement Card (MRC) scheduling reports and current industrial activity/Ship's Force updates to the latest report, ensure all required "D"-Level PMR and URO MRC accomplishment is current. The ISIC shall forward the audit results to the TYCOM via the cognizant Commander, Submarine Group. The ISIC will then report to the TYCOM by message in accordance with message sample format of Appendix BB or CB of this chapter the status of the crew/material certification. An update of this certification is needed prior to Sea Trial and following the rescinding of certification noted in paragraph 3.6.8.4.1.c. of this chapter.

m. Conduct Phase II crew certification. Witness and certify to the TYCOM that the state of crew training is satisfactory for at sea operations in accordance with the TYCOM Training Manual. This will be done during a two day period subsequent to Dock Trials and Phase I crew certification, and prior to Fast Cruise. This two day period shall be scheduled so that there is normally a 48 hour period between the end of this event and the beginning of Fast Cruise. This two day Phase II crew certification period is divided into a 40 hour crew work-up and rest period and an eight hour modified dockside Operational Readiness Inspection. The entire period should be scheduled to minimize interference with industrial activity work. However, since the certification must be conducted carefully to be meaningful, the officer scheduling the certification should coordinate industrial activity interference during the eight hour modified Operational Readiness Inspection. This certification should be thorough and meticulous. Pressure from the industrial activity or any other source to compromise ship safety must not be permitted to influence the judgment of the certifying officers. The desired overall sequence of these events is shown in Volume I, Chapter 2, Appendix B of this manual.

n. Conduct a material inspection of the ship.

o. Satisfactory completion of the inspections of paragraphs 3.6.1.2.k. through 3.6.1.2.m. of this chapter should be reported to the TYCOM in one "PRIORITY" crew certification message in accordance with sample message format of Appendix BB or CB of this chapter paralleled by a telephone call to the TYCOM Watch Officer reporting the date-time group of the message. If significant deficiencies exist or it appears that an extension of time is required to correct training/material deficiencies, the TYCOM shall be immediately advised by telephone and by message. The Supervising Authority will be included as an information addressee.

p. Receive from the ship's CO/Supervising Authority the scope, schedule and agenda of tests for Sea Trials for review and approval. When approved, forward copies of the agenda to the TYCOM. The concurrence of NAVSEA is required for the sequencing and scheduling of nuclear propulsion plant Sea Trials for CNO Maintenance Availabilities.

q. (Submarines only) Prior to Sea Trials, report material certification of the ship by message in accordance with message sample format of Appendix BB or CB of this chapter, to the TYCOM.

r. Monitor the progress of the availability.

s. (Submarines Only) If required, initiate Operating Cycle Extension Assessment in accordance with references (f) and (g).

3.6.1.2.1 Extended Operating Cycles. (Submarines only) An extended operating cycle is the period of time from the end of the current operating cycle to the anticipated start of the next major depot availability (Depot Modernization Period, Engineered Overhaul, Engineered Refueling Overhaul, Inactivation). The Interim Drydocking/Pre-Inactivation Restricted Availability (IDD/PIRA) AWP is comprised of minimum maintenance requirements that are required to support the specific operating cycle extension, as well as necessary repairs based on the submarine's material condition.

a. For extended operating cycles less than 24 months performed by naval shipyards, the TYCOM shall certify completion of IDD/PIRA availabilities. For extended operating cycles less than 24 months performed by private shipyards, the SUPSHIP, with assistance from NAVSEA, will certify completion of IDD/PIRA availabilities.

b. For extended operating cycles of 24 months and greater, NAVSEA shall certify completion of IDD/PIRA availabilities.

3.6.1.3 Fleet Maintenance Activity. A scheduled CNO Maintenance availability may involve a concurrent FMA availability or similar FMA repairs. During such availabilities, it is imperative that the industrial activity and the FMA involved maintain a close working relationship, both between themselves and Ship's Force, to ensure a successful, on-time availability completion. As a minimum, the FMA must:

a. Carry out all FMA work consistent with the procedures described in Part I, Chapter 4 of this volume.

b. Participate in all Weekly Management Meetings. (See paragraph 3.6.3.1 of this chapter.)

c. Provide information on FMA Job Status for ship's Weekly Situation Report (SITREP). (See Appendices F_1 or F_2, as applicable, of this chapter.)

d. Closely coordinate all jobs affecting Key Event/Milestone completion dates with the industrial activity and Ship's Force.

e. Assist the industrial activity and Ship's Force by maintaining good housekeeping on all job sites.

3.6.1.4 Ship's Force and MST (if assigned).

a. Support work authorization, tagout and REC programs.

b. (Submarines Only) Ensure no work is conducted within the certified SUBSAFE boundaries without proper authorization.

c. Monitor the quality of the industrial activity's performance.

d. Support industrial activity test programs and witness equipment testing.

e. Perform IEM.

f. Ensure Ship's Force work is integrated into the industrial activities schedule.

NOTE: FLEET POLICY DOES NOT PROHIBIT SHIP'S FORCE FROM ACCOMPLISHING WORK ON EQUIPMENT, COMPONENTS OR SYSTEMS NOT OTHERWISE ASSIGNED TO THE INDUSTRIAL ACTIVITY AS LONG AS SUCH WORK DOES NOT IMPEDE THE INDUSTRIAL ACTIVITY SCHEDULE OR IMPACT PRIMARY SHIP'S FORCE RESPONSIBILITIES. THE MAJORITY OF PERSONNEL LEAVE, PARTICULARLY FOR THE WEAPONS AND ENGINEERING DEPARTMENTS, SHOULD BE PROGRAMMED EARLY IN THE AVAILABILITY SO THAT NECESSARY PERSONNEL WILL BE AVAILABLE FOR SUCH THINGS AS COMBAT SYSTEM TESTING, HOT OPERATIONS, ENGINE ROOM STEAMING, POWER RANGE TESTING AND FAST CRUISE.

g. Train and qualify personnel to support the Key Event schedule.

h. Perform site visits where contractor services are being used for equipment refurbishment.

i. Ensure LOA preparations are progressing on schedule.

j. Attend weekly progress meetings.

k. Ensure that equipment returned to the ship has passed required shop tests.

l. (Surface Ships Only) For dry docking availabilities:

(1) Make sure that bilges are properly preserved. To avoid moisture from condensation, plan to complete bilge painting before the ship undocks.

(2) Make sure that air testing scheduled for tanks below the water line is completed before the ship undocks.

(3) Make sure that all hull valves are reinstalled and tested before the ship undocks.

(4) Make sure that underwater preservation is completed, that water line boot is painted evenly and draft marks restored before the ship undocks.

m. Arrange for a post repair boiler inspection by Naval Surface Warfare Center Carderock Division (NSWCCD), and ISIC representatives. Detailed information concerning this inspection can be found in Volume IV, Chapter 3 of this manual.

n. Schedule Combat Systems Mobile Training Team visit with the ISIC.

o. Develop a Plan of Action and Milestones for LOA.

3.6.2 Arrival Conference.

3.6.2.1 Scheduling and Conducting. The arrival conference is scheduled shortly after the start of an availability and conducted by the industrial activity and attended by the CO, Executive Officer, MST OIC (if applicable), heads of department and their principal assistants, key shipboard personnel and a TYCOM representative. This meeting also provides an excellent opportunity for Ship's Force to meet key industrial activity personnel.

a. The conference agenda should include, as a minimum, the following topics:

(1) Resolve problems not completed at the WDC/PRC/PAC.

(2) A discussion of work scheduling and production planning requiring close cooperation between Ship's Force and industrial activity personnel. Changes to dates for Key Events such as dry docking, Dock Trials, Fast Cruise, and Sea Trials shall be made known and agreed upon at this time.

(3) Dissemination of planning information, such as job orders that have resulted from the deferral actions approved for industrial activity accomplishment.

(4) Resolution of any problems regarding work to be undertaken or material or scheduling problems.

(5) Reporting of plans and material status on Key Events or CPJs.

(6) Discussion of industrial activity regulations and other pertinent requirements affecting the ship.

(7) Dissemination of general administrative information of interest to Ship's Force, such as industrial activity and local facilities for training, recreation, housing accommodation, parking, etc.

b. Activities may submit new work items for consideration.

c. Industrial activity schedule daily/weekly meetings.

d. Submit an Availability Start Message to cognizant Fleet Commander at the start of an industrial availability.

3.6.3 Routine Meetings and Conferences.

3.6.3.1 Weekly Management Meetings. Senior industrial activity management officials should meet weekly with the CO of the ship during the availability.

a. Purpose. These meetings provide a formal means by which attendees can address important specific issues with the senior industrial activity official to obtain appropriate resolution. Questions not answered relative to the conduct of this meeting should be addressed by the CO through the ISIC (if applicable) to the TYCOM.

b. Execution.

(1) The industrial activity Senior Officer/Manager will designate the time and day of the week for the meeting.

(2) Attendees will submit agenda items normally within 24 hours before the meeting. The industrial activity will collect, collate, and prepare all agenda items in writing and distribute them to attendees at the meeting.

(3) Attendees will discuss agenda items at the meeting.

c. Attendees. The industrial activity chairs the meeting. The following personnel shall attend and participate:

(1) The CO of the ship being repaired. The Executive Officer should attend if the CO cannot be personally present for any meeting.

(2) At some industrial activities, the TYCOM may designate a representative to attend. If so, he may submit agenda items in addition to those submitted by CO's that may be broadly applicable to all ships in specific availabilities. In the record, there shouldn't be any "TYCOM Position" on any items. The CO has the responsibility to deal with the senior industrial activity official on problems relating to his ship.

(3) The industrial activity Project Manager or equivalent.

(4) (Nuclear Powered Ships Only). The Naval Reactor Representative at industrial activities authorized to conduct naval nuclear work.

(5) Industrial Activity Senior Management (e.g., Engineering Department Head, QA Head, Production Officer).

(6) Any industrial activity personnel as required to support specific agenda items.

(7) MST OIC (if applicable).

d. General Guidelines.

(1) Before submitting an agenda item, the ship CO should have made an attempt to resolve the problem at an appropriate level within the industrial activities organization.

(2) When agenda items are general subjects such as overall schedule adherence, overall industrial activity manning of ships, overall ship cleanliness, performance of workers and overall ship safety, sufficient factual data should be included to substantiate them.

(3) (Nuclear Powered Ships Only). Ship COs should not routinely submit their agenda items to the Naval Reactors Representative Office (NRRO) for review prior to giving them to the industrial activity's Senior Manager. This does not mean that specific questions related to agenda items cannot be discussed with the NRRO. They should be. Ship COs should not expect the NRRO to be a screen for checking the appropriateness of the item.

(4) Ship COs in private activities must be extremely careful in wording their agenda items, in the discussions at the meeting and in agreeing to words in the minutes to assure that they do not introduce or give tacit agreement to contractual matters.

(5) Ship COs should not submit items for the management meeting as a means to merely determine the status of a job.

(6) If required by the TYCOM, ship COs shall provide a copy of the minutes of each meeting to their ISIC/TYCOM.

e. The Weekly Management Meeting is used as a forum to produce a Progress Report, which is intended to form a brief word picture of the availability progress and identify problems that may require action/resolution. (Paragraphs 1 and 2 in Appendices F_1 or F_2, as applicable, of this chapter should not exceed one typewritten page.)

(1) If required by the TYCOM, COs will submit weekly Progress Reports by message of the overall status of work. As a minimum, quality of work, progress, significant problem areas, and action taken towards their resolution shall be addressed. In addition, if the availability completion or readiness-for-sea dates appear to be in jeopardy, the estimated period and reasons for delay will be reported and identified. The Progress Reports will be routed via the industrial activity and FMA (if applicable) for comments and transmitted in time to reach the TYCOM by the first workday of each week. Appendices F_1 and F_2, as applicable, of this chapter are the desired format for the report.

(2) If, as a result of his inspections, the CO considers that the progress or the quality of work is unsatisfactory, he will promptly bring the matter to the attention of the industrial activity. If satisfactory corrective measures are not taken, he will report by letter, or if time is critical, by message, to the TYCOM with a copy to the industrial activity stating specifically in what respects the work is unsatisfactory. If the condition reported is not corrected to the CO's satisfaction, a report will be made to CNO via the TYCOM in accordance with reference (e). Copies of this report will be sent to the industrial activity and appropriate Fleet Commander.

(3) During the course of the availability, periodic progress reviews are conducted at the 25/50/75 percent points of elapsed time of the availability. As a minimum, discussion should include the actions towards resolution of previously reported significant problem areas not yet resolved, upcoming Key Events that may be in jeopardy, any significant changes that may be required to meet availability milestones, status of new work and any other issues deemed necessary. The report of the periodic review will be annotated in the weekly SITREP.

3.6.3.2 Docking/Undocking Conferences. For availabilities involving a ship's dry docking, the industrial activity will conduct both a Docking and Undocking Conference, normally within one week prior to the expected evolution. These conferences will be conducted by the assigned industrial activity Docking Officer. Requirements for the conference agenda, attendees, and Ship's Force support are found in reference (h).

3.6.4 Assist Ship's Force Funds. The TYCOM may set aside a portion of the maintenance funds for CNO availabilities as an Assist Ship's Force (ASF) fund. This fund is controlled by the CO and is used to obtain minor industrial activity assistance in the nature of services and/or labor, to assist in completing assigned Ship's Force work. The following restrictions apply to the use of ASF funds:

a. No work in the nature of an alteration will be undertaken, unless authorized by the TYCOM.

b. No work using ASF funding will be undertaken in which Ship's Force is not the main participant.

c. Only incidental material will be purchased with ASF funds. Normally this will not exceed ten percent of the total job cost.

d. A detailed account of ASF expenditures will be maintained. This account may be audited periodically by the TYCOM to ensure compliance with the restrictions in paragraphs 3.6.4.a. through c of this chapter.

3.6.5 Integrated Logistics Overhaul.

a. The ILO concept was developed to provide improved maintenance support to the Fleet in response to the need for complete on board logistics support. An ILO focuses on both maintenance and supply requirements by ensuring that technical documentation and repair parts support the equipment which is actually on board. During an ILO, both maintenance and supply personnel are trained in the use and maintenance of shipboard logistics support documentation and systems to enable them to sustain the effects of the ILO during the operating cycle. The objective of an ILO is to improve readiness by providing a ship completing a specified availability with logistics support that accurately reflects the ship's configuration. A secondary objective is to train Ship's Force in the use of on board support documents and in recognizing and correcting support deficiencies.

b. An ILO is a process which improves ship's readiness and equipment availability through verification of configuration status accounting data, ordering of proper logistics support, and training of Ship's Force in the use and maintenance of its logistics support documentation. An ILO is comprised of five functional elements:

(1) Configuration Analysis and Coordinated Shipboard Allowance List (COSAL) QA consists of verification of start of availability configuration data (including planned changes) with Weapons System File data and other documentation to ensure that the Start of Overhaul

COSAL fully supports the projected end of availability equipment configuration. In addition, changes in configuration reported by the accomplishing activity are verified to ensure final COSAL documents include required support.

(2) PMS Analysis. Includes verification of applicable Maintenance Index Pages (MIP) with ship's existing configuration and all changes to this configuration reported by the accomplishing activity. Resolution of discrepancies with PMS managers is accomplished as required. Analysis of individual MRCs is performed to ensure that required PMS repair parts and special tools are identified, included in the applicable documents, and ordered.

(3) Technical Manual Analysis. Ensures that the technical manuals required to support the end of availability configuration are identified and requisitioned. Technical manuals, both those off-loaded and those received during the availability, are inventoried and reviewed for applicability, correct change level, and status of changes. Technical manuals applicable to final configuration are retained. Discrepancies are resolved with the Naval Sea Data Support Activity. Technical manuals missing from the required inventory are requisitioned as are any changes needed to upgrade manuals already held. The ship's Index of Technical Publications is updated to reflect the final configuration and is provided to the ship at the end of availability by the Naval Sea Data Support Activity. Also provided are the Technical Manual requisitions still outstanding. Finally, to ensure minimum deterioration of stock after the availability, selected ship personnel are trained in technical manual maintenance procedures.

(4) Repair Parts Analysis. Ensures the accuracy of the repair parts inventory to be back loaded to the ship at the conclusion of the availability. This analysis includes a complete inventory of all parts aboard and identification of any parts for which there is incomplete data. It also includes recomputation of allowances based on usage or new equipment installation, turn-in of parts no longer allowed and numerous location/quality checks prior to backloading.

(5) Training. Focuses on proper accomplishment of the first four functional elements of the ILO to ensure that correct logistics support is identified and delivered for shipboard equipment. Efforts are made to ensure that shipboard personnel are fully able to utilize and maintain the ship's logistics support and configuration documentation, both for ILO purposes and for ongoing operating cycle requirements. COSAL use and maintenance training provides shipboard personnel with a working knowledge of the COSAL, its relationship to other maintenance documents and the procedures to ensure that logistics support remains current, (e.g., use of OPNAV 4790/CK Forms).

c. The Ship's Force team will develop an off-load schedule of all ship's spare parts. The ship's spare part stowage plan will be updated to reflect changes in the desired location of individual spare parts. Additionally, provisions must be made for the Aviation Consolidated Allowance List to support the embarking air wing.

d. A ship load-out schedule, including stores, repair parts, yellow gear, and removal of industrial activity equipment, will be prepared by the ship with the assistance of the industrial activity.

e. During a CNO maintenance availability, the ship will ensure that new/removed equipment is reflected in the COSAL and that the required spare parts are added/subtracted as applicable. Allowance changes are to be requested in accordance with reference (i).

f. Spare parts, test equipment, and special tools are the hardware portion of new and old equipment. The other portions are software: drawings, technical manuals, allowance lists, operating instructions, and any other technical documentation. Prior to commencement of an availability, NAVSEA will task the industrial activity with providing a listing and schedule, for installation on board the ship, of all technical documentation for new equipment, including changes to SSR drawings and data. The ship is responsible for the installation and maintenance of technical documentation for all existing equipment.

g. The status of the installation of technical documentation will be reported in the Material Condition/Crew Readiness Status Report.

3.6.6 Ship's Selected Records.

a. The SSRs include various tables, charts, drawings, damage control books and plates, technical manuals and other data selected for their reference value and kept current throughout the life of the ship. Accurate SSRs are necessary for configuration control, maintenance support and troubleshooting. SSR items are:

(1) Ship's Information Books.

(2) Technical Manuals.

(3) Damage Control Books and Plates.

(4) Propulsion Operating Guides/Engineering Operational Sequencing System.

(5) Ship's Drawing Index (SDI).

(6) Index of Technical Publications.

(7) Docking Drawings (plan showing each of the docking positions).

(8) Booklet of General Drawings.

(9) Tank Capacity and Vehicle Center of Gravity Curves.

(10) Tank Sounding Tables.

(11) Other tables, charts, allowance lists, etc.

(12) Docking Reports (most recent two industrial availability dockings, and any interim reports).

b. The ship should appoint a SSR Coordinator for the availability. The Coordinator should review the SSRs in paragraph 3.6.6 of this chapter, determine which items will be affected by work candidates listed in the approved work package, and send copies of these SSRs to the industrial activity responsible for executing the availability. The copies sent must include markups showing any changes accomplished during previous availabilities since last update. The ship must retain a master copy of each SSR item and keep it current. If SSR is on microfilm/electronic media, mark up hard copy prints.

c. The SSR Coordinator will serve as the ship point of contact for dispatch, receipt and monitoring status of SSR items during the availability.

3.6.7 New Work.

a. New work is any repairs requiring industrial level assistance which are not authorized until after the PAC for public industrial activity availabilities or after the receipt of proposals or bids for private industrial activity availabilities.

b. New work must be requested by message or letter to the appropriate TYCOM (information copy to the Supervising Authority, ISIC, SUBMEPP (Submarines), or PMS 312C (Aircraft Carriers), as applicable). Sample letter/message formats are provided in Appendices G and H of this chapter for requesting new work authorization. Work not currently in ship's CSMP must be added to CSMP prior to requesting new work approval.

c. All new work candidates must be reviewed by and agreed to by the assigned MM. MM recommendations regarding requirement to perform repairs, risk assessment, and schedule impact are mandatory. The TYCOM, or the formally designated TYCOM representative, shall be the approving authority for all new work. In the case of private industrial activity availabilities, the TYCOM will certify that, in accordance with Federal Acquisition Regulations, the accomplishment of the new work is of such unusual and compelling urgency so as to require waiving of Competition In Contracting Act public law regulations.

d. (Surflant Ships Only) New work on all Naval Surface Force, U.S. Atlantic Fleet availabilities will only be authorized as follows:

(1) Where there is no assigned MM, Type Desk Officer (TDO) authorization is required for all new work when the government estimate exceeds $5,000. Only new work absolutely necessary to carry out the intent of the Ship Alteration (SHIPALT) and Repair Package work item may be authorized.

(2) Where a MM is assigned, all new work requires Commander, Naval Surface Force, U.S. Atlantic Fleet (TYCOM) authorization. The MM communicates the TYCOM's authorization.

3.6.8 Trials, Inspections and Crew Certification.

3.6.8.1 Surface Ship (Non-Nuclear).

a. Crew Certification. Crews in ships undergoing major CNO Maintenance Availabilities must be effectively trained in standard operating procedures, emergency bills, casualty drills, etc., and be thoroughly cognizant of equipment either newly installed or relocated during the availability. Based on the length and type of availability, Crew Certifications will be conducted in accordance with references (j), (k) and (l), as applicable.

b. LOA. LOA will be conducted, if the availability exceeds 120 days or as deemed necessary by the TYCOM. The ISIC, assisted by an assessment team provided by Fleet Commander N7, will conduct the LOA. LOAs will be scheduled by means of the ISICs input into the normal scheduling process.

c. Steam Testing. All steam systems/equipment worked by the industrial activity shall be tested in accordance with the Testing Plan developed by the industrial activity. Ship's Force shall work closely with the industrial activity, providing necessary assistance and support, to carry out the Test Plan.

d. Dock Trials. During an industrial activity availability and prior to conducting post-repair trials, the engineering plant shall be tested to ensure its readiness for sea. All special sea details and required general quarters will be manned throughout the trials. Ordinarily, dock trials can be completed in one day or less. The minimum requirements for Dock Trials are listed in Appendix I of this chapter.

e. Fast Cruise.

(1) All ships completing a CNO Maintenance Availability shall conduct a Fast Cruise where the ship assumes, insofar as practical, an "at sea" posture while inport with all equipment/systems used to the maximum extent possible. The primary purpose of the Fast Cruise is to determine and certify the state of training of ship's company as adequate to conduct at-sea operations. The progress toward this goal is a critical evolution ongoing throughout the availability requiring the TYCOM and ship's CO attention. The training program must be designed to have completed all training necessary to safely operate the ship at sea prior to Fast Cruise. The Fast Cruise provides the opportunity to measure ship's preparedness; it is not a basic training period. Commencement of Fast Cruise requires TYCOM permission. Appendix AA of this chapter provides a sample message format for Ship’s Request for Permission to Commence Fast Cruise.

(2) The following procedures pertain to the conduct of Fast Cruise:

(a) Fast Cruise will be included as a major event and scheduled for at least two days duration by the industrial activity in the case of ships undergoing a CNO maintenance availability greater than six months in duration or at least one day for ships undergoing a CNO maintenance availability less than six months in duration. The Fast Cruise shall follow Dock Trials and precede Sea Trials.

(b) A schedule of proposed events shall be promulgated by the ship to all activities concerned and shall be concurred with by the industrial activity.

(c) Limited numbers of industrial activity personnel may be permitted to be aboard as necessary to continue testing and production work on systems as required. Shop and technical personnel shall be permitted on board as instructors, troubleshooters and QA representatives of the industrial activity. Equipment that is not complete shall not be included in the Fast Cruise. Settlement of the foregoing provisions shall be reached by mutual agreement between the CO and the industrial activity, as warranted.

(d) As a minimum standard, system operation tests and drills described in Appendix J of this chapter shall be conducted in all Fast Cruises. It is intended that the necessary prerequisite training shall have already been accomplished.

(3) The Ship's CO will report completion of Fast Cruise to the TYCOM. Appendix AB of this chapter provides a sample message format.

f. Rest and Repair Period. All ships completing a CNO Maintenance Availability shall normally conduct a 48 Hour Rest and Repair Period to ensure Ship's Force is mentally and physically prepared after completing Fast Cruise and before the start of Sea Trials. The ship assumes, insofar as practical, an "at sea" posture while inport with all equipment/systems used to the maximum extent possible. The primary purposes of the Rest and Repair Period are to evaluate the results of Fast Cruise; to consider ship condition; to conduct necessary repairs on ship's equipment and systems; and to evaluate and conduct additional training for Ship's Company to ensure ship is prepared to the highest possible standard.

g. Sea Trials.

(1) Sea Trials (or Post Repair Trials) constitute the final determination of a ship's material readiness and ability to rejoin the Fleet as a fully operational unit. Each Sea Trial will be conducted in accordance with an agenda prepared by the industrial activity, concurred with by the ship's CO, and approved by the TYCOM. The Sea Trial Agenda will be prepared in four phases and will contain the minimum requirements of Appendix K of this chapter, a time-oriented sequence of events in Gantt chart form, and a matrix of fleet services required to support the trial. The requesting ship/industrial activity will arrange for these Fleet services in accordance with Fleet Commander Instructions. Since the purpose of the trial is to determine the material readiness of the ship, all systems/equipments overhauled by the industrial activity will be tested in accordance with an industrial activity prepared test procedure which will document the results of the test and require operation of the system/equipment in all modes. A Ship's Force Trial Officer will be appointed to coordinate with the industrial activity Trial Coordinator throughout the Sea Trial. The Trial Officer will accept the results of all tests for the ship. Ship's Force personnel will operate all equipment during the Sea Trial in accordance with standard operating instructions or Sea Trial test procedures, as appropriate. Commencement of Sea Trials requires TYCOM permission. Appendix AC of this chapter provides a sample message format for the Supervising Activity to report all work necessary for Sea Trials has been satisfactorily completed.

(2) During Sea Trials the ship's CO will advise the TYCOM of major events accomplished and/or significant problems encountered/outstanding on a daily basis. Appendices F_1 or F_2 as applicable, of this chapter provide the desired format for this report.

3.6.8.2 Surface Ship (Nuclear).

a. Crew Certification. Crews in ships undergoing major CNO Maintenance Availabilities must be effectively trained in standard operating procedures, emergency bills, casualty drills, etc., and be thoroughly cognizant of equipment either newly installed or relocated during the availability. Based on the length and type of availability, Crew Certifications will be conducted in accordance with references (k), (l), (m) and (n), as applicable.

b. Steam Testing. All steam systems/equipment worked by the industrial activity shall be tested in accordance with the Testing Plan developed by the industrial activity. Ship's Force shall work closely with the industrial activity, providing necessary assistance and support, to carry out the Test Plan.

c. PORSE/RSE. Based on the length of the availability, crew turnover and cold iron time, a PORSE/RSE will be scheduled and conducted in accordance with reference (o).

d. Dock Trials. During an industrial availability and prior to conducting post-repair trials, the engineering plant shall be tested to ensure its readiness for sea. All special sea details and required general quarters will be manned throughout the trials. Ordinarily, dock trials can be completed in one day or less. The minimum requirements for Dock Trials are listed in Appendix I of this chapter.

e. Fast Cruise.

(1) All ships completing a CNO maintenance availability shall conduct a Fast Cruise where the ship assumes, insofar as practical, an "at-sea" posture while inport with all equipment/systems utilized to the maximum extent possible. The primary purpose of the Fast Cruise is to determine and certify the state of training of ship's company as adequate to conduct at-sea operations. The progress toward this goal is a critical evolution ongoing throughout the availability requiring TYCOM and ship's CO attention. The training program must be designed to have completed all training necessary to safely operate the ship at sea prior to Fast Cruise. The Fast Cruise provides the opportunity to measure ship's preparedness; it is not a basic training period. Commencement of Fast Cruise requires TYCOM permission. Appendix AA of this chapter provides a sample message format for Ship's Request for Permission to Commence Fast Cruise. For ships completing Complex Overhaul or Complex Refueling Overhaul, additional requirements for obtaining permission to commence Fast Cruise are contained in reference (n).

(2) The following procedures pertain to the conduct of Fast Cruise:

(a) Fast Cruise will be included as a major event and scheduled for at least two days duration by the industrial activity in the case of ships undergoing a CNO maintenance availability greater than six months in duration or at least one day for ships undergoing a CNO maintenance availability less than six months in duration. The Fast Cruise shall follow Dock Trials and precede Sea Trials.

(b) A schedule of proposed events shall be promulgated by the ship to all activities concerned and shall be concurred with by the industrial activity.

(c) Limited numbers of industrial activity personnel may be permitted to be aboard as necessary to continue testing and production work on systems as required. Shop and technical personnel shall be permitted on board as instructors, troubleshooters and QA

representatives of the industrial activity. Equipment that is not complete shall not be included in the Fast Cruise. Settlement of the foregoing provisions shall be reached by mutual agreement between the ship's CO and industrial activity, as warranted.

(d) As a minimum standard, system operation tests and drills described in Appendix J of this chapter shall be conducted in all Fast Cruises. It is intended that the necessary prerequisite training shall have already been accomplished.

(e) Fast Cruise will be included as a major event and scheduled for at least four days (usually two days of operation, one day shutdown to allow shipyard and/or contractors to correct deficiencies, and two more days of operation) for CNO maintenance availabilities scheduled for greater than 9 months in duration. For ships undergoing a CNO maintenance availability less than 9 months, but greater than 6 months, a two-day Fast Cruise is required. For ships undergoing a CNO maintenance availability less than 6 months, a one-day Fast Cruise is required. The Fast Cruise shall follow Dock Trials and precede Sea Trials. Additional requirements pertaining to nuclear powered ship Fast Cruises are contained in reference (p).

(3) Ship's CO shall report completion of Fast Cruise to the TYCOM. Appendix AB of this chapter is a sample message format for Ship's Report of Fast Cruise Completion.

f. Sea Trials.

(1) Sea Trials (or Post Repair Trials) constitute the final determination of a ship's material readiness and ability to rejoin the Fleet as a fully operational unit. Each Sea Trial will be conducted in accordance with an agenda prepared by the industrial activity, concurred with by the ship's CO, and approved by the TYCOM. The Sea Trial Agenda will contain the minimum requirements of Appendix K of this chapter, a time-oriented sequence of events required to support the trial. The requesting ship/industrial activity will arrange for these Fleet services in accordance with Fleet Commander Instructions. Since the purpose of the trial is to determine the material readiness of the ship, all systems/equipment overhauled by the industrial activity will be tested in accordance with an industrial activity prepared test procedure which will document the results of the test and require operation of the system/equipment in all modes. A Ship's Force Trial Officer will be appointed to coordinate with the industrial activity Trial Coordinator throughout the Sea Trial. The Trial Officer will accept the results of all tests for the ship. Ship's Force personnel will operate all equipment during the Sea Trial in accordance with standard operating instructions or Sea Trial test procedures as appropriate. Commencement of Sea Trials requires TYCOM permission. Appendix AC of this chapter is a sample message format.

(2) During Sea Trials the ship's CO will advise the TYCOM of major events accomplished and/or significant problems encountered/outstanding on a daily basis. Appendix F_1 of this chapter provides the desired format for this report.

3.6.8.3 <u>Trials, Inspections and Certification Minor Availabilities (Less Than Six Months) (Submarines Only)</u>.

a. Duties and Responsibilities for Sea Trials and Inspections. Reference (q) as applicable delineates the TYCOM's responsibility for operational control of assigned submarines during trials and for assuring that the crew and ship have attained satisfactory state of training, administrative, operational and material readiness for at-sea operations during the trials. Appendix BC of this chapter provides a detailed summary of trial and inspection milestones required for minor submarine availabilities.

b. General Instructions for Industrial Activity Availability Trials and Inspections.

(1) Fast Cruise may not commence until Dock Trials have been satisfactorily completed and a satisfactory state of crew training (if required) and material readiness (if required), as delineated by this manual, has been certified. The required inspections and tests and their associated time periods may be modified by the TYCOM upon request from the cognizant ISIC.

(2) Sea Trials involving escorts will not normally be scheduled to commence on a weekend. When circumstances are such that Sea Trials must be rescheduled or planned to commence on a weekend to avoid costly delays, TYCOM approval will be obtained by the ISIC.

(3) Critical operation of reactors while nuclear powered ships are in a naval or commercial industrial activity will be governed by reference (b). The CO may authorize critical operation of the reactor in support of tasks assigned the ship. However, as long as the ship remains in an industrial activity, the CO will notify the Supervising Authority well in advance of any critical operation of the ship's reactor. This notification shall include the nature and duration of such operations.

(4) In conducting the inspections required herein, inspectors should be guided by the concept that at the start of Fast Cruise, the ship should be, in all respects, ready for Sea Trials with the exception of the additional training the crew will receive during the Fast Cruise.

(5) The requirement for TYCOM SUBSAFE certification of SUBSAFE boundaries not entered by the industrial activity and the material readiness upon completion of an industrial activity availability imposes additional responsibilities on the ISIC inspectors. Included in the material inspection will be a review of all outstanding Forces Afloat Departures from Specifications as defined in Volume V, Part I, Chapter 8 of this manual. A review of the Ship's Force REC Records is necessary for SUBSAFE work accomplished by Forces Afloat in accordance with Volume V, Part I, Chapter 5 of this manual, along with a review of the applicable URO MRC status.

The ISIC certification message, in accordance with Appendix BB, will also provide a status report of any outstanding Re-Entries, Forces Afloat Departures from Specifications and delinquent URO MRCs. The scope and nature of this inspection will vary dependent upon the extent and length of the availability. In this regard:

(a) Material certification may be made subject to the correction of specific deficiencies. (Deficiencies are such that they can be readily identified and listed.)

(b) Material certification should be postponed to a later date when deficiencies are so significant or so numerous as to preclude correction in the time remaining before the scheduled start of Fast Cruise.

(c) Deficiencies that could affect the safe operation of the ship during Sea Trials must be corrected, reinspected and reported to the TYCOM as having been corrected prior to the start of Fast Cruise.

(d) For ships with Fly-By-Wire Ship Control Systems (FBW SCS), if Upgrades/Alterations or Major Repair Work of the FBW SCS was performed, a 100% audit of the work, as defined in Volume V, Part I, Chapter 9 of this manual, will be performed by the ISIC. The ISIC shall report certification of work and recommend at-sea operations using the message format of Appendix BQ.

(6) Inspectors must determine that all work/testing necessary to support Sea Trials has in fact been completed or identified for completion prior to the start of Fast Cruise including the following:

(a) All ship's systems which affect safe operation during Sea Trials must be operable.

(b) All work necessary for safe operation of the ship during Sea Trials which was undertaken by the industrial activity, Ship's Force, FMA, or other outside activities must have been satisfactorily completed and tested. Included must be a check for any "special configuration or installations" ensuring that they have been authorized by the proper authority, that their impact has been fully assessed and that the Sea Trial Agenda includes these impacts or limitations.

(c) If Upgrades/Alterations or Major Repair Work of the FBW SCS was performed, a 100% audit of the work will be performed by the ISIC.

(7) Following the completion of the required training and material readiness certification, COs must keep the cognizant ISIC fully informed of any changes in personnel, training and/or material status which could affect the validity of certification. Prompt TYCOM notification is required to permit revision or Operational Orders and services required.

(8) Underway trials following an availability, particularly initial submerged and test depth trials, must be undertaken with the knowledge that the crew lacks recent experience operating as a unit and that the ship's structure and fittings have not been tested in an at-sea environment. All tests and procedures must be conducted carefully and methodically. Systems and components designed to operate at test depth should **not** be demonstrated at that depth for the sole purpose of proving the design, but instead should be operated at the deepest depth at which they might be used. For example, the hovering system should not be demonstrated at test depth. Trials and tests which are inherently hazardous should not be conducted.

(9) A schedule is required for each underway, dockside or simulated trial. Prerequisites of the first underway period are: satisfactory ship's material condition as shown by the successful completion of alongside tests, salvage inspection, Ship's Force Dock Trial, and a satisfactory state of training as shown by the successful completion of crew certification inspection and Fast Cruise. Fast Cruise deficiencies affecting safe operations revealed in either material conditions or state of training must be corrected prior to getting underway for Sea Trials.

(10) Provide an operational order to be used incorporating the provisions of reference (q). Provide a copy to the TYCOM and, where appropriate, the local ISIC. Include within the operational orders pertaining to post-availability trials, instructions to send specific messages announcing the start and completion of initial deep dive with the TYCOM as an information addressee.

(11) The trial schedule shall include a minimum of six hours of Individual Ship Exercises (ISE) for Ship's Force training. This ISE should be sequenced as soon as practical after the initial tightness dive and should include the necessary evolutions to allow each watch section ship control party to familiarize themselves with their assigned stations and duties. The ship should be operated at moderate speed to develop proficiency prior to the deep dive and full power run. Testing may be scheduled during the ISE period on a not-to-interfere basis with training. The time spent in the initial tightness dive, if at moderate speed, may be included as one section's training. The requirement to provide each watch section ship control party with about two hours experience submerged at moderate speed prior to the deep dive and full power run is mandatory for ship's safety.

(12) All trial periods must be organized such that each member of the command has an opportunity to get six uninterrupted hours of rest during each 24 hour period encompassed by the trials. Sea Trial events which can be accomplished by normal watch sections may be conducted concurrently with crew rest periods.

(13) Prior to getting underway for Sea Trials, Shipyard, Ship's Force and Type Commander shall jointly agree that the required seven day supply of Oxygen (O2) and seven day supply of Carbon Dioxide (CO2) removal capacity will be available in each compartment, based upon the number of expected occupants of that compartment, independent of the supply and removal capacity in the other compartment(s).

(14) For industrial activity availabilities, a one to five day deficiency correction period will normally be scheduled subsequent to the Sea Trials and prior to the completion date. The requirement to return to the availability site to correct deficiencies may be waived on a case basis with TYCOM authorization and agreement of the ship's CO and the Supervising Authority if the material condition of the ship so warrants.

(15) After the conclusion of Sea Trials, the submarine shall not be operated at depths greater than 1/2 Test Depth plus 50 feet, unless specifically authorized by the TYCOM, and shall not be released for unrestricted operations until all RECs are closed and the TYCOM issues the unrestricted operations authorization message.

(16) After the conclusion of Sea Trials, and based upon a review of Sea Trial deficiencies and TYCOM authorization, the submarine may transit to a port other than the industrial activity.

c. If equipment malfunctions (except for casualties affecting recoverability, salvage, watertight integrity, or operation of ship's control surfaces), or seawater leakage in excess of the specification is found during the conduct of the initial tightness dive or the controlled dive to test depth, the ship should continue to the required depth and execute the sea trial agenda unless the Commanding Officer determines it appropriate to abort the dive. The Commanding Officer and Trials Director should be particularly circumspect in the case of leakage locations not isolable by flood control/other closures (e.g., electrical hull penetrators, periscope hoist rods, etc.).

d. Following completion of the initial tightness dive and the controlled dive to test depth, SUBSAFE deficiencies which result in seawater leakage exceeding the specification for acceptance shall be reported to the TYCOM, NAVSEA and info to all concerned.

e. If leakage is from an unisolable joint, ship's depth will be limited to 1/2 test depth plus 50 feet until approval from the TYCOM is received to continue trials at depths greater than 1/2 test depth plus 50 feet.

3.6.8.3.1 Operating Depth Policy. The TYCOM's policy with respect to maximum allowable operating depths during trials, evolutions to be performed at the various depths, and the prescribed maximum water depth applicable in each case is stated in Volume VI, Chapter 26 of this manual. In every instance where the maximum authorized operating depth is exceeded, a report shall be made in accordance with reference (r), paragraphs 3.10 and 3.26 through 3.28.

3.6.8.3.2 Propulsion Plant Tests (If Required). For full power trials provisions of reference (s), Section 6 apply. Submarine depth during the submerged full power trial should be consistent with the applicable Submerged Operating Envelope (SOE), based on the Emergency Main Ballast Tank (EMBT) blow from maximum authorized operating depth being previously accomplished. The full power submerged ahead test for commissioned nuclear powered submarines shall be terminated by a back emergency bell. The duration of the back emergency shall be limited to 45 seconds, to be followed immediately by an appropriate ahead bell. Caution must be exercised to avoid developing stern way.

3.6.8.3.3 Ocean Engineering Project Availability. Certain submarines have been assigned to provide dedicated support to NAVSEA Ocean Engineering Projects. Ships dedicated to these projects have been assigned to a parent industrial activity which provides Logistic support, performs the maintenance actions required by the Submarine Extended Operating Cycle program and other functions normally provided by an industrial activity. Routine and Submarine Extended Operating Cycle maintenance is factored into the Availability Work Package prepared by the cognizant technical activity in support of the Ocean Engineering Project. Certification of the work during these

availabilities is governed by reference (t), Volume V of this manual and the applicable requirements of paragraph 3.6.8.3 of this chapter for availabilities less than six months duration or paragraph 3.6.8.4 of this chapter for availabilities greater than six months duration. Specific actions and reporting requirements which are mandatory prior to completion of an availability are summarized in Appendix BC or Appendix CC of this chapter, as applicable. The TYCOM will reiterate these requirements during the availability by a "Countdown Message" for availabilities greater than six months in duration. A sample format of this "Countdown Message" is shown in Appendix CD of this chapter.

3.6.8.3.4 Salvage Inspection (As Required). Conduct a Salvage Inspection in accordance with Volume IV, Chapter 18 of this manual. The Salvage Inspection should be conducted early enough in the availability to allow time to complete any mandatory corrective maintenance prior to Fast Cruise.

3.6.8.3.5 Phase II Crew/Material Condition Inspection. A Phase II Crew Certification Inspection is normally not required, but should be determined on a case basis by the parent ISIC. If there will be less than 15% personnel turnover, crew certification may be waived. Should the CO determine that alterations accomplished or the transfer of experienced personnel warrant a crew certification, a formal request shall be submitted to the ISIC. When required, crew certification will be performed in accordance with references (u) through (z). The material certification consisting of an ISIC audit of all Ship's Force SUBSAFE work in accordance with Volume V, Part I, Chapter 9 of this manual will need to be conducted for all industrial activity availabilities since the extent of the availability is such that an independent evaluation by an organization other than Ship's Force is required.

3.6.8.3.6 Pre-Critical Inspections. For availabilities where the reactor will be shutdown for 16 weeks or more, it is considered prudent to use an inspection plan similar to that employed by NAVSEA. Normally, the crew's readiness can be assessed within two days using such a plan, which should encompass the following:

a. An administrative review.

b. Observation of basic drills and evolutions not requiring reactor operation.

c. Personnel interviews.

d. Material inspection.

3.6.8.3.6.1 Scheduling of Pre-Critical Inspections. The ISIC Pre-Critical Inspection should be scheduled by the responsible ISIC about four weeks prior to criticality. The TYCOM should be advised as soon as possible in advance of the tentative date for the ISIC Pre-Critical Inspection and confirmed dates should be established about one month in advance of the inspection.

3.6.8.3.6.2 Composition of the Inspection Team. The Pre-Critical Inspection Team should consist of:

a. A nuclear trained member of the cognizant ISIC Staff, usually the Squadron Training Officer.

b. A qualified nuclear trained officer with experience as an Engineer Officer.

3.6.8.3.6.3 Reports of Inspection.

a. The Senior Inspector should provide the inspected unit with an informal report of findings by the inspection team, copy to the cognizant ISIC and TYCOM.

b. The ship's CO shall review the findings of the inspection team and make necessary adjustments to his training program to ensure his crew's readiness for criticality. He shall keep the cognizant ISIC advised of his training plan and his assessment of his crew's progress.

c. The cognizant ISIC shall review the inspection findings, the CO's training plan and progress evaluations and direct follow-up reviews and/or inspections necessary to verify the ship's readiness for criticality.

3.6.8.3.7 Dock Trials. Dock Trials must, as a minimum, test those systems/equipments repaired or altered during the availability. The CO should use Appendix L of this chapter as a guide in preparing the Dock Trial Agenda.

3.6.8.3.8 Fast Cruise. Fast Cruise may commence immediately upon completion of Dock Trials and shall consist of the minimum requirements as set forth in Appendix M. The requirement for a Fast Cruise may be less than or greater than 24 hours in length depending upon the length of the availability and the time since the crew last operated the ship at sea. The CO, with ISIC concurrence, will determine length of the Fast Cruise. Prior to the ship commencing Fast Cruise, the Supervising Authority shall report to the ship, by message, that all mandatory work approved for accomplishment during the availability is completed. When the ship is ready for sea with the exception of conducting Fast Cruise and after receipt of the SUBSAFE material certification report from the performing activity as required by references (s), (u) through (z) and Volume V of this manual, the ship will request permission from the ISIC by priority message to commence Fast Cruise. The ISIC will then, if satisfied with the state of crew training and material readiness, authorize the ship to commence Fast Cruise by message, information copy to CNO, Fleet Commander, NAVSEA, and the TYCOM.

a. A 24 hour rest and repair period will normally be scheduled following Fast Cruise and prior to the start of Sea Trials. This rest and repair period may be extended or reduced at the discretion of the ISIC.

b. COs should consider the work and alterations accomplished during the availability when determining the extent of the Fast Cruise. The minimum requirements are listed and identified with an asterisk in Appendix M of this chapter.

3.6.8.3.9 Sea Trials. Upon receipt of the report of successful completion of Fast Cruise from the ship, the ISIC authorizes the ship to get underway for Sea Trials. For submarines, following completion of Fast Cruise the ISIC will notify the TYCOM of satisfactory completion of Fast Cruise and readiness for Sea Trials using the message format of Appendix BB. The submarine TYCOM will authorize the ISIC to allow the ship to get underway for Sea Trials using the message format of Appendices BD and BR if the ship had Upgrades/Alterations or Major Repair Work of the FBW SCS. The submarine CO will keep the TYCOM aware of the progress of the Sea Trial through periodic SITREPs using the message format of Appendix BM of this chapter. SITREPs will be submitted following completion of the initial tightness dive, following completion of the deep dive to test depth and daily at a minimum and as identified by the TYCOM or the Sea Trial Agenda. Sea Trials following availability are normally conducted with a significant number of "riders". These riders represent NAVSEA, TYCOM and Shipbuilder personnel onboard to observe various tests and trial evolutions. The ship's normal loadout of Lithium Hydroxide canisters, Lithium Hydroxide curtains, Emergency Air Breathing (EAB) masks, Submarine Escape Immersion Ensemble (SEIE) suits and oxygen candles is not sufficient to support this increase in personnel. Therefore, an additional four Lithium Hydroxide canisters, four Lithium Hydroxide curtains, one EAB mask, one SEIE suit and two Oxygen candles shall be carried for each rider exceeding normal crew manning. Lithium Hydroxide canisters, EABs, SEIE suits and Lithium Hydroxide curtains are to be obtained from the industrial activity. Sea Trials are required only as necessary to test work completed during the availability but must include those mandatory requirements identified in Appendix N of this chapter. The industrial activity shall include at least four days in the availability for conduct of Sea Trials. The industrial activity shall prepare a Sea Trial Agenda for Sea Trials conducted after an availability. The submarine involved shall submit the Sea Trial Agenda to the ISIC for approval, with an information copy to the TYCOM. Extensions or reductions of the Sea Trial period may be granted where warranted by the scope of the work accomplished. Where extension of the Sea Trial period and a change in the availability schedule is required, requests for such extensions must be submitted by the industrial activity to the TYCOM as early as practical. All deficiencies resulting from Sea Trials will be satisfactorily resolved prior to the completion of the availability. If no Sea Trial deficiencies are found, the availability may be completed with TYCOM concurrence at the completion of Sea Trials.

a. EMBT Blow: An EMBT blow is required for each Sea Trial following an industrial activity availability, availability docking, or availability of less than six months duration. EMBT blow shall be conducted in accordance with the applicable URO MRC and does **not** require an escort for EMBT blow at depths of 400 feet or less.

b. Assignment of Escort Ship.

(1) In accordance with reference (aa), a surface escort shall be provided during deep dive submergence trials for ships completing an availability for repair of collision/grounding damage where deformation is observed to be in the hull integrity envelope and/or supporting structure.

(2) In accordance with reference (aa), the requirement for providing an escort during deep dive submergence trials upon completion of all other availabilities will be evaluated by Commander, NAVSEA on a case basis. Commander, NAVSEA will advise the applicable Submarine Force Commander in writing whether or **not** an escort will be required based on the scope of work in the availability. In general, an industrial activity availability of less than six months duration should **not** require an escort, since the work typically performed in these availabilities is limited in scope, is carefully controlled and, therefore, does not result in substantial risk of unidentified or incomplete work adversely affecting the SUBSAFE boundary.

(3) Escort requirements should be determined early so that an escort satisfying the requirements of paragraph 3.6.8.4.7.b.(6) of this chapter can be scheduled if required. The TYCOM will in turn request services from the Fleet Commander as applicable. As a general rule, pressure hull work which could not affect hull circularity will not require an escort.

(4) Waiver of escort requirements may be requested by message when necessary. The ISIC will request the waiver as soon as possible. The TYCOM will pass the request to Commander, NAVSEA for approval. An escort waiver request message is to include all of the following specific statements, as applicable:

(a) A ( ) inch by ( ) inch hull cut between frames ( ) and ( ) including a ( ) inch section of frame ( ) was the only major hull integrity work accomplished during the availability. If no hull frame cut was made, a positive statement to that effect is required.

(b) The hull cut weld satisfactorily passed RT and 7 day MT non-destructive tests.

(c) Post repair frame circularity check readings are within specifications.

c. Assignment of SRDRS During Submarine Sea Trials.

(1) A SRDRS will be placed in a modified alert status at the beginning of Sea Trials requiring an escort following in industrial availability or major maintenance availability for:

(a) Ships initial tightness and deep dive events.

(b) Subsequent Sea Trials until the completion of the initial dive to design test depth.

(c) If, in the TYCOM's judgment, a Sea Trial requires an escort due to major hull cuts.

(2) A modified alert message will be sent by the industrial activity with the required SRDRS support dates 6 weeks prior to the requested date. Any changes in this request date will require immediate notification to the Fleet commander, Commander Naval Sea Systems Command (COMNAVSEASYSCOM) and Commander, Submarine Development Squadron (COMSUBDEVRON) FIVE. Sample messages in Appendices BN and CQ of this chapter.

(3) The ship conducting Sea Trials will notify COMSUBDEVRON FIVE in Silverdale, WA and COMNAVSEASYSCOM when SRDRS services are no longer required due to completion of the events in paragraph 3.6.8.3.9.c.(1) of this chapter or due to delay in completing Sea Trials.

(4) The SRDRS is not required to be placed in a modified alert status for those Sea Trials requiring an escort solely for the accomplishment of an EMBT blow from depths greater than 400 feet.

3.6.8.3.10 Interrupted Sea Trials. In the event a Sea Trial is interrupted, or an additional Sea Trial becomes necessary, the following requirements are to be met. These requirements shall be invoked if the ship returns to port for industrial activity repairs which affect SUBSAFE certification or which will require at-sea testing.

a. The industrial activity will draft a revised Sea Trials agenda to support resumption of the trials. This agenda shall be provided to the ISIC for concurrence and TYCOM for information.

b. The Ship will report by message (format of Appendix BE of this chapter) that Ship's Force is ready for follow-on sea trials.

c. The ISIC shall report by message (format of Appendix BF of this chapter) to the TYCOM that the material condition of those SUBSAFE Certification boundaries that were installed, repaired and/or tested by Ship's Force is satisfactory for resuming Sea Trials.

d. Upon completion of all of the requirements in paragraphs 3.6.8.3.10 a. and b. above, the TYCOM will provide a message (Appendix BG of this chapter) to the ISIC granting permission to proceed with the conduct of Sea Trials and authorize the ship to dive to the Sea Trial operating depth.

e. The industrial activity will identify by message to COMNAVSEASYSCOM and COMSUBDEVRON FIVE any additional SRDRS requirements to support the interrupted trials. Sample message in Appendices BN and CQ of this chapter.

3.6.8.3.11 Availability Completion Prerequisites. Upon completion of Sea Trials and correction/resolution of deficiencies, the following requirements must be met prior to completion of an industrial availability less than six months duration:

a. The Supervising Authority shall report by message (format similar to reference (t), Appendix B.3.8) to the TYCOM, satisfactory completion of all Sea Trials, completion of controlled dives, correction of all mandatory and Sea Trial deficiencies. Report that the SUBSAFE material condition of the ship installed, repaired, and/or tested by the industrial activity is satisfactory for URO to test depth. Identify any deferred SUBSAFE work and/or conditionally approved deviations and waivers.

b. Following verification from the ship Commanding Officer and the Supervising Authority of satisfactory completion of all Sea Trials, completion of controlled dives, correction of all mandatory Sea Trial deficiencies, certification that the SUBSAFE material condition of those parts of the ship installed, repaired, and/or tested by the industrial activity is satisfactory, and upon confirmation of maintenance of SUBSAFE certification of portions of ship not affected by the industrial activity, the TYCOM shall report by message (Appendix BO of this chapter) to the ship, with copies to CNO and NAVSEA, reporting status of SUBSAFE certification and authorizing URO to test depth.

c. ISIC. Following verification from the In-Service Engineering Activity (ISEA)/activity performing the work of satisfactory completion of all at-sea testing or trials, completion of controlled dives, correction of all mandatory sea trial deficiencies and resolution of all ISIC FBW SCS Certification Audit Deficiencies recommendations, certify to the TYCOM using Appendix BS, with information copies to CNO, the appropriate Fleet Commander and NAVSEA, the FBW SCS material condition of those parts of the ship installed, repaired and/or tested by the ISEA/activity performing the work is satisfactory, and recommend authorization for FBW SCS unrestricted use in support of submarine unrestricted operations, subject to ISIC verification that FBW SCS certification of areas outside ISEA/activity performing the work tasking has been sustained, or specifically identify any operating restrictions of the ship and/or system.

d. TYCOM. Following verification from the ISIC of satisfactory completion of all at-sea testing, correction of all mandatory deficiencies, receipt of certification that the FBW SCS material condition of those parts of the ship installed, repaired and/or tested by the ISEA/activity performing the work is satisfactory, and upon confirmation that FBW SCS certification was not affected for those portions of ship FBW SCS not affected by the ISEA/activity performing the work, issue a message to the ship using Appendix BT, with copies to CNO, ISIC and NAVSEA, certifying the FBW SCS and authorizing FBW SCS unrestricted use in support of submarine unrestricted operations or specifically identify any operating restrictions of the ship and/or system.

3.6.8.4 Trials, Inspections and Certification Major Availabilities (Greater Than Six Months) (Submarines Only). The following paragraphs summarize policies and responsibilities with respect to trials, tests and inspections incident to completion of major submarine availabilities. The TYCOM will maintain operational control of the submarine throughout the overhaul, conversion, refueling or post-conversion availability through the designated ISIC. For Atlantic/Pacific submarine units undergoing availabilities in West/East coast industrial activities, respectively, the TYCOM responsible for conducting all trials and inspections specified in this manual is the TYCOM with Operational Control of the unit.

a. Policy. Major availabilities require a succession of inspections and tests which culminate in a series of underway trials. References (n), (s), (ab) and (ac) set forth the philosophy and sequencing of the various categories of these tests and trials, the results of which determine the readiness of the ship at the completion of overhaul or repair. References (ad) and (q) delineate the Force Commander's responsibility for operational control of submarines assigned during trials and for assuring that the crew and ship have attained a satisfactory state of training, administrative, operational and material readiness for at-sea operations during the trials. ISICs and COs shall comply with the provisions of this volume in the conduct of trials incident to the conversion, overhaul and refueling of submarines assigned.

b. General Information for Industrial Activity Availability Trials and Inspections.

(1) The normal sequence of events leading up to Sea Trials is described in paragraph 3.6.8.4.b.(2) of this chapter. Fast Cruise may not commence until Dock Trials have been satisfactorily completed and a satisfactory state of crew training and material readiness, has been certified. The required inspections and tests and their associated time periods may be modified by the TYCOM upon request from the cognizant ISIC.

(2) The following inspections and tests are required:

(a) Periodic Monitoring Inspections.

1 Arrival Assist (on or about A+30) using the attributes of Volume I, Chapter 3, paragraph 3.3.1 of this manual.

2 Engineering Readiness Review(s).

3 Departmental Readiness Review(s).

(b) Pre-Critical Inspection (two days).

(c) Phase I Inspection (one day).

(d) Salvage Inspection (one day).

(e) Dock Trials (one day).

(f) Phase II Crew/Material Certification (two days).

(g) Audit of Ship's Force REC and Departure from Specification records.

(h) Minimum of 48 hours for industrial activity work (following Phase II crew certification) (two days).

(i) Fast Cruise normally consists of two days of uninterrupted operation, one day to allow the industrial activity and Ship's Force personnel to correct deficiencies, followed by two more days of uninterrupted operation (five days).

(j) Rest and repair period (about one day).

(k) Underway for initial Sea Trials.

(l) Appendix CC of this chapter provides a detailed summary of major trial and inspection milestones required for industrial activity availabilities of six months or greater in duration.

(3) When circumstances are such that Sea Trials must be rescheduled or planned for a weekend to avoid costly delays, Fleet Commander approval will be obtained by the Supervising Authority on a case basis.

(4) Critical operation of reactors while nuclear powered ships are in a naval or commercial industrial activity will be governed by reference (b). Until satisfactory completion of post repair propulsion plant trials (in the case of ships in industrial availabilities), permission to conduct critical reactor plant operations must be obtained from NAVSEA. Subsequent to completion of propulsion plant post repair trials, the CO may authorize critical operation of the reactor in support of tasks assigned the ship. However, so long as the ship remains in an industrial activity, the CO will notify the industrial activity, as appropriate, well in advance of any critical operations of the ship's reactor. This notification shall include the nature and duration of such operations. Crew certification inspections will not involve or require critical operation of the reactor.

(5) In conducting the inspections required herein, inspectors should be guided by the concept that at the start of Fast Cruise the ship should be, in all respects, ready for Sea Trials with the exception of the additional training the crew will receive during Fast Cruise.

(6) NAVSEA SUBSAFE Certification Audit (SSCA). During major CNO Maintenance Availabilities NAVSEA will conduct a SSCA as required by reference (t). A copy of the SSCA will be provided to the Supervising Authority, the ship's CO, the TYCOM and Fleet Commander. Prior to conducting Fast Cruise the Supervising Authority must report to NAVSEA and the TYCOM that those parts of the ship installed, repaired and/or tested by the industrial activity are certified satisfactory for post repair Sea Trials, including the resolution of NAVSEA SSCA Category I recommendations, status of all incomplete SSCA Category IA recommendations, and report that the ship is ready for commencement of Fast Cruise.

(7) The requirement for TYCOM certification of SUBSAFE boundaries not entered by the industrial activity and material readiness upon completion of an industrial activity imposes additional responsibilities on the ISIC inspectors. A formal audit of Ship's Force REC and Departure from Specification records shall be conducted by the ISIC QA Officer prior to Fast Cruise. Included in the audit and material inspection will be a review of ship procedures to ensure no unauthorized work was conducted within certified boundaries, and all outstanding Forces Afloat Departures from Specification, as defined in Volume V, Part I, Chapter 8 of this manual, granted prior to the availability which required corrective action. There may or may not have been restrictions involved with these departures. A review of the Ship's Force REC Records and Procedures is necessary for SUBSAFE work accomplished by Forces Afloat in accordance with Volume V, Part I, Chapter 5 of this manual, along with a review of the applicable URO MRC status. The ISIC certification message will also provide a statement certifying that ship and industrial activity procedures ensured that no unauthorized work was

conducted within the certified boundaries and, when required, will also provide a status report of any outstanding Re-Entries, Forces Afloat Departures from Specification and delinquent URO MRCs. The scope and nature of this inspection will vary dependent upon the extent and length of the availability. In this regard:

(a) Material certification may be made subject to the correction of specific deficiencies. (Deficiencies are such that they can be readily identified and listed.)

(b) Material certification should be postponed to a later date when deficiencies are so significant or so numerous as to preclude correction in the time remaining before scheduled commencement of Fast Cruise.

(c) Deficiencies that could affect the safe operation of the ship during Sea Trials must be corrected, reinspected and reported to the TYCOM as having been corrected prior to the start of Fast Cruise.

(8) Inspectors must determine that all work/testing necessary to support Sea Trials has in fact been completed or identified for completion prior to the commencement of Fast Cruise including the following.

(a) All ship systems which effect safe operation of the ship during Sea Trials must be operable.

(b) All work necessary for safe operation during Sea Trials which was undertaken by the industrial activity, Ship's Force, FMA, or other outside activities must have been satisfactorily completed and tested. Included must be a check for any "special configuration or installations" ensuring that they have been authorized by proper authority, that their impact has been fully assessed and that the Sea Trial Agenda considers these impacts or limitations.

(9) Following completion of the required training and material readiness certification, COs must keep the cognizant ISIC fully informed of any changes in personnel, training and/or material status which could affect the validity of certification. Prompt notification is required to permit revision of Operation Orders and services required.

(10) Underway trials following major availabilities, particularly initial submerged and test depth trials, must be undertaken with the knowledge that the crew lacks recent experience operating as a unit and that the ship's structure and fittings have not been tested in an at-sea environment. All tests and procedures must be conducted carefully and methodically. Systems or components designed to operate at test depth should not be exercised at test depth for the sole purpose of proving the design. They should be operated at the deepest depth at which they might be used. Trials and tests which are inherently hazardous should not be conducted. For example, the automated hovering system should not be demonstrated at test depth. Reference (ae) provides pertinent information regarding the testing of seawater systems during underway trials.

(11) An approved agenda is required for each underway period. The prerequisites for the first underway period are set forth in paragraphs 3.6.8.4.4 through 3.6.8.4.7 of this chapter.

(12) The first underway tests will be of limited scope. The initial tightness dive will be a deliberate, planned, step-by-step evolution using conservative angles and moderate speed. The submarine shall be accompanied by an escort ship properly equipped with sonar communication equipment as described in paragraph 3.6.8.4.7 of this chapter. The maximum water depth for this dive shall be 400 feet, as prescribed by reference (q).

(13) The initial trial schedule shall include a minimum of six hours of submerged ISE for Ship's Force training. This ISE should be sequenced as soon as practical after the initial tightness dive and should include the necessary evolutions to allow each watch section ship control party to familiarize themselves with their assigned stations and duties. The ship should be operated at moderate speed to develop proficiency prior to the deep dive and full power run. Testing may be scheduled during the ISE period on a not-to-interfere basis with training. The time spent in the initial tightness dive, if at moderate speed, may be included as one section's training. The requirement to provide each watch section ship control party with about two hour's experience submerged at moderate speeds prior to the deep dive and full power run is mandatory for ship safety.

(14) All trial periods must be organized such that each member of the command has an opportunity to get six uninterrupted hours of rest during each 24 hour period encompassed by the trials. Sea Trial events which can be accomplished by normal watch sections may be conducted concurrently with crew rest periods.

(15) Prior to getting underway for Sea Trials, Shipyard, Ship’s Force and Type Commander shall jointly agree that the required seven day supply of Oxygen (O2) and seven day supply of Carbon Dioxide (CO2) removal capacity will be available in each compartment, based upon the number of expected occupants of that compartment, independent of the supply and removal capacity in the other compartment(s).

(16) A deficiency correction period will be scheduled subsequent to the last Sea Trial and prior to the completion date. The scheduled length and location of this deficiency correction period will be determined by the type and magnitude of the deficiencies to be corrected.

(17) After the conclusion of Sea Trials, the submarine shall not be operated at depths greater than 1/2 Test Depth plus 50 feet, unless specifically authorized by the TYCOM, and shall not be released for unrestricted operations until all RECs are closed and the TYCOM issues the unrestricted operations authorization message.

(18) After the conclusion of Sea Trials, and based upon a review of Sea Trial deficiencies and TYCOM authorization, the submarine may transit to a port other than the industrial activity.

c. If equipment malfunctions (except for casualties affecting recoverability, salvage, watertight integrity, or operation of ship’s control surfaces), or seawater leakage in excess of the specification is found during the conduct of the initial tightness dive or the controlled dive to test depth, the ship should continue to the required depth and execute the sea trial agenda unless the Commanding Officer determines it appropriate to abort the dive. The Commanding Officer and Trials Director should be particularly circumspect in the case of leakage locations not isolable by flood control/other closures (e.g., electrical hull penetrators, periscope hoist rods, etc.).

d. Following completion of the initial tightness dive and the controlled dive to test depth, SUBSAFE deficiencies which result in seawater leakage exceeding the specification for acceptance shall be reported to the TYCOM, NAVSEA and info to all concerned.

e. If leakage is from an unisolable joint, ship’s depth will be limited to 1/2 test depth plus 50 feet until approval from the TYCOM is received to continue trials at depths greater than 1/2 test depth plus 50 feet.

3.6.8.4.1 Responsibilities. The responsibilities for trials and inspections are as follows:

a. NAVSEA.

(1) Provide approved procedures for tests of the reactor plant required for nuclear refueling and for reactor plant repairs and alterations accomplished in the availability.

(2) Authorize critical operation of the reactor as outlined in paragraph 3.6.8.4.b.(4) of this chapter.

(3) Approve the scheduling and the sequencing of nuclear propulsion plant tests and concur in the schedule and sequence for nuclear propulsion plant trials.

(4) Arrange for technical assistance from the U.S. Department of Energy as required.

(5) Conduct SSCAs and provide to the Supervising Authority, the ship's CO and the TYCOM and Fleet Commander a copy of the SSCA report.

(6) Review and concur with the Sea Trial Agenda submitted by the Supervising Authority.

(7) Certify (reference (t), Appendix B.3.2) to the TYCOM, information copies to CNO and Fleet Commander, that the material SUBSAFE condition of those parts of the ship installed, repaired and/or tested by the industrial activity are certified as satisfactory for Sea Trials and controlled dives to a specified depth (usually test depth).

(8) Following verification from the Supervising Authority of satisfactory completion of all Sea Trials, completion of controlled dives, correction of all mandatory Sea Trial deficiencies, and resolution of all NAVSEA SSCA Category IA recommendations, certify to the TYCOM, with information copies to CNO and the appropriate Fleet Commander, the SUBSAFE material condition of those parts of the ship installed, repaired, and/or tested by the industrial activity is satisfactory, and recommend authorization for URO to design test depth subject to TYCOM verification that SUBSAFE certification of areas outside the industrial activity AWP has been sustained.

b. Supervising Authority.

(1) Accept custody of and responsibility for special nuclear material upon delivery from the U.S. Department of Energy.

(2) Accept custody of and responsibility for spent nuclear fuel and other special nuclear material removed from the submarine incident to refueling until transferred to the U.S. Department of Energy.

(3) Transfer custody of and responsibility for nuclear fuel and other special nuclear material to the CO of the submarine undergoing refueling when it has been installed in the submarine.

(4) Provide sufficient time for crew training during the major availability period to permit the Ship's Force to attain a state of training adequate to ensure proper operation and safety of the ship and its personnel during Fast Cruise and Sea Trials.

NOTE: THE SCHEDULING AND SEQUENCING OF TRIALS INVOLVING TESTS OF A REACTOR PLANT PROPULSION PLANT MUST BE APPROVED BY THE FLEET COMMANDER AND CONCURRED TO BY NAVSEA.

(5) Prior to Fast Cruise, submit the Sea Trial Agenda to NAVSEA for concurrence and to the TYCOM for approval. Resolve any differences between NAVSEA and the TYCOM. Submit the Deep Dive Test Form and EMBT Blow Test Procedures to NAVSEA for approval. The Sea Trial Agenda shall provide the detailed sequence of events for conducting the Sea Trials required to be performed.

(6) Schedule the ship salvage inspection to ensure sufficient time for the TYCOM to conduct the inspection and for correction of deficiencies.

(7) Report the status of the material condition of those parts of the ship installed, repaired and/or tested by the industrial activity prior to each Sea Trial.

(a) Report by message (reference (t), Appendix B.3.1) to NAVSEA and TYCOM, in advance of the scheduled start of Fast Cruise, that those parts of the ship installed, repaired and/or tested by the industrial activity are certified satisfactory for post repair Sea Trials, including resolution of NAVSEA SSCA Category I recommendations and status of all incomplete NAVSEA SSCA Category IA recommendations, and report that the ship is ready for commencement of Fast Cruise. The message shall also state that there are no conditional SUBSAFE Deviations or Waivers which have not been satisfied or cite those that exist, and that, subject to satisfactory completion of Fast Cruise and resolution of mandatory deficiencies, the material condition of the ship is satisfactory for commencement of Sea Trials.

NOTE: SUBSEQUENT TO THE MESSAGE IN PARAGRAPH 3.6.8.4.1.b. (7)(a) OF THIS CHAPTER, ANY DEFICIENCY DISCOVERED AND THE CORRECTIVE ACTION TAKEN WHICH AFFECTS THE WATERTIGHT INTEGRITY, THE RECOVERABILITY OF THE SHIP, THE OPERATION OF THE SHIP'S CONTROL SURFACES, OR THE SHIP'S SALVAGE CAPABILITY SHALL BE REPORTED TO NAVSEA AND THE APPROPRIATE FLEET COMMANDER AND TYCOM BY MESSAGE CITED IN PARAGRAPH 3.6.8.4.1.b. (7)(a) OF THIS CHAPTER. PREVIOUS CERTIFICATION OF MATERIAL CONDITION SHALL BE SUSPENDED UNTIL NAVSEA AND TYCOM REVIEW THE REPORT AND NAVSEA CERTIFIES TO THE TYCOM BY MESSAGE THAT THE MATERIAL CONDITION OF THE PARTS OF THE SHIP COVERED BY THE INDUSTRIAL ACTIVITY AWP IS SATISFACTORY FOR SEA TRIALS TO A SPECIFIED DEPTH, AND THE TYCOM IN TURN CERTIFIES TO THE SHIP THAT THE SHIP'S SUBSAFE CERTIFICATION BOUNDARY IS SATISFACTORY FOR SEA TRIALS TO A SPECIFIED DEPTH.

(b) Report by message (reference (t), Appendix B.3.3) to NAVSEA and TYCOM, with the concurrence of the CO, the successful completion of Fast Cruise and SUBSAFE material condition readiness as a prerequisite to start of Sea Trials.

(c) Where a previous Sea Trial was aborted, or corrective actions for Sea Trial deficiencies require an additional deep dive, report by message (reference (t), Appendix B.3.5) to NAVSEA that the SUBSAFE material condition of those parts of the ship installed, repaired, and/or tested by the industrial activity is satisfactory for Follow-On Sea Trials to test depth.

(8) Report by message (reference (t), Appendix B.3.8) to NAVSEA, satisfactory completion of all Sea Trials, completion of controlled dives, correction of all mandatory Sea Trial deficiencies, and resolution of all NAVSEA SSCA Category IA recommendations. Report that the SUBSAFE material condition of those parts of the ship installed, repaired, and/or tested by the industrial activity is satisfactory for URO to test depth. Identify any deferred SUBSAFE work and/or conditionally approved deviations and waivers.

(9) Coordinate the schedule for Fast Cruise and post repair trials with the TYCOM/ISIC representative.

(10) Recommend to the President, Board of Inspection and Survey and the TYCOM, information to NAVSEA, Fleet Commander and TYCOM/ISIC representative, when post availability Material Inspection and Underway Trials by the Board of Inspection and Survey are required.

c. TYCOM.

(1) Schedule the Fleet Commander PORSE as recommended by the industrial activity in the Key Events Schedule and confirmed by the parent TYCOM/ISIC representative upon completion of the ISIC Pre-Critical Inspection.

(2) Provide Fast Cruise, Sea Trial and completion prerequisites message (Appendix CD of this chapter) to the ship approximately 90 days prior to the start of Sea Trials.

(3) Assign material representatives to be embarked during trials as required by paragraph 3.6.8.4.2 of this chapter.

(4) Inform the CNO and Fleet Commander of the scope and schedule of the trials. This is normally done by copy of the TYCOM/ISIC representative Operation Order to the CNO and Fleet Commander.

(5) Provide escorts as required. Send a Sea Trials Support Services message (Appendix CA of this chapter) to specify SRDRS "modified alert" requirements.

(6) Approve Sea Trial Agenda.

(7) Report, by message (Appendix CE of this chapter), to NAVSEA crew readiness for Sea Trials and request NAVSEA Nuclear Propulsion Directorate (08) authorization for critical operations.

(8) Prior to each Sea Trial, following certification from the Supervising Authority and NAVSEA that the material condition of those parts of the ship installed, repaired and/or tested by the industrial activity is satisfactory for Sea Trials and TYCOM verification that the SUBSAFE certification of those parts of the ship not affected by the industrial activity AWP has been sustained, report by message (Appendix CF of this chapter) to the ship, with copies to CNO and NAVSEA, reporting that the status of the SUBSAFE Certification Boundary is satisfactory and authorizing the conduct of Sea Trials and dives to specified depth. If the ship had Upgrades/Alterations or Major Repair Work of the FBW SCS, and following a recommendation from the ISIC, authorize underway operation of the FBW SCS using Appendix CT.

(9) Following verification from NAVSEA of satisfactory completion of all Sea Trials, completion of controlled dives, correction of all mandatory Sea Trial deficiencies, certification that the SUBSAFE material condition of those parts of the ship installed, repaired and/or tested by the industrial activity is satisfactory, and upon confirmation of maintenance of SUBSAFE certification of portions of ship not affected by the industrial activity, report by message (Appendix CG of this chapter) to the ship, with copies to CNO and NAVSEA, reporting status of SUBSAFE certification and authorizing URO to test depth. If the ship had Upgrades/Alterations or Major Repair Work of the FBW SCS, following verification from the ISIC of satisfactory completion of all at-sea testing, correction of all mandatory deficiencies, receipt of certification that the FBW SCS material condition of those parts of the ship installed, repaired and/or tested by the ISEA/activity performing the work is satisfactory, and upon confirmation that FBW SCS certification was not affected for those portions of ship FBW SCS not affected by the ISEA/activity performing the work, issue a message to the ship using Appendix CV, with copies to CNO, ISIC and NAVSEA, certifying the FBW SCS and authorizing FBW SCS unrestricted use in support of submarine unrestricted operations or specifically identify any operating restrictions of the ship and/or system.

NOTE: SUBSEQUENT TO THE MESSAGES, APPENDICES CB AND CE OF THIS CHAPTER, AND REFERENCE (t), APPENDICES B.3.1 AND B.3.2, ANY DEFICIENCY DISCOVERED AND THE CORRECTIVE ACTION TAKEN WHICH AFFECTS THE WATERTIGHT INTEGRITY, THE RECOVERABILITY OF THE SHIP, THE OPERATION OF THE SHIP'S CONTROL SURFACES OR THE SHIP'S SALVAGE CAPABILITY SHALL BE REPORTED

TO NAVSEA, TYCOM AND FLEET COMMANDER BY THE SUPERVISING AUTHORITY (INDUSTRIAL ACTIVITY DEFICIENCY) OR SHIP CO (FORCES AFLOAT DEFICIENCY) IN MESSAGE FORMAT. PREVIOUS CERTIFICATION SHALL BE CONSIDERED RESCINDED. WHEN A REVIEW OF THE DEFICIENCY IS COMPLETED BY NAVSEA FOR INDUSTRIAL ACTIVITY ITEMS AND TYCOM FOR SHIP'S FORCE ITEMS, NAVSEA WILL CERTIFY TO THE TYCOM THAT THE MATERIAL CONDITION OF THE PARTS OF THE SHIP COVERED BY THE INDUSTRIAL ACTIVITY AWP IS SATISFACTORY FOR SEA TRIALS TO A SPECIFIED DEPTH. THE TYCOM IN TURN CERTIFIES THAT THE SHIP'S SUBSAFE CERTIFICATION BOUNDARY IS SATISFACTORY FOR SEA TRIALS TO A SPECIFIED DEPTH.

d. ISIC/TYCOM Representative.

(1) Conduct periodic monitoring of ships using paragraph 3.6.8.4.4 of this chapter as a guide to include:

(a) Technical, administrative and training assistance visits directed toward improvements in management and conduct of maintenance during the availability and training tasks (Tech Assists).

(b) Evaluation visits to determine the state of administration and training (Work-Ups).

(c) Spot checks to monitor progress and effectiveness in specific material, training and administrative areas (Monitor Visits).

(d) Monitor Maintenance Reports that require post availability actions (Liaison Action Requests, Deficiency Management Tracking System items, Departure From Specifications, Deficiency Reports, etc.) for inclusion in the ship's CSMP, as required.

(2) Conduct a Pre-Critical Inspection of the Engineering Department in accordance with paragraph 3.6.8.4.4 of this chapter to determine the ship's readiness for either the RSE or the Fleet Commander PORSE (as applicable).

(3) Schedule a salvage inspection by the operating forces in time to have discrepancies corrected prior to the start of Fast Cruise.

(4) Conduct a formal Phase I certification inspection of the ship's company in accordance with references (u) through (z). The purpose of this inspection shall be to audit the readiness and training of the Ship's Force, particularly in the areas of watchstander qualifications, damage control readiness, status of operational and emergency bills, present on board of essential technical manuals, and general operational knowledge. This inspection shall be scheduled about one month prior to Fast Cruise and should include written examinations and personal interviews with officers and key enlisted men to determine their readiness and status of training as outlined for Phase I. A comparison of personnel allowance (including Navy Enlisted Classification requirements) versus onboard count shall be made to ensure that the ship is adequately manned.

(5) Prior to Fast Cruise, the ISIC QA Officer shall conduct a formal audit of Ship's Force REC and Departure from Specification Records and CSMP. Using the SUBMEPP PMR and URO MRC scheduling reports and current industrial activity/Ship's Force updates to the latest report, ensure all "D"-Level PMR and URO MRC accomplishment is current. The ISIC shall forward the audit results to the TYCOM via the cognizant Commander, Submarine Group. The ISIC will then report to the TYCOM by message (Appendix CB of this chapter) the status of the crew/material certification. An update of this certification is needed prior to Sea Trials and following the rescinding of certification noted in the NOTE following paragraph 3.6.8.4.1.c. (9) of this chapter. If Upgrades/Alterations or Major Repair Work of the FBW SCS was

performed, a 100% audit of the work, as defined in Volume V, Part I, Chapter 9 of this manual, will be performed by the ISIC. The ISIC shall report certification of work and recommend at-sea operations using the message format of Appendix CS.

(6) Witness and certify to the TYCOM that the state of crew training is satisfactory for at-sea operations in accordance with references (u) through (z). This will be done during a two day period subsequent to Dock Trials and prior to Fast Cruise as outlined in paragraph 3.6.8.4.4.e. of this chapter. This two day period shall be scheduled so that there is normally a 48 hour period between the end of this event and the beginning of Fast Cruise. This two day Phase II crew certification period is divided into a 40 hour crew work-up and rest period and an eight hour modified dockside Operational Readiness Inspection. The entire period should be scheduled to minimize interference with industrial activity work. However, since the certification must be conducted most carefully to be meaningful, the officer scheduling the certification should coordinate industrial activity interference during the eight hour modified Operational Readiness Inspection. This certification should be thorough and meticulous. Pressure from the industrial activity or any other source to compromise the submarine's safety must not be permitted to influence the judgment of the certifying officers. The desired overall sequence of these events is shown in Appendix CC of this chapter.

(7) Conduct a material inspection of the ship concurrent with the inspection of paragraph 3.6.8.4.1.d.(5) of this chapter. This inspection should be conducted using the guidelines contained in paragraphs 3.6.8.4.b.(5) and 3.6.8.4.b.(7) of this chapter.

(8) Satisfactory completion of the inspections of paragraphs 3.6.8.4.1.d.(5) through 3.6.8.4.1.d.(7) of this chapter should be reported to the TYCOM in one "PRIORITY" crew certification message in accordance with sample message format of Appendix CB of this chapter paralleled by a telephone call to the TYCOM Watch Officer reporting the date-time group of the message. If significant deficiencies exist or it appears that extension of time is required to correct training/material deficiencies, the TYCOM shall be immediately advised by telephone and by message. The Supervising Authority will be included as an information addressee.

(9) Receive from the CO/Supervising Authority the scope, schedule and agenda of tests for Sea Trials for review. The concurrence of NAVSEA is required for the sequencing and scheduling of propulsion plant Sea Trials for industrial activity availabilities.

(10) Prior to Sea Trials, report by message (Appendix CH of this chapter) to the TYCOM the material certification of the ship.

(11) Advise the TYCOM by message of escort requirements and ensure that an escort is provided during the initial tightness dive, during the deep dive and during emergency blow tests as required by paragraph 3.6.8.4.7.a. of this chapter.

(12) Arrange for a SRDRS to be on "modified alert" during the Sea Trials via message (Appendix CA of this chapter) to COMSUBDEVRON FIVE.

(13) Provide updated sea trials status by telephone to COMSUBDEVRON FIVE if SRDRS "mod-alert" support services are in use in accordance with paragraph 3.6.8.4.7.b.(6) of this chapter.

(14) Provide an operation order to be used incorporating the provisions of reference (q). Provide a copy to the TYCOM and, where appropriate, the local ISIC, information to CNO and Fleet Commander. Include within operation orders pertaining to post-availability trials, instructions to send specific messages announcing the start and completion of initial deep dive with the TYCOM as an information addressee.

(15) Arrange for the embarkation of technical personnel who may be assigned by NAVSEA to observe tests or trials.

(16) Arrange for the assignment of operating areas and communications frequencies.

(17) Assign a submarine qualified officer to act as TYCOM representative embarked during Sea Trials as required by paragraph 3.6.8.4.2 of this chapter. When necessary, provide a gold dolphin wearer to ride the escort vessel.

(18) When authorized by the TYCOM, grant permission for the ship's CO to commence Sea Trials in accordance with the approved Sea Trials Agenda.

(19) Upon completion of Sea Trials, report by message (Appendix CI of this chapter) to the TYCOM the status of any work performed by Forces Afloat within the SUBSAFE boundary, status of Departures from Specification and status of URO MRCs. If Upgrades/Alterations or Major Repair Work of the FBW SCS was performed, following verification from the ISEA/activity performing the work of satisfactory completion of all at-sea testing or trials, completion of controlled dives, correction of all mandatory sea trial deficiencies, and resolution of all ISIC FBW SCS Certification Audit Deficiencies recommendations, certify to the TYCOM using Appendix CU, with information copies to CNO, the appropriate Fleet Commander and NAVSEA, the FBW SCS material condition of those parts of the ship installed, repaired, and/or tested by the ISEA/activity performing the work is satisfactory, and recommend authorization for FBW SCS unrestricted use in support of submarine unrestricted operations, subject to ISIC verification that FBW SCS certification of areas outside ISEA/activity performing the work tasking has been sustained, or specifically identify any operating restrictions of the ship and/or system.

e. Ship CO.

(1) Carry out his command responsibilities in accordance with reference (e).

NOTE: SUBMARINES UNDERGOING INDUSTRIAL ACTIVITY AVAILABILITIES NORMALLY REMAIN IN COMMISSION WITH A CREW ASSIGNED. THE CO REMAINS FULLY RESPONSIBLE FOR THE NUCLEAR PROPULSION PLANT DURING ALL PHASES OF THE AVAILABILITY, INCLUDING ALL POST REPAIR TESTS AND TRIALS.

(2) Develop and execute training plans and documents in order to maintain the state of training of the crew adequate to support post repair tests, inspections and trials. The nature and scope of the training required will depend to a great extent on the length of the availability. Care shall be taken to ensure that these plans and documents are in conformance with instructions and procedures approved by NAVSEA.

(3) Supervise operation of the nuclear propulsion plant. Critical operations will be conducted as set forth in paragraph 3.6.8.4.b.(4) of this chapter.

(4) Prepare the ship's engineering personnel and propulsion plant and spaces for examination by the Director, Division of Naval Reactors, U.S. Department of Energy or the Fleet Commander Nuclear Propulsion Examining Board. For PORSE conducted by the Nuclear Propulsion Examining Board, direct liaison is authorized with the industrial activity to ensure estimated dates are included in the Key Events schedule.

(5) Maintain PMS in accordance with reference (af), SUBSAFE REC in accordance with Volume V, Part I, Chapter 5 of this manual to ensure no unauthorized Ship's Force work is conducted within the certified SUBSAFE boundaries, Reactor Plant PMS in accordance with reference (ag) and Planned Maintenance Management Program in accordance with reference (ah), for work performed by Forces Afloat. Ensure records are ready for ISIC audit conducted prior to Fast Cruise.

(6) Participate in at-sea periods prior to the first Sea Trials as follows:

(a) If possible accompany the preceding ship in overhaul on the first Sea Trial to learn how the propulsion trial is run.

(b) For ships in availabilities 18 months or longer, the CO shall participate in an underway period of sufficient duration about six months before Phase II Crew Certification. The purpose of this ride is to refresh him on what is important to ensure the safe conduct of his own Sea Trials and to insure his crews training program is emphasizing those matters. This underway should be on a ship, preferably of the same class, which is concentrating on basic submarine operations, such as Selected Refresher Training or ISE, in order for the CO to see evolutions such as coming to periscope depth, snorkeling, ventilating, casualty training, etc. If the availability schedule has 10-12 weeks between Power Range Testing and Phase II Crew Certification, the CO should go to sea about two months before Power Range Testing. The intent is for the CO to go to sea after having been in the industrial activity for a fair amount of time (normally one year or more), but with sufficient time remaining to improve his own training program if necessary. During these underways, the CO should have time on the bridge and also observe piloting and navigation.

(7) Determine, in conjunction with the Supervising Authority, the nature and extent of the post-repair Sea Trials. Review the Sea Trial Agenda, including the sequence and duration of each test. The CO will concur with the trial agenda, then the Supervising Authority will submit it to NAVSEA for concurrence and the TYCOM for approval. Provide copies of the approved detailed schedule and agenda for underway trials to the local ISIC, if appropriate, the escort ship and embarked TYCOM representative, if assigned. This schedule and agenda shall include:

(a) The minimum requirements in paragraph 3.6.8.4.7 of this chapter.

(b) A firm time scheduled for the conduct of all tests and trials showing their sequence and duration.

(c) General prerequisites for the conduct of each test. Detailed prerequisites should be itemized as part of individual test requirements.

(d) Responsibility for the conduct of each test (industrial activity or ship).

(e) Support required from the operating forces for the conduct of each test.

(f) Provision for adequate crew rest time during Sea Trials. Opportunity for six uninterrupted hours of rest in each twenty-four hour period is a minimum for each member of the command.

(g) Provision for a minimum of six hours of uninterrupted independent ship exercises for crew training following the initial tightness dive and prior to the deep dive.

(h) Underway tests may be run during ISE and rest periods on a not-to-interfere basis. Specifically, tests which can be conducted underway under normal operating conditions without manning of special watch stations that require extra military personnel, may be scheduled during rest periods. Tests which will not interfere with Ship's Force drills and training exercises may be conducted during ISE periods.

(8) Undergo a salvage inspection in accordance with Volume IV, Chapter 18 of this manual.

(9) Conduct one day Ship's Force Dock Trials in accordance with paragraph 3.6.8.4.5 of this chapter.

(10) Demonstrate the state of training of the crew in accordance with references (u) through (z).

(11) Ensure that all pertinent alongside tests, inspections, and trials are conducted.

(12) Certify to the designated ISIC/TYCOM representative that all salvage inspection discrepancies affecting safe conduct of Sea Trials have been corrected. Deliver a copy of the salvage plan to the escort ship, if required, and confer with the escort ship to coordinate communications and operational procedures, ensuring that the escort is fully informed as to the submarine's condition and intentions.

(13) Concur with Supervising Authority message (reference (t), Appendix B.3.1) concerning Fast Cruise/Sea Trial readiness.

(14) Report by message (Appendix CJ of this chapter) to the TYCOM that crew and ship are ready for Sea Trials. List exceptions such as completion of Fast Cruise, removal of shore power connections, etc.

(15) When authorized by the TYCOM and, when permission has been granted by NAVSEA 08 for critical reactor operations, conduct a Fast Cruise in accordance with paragraph 3.6.8.4.6 of this chapter.

(16) Concur with Supervising Authority message (reference (t), Appendix B.3.3) that Fast Cruise was successfully completed, all mandatory deficiencies for Sea Trials have been corrected and recommend commencement of Sea Trials.

(17) Report completion of Fast Cruise to the TYCOM by message (Appendix CK of this chapter) and request permission to commence Sea Trials.

(18) When all the requirements of this instruction are completed and permission has been received from the TYCOM, proceed to sea in accordance with operation order. At sea, carry out the approved Sea Trial Agenda and Schedule.

NOTE: SUBSEQUENT TO THE MESSAGES, APPENDICES CF AND CH OF THIS CHAPTER, ANY DEFICIENCY DISCOVERED AND THE CORRECTIVE ACTION TAKEN WHICH AFFECTS THE WATERTIGHT INTEGRITY, THE RECOVERABILITY OF THE SHIP, THE OPERATIONS OF THE SHIP'S CONTROL SURFACES OR THE SHIP'S SALVAGE CAPABILITY SHALL BE REPORTED TO NAVSEA, TYCOM AND FLEET COMMANDER BY THE SUPERVISING AUTHORITY/ISIC/TYCOM REPRESENTATIVE BY MESSAGE. PREVIOUS CERTIFICATION MESSAGES SHALL BE SUSPENDED. WHEN A REVIEW OF THE DEFICIENCY IS COMPLETED BY NAVSEA FOR INDUSTRIAL ACTIVITY ITEMS AND TYCOM FOR SHIP'S FORCE ITEMS, NAVSEA WILL CERTIFY TO THE TYCOM THAT THE MATERIAL CONDITION OF THE PARTS OF THE SHIP COVERED BY THE INDUSTRIAL ACTIVITY AWP IS SATISFACTORY FOR SEA TRIALS TO A SPECIFIED DEPTH. THE TYCOM IN TURN CERTIFIES THAT THE SHIP'S SUBSAFE CERTIFICATION BOUNDARY IS SATISFACTORY FOR SEA TRIALS TO A SPECIFIED DEPTH.

3.6.8.4.2 Type Commander Embarked Representative. For the first Sea Trial after a major industrial activity availability of a nuclear powered submarine, an unrestricted line officer (a former CO senior to the CO) normally provided by the ISIC/TYCOM will be the TYCOM embarked representative. This officer has the authority to act for the TYCOM in making on the spot changes to the approved Sea Trial Agenda. A TYCOM material representative may also be assigned. When assigned, he will serve as a technical advisor to the TYCOM embarked representative on matters pertaining to Sea Trial Agenda changes, compliance with this manual and disposition of emergent material deficiencies.

a. During Sea Trials, assume the duties of Officer In Tactical Command unless otherwise designated by the ISIC. As Officer In Tactical Command, this officer must comply with direction found in Annex C of reference (q).

b. When no officer senior to the CO is embarked for sea trials, the following officers shall act for the TYCOM in approving on-the-spot changes to the Sea Trial Agenda in the order of precedence listed:

(1) TYCOM material representative if embarked.

(2) Designated ISIC representative if embarked.

(3) Ship's CO.

NOTE: SEA TRIAL AGENDAS ARE DEVELOPED AS A RESULT OF LESSONS LEARNED OVER A LONG PERIOD OF TIME. EVENTS AND SEQUENCES OF EVENTS ARE IMPORTANT AND SHOULD BE CHANGED ONLY AFTER THOROUGH DELIBERATION.

3.6.8.4.3 Availability Completion Prerequisites. The following requirements will be included in the TYCOM "Countdown Message" outlined in paragraph 3.6.8.4.8 of this chapter:

a. The Supervising Authority will report by message (reference (t), Appendix B.3.8) to NAVSEA, satisfactory completion of all Sea Trials, completion of controlled dives, correction of all mandatory Sea Trial deficiencies, and resolution of all NAVSEA SSCA Category IA recommendations. Report that the SUBSAFE material condition of those parts of the ship installed, repaired, and/or tested by the industrial activity is satisfactory for URO to test depth. Identify any deferred SUBSAFE work and/or conditionally approved deviations and waivers.

b. Following verification from the Supervising Authority of satisfactory completion of all Sea Trials, completion of controlled dives, correction of all mandatory Sea Trial deficiencies, and resolution of all NAVSEA SSCA Category IA recommendations, NAVSEA shall certify by message (reference (t), Appendix B.3.9) to the TYCOM, with information copies to CNO and the appropriate Fleet Commander, the SUBSAFE material condition of those parts of the ship installed, repaired, and/or tested by the industrial activity is satisfactory, and recommend authorization for URO to design test depth subject to TYCOM verification that SUBSAFE certification of areas outside industrial activity AWP has been sustained.

c. Following verification from NAVSEA of satisfactory completion of all Sea Trials, completion of controlled dives, correction of all mandatory Sea Trial deficiencies, certification that the SUBSAFE material condition of those parts of the ship installed, repaired and/or tested by the industrial activity is satisfactory, and upon confirmation of maintenance of SUBSAFE certification of portions of the ship not affected by the industrial activity, the TYCOM shall report by message (Appendix CG of this chapter) to ship, with copies to CNO and NAVSEA, reporting status of SUBSAFE certification and authorizing URO to test depth.

3.6.8.4.4 Inspection Procedures.

a. Periodic Monitoring, Inspections, and Visits.

(1) Purpose.

(a) To provide to ships in availability such administrative and training assistance as is necessary to improve the Ship's Force conduct of the availability, maintenance and training tasks. Visits of this nature are termed Tech Assists.

(b) To evaluate the effectiveness of administration and training. Inspections of this nature are termed Work-Ups.

(c) To conduct spot checks to monitor progress in specific material, administrative and training areas. Visits of this nature are termed Monitor Visits.

(2) Discussion. The extent, type and frequency of periodic monitoring, inspections, and visits should be determined on a case basis by the responsible ISIC or TYCOM representative. The initial inspection should be broad in scope in order to appraise the responsible ISIC of the adequacy of the ship's performance and progress. Normally, the initial visit will indicate the necessary frequency and scope of subsequent Tech Assists and Monitor Visits. In general, any required Work-Ups should be scheduled in advance of Key Events during the availability.

(3) Areas of Inspection Coverage. Initial inspections normally examine the effectiveness of Ship's Force preparations for an availability. Subsequent inspections and visits should review the following areas as appropriate for the purpose of the specific inspection.

(a) Review procedures and administrative steps for provisional watch station qualifications.

(b) Review department organization manuals.

(c) Review department instructions and administrative procedures.

(d) Review ship's instructions and administrative procedures.

(e) Review department logs, operating instructions and casualty procedures.

(f) Review ship's standard operating procedures and the ship's organization and regulations manual.

(g) Review training conducted and planned to support the goal of requalifying or reestablishing proficiency of watchstanders.

(h) Monitor performance of watchstanding.

(i) Conduct spot check of ship's records and logs in use.

(j) Review Ship's Force controlled work (SUBSAFE, Level I and Nuclear) and procedures to ensure proper controls and documentation in accordance with this manual and no unauthorized work is conducted within the SUBSAFE boundaries.

(k) Review status of Ship's Force responsible PMS/IEM.

(l) Inspect installed equipment for cleanliness and adequate protection from damage.

(m) Review Tag-Out and Work Authorization Logs. Spot check for compliance in accordance with current directives.

(n) Inspect ship for hazards.

(o) Inspect provisions for casualty control including watertight integrity.

(p) Verify that all COSAL material including operating space items, have been off-loaded to processing areas which provide appropriate security.

(q) Inspect the processing area to verify provisions and procedures for careful ILO inventory.

(r) Review response of supply system to requisitions in support of Ship's Force work.

(s) Verify that items are withdrawn from the ship's COSAL stock undergoing inventory/ILO only on an emergency basis and that such issues are well documented with appropriate adjustments to the inventory records.

(t) Evaluate general safety practices.

(4) Scheduling of Periodic Monitoring, Inspection and Visits. Periodic Monitoring, Inspections, and Visits should be scheduled by the responsible ISIC as appropriate for the purposes of the inspection concerned. Some monitoring visits should be conducted on an unannounced basis. These inspections should be given so as to minimize interference with industrial activity and Ship's Force work.

(5) Reports of Inspection. Formal reports of the results of periodic monitoring, inspection and visits are not required by the TYCOM. However, the responsible ISIC should advise the TYCOM in situations when the attainment of required progress toward completion of Key Events is in jeopardy.

b. Pre-Critical Inspection.

(1) Purpose. To evaluate the readiness of the engineering department to undergo a PORSE by the Fleet Commander Nuclear Propulsion Examining Board or a RSE by representatives from NAVSEA 08.

(2) Discussion. The conduct of the Pre-Critical Examination by the ISIC is not intended to duplicate the inspections for which readiness is being evaluated. It is considered prudent, however, to use an inspection plan similar to that employed by NAVSEA. Normally, the crew's readiness can be assessed within two days using such a plan, which should encompass the following:

(a) An administrative review.

(b) Observation of basic drills and evolutions not requiring reactor operation.

(c) Personnel interviews.

(d) Material inspection.

NOTE: FOR SSBN/SSGN PRE-CRITICAL INSPECTIONS, THE CREW TO BE INSPECTED IS THE COMPOSITE CREW SELECTED FOR INITIAL CRITICALITY AND POWER RANGE TESTING.

(3) Scheduling of Pre-Critical Inspections. The ISIC Pre-Critical Inspection should normally be scheduled by the responsible ISIC about four weeks prior to criticality (non- refueling availability) and six weeks prior to initial criticality for an overhaul involving refueling. The TYCOM should be advised as soon as possible in advance of the tentative date for the ISIC Pre-Critical Inspection and confirmed dates should be established about one month in advance of the inspection.

(4) Composition of the Inspection Team. The Pre-Critical Inspection Team should consist of:

(a) A nuclear trained member of the cognizant ISIC Staff, usually the Squadron Training Officer.

(b) A nuclear trained officer with experience as an Engineer Officer.

(c) When available, a nuclear trained officer from the TYCOM's Staff will participate in ISIC Pre-Critical Inspections involving refueling. Arrangements for participation of the TYCOM Staff member should be initiated by the responsible ISIC at least one month in advance of the anticipated ISIC Pre-Critical Inspection.

(5) Reports of Inspection.

(a) The Senior Inspector should provide the inspected unit with an informal report of findings by the inspection team, copy to the cognizant ISIC and TYCOM.

(b) The ship's CO shall review the findings of the inspection team and make necessary adjustments to the training program to ensure the crew's readiness for the examination. The ship's CO shall keep the cognizant ISIC advised of the training plan and the assessment of the crew's progress.

(c) The cognizant ISIC shall review the inspection findings, the CO's training plan and progress evaluations, and direct follow-up reviews and/or inspections necessary to verify the ship's readiness for the examination.

c. Phase I Certification Inspection.

(1) Purpose. To determine the state of readiness and training of the Ship's Force, particularly in the areas of watchstander qualification, damage control readiness, status of operational and emergency bills, present onboard supply of essential technical manuals and general operational knowledge.

(2) Discussion. The guidelines for the Phase I inspection are provided in references (u) through (z). The intent of the inspection is to provide a preliminary estimate of readiness and to identify areas requiring action prior to final certification (Phase II).

(3) Scheduling of Phase I Certification Inspection. Phase I Inspections should be scheduled by the responsible ISIC about 35 days before scheduled initial Sea Trials.

(a) Chief Inspector - ISIC representative of appropriate seniority.

(b) Assistant Chief Inspector - a submarine CO.

(c) Assistant inspectors for the following departments/areas - overall training, executive, operations, navigation, communications, weapons, first lieutenant, engineering and material.

(d) The inspector for the engineering areas of nuclear powered submarines will be a nuclear trained officer qualified as an Engineer Officer.

(4) Reports of Inspection.

(a) The Chief Inspector shall provide the inspected ship with an informal report of findings by the inspection team.

(b) In the event that inspection results indicate the readiness for final (Phase II) certification in the required time cannot be assured, the responsible ISIC should advise the TYCOM of the circumstances.

d. Material Inspection. Prior to certifying commissioned ships' readiness for at-sea operations, conduct a material inspection to determine that the ship is materially ready for at-sea operations in accordance with Volume V of this manual. In addition, on all ships conduct a Salvage Inspection in accordance with Volume IV, Chapter 18 of this manual. Results of material inspections should be reported with Phase II crew certification reports.

e. Phase II Certification Inspection.

(1) Purpose. To certify that the state of training of the crew is satisfactory for at-sea operations.

(2) Discussion. The requirements for Phase II certification inspection are provided in references (u) through (z).

(3) Scheduling of Phase II Certification Inspections. Phase II inspections should be scheduled by the responsible ISIC about nine days prior to Sea Trials.

(4) Composition of the Inspection Team. The requirements for Phase II Certification Team composition are the same as those for Phase I.

(5) Reports of Certification. The Phase II Certification and Material Certification Reports are combined and submitted in accordance with Appendix CB of this chapter.

3.6.8.4.5 Dock Trials. Ship's Force Dock Trials provide the opportunity to test and check out systems, components and portable equipment prior to the Fast Cruise training period simulating underway conditions. Although normally a period of one day is assigned for integrated Ship's Force Dock Trials, tests and evolutions performed in the one to two weeks prior to the Dock Trial date may be accepted by the CO as fulfilling the requirements of this paragraph. The purpose of Dock Trials is to afford the ship an opportunity to demonstrate that major systems and equipments are in fact ready to support Sea Trials. It is expected that individual equipments will have been satisfactorily tested prior to commencement of the integrated operational tests afforded by Ship's Force Dock Trials. Appendix L of this chapter lists the minimum requirements for Dock Trials and will be used by the ship's CO in preparing for and conducting Dock Trials.

3.6.8.4.6 Fast Cruise. The overall objective of the Fast Cruise is to train the crew and determine the crew's ability to take the ship to sea safely. In addition to the normal underway routine, the CO shall have all equipments operated to check for proper operation and to determine the state of training of the crew. Fast Cruise shall, as far as is practicable, simulate at sea operating conditions. It is to be conducted by the Ship's Force and is to be unhampered by repair work or by movement of industrial activity personnel through the ship. The Supervising Authority shall **not** schedule any trials, tests or other work to be performed on the ship during this period. The Fast Cruise should be four days in duration for nuclear ships and two days for non-nuclear submarines. It should be completed within a five-day period. It should end not more than three days prior to underway trials. Normally, the ship will go to sea for underway trial within a day after completion of Fast Cruise. Should the 72 hour period be exceeded, the TYCOM may direct an additional Fast Cruise. The parent ISIC will make formal recommendations to the TYCOM as to the desired period of Fast Cruise. Appendix M of this chapter lists the minimum requirements for Fast Cruise and will be used by the ship's CO in preparing for and conducting Fast Cruise. Additional drills and operations are at the discretion of the ship's CO. The ship shall be operated as if underway, simulating the various evolutions required for safe operation of the ship. Each underway section shall be exercised in the evolutions which are normally performed on a section basis. During each evolution, check out all communication systems. Ensure that each is in proper working order and that, where duplicate systems exist, a priority system is designated.

3.6.8.4.7 Sea Trials. Appendix O of this chapter delineates the minimum requirements incident to Sea Trials following industrial activity availabilities. For submarines, following completion of Fast Cruise the ISIC will notify the TYCOM of satisfactory completion of Fast Cruise and readiness for Sea Trials using the message format of Appendix CH. The submarine TYCOM will authorize the ISIC to allow the ship to get underway for Sea Trials using the message format of Appendix CF. The submarine CO will keep the TYCOM aware of the progress of the Sea Trial through periodic SITREPs using the message format of Appendix CP of this chapter. SITREPs will be

submitted following completion of the initial tightness dive, following completion of the deep dive to test depth and daily at a minimum and as identified by the TYCOM or the Sea Trial Agenda. Sea Trials following availability are normally conducted with a significant number of "riders". These riders represent NAVSEA, TYCOM and Shipbuilder personnel onboard to observe various tests and trial evolutions. The ship's normal loadout of Lithium Hydroxide canisters, Lithium Hydroxide curtains, EAB masks, SEIE suits and oxygen candles is not sufficient to support this increase in personnel. Therefore, an additional four Lithium Hydroxide canisters, four Lithium Hydroxide curtains, one EAB mask, one SEIE suit and two oxygen candles shall be carried for each rider exceeding normal crew manning. Lithium Hydroxide canisters, EABs, SEIE suits and Lithium Hydroxide curtains are to be obtained from the industrial activity. The Supervising Authority and ship's CO will use Appendix O of this chapter in preparing for and conducting Sea Trials.

a. Assignment of Escort Ship. An escort is required for:

(1) Initial tightness and deep dives after a major industrial activity availability, including EMBT blow at the completion of each of these dives.

(2) Any EMBT blow from greater than 400 feet. Rationale is to give submarine added protection to prevent interference from any surface contact.

NOTE: IN ALL CASES, HULL STRENGTH/TIGHTNESS AND VALVE OPERATIONS WILL HAVE BEEN TESTED TO A DEPTH EQUAL TO OR GREATER THAN EMBT BLOW DEPTH BEFORE TESTING EMBT.

(3) For second and subsequent underway periods if major hull or sea connected system work has been accomplished since last Sea Trials.

b. Escort Ship Capability Requirements. The surface escort ship must have the following capabilities with the necessary equipment in an operating condition:

(1) Radio Communication:

(a) Ability to transmit and receive on two UHF and on HF circuits simultaneously including 243.0 MHz or equivalent system capabilities (Very High Frequency (VHF) and INMARSAT-C).

(b) Equipped to tape record all non-secure radio transmissions between the submarine and the escort.

(c) Capability to communicate on the submarine HF/UHF or equivalent system capabilities (VHF/INMARSAT-C) circuits.

(2) Sonar and Sonar Communications:

(a) Equipped with underwater telephone capable of communicating to the submarine's test depth or equivalent system capabilities.

(b) Sufficient operators to man underwater telephone on a continuous basis, including CW capable operator on call if the requirement for CW communications develops.

(c) Equipped to tape record (installed or portable) all transmissions between the submarine and the escort by underwater telephone.

(d) Explosive charge signals or active sonar called for by AXP-1.

(3) Navigation:

(a) Equipped with an operable LORAN C, Global Positioning System (GPS) or the latest accurate off-the-shelf navigational equipment.

(b) Equipped with an operable Dead Reckoning Tracers or equivalent system capability.

(c) Possess navigational capability to fix his position to two mile average accuracy.

(d) Fathometer.

(e) Gyrocompass.

(f) Underwater log or equivalent system capability.

(4) Sea Keeping and Speed:

(a) Ability to remain at sea for one week in State 6 seas.

(b) Be capable of making 10 knots. Escorts will keep the submarine informed of any speed/sea state limitations. In addition, if the escort has an unfaired WQC hydrophone, it shall notify the submarine of the maximum sea state and speed which will not restrict WQC communications. If the submarine requires a speed above this limit, the submarine should run a track about the escort within WQC range.

(5) When an escort ship is other than another submarine, the ISIC will designate a minimum of one officer qualified in submarines (Gold Dolphins) and ensure a sufficient number of officers qualified in submarines (Gold Dolphins) will be embarked during the escort duty. An escort is not required on Board of Inspection and Survey (INSURV) trials since the EMBT blow is done in accordance with applicable URO MRC vice from maximum authorized operating depth.

(6) Assignment of SRDRS During Submarine Sea Trials.

(a) A SRDRS will be placed in a modified-alert status at the beginning of Sea Trials requiring an escort following an industrial activity availability or major maintenance period for:

1 The ship's initial tightness and deep dive event.

2 Subsequent Sea Trials until the completion of the initial dive to design test depth.

3 If, in the TYCOM's judgment, a Sea Trial requires an escort due to major hull cuts, etc. The TYCOM shall obtain NAVSEA concurrence when determining the need for escort/SRDRS services.

(b) The ship conducting Sea Trials will notify COMSUBDEVRON FIVE in Silverdale, WA and COMNAVSEASYSCOM when SRDRS services are no longer required due to completion of the events in paragraph 3.6.8.4.7(6)(a) of this chapter or due to delay in completing Sea Trials.

(c) The SRDRS is not required to be placed in a modified alert status for those Sea Trials requiring an escort solely for the accomplishment of an EMBT blow from depths greater than 400 feet.

(7) A modified alert message will be sent by the industrial activity with the required SRDRS support dates 6 weeks prior to the requested date. Any changes in this request date will require immediate notification to the Fleet Commander, COMNAVSEASYSCOM and COMSUBDEVRON FIVE. Sample messages in Appendix BN and CQ of this chapter.

3.6.8.4.8 Interrupted/Additional Sea Trials. In the event a Sea Trial is interrupted, or an additional Sea Trial becomes necessary, the following requirements are to be met. These requirements shall be invoked if the ship returns to port for industrial activity repairs which affect SUBSAFE certification or which will require at-sea testing. These requirements will be reiterated by the TYCOM via a special "Countdown Message" Appendix CL of this chapter when the need arises:

a. The industrial activity will draft a revised Sea Trials Agenda to support resumption of the trials. This Agenda shall be provided to NAVSEA for concurrence and TYCOM for approval.

b. The ISIC shall report by message (format of Appendix CM of this chapter) to the TYCOM that the material condition of those SUBSAFE Certification boundaries that were installed, repaired and/or tested by Ship's Force is satisfactory for resuming Sea Trials.

c. The Supervising Authority shall provide a report, by message (reference (t), Appendix B.3.5), to NAVSEA (information copy to the TYCOM) that the material condition of the systems installed, repaired and/or tested by the industrial activity is satisfactory for resumption of Sea Trials. As a minimum, the report should state the status of all incomplete Category IA Audit Items resulting from the NAVSEA SSCA and that all SUBSAFE work has been performed in accordance with the requirements of reference (t).

d. The CO of the ship shall provide a report by message (format of Appendix CN of this chapter) to the TYCOM stating that the crew and ship are ready for Sea Trials. Any exceptions are to be listed in this message.

e. NAVSEA (PMS 392), upon receipt of the Supervising Authority report, shall recertify the material condition of the ship for operation to a specific operating depth for Sea Trials and report recertification by message (reference (t), Appendix B.3.6) to the TYCOM.

f. Upon completion of all of the requirements in paragraphs 3.6.8.4.8.a. through e above, the TYCOM will provide a message (Appendix CO of this chapter) to the ship granting permission to proceed with the conduct of Sea Trials and authorize the ship to dive to the Sea Trial operating depth recommended by NAVSEA.

3.6.8.4.9 Availability Completion Prerequisites. Upon completion of Sea Trials and correction/resolution of deficiencies, the following requirements must be met prior to completion of an industrial availability greater than six months duration. These requirements will be reiterated in the TYCOM "Countdown Message" Appendix CD or CL of this chapter:

a. The Supervising Authority shall report by message (reference (t), Appendix B.3.8) to NAVSEA, satisfactory completion of all Sea Trials, completion of controlled dives, correction of all mandatory sea trial deficiencies, and resolution of all NAVSEA SSCA Category IA recommendations. Report that the SUBSAFE material condition of the ship installed, repaired, and/or tested by the industrial activity is satisfactory for URO to test depth. Identify any deferred SUBSAFE work and/or conditionally approved deviations and waivers.

b. Following verification from the Supervising Authority of satisfactory completion of all Sea Trials, completion of controlled dives, correction of all mandatory Sea Trial deficiencies, and resolution of all NAVSEA SSCA Category IA recommendations, NAVSEA shall certify by message (reference (t) Appendix B.3.9) to the TYCOM, with information copies to CNO and the appropriate Fleet Commander, the SUBSAFE material condition of those parts of the ship installed, repaired, and/or

tested by the industrial activity is satisfactory, and recommend authorization for URO to design test depth subject to TYCOM verification that SUBSAFE certification of areas outside the industrial activity AWP has been sustained.

c. Following verification from NAVSEA of satisfactory completion of all sea trials, completion of controlled dives, correction of all mandatory sea trial deficiencies, certification that the SUBSAFE material condition of those parts of the ship installed, repaired, and/or tested by the industrial activity is satisfactory, and upon confirmation of maintenance of SUBSAFE certification of portions of ship not affected by the industrial activity, the TYCOM shall report by message (Appendix CG of this chapter) to the ship, with copies to CNO and NAVSEA, reporting status of SUBSAFE certification and authorizing URO to test depth.

3.7 COMPLETION OF AVAILABILITY.

a. (Surface Ships and Aircraft Carriers) In order to standardize reporting practices, the official end of a CNO Availability will be upon completion of the TYCOM approved Sea Trials Agenda. Ships shall report Sea Trial Completion in the form of Appendix F1 or Appendix F2 of this chapter.

b. (Submarines only) CNO availabilities are complete when the TYCOM transmits one of the two following messages:

(1) Appendix BO of this chapter. (SAMPLE TYCOM MESSAGE TO SHIP CONCERNING URO FOR INDUSTRIAL ACTIVITY AVAILABILITIES LESS THAN SIX MONTHS IN DURATION (SUBMARINES ONLY)).

(2) Appendix CG of this chapter. (SAMPLE TYCOM MESSAGE TO SHIP CONCERNING URO FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS IN DURATION (SUBMARINES ONLY)).

3.8 AVAILABILITY COMPLETION DEPARTURE CONFERENCE.

3.8.1 Departure Conference and Availability Completion Message. At the end of the availability, the Supervising Authority, FMA (if applicable), and Ship's Force will conduct a Departure Conference to finalize the status of all work performed during the availability. The conduct of this conference is similar to that of the Progress Reviews conducted in accordance with paragraph 3.6.3.1.b. of this chapter, and should be used to gather all necessary information to draft and send the Availability Completion Message. As a minimum, the Availability Completion Message should address all areas addressed in the Weekly Progress Message, Appendices F1 or F2 of this chapter as applicable, as well as the following:

a. Unresolved maintenance issues and guarantee work items.

b. Report of configuration changes resulting from alterations installed during the availability.

c. Summarize the NAVSEA waivers issued during the availability.

d. Identify those work candidates that will be deferred until the next industrial availability.

3.9 POST AVAILABILITY.

3.9.1 Completed Availability Work Package. Within six months after the completion of the availability, SUBMEPP (Submarines)/PMS 312C (Aircraft Carriers)/applicable TYCOM (all other Surface Ships) will issue the Completed Work Package.

APPENDIX A

TYPICAL CNO AVAILABILITY PLANNING MILESTONES

(SUBMARINES ONLY)

MILESTONES	RESPONSIBLE ACTIVITY	TIMELINE (Months)
1. Identify Non-Nuclear Title "K" SHIPALTs, fund and authorize planning and procurement.	NAVSEA	A-24
2. Identify Non-Nuclear Title "D" and "F" SHIPALTs, fund and authorize SUBMEPP to accomplish planning.	TYCOM	A-24
3. Issue Advance Planning Letter for NAVSEA funded Alterations and Selected Restricted Availability Advance Planning Milestones.	NAVSEA	A-18
4. Update CSMP. Submit to SUBMEPP via ISIC	Ship	A-16
5. Issue Preliminary AWP.	SUBMEPP	A-15
6. Issue AWP Supplement (replaces inventory of PMRs/URO).	SUBMEPP	A-12 to -14
7. Issue SHIPALT drawings.	Design Agent	A-12
8. Issue Final Planning Letter for NAVSEA funded Non-Nuclear Title "K" SHIPALTs.	NAVSEA	A-12
9. Issue Initial LLTM Report for Centrally Procured LLTM.	LLTM Agent	A-12
10. Issue Preliminary Work Sequence Schedules, provide estimates for NAVSEA funded Non-Nuclear Alterations.	Industrial Activity	A-11
11. Conduct Ship's Force Meeting.	SUBMEPP	A-10
12. Conduct initial Shipcheck.	Industrial Activity	A-10
13. Conduct site Logistics and Facilities Check (for Selected Restricted Availability at FMA only).	Industrial Activity	A-10
14. Issue message providing centrally procured LLTM and FMPMIS material availability status and best estimated delivery dates for Non-Nuclear Title "K" SHIPALTs.	NAVSEA	A-10
15. Host WDC with customers and Industrial Activity.	SUBMEPP	A-10
16. Response to NAVSEA's Material Message issued.	Industrial Activity	A-9
17. Issue Interchangeability Data Sheets for Advance Equipment Repair Program components.	SUBMEPP	A-9
18. Provide Pre-Availability Test Procedures to users on the Standardized Test Procedures CD-ROM and on the SUBMEPP ePortal web site. For ePortal access go to http://204.34.173.214, select "Products/Services" then "Secure Web Site" and follow the instructions.	SUBMEPP	A-9
19. Issue SHIPALT Authorization (240 day) letter for NAVSEA funded SHIPALTs.	NAVSEA	A-8

MILESTONES	RESPONSIBLE ACTIVITY	TIMELINE (Months)
20. Issue Proposed AWP.	SUBMEPP	A-8
21. Confirm ability to accomplish all authorized Alterations during Availability.	Industrial Activity	A-7
22. Submit PAT results and Proposed changes to the AWP.	Industrial Activity/Ship	A-5
23. Submit Valve Lists and Sonar Testing, Assessment and Grooming Report for the AWP.	Ship/ISIC	A-5
24. Provide screening action on Pre-Arrival Test results and proposed changes to AWP.	TYCOM	A-4
25. Confirm AWP manday estimate vs. availability duration for compatibility.	Industrial Activity	A-3
26. Convene PAC.	Industrial Activity	A-3
27. Provide preliminary review estimates (90 day estimates) for NAVSEA funded Non-Nuclear Alterations.	Industrial Activity	A-3
28. Confirm receipt of centrally procured LLTM, Fleet Modernization Program Management Information System (FMPMIS) material and AERP components.	Industrial Activity	A-2
29. Issue PAC Report.	Industrial Activity	A-2
30. Promulgate Availability schedule.	Industrial Activity	A-2
31. Deliver centrally procured LLTM.	LLTM Agent	A-2
32. Deliver AERP components.	SUBMEPP	A-2
33. Provide final review estimates (45 day estimates) for NAVSEA funded Non-Nuclear Alterations.	Industrial Activity	A-1.5
34. Issued Approved AWP.	SUBMEPP	A-1
35. Start Availability.	Industrial Activity	A-0
36. Conduct Arrival Conference	Industrial Activity	A-0
37. Issue monthly Availability Status messages.	Industrial Activity/ Supervisor of Shipbuilding (SUPSHIP)	Monthly
38. Submit Reactor Plant Configuration Change Reports (RPCCR) or OPNAV 4790/CK forms for completed Alterations to ship's CO.	Industrial Activity	Monthly
39. Update material history records, manual changes, onboard repair parts for complete alterations. Endorse and forward RPCCRs/OPNAV 4790/CK forms.	Ship	Monthly

MILESTONES	RESPONSIBLE ACTIVITY	TIMELINE (Months)
40. Complete Availability.	Industrial Activity	C
41. Issue Availability Completion Message.	Industrial Activity	C+1

NOTE: "A" AND "C" IN THE "TIMELINE" COLUMN REPRESENT THE START AND COMPLETION DATES, RESPECTIVELY. THE DATES SHOWN ARE FOR ILLUSTRATION ONLY, SINCE ACTUAL MILESTONES VARY DEPENDING ON SHIP OPERATING SCHEDULES, START DATE CHANGES, AND OTHER CONSIDERATIONS.

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APPENDIX B

TYPICAL CNO AVAILABILITY PLANNING MILESTONES

(SURFACE FORCE ONLY)

* 1 - Both Naval and Private Industrial Activities
2 - Private Industrial Activities only

MILESTONES	*CODE	RESPONSIBLE ACTIVITY	TIMELINE (Months)
1. Review CSMP and make sure that all ship deferred maintenance actions desired for accomplishment are documented.	1	Ship	Continuous
2. Review FMPMIS and prepare recommended list of Title "D" and "F" SHIPALTs for the TYCOM.	1	TYCOM	A-18 to A-16
3. Title "D" and "F" SHIPALTs authorized.	1	TYCOM	A-16
4. Issue Title "K" SHIPALT advance planning letter.	1	NAVSEA	A-16
5. Issue milestone target dates/Preliminary AWP.	1	TYCOM	A-14
6. Design shipcheck before development of Ship Installation Drawings.	1	Design Agent	A-14 to A-12
7. Advance planning briefing.	1	TYCOM	A-14 to A-12
8. Pre-Availability Test and Inspection or Work Package Definition Conference, including combat systems and inspection of boilers (if possible).	1	TYCOM/Industrial Activity/Ship	A-12 to A-10
9. Pre-Availability Test and Inspections or WDC completion meeting.	1	TYCOM/Ship/Industrial Activity	A-12 to A-10
10. Issue Pre-Availability Test and Inspections or Work Package Definition Conference Meeting report (within 10 days after conference).	1	TYCOM/Industrial Activity	A-11 to A-9
11. Issue Proposed AWP.	1	TYCOM	A-10 to A-7
12. Initiate Ship's Force material planning and procurement.	1	Ship	A-7
13. Issue Post-WDC report.	2	TYCOM	A-245 to A-135
14. Initiate discussions with Naval Research Laboratory (NRL) to determine potential NRL projects.	1	RMC/NRL	A-180

MILESTONES	*CODE	RESPONSIBLE ACTIVITY	TIMELINE (Days)
15. Issue list of work items screened for Forces Afloat accomplishment.	1	TYCOM	A-150 to A-110
16. Complete Bid Specifications.	2	SUPSHIP	A-135 to A-110
17. Review Bid Specifications for errors, omissions, duplications (may require conference to resolve).	2	TYCOM/Ship	A-135 to A-110
18. Issue solicitation for bids or proposals to contractors.	2	SUPSHIP	A-135 to A-110
19. Finalize/lock NRL projects.	1	NRL	A-120
20. Award Contract.	2	SUPSHIP	A-30
21. Develop General Purpose Electronic Test Equipment management program.	1	Ship	A-110 to A-30
22. Forces Afloat WDC (optional).	1	Ship/RSG/RMC/TYCOM	A-90 to A-45
23. Order material for Ship's Force work.	1	Ship	A-90 to A-45
24. Develop Off-Load Plan for arrival at industrial activity (including off-load assistance, security and storage arrangements).	1	Ship	A-60 to A-10
25. Review SSRs for changes required as a result of authorized work. Turn over items (including changes previously accomplished) to Planning industrial activity.	1	Ship/Planning Yard	A-90 to A-45
26. Ship representative visit industrial activity for preliminary off-ship berthing and storage inspection.	1	Ship/Industrial Activity	A-30 to A
27. Phase II Pre-availability Tests and Inspections, Boiler Start of Availability Inspection (as applicable)	1	Ship/TYCOM/Naval Surface Warfare Center (NSWC)/ Industrial Activity	A-60 to A
28. Off-load ammunition and fuel as required (TYCOM approval required). Also off-load hazardous material and oily waste.	1	Ship	A-30 to A-1
29. AWP PAC (optional).	1	TYCOM/ ISIC/Ship/RSG/RMC	A-30
30. Issue Authorized AWP.	1	TYCOM	A-250 to A-140

MILESTONES	*CODE	RESPONSIBLE ACTIVITY	TIMELINE (Days)
31. Start availability, start ILO, start Combat System Technical Training.	1	Ship/Industrial Activity	A
32. Send start message to Fleet Commander.	1	TYCOM	A
33. Arrival Conference.	1	Industrial Activity/ISIC/Ship	A to A+3
34. Cancel all outstanding Casualty Reports (CASREP) which are scheduled to be corrected during the industrial availability.	1	Ship	A to A+3
35. Execute MOA with Industrial Activity.	1	Ship/Industrial Activity	A to A+7
36. Submit Weekly Progress Reports.	1	Ship	A to C
37. 25 percent, 50 percent 75 percent point review conferences.	1	Ship/ TYCOM/Industrial Activity	A to C
38. Start crew training in preparation for Initial LOA.	1	Ship/ISIC	C-120
39. Start Combat System Level Testing.	1	Ship/Industrial Activity	C-90
40. Prepare Dock Trial, Fast Cruise, and Sea Trial agendas.	1	Ship	C-45
41. Post-Repair Boiler Inspection.	1	TYCOM/ Ship/NSWC	C-45
42. LOA.	1	Propulsion Examining Board/Ship	C-40
43. Start crew training in preparation for Sea Trials.	1	Ship	C-40
44. Send Sea Trials Discrepancy Report.	1	Ship	Completion of Sea Trials
45. Visual National Policy for the Control of Compromising Emanations (TEMPEST) Inspection (with Configuration Control Diagram)	1	Industrial Activity	C-10
46. Completion Review Conference.	1	Industrial Activity/Ship/ TYCOM/ISIC	C-5
47. Complete Availability.	1	Industrial Activity/Ship	C
48. Send Completion Message to Fleet Commander.	1	TYCOM	C
49. CSMP Update. Report completion of all SHIPALTs, Field Changes, Ordnance Alterations (ORDALTs).	1	Ship	C
50. Send letter report of any unsatisfactory work (photographs and later updates may also be sent).	1	Ship	C+10

MILESTONES	*CODE	RESPONSIBLE ACTIVITY	TIMELINE (Days)
51. Combat System Post-Overhaul Exam. (If required)	1	Ship/ISIC	C+15
52. End of guarantee period for work performed by Industrial Activity. All unsatisfactory work must be reported by this date to be corrected by industrial activity. Deficiencies discovered later should also be reported.	1	Ship	C+90
53. Complete SSR update.	1	Planning Yard	C+90
54. Issue Completed AWP.	1	TYCOM	C+180

NOTE: "A" AND "C" IN THE "TIMELINE" COLUMN REPRESENT THE START AND COMPLETION DATES, RESPECTIVELY. THE DATES SHOWN ARE FOR ILLUSTRATION ONLY, SINCE ACTUAL MILESTONES VARY DEPENDING ON SHIP OPERATING SCHEDULES, START DATE CHANGES, AND OTHER CONSIDERATIONS.

APPENDIX C

TYPICAL CNO AVAILABILITY PLANNING MILESTONES

(AIRCRAFT CARRIERS ONLY)

MILESTONE	RESPONSIBILITY		
		PIA/DPIA	FDNF
1. RECEIVE/DETERMINE BUDGET CONTROL FOR CNO AVAILABILITIES		C+0	
2. PROVIDE COMP RPT TO PMS 312C/RPPY	TYCOM MPM	C+1	
3. ISSUE BAWP FDR	PMS 312C	C+1	
4. ISSUE AVAILABILITY DEPARTURE REPORT	NAVSHIPYARD	C+1	
5. CONDUCT CAMPR	PMS 312C	C+2	A-19
6. ISSUE ADVANCED PLANNING LETTER GUIDANCE/LETTER OF AUTHORIZATION	PMS 312C	C+3	A-18
7. DELIVER DRAFT BAWP	PMS 312C	C+4	
8. CONDUCT PRE-RELEASE BAWP REVIEW	PMS 312C TYCOM MPM NAVSHIPYD	C+4.5	
9. 312C DELIVERS BAWP	PMS 312C	C+5	A-16
10. INITIAL MAINT PLANNING MEETING	TYCOM MPM	A-17	A-15
11. TASK CORE WORK; RECEIVE CORE WORK (PUBLIC SHIPYARD AND MSMO)	TYCOM MPM	A-17	A-15
12. INITIAL BAWP CHANGE REQUEST SUBMITTAL	TYCOM MPM	A-15	A-13*
13. A-12 CONFERENCE	TYCOM MPM NAVSHIPYD	A-12	(NR13)A-12
14. START CAPS PROCESS/MCA	TYCOM MPM NAVSHIPYD	A-12	(NR14)A-7
15. ESTIMATES BACK FROM SHIPYARD	TYCOM MPM NAVSHIPYD	A-12	(NR14)A-7
16. SCREEN ALL KNOWN WORK	TYCOM MPM NAVSHIPYD	A-9	A-7
17. COMPLETE CAPS PROCESS	TYCOM MPM NAVSHIPYD	A-9	A-7
18. CONDUCT PRC 1	TYCOM MPM NAVSHIPYD	A-9	A-7
19. INTERMEDIATE BAWP CHG REQUEST SUBMITTAL	TYCOM MPM	A-8	A-7*

MILESTONE	RESPONSIBILITY		
		PIA/DPIA	FDNF
20. AT 50%, REVIEW PICKLIST	TYCOM MPM PROJECT TEAM PMS 312	A-7	A-5
21. MRA 1	TYCOM MPM PROJECT TEAM PMS 312	A-7	A-5
22. CONVENE PRC 2	TYCOM MPM PROJECT TEAM	A-5.5	A-3
23. SCREEN ALL KNOWN WORK		A-4	A-3*
24. CLASS C ESTIMATES BACK FROM SY			
25. FINAL BAWP CHANGE REQUEST SUBMITTAL			
26. MRA 2	TYCOM MPM PROJECT TEAM PMS 312C	A-3	A-2
27. AUTHORIZE FINAL AWP	TYCOM MPM NAVSHIPYD RMC	A-2	A-2
28. POETS/MCAI COMPLETE	TYCOM MPM NAVSHIPYD RMC	A-2	A-2
29. MSMO WORK CONTRACTED	TYCOM MPM NAVSHIPYD RMC	A-2	A-2
30. INCORPORATE RESULTS OF POET/MCAI INTO AWP	TYCOM MPM NAVSHIPYD RMC	A-2	A-2
31. FINAL REVIEW ESTIMATE (FRE) ESTABLISHED	TYCOM MPM NAVSHIPYD	*A-1	A-1
32. START AVAILABILITY		A-0	A-0

* THE FINAL REVIEW ESTIMATE (FRE) IS DELIVERED 30 DAYS PRIOR TO EXECUTION OF INDUSTRIAL WORK, BUT NO LATER THAN 30 DAYS PRIOR TO THE CNO AVAILABILITY START DATE.

APPENDIX D

SUGGESTED GUIDELINES FOR FORCES AFLOAT REVIEW OF AVAILABILITY WORK PACKAGES

a. The preliminary AWP includes information which SUBMEPP (Submarines)/PMS 312C (Aircraft Carriers)/applicable TYCOM (all other Surface Ships)/Maintenance Manager extracts from the CSMP 21 to 24 months prior to the availability. SUBMEPP/PMS 312C/TYCOM (as applicable) and Maintenance Manager only reviews items in the CSMP which are coded 1 under the type availability column. SUBMEPP/PMS 312C/TYCOM (as applicable) and Maintenance Manager continues to monitor the CSMP until submission of the first Supplementary Work List. It is essential that the CSMP be up-to-date and reflect what work the ship requires the industrial activity to accomplish. The CSMP is the primary means of communicating unique work items not already covered by the AWP until submission of the first Supplementary Work List.

b. Ship's Force should review each maintenance item on the CSMP deferred for accomplishment to ensure that the deficiency reported and the work involved to correct it are complete and accurate.

c. To the maximum extent possible, work items that are within the capability of an FMA to accomplish should be accomplished as T/A-2 work prior to the CNO Maintenance Availability.

d. Ship's Force will identify CSMP repair items previously deferred for other than industrial activity action which Forces Afloat will not likely accomplish prior to the availability and change the type availability code to T/A-1, with ISIC concurrence, on these items.

e. Ship's Force will review each outstanding alteration for applicability and ensure that the record of completed alterations is correct. Alterations erroneously reported complete result in plans and tests which do not fit the ship. Completed alterations not reported as complete will cause unnecessary expenditure of shipcheck funds and/or duplication of effort during the availability.

f. During AWP review meetings, Ship's Force should mark up both the index and applicable Ship's Work List Item Number (SWLIN) as an aid in recalling information. Appropriate corrections to the TAMS and FMPMIS should be made as early as possible via normal channels.

g. Ship's Force will review the AWP to see if any component/equipment requiring attention of any kind has been omitted. Note that the Advanced Equipment Repair Program and TRIDENT Planned Equipment Replacement (TRIPER) Program (SSBN/SSGN 726 Class), SEAWOLF Rotatable Pool Program and Aircraft Carrier Planned Equipment Replacement Program replace many components with refurbished units. Repair work on components that will be replaced by Advanced Equipment Repair Program can be canceled or noted as covered by the replacement SWLIN.

h. On receipt of the Proposed AWP, Ship's Force should review each Ship System Work Description. Ship's Force should prepare comments as to whether the extent of planned restoration, maintenance or repairs is sufficient or excessive. Additional comments regarding abnormal operation or configuration will be of interest to the industrial activity even if the AWP covers the particular component for repair because the scope of the job can be exactly defined early, avoiding "growth within scope" and schedule slippage later in the availability.

i. Ship's Force should review the General Information Section, "zero" series SWLINs and the glossary for a definition of terms used in the AWP to obtain a general understanding of availability procedures, philosophy and the pre-availability planning requirements.

j. Ship's Force should review all outstanding Departures from Specification to ensure they identify, for correction during the availability, all known non-standard repairs or installations not in accordance with class plans.

k. Ship's Force should identify any recently completed repair actions on components assigned to industrial activities and alterations that may negate the need for, or reduce the extent of, industrial activity refurbishment.
l. Ship's Force should identify any equipment not presently addressed in the AWP. SUBMEPP/PMS 312C/TYCOM (as applicable) and Maintenance Manager are interested in identifying special or temporary equipment installations which may need maintenance during the availability.
m. Ship's Force should identify any equipment listed for restoration, that is in exceptionally good material condition.
n. Ship's Force should review, "Forces Afloat Actions to be Accomplished Prior To or At Arrival" index in the AWP to ensure these actions are understood.

APPENDIX E

MONITORING PROCEDURES

(SURFACE SHIPS ONLY)

1.1 Periodic Monitoring.

a. Purpose. To provide to ships in availability such administrative and training assistance as is necessary to improve the Ship's Force conduct of the overhaul, maintenance and training tasks. Visits of this nature are termed Tech Assists.

b. To evaluate the effectiveness of administration and training. Visits of this nature are termed Work-Ups.

c. To conduct spot checks to monitor progress in specific material, administrative and training areas. Visits of this nature are termed Monitor Visits.

d. The extent, type and frequency of periodic monitoring and visits should be determined on a case basis by the responsible ISIC or TYCOM Representative. The initial inspection should be broad in scope in order to apprise the responsible ISIC of the adequacy of the ship's performance and progress. Normally, the initial visit will indicate the necessary frequency and scope of subsequent Tech Assists and Monitor Visits. In general, any required Work-Ups should be scheduled in advance of key events during the availability.

e. Examine the effectiveness of Ship's Force preparations for overhaul during initial inspections. Subsequent visits should review the following areas as appropriate for the purpose of the specific inspection.

(1) Review procedures and administrative steps for provisional watch station qualifications.

(2) Review department organization manuals.

(3) Review department instructions and administrative procedures.

(4) Review ship's instructions and administrative procedures.

(5) Review department logs, operating instructions and casualty procedures.

(6) Review ship's standard operating procedures and the ship's organization and regulations manual.

(7) Review training conducted and planned to support the goal of requalifying or reestablishing proficiency of watchstanders.

(8) Monitor performance of watchstanding.

(9) Conduct spot check of ship's records and logs in use.

(10) Review Ship's Force controlled work (Level I and Nuclear) and procedures to ensure proper controls and documentation are in accordance with Volume V, Part I, Chapter 2 of this manual.

(11) Review status of Ship's Force responsible PMS/IEM.

(12) Inspect installed equipment for cleanliness and adequate protection from damage.

(13) Review Tagout and Work Authorization Logs. Spot check for compliance in accordance with current directives.

(14) Inspect ship for hazards.

(15) Inspect provisions for casualty control including watertight integrity.

(16) Verify that all COSAL material including operating space items, have been off-loaded to processing areas which provide appropriate security.

(17) Inspect the processing area to verify provisions and procedures for careful ILO inventory.

(18) Review response of supply system to requisitions in support of Ship's Force work.

(19) Verify that items are withdrawn from the ship's COSAL stock undergoing inventory/ILO only on an emergency basis and that such issues are well documented with appropriate adjustments to the inventory records.

(20) Evaluate general safety practices.

f. Scheduling of Periodic Monitoring Visits. Periodic Monitoring Visits should be scheduled by the responsible ISIC/TYCOM as appropriate. Some monitoring visits should be conducted on an unannounced basis. These visits should be given so as to minimize interference with industrial activity and Ship's Force work.

g. Reports of Visits. Formal reports of the results of periodic monitoring visits are not required by the TYCOM. However, the responsible ISIC should advise the TYCOM in situations when the attainment of required progress toward completion of Key Events is in jeopardy.

APPENDIX F_1

SITREP/PROGRESS REPORT

(Aircraft Carriers Only)

FM USS (SHIP NAME)//
TO (APPLICABLE TYCOM)//N43//
INFO (APPLICABLE FLEET COMMANDER)//N43//
COMNAVSEASYSCOM//04X/04X1/04X2/08/071/911/931/PMS312/ (AS APPLICABLE)//
COMNAVAIRSYSCOM (AS APPLICABLE)//
CNO WASHINGTON DC/N4/N43/N88/N885//
ISIC (IF APPLICABLE)//
SUPERVISING AUTHORITY//
PMS 312C//
Local RSG/RMC (IF APPLICABLE)//RO//
FMA//
(OTHER UNITS IN AREA IF APPLICABLE)//
(OTHER UNITS OF CLASS OF APPLICABLE)//
BT
UNCLAS //N04790//
MSGID/GENADMIN/USS _____//
SUBJ/(TYPE AVAILABILITY) SITREP (SEQUENTIAL NUMBER)//
REF/A/DOC/COMFLTFORCOM/(DATE)//
AMPN/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOL II//
RMKS/1. THE FOLLOWING PROGRESS REPORT IS SUBMITTED IAW REF A. CO'S SUMMARY:
A.
B.
C.
2. CRITICAL PATH WORK, INDUST, FMA, AND OTHER AREAS OF CONCERN:
A.
B.
C.
3. STATUS OF WORK (FOR THE WEEK OF DDMMMYY-DDMMMYY)
A. INDUSTRIAL ACTIVITY 1 (MAN-DAYS) FOR WEEK FOR AVAILABILITY
SCHEDULED
PROGRESSED
EXPENDITURES
B. INDUSTRIAL ACTIVITY 2 (MAN-DAYS) FOR WEEK FOR AVAILABILITY
SCHEDULED
PROGRESSED
EXPENDITURES
C. SHIP'S FORCE (MAN-DAYS) FOR WEEK FOR AVAILABILITY
SCHEDULED
PROGRESSED
D. IMF (MAN-DAYS)
SCHEDULED
PROGRESSED
EXPENDITURES
4. STATUS OF TESTING
A. TOTAL TESTS (NUC/Non-NUC)
TESTS STARTED
TESTS SCHEDULED TO COMPLETE
TESTS COMPLETE
5. STATUS OF KEY EVENTS

6. REACTOR DEPARTMENT TRAINING ASSESSMENT (READINESS TO SUPPORT KEY EVENTS AND READINESS TO CONDUCT AT-SEA OPERATIONS)
7. SUPERVISING AUTHORITY COMMENTS.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAIN LANGUAGE ADDRESS DIRECTORY (PLAD) IS UTILIZED.

APPENDIX F_2

SITREP/PROGRESS REPORT

(Surface Ships Only)

FM USS (SHIP NAME)//
TO (APPLICABLE TYCOM)//N43//
INFO (APPLICABLE FLEET COMMANDER)//N43//
COMNAVSEASYSCOM//04X/04X1/04X2/08/04M//
COMNAVAIRSYSCOM (AS APPLICABLE)//
ISIC (IF APPLICABLE)//
SUPERVISING AUTHORITY//
Local RSG/RMC (IF APPLICABLE)//RO//
FMA//
PEO CARRIERS//PMS312//(AS APPLICABLE FOR CARRIERS)//
PEO THEATER SURFACE COMBATANTS//PMS400F//(AS APPLICABLE FOR COMBATANTS)//
PEO EXW//PMS470/PMS325//(AS APPLICABLE FOR AUXILIARIES, LITTORALS AND PATROL CRAFT)//
PEO MUW//PMS490//(AS APPLICABLE FOR MINE WARFARE)//
(OTHER UNITS IN AREA IF APPLICABLE)//
(OTHER UNITS OF CLASS OF APPLICABLE)//
BT
UNCLAS //N04790//
MSGID/GENADMIN/USS _____//
SUBJ/(TYPE AVAILABILITY) SITREP (SEQUENTIAL NUMBER)//
REF/A/DOC/COMFLTFORCOM/(DATE)//
AMPN/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOL II//
RMKS/1. THE FOLLOWING PROGRESS REPORT IS SUBMITTED IAW REF A. CO'S SUMMARY:
A.
B.
C.
2. CRITICAL PATH WORK, INDUST, FMA, AND OTHER AREAS OF CONCERN:
A.
B.
C.
3. STATUS OF PLANNING
A.
B.
C.

4.	STATUS OF WORK	FOR WEEK	FOR AVAILABILITY	
	A. INDUSTRIAL ACT			
	PLANNED	(MAN-DAYS)		
	EXPENDED	(MAN-DAYS)		
	B. FMA			
	ASSIGNED JOBS	N/A	( )	
	SCHEDULED COMPL	(#)	( )	
	ACTUAL COMPL	(#)	( )	
	C. SHIP'S FORCE			
	SCHEDULED	(MAN-DAYS)	( )	
	EXPENDED	(MAN-DAYS)	( )	
	(45)	(45)	(20)	(95)
5.	PROGRESS			
	A. AVAILABILITY	INDUST ACT	FMA	SHIP'S FORCE
	TIME EXP(%)	PROGRESS(%)	PROGRESS(%)	PROGRESS(%)
	(45)	(45)	(20)	(95)

6. STATUS OF TESTING
   A. INDUSTRIAL ACTIVITY
      TOTAL TESTS AUTHORIZED ( )
      TESTS STARTED ( )
      TESTS COML ( )
      TESTS CANCELLED ( )
   B. FMA
      TESTS SCHED TO START (100)
      TESTS STARTED ( )
      TESTS SCHED TO COMPL ( )
      TESTS COMPL ( )
7. STATUS OF KEY EVENTS

	ORIG SCHED	REV DATE	ACT COMP
COMMENCE AVAIL	2/1	2/11	2/12
DRY-DOCKING (IF APPLICABLE)	2/1	2/11	3/20
ELEX REMOVALS COMP	4/11		
UNDOCK		6/2	
SPACE TURNOVER			
#1MMR	6/23		
#2MMR	7/1		
LOA		7/20	
CREW CERT			
COMPLETE AVAIL	9/15		
HOT WASH	MM/DD/YYYY		

(THIS IS NOT AN ALL INCLUSIVE LISTING. SUPERVISING AUTHORITY WILL ISSUE THEIR LIST OF KEY EVENTS)

8. STATUS OF SELECTED RECORDS. (SHORT NARRATIVE HIGHLIGHTING ANY PROBLEM AREAS).
9. FOL IS STATUS OF USS XXXXXX BLUE AND GREEN (IF NECESSARY) COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, COMBAT SYSTEMS, INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (C5ISR), INFORMATION TECHNOLOGY FOR THE 21ST CENTURY (IT-21) AND CNSL/SPAWAR ALTERATION INSTALL TEAM (AIT) HARDWARE AND SOFTWARE INSTALLS/UPGRADES FOR THE WEEK ENDING DDMMMYY: (READ IN FIVE COLUMNS)

SYSTEM/EQUIP/ALT	START DATE COMPLETION DATE	ESTIMATED PERCENTAGE COMPLETED	ESTIMATE (Y/N)	TCD BUST

10. THE FOLLOWING C5ISR, IT-21 AND AITs ARE SCHEDULED FOR INSTALLATION: (READ IN FIVE COLUMNS)

SYSTEM/EQUIP/ALT	SPONSOR	STATUS	ESD	ECD

STATUS NOTES
NOTE 1 - WAITING RMMCO CHECK-IN
NOTE 2 - RMMCO CHECK-IN COMPLETE
NOTE 3 - AWAITING SHIP IN-BRIEF
NOTE 4 - WORK STARTED (TAGOUT/WAF SUBMITTED)
NOTE 5 - PLANNED, BUT NOT YET AUTHORIZED

11. FOL C5ISR, IT-21 AND AIT INSTALLS ARE COMPLETE:

SYSTEM	ALT	SOVT (Y/N)	SOVT COMP MSG (Y/N)

12. POSSIBLE HOT WASH ITEMS
13. SUPERVISING AUTHORITY COMMENTS.//

BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX G

SAMPLE NEW WORK FORWARDING LETTER AND INDEX

From: Commanding Officer, USS (Ship Name and Hull No.)
To: (TYCOM)
Via: (ISIC) (See Note 1)

Subj: NEW WORK AUTHORIZATION REQUEST NO. (1) (See Note 2)

Ref: (a) COMFLTFORCOMINST 4790.3, Joint Fleet Maintenance Manual

Encl: (1) Index of New Work Requests
(2) Supplementary Work Requests (IPN 002-064) (See Notes 3 and 4)

1. Enclosures (1) and (2) are submitted in accordance with reference (a) as the (first) supplementary work request (See Note 2).

Commanding Officer

Copy to:

SUBMEPP (Submarines only)/PMS 312C (Aircraft Carriers only)
ISIC (See Note 1)
Supervising Authority (See Note 5)

NOTES:

1. SUBMIT VIA ISIC BEFORE AVAILABILITY START, SUBMIT DIRECTLY TO TYCOM AFTER AVAILABILITY START. PROVIDE COPY TO ADMINISTRATIVE COMMANDER (GROUP/SQUADRON) AFTER AVAILABILITY START.

2. SUPPLEMENTARY WORK LISTS ARE NUMBERED CONSECUTIVELY THROUGH AVAILABILITY COMPLETION.

3. ONLY THE ORIGINAL OPNAV 2K (AND 2L IF REQUIRED) SHALL BE ATTACHED TO THE INDEX. MULTIPLE COPIES ARE NOT REQUIRED.

4. THE FIRST SUPPLEMENTAL IS INTEGRATED PRIORITY NUMBER (IPN)-002. AWP IS CONSIDERED IPN-001. IPNS SHALL BE SEQUENTIALLY NUMBERED AND RECORDED ON INDEX FROM FINAL SUBMISSION TO AVAILABILITY COMPLETION.

5. COPY TO SUPERVISING AUTHORITY OFFICE.

USS_____ (Hull No.) Index of New Work Requests

IPN	PRI	JSN From CSMP	Brief Title	ISIC Comment	TYCOM Action	Remarks
(Ex) 002	03	EA01-5493	VH-5 hard to operate		Assign to Industrial Activity	Authorized for Industrial Activity
NUMBERED SEQUENTIALLY						

See Note 4

APPENDIX H

SUGGESTED MESSAGE FORMAT FOR A NEW WORK CANDIDATE

FROM USS (SHIP NAME)
TO (APPLICABLE TYCOM)
INFO (APPLICABLE INDUSTRIAL ACTIVITY/SUPERVISING AUTHORITY)
(ISIC, IF APPLICABLE)
(SUBMEPP/PMS 312C, AS APPLICABLE)
BT
UNCLAS//N04700
MSGID/GENADMIN/(SHIP NAME)//
SUBJ/NEW WORK REQUEST NR. (000)//
RMKS/1. REQ AUTH TO ACCOMPLISH FOLLOWING REPAIRS:
A. CATEGORY OF REPAIR (BASED ON 1 THRU 5 BELOW).
(1) (WORK THAT MUST BE PERFORMED WHILE IN DRY DOCK)
(2) (WORK THAT WILL RESULT IN A C-3 OR C-4 CASREP IF DEFERRED)
(3) (WORK REQUIRING EXTENSIVE INTERFERENCE/REMOVALS AND WHICH HAVE ALREADY BEEN MADE INCIDENT TO OTHER AUTHORIZED WORK)
(4) (WORK THAT WILL RESULT IN A C-2 CASREP IF DEFERRED)
(5) (ALL OTHER WORK)
B. DESCRIPTION OF REPAIRS REQUESTED:
(1) EQUIPMENT/SYSTEM
(2) REPAIRS REQUESTED
(3) EIC
(4) JCN
(5) REPAIR BEYOND SF/FMA CAPABILITIES: (EXPLAIN IF NOT OBVIOUS)
2. MISSION CAPABILITY DEGRADED: (EXPLAIN)
3. ADDITIONAL INFORMATION AS NECESSARY.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX I

MINIMUM DOCK TRIALS REQUIREMENTS

(SURFACE SHIPS ONLY)

REQUIREMENT	SURFACE SHIPS (Nuclear)	SURFACE SHIPS (Non-Nuclear)
1. Check all Telephone, Announcing and Interior Communications circuits between all stations.	X	X
2. Test all alarms, i.e., General Quarters, Collision, etc.	X	X
3. Check all operational status readout interior communications circuits.	X	X
4. Test whistle.	X	X
5. Check adequacy of interior lighting and emergency lighting.	X	X
6. Operate all hydraulic systems using each installed pump.	X	X
7. Test operation of all radio transmitters and receivers using all antennas.	X	X
8. Operate all radar equipment.	X	X
9. Operate all sonar equipment.	X	X
10. Take and plot fixes using all navigation equipment and each antenna.	X	X
11. Test operation of trim/ballast control/list control system and pump (from all operating locations) in accordance with local instructions.	X	X
12. Test operation of portable submersible pump from each installed outlet.	X	X
13. Test engine order telegraphs.	X	X
14. Test magazine/pyro flooding systems.	X	X
15. Operate each lube oil system, including pumps, controllers, purifiers and indicators.	X	X
16. Energize the Navigation System and gyrocompass; determine that they settle out; take azimuth; check all repeaters.	X	X
17. Check potable water system, have water samples analyzed.	X	X
18. Test capstans and winches.	X	X
19. Operate steering system in all modes. Test normal and emergency rudder angle indicators.	X	X

REQUIREMENT	SURFACE SHIPS (Nuclear)	SURFACE SHIPS (Non-Nuclear)
20. Remove all brows.	X	X
21. Test Automatic Bus Transfer devices.	X	X
22. Operate each watertight door and hatch.	X	X
23. Check operation of escape hatches/scuttle fittings.	X	X
24. Check navigation/running lights for brightness and proper lenses (to be done at night). Includes Flight Deck lighting. (if applicable)	X	X
25. Check air conditioning, chill water, ventilation, and heating systems.	X	X
26. Test underwater log and dummy log if water depth permits.	X	X
27. Check operation of all 400 cycle generating equipment.	X	X
28. Check all galley, messing, and ship's service equipment.	X	X
29. Check fathometer.	X	X
30. Check that mooring lines are doubled and taut and that camels are secured to the pier not the ship.	X	X
31. Check bilge flooding alarm.	X	X
32. Check all High Pressure and Low Pressure air systems/components.	X	X
33. Operate distilling units.	X	X
34. Check anchor windlass and brake operation.	X	X
35. Check atmosphere monitoring equipment, both installed and portable.	X	
36. If possible, operate Secondary Propulsion Motor(s) (SPM), auxiliary propulsion units and thrusters.		X
37. Operate the emergency diesel generator(s).	X	X
38. Engage and disengage propulsion shaft clutch(es).	X	X
39. Test Main Engines; Nuclear Powered ships jack main engines.	X	X
40. Check all TV monitoring systems.	X	X
41. Check Special Aircraft Service Stores upper and lower trolley cars.	X	X
42. Check small arms lockers and security devices.	X	X

REQUIREMENT	SURFACE SHIPS (Nuclear)	SURFACE SHIPS (Non-Nuclear)
43. Operate all Identification Friend or Foe (IFF) Equipment.	X	X
44. Check degaussing equipment.	X	X
45. Check hangar bay doors.	X	X
46. Inventory and check all damage control equipment.	X	X
47. Inspect and operate oxygen and nitrogen systems.	X	
48. Check out all Tank Level Indicating systems.	X	X
49. Check out Flight Deck communications. (if applicable)	X	X
50. Check meteorological equipment.	X	X
51. Check graphics preparation/display equipment.	X	X
52. Check weapon systems. Check to include loading of dummy missile at each launch station, transmission of fire control signals and operation of launchers in all modes.	X	X
53. Operate all electrical/mechanical medical equipment.	X	X
54. Inspect all compartments for proper stowage and cleanliness and operability of equipment.	X	X
55. Test operation of all data processing equipment.	X	X
56. Test and inspect jet blast deflectors.	X	X
57. Test and inspect JP-5 fuel systems.	X	X
58. Test and inspect all aircraft starting, handling and launching equipment including catapults.	X	X
59. Test and inspect aircraft landing equipment including land signal officer equipment, arresting gear, barricades, as applicable.	X	X
60. Operate all Refueling at Sea equipment.	X	X
61. Check bridge window wiper system.	X	X
62. Operate all accommodation ladders.	X	X
63. Operate all conveyors.	X	X
64. Launch and raise motor whaleboat.	X	X
65. Operate all Boats.	X	X
66. Test and inspect Lifeboat/Life Raft stowage and launch equipment.	X	X

REQUIREMENT	SURFACE SHIPS (Nuclear)	SURFACE SHIPS (Non-Nuclear)
67. Test and inspect all elevators in all modes of operation.	X	X
68. Test and inspect all fire fighting systems.	X	X
69. Test and inspect refrigeration system.	X	X
70. Test and inspect all sea water cooling systems.	X	X
71. Operate stern gate doors.		X
72. Operate cranes.	X	X
73. Operate all ship's service generators.	X	X
74. Check all photographic processing and recording equipment.	X	X

APPENDIX J

MINIMUM FAST CRUISE REQUIREMENTS

(SURFACE SHIPS ONLY)

REQUIREMENT	SURFACE SHIPS (Nuclear)	SURFACE SHIPS (Non-Nuclear)
1. Make all preparations for getting underway.	X	X
2. Station the maneuvering watch/sea and anchor detail.	X	X
3. Station the normal underway watch (section watches).	X	X
4. Simulate getting underway and return to port. (Day and Night)	X	X
5. Walk through all major Sea Trial evolutions.	X	X
6. Exercise the reduced visibility detail.	X	X
7. Spot check storage and availability of spare parts and tools. Verify adequacy of stores and provisions.	X	X
8. Conduct the following emergency drills:		
a. Fire	X	X
b. Collision	X	X
c. Flooding	X	X
d. Abandon Ship	X	X
e. Man Overboard	X	X
f. Loss of AC Power	X	X
g. Loss of Air Conditioning/ACW	X	X
h. Loss of Lighting	X	X
i. Loss of Interior Communications	X	X
j. Steering Casualty	X	X
k. Engine Casualty Control	X	X
9. Set General Quarters. Exercise the crew at battle stations.	X	X
10. Conduct communication and Electronic Counter Measures (ECM) drills.	X	X
11. Anchor (walk-through).	X	X
12. Exercise damage control party with emergency and damage control equipment during conduct of item 12.	X	X
13. Perform the minimum Fast Cruise requirements for nuclear propulsion plants contained in reference (p).	X	

REQUIREMENT	SURFACE SHIPS (Nuclear)	SURFACE SHIPS (Non-Nuclear)
14. Operate air conditioning plants to demonstrate ability to carry the maximum existing ships air conditioning load or 100% capacity.	X	X
15. Operate fresh water/seawater heat exchangers at sufficient load to demonstrate proper operation.	X	X
16. Simulate underway conditions, performing all evolutions and operating equipment normally.	X	X
17. Simulate boat transfer at sea.	X	X
18. Conduct competitive and non-competitive drills and exercises such as aircraft tracking, and aircraft control.	X	X
19. Man Towing/Salvage/Fueling Stations.	X	X
20. Set Flight Quarters as applicable.	X	X
21. Check all interior communications circuits.	X	X

APPENDIX K

MINIMUM TESTS TO BE PERFORMED DURING SEA TRIALS

(SURFACE SHIPS ONLY)

I. RESPONSIBILITIES (reference (ap), Chapter 094).

The Ship's Force or Ship Trial Coordinator is responsible for:

1. The scheduling of the various trials and for conducting tests during trials while underway. A schedule of equipment tests should be available so all personnel are prepared for the evolutions.

2. Equipment operation during testing and for conducting the trials in accordance with reference (s) and TYCOM directives.

3. Verifying necessary trial documentation and technical data is on board.

4. Review of Personnel Qualification Standard (PQS) programs to identify new equipment and systems requiring PQS coverage, to implement PQS standards for new personnel, and to determine required watch station qualification in preparation for propulsion plant light-off and Sea Trials.

5. Providing a Sea Trial watch organization to accomplish the trial agenda.

6. Preparing and providing fire and abandon ship bills and holding emergency underway drills (can be completed and certified as part of Dock Trials or Fast Cruise).

II. PREPARATION FOR SEA TRIALS (reference (ap), Chapter 094c).

Prior to Sea Trials, every reasonable effort shall be made to complete all prerequisites:

1. Dockside tests shall be satisfactorily completed and all safety requirements met. Incomplete non-safety items shall be documented, including plans for timely resolution and completion. Should it be impractical to conduct any of these prerequisite tests dockside, the Naval Supervisory Authority (NSA) may permit the test to be conducted while underway.

2. All equipment, furniture and systems necessary to the conduct of the trials shall be installed and in operating condition. All labeling, painting, sheathing, insulation and deck covering shall be completed.

3. An inclining experiment, if required, shall be performed and the results certified in writing to the NSA that the ship meets stability requirements and is safe for sea.

4. All temporary rigging and equipment, except that necessary for collection of Sea Trial test data, and all debris shall be removed from the ship.

5. Painting that will not be dry at time of trials shall be avoided.

6. Messing, sanitary and berthing facilities shall be operational and available for use during Sea Trials.

7. The ship shall be prepared for possible emergencies at sea. The NSA shall certify in writing that equipment or systems listed that have been installed, overhauled or disturbed during the overhaul have been restored to their normal operating status. The minimum readiness includes:

   a. Power boats to be utilized in an emergency shall be fully operational, fitted-out and provisioned as prescribed by reference (aq).

   b. All davits shall be operational.

   c. Air inflatable lifeboats shall be onboard and properly installed and within PMS certification requirements.

   d. Emergency radios shall be onboard and operable.

   e. Life rings and float lights shall be rigged in stowage brackets.

   f. Life jackets for all personnel embarked plus 5 percent spares shall be onboard and distributed in readily accessible areas.

   g. Adequate first aid kits and emergency medical equipment shall be onboard.

   h. Fire fighting and damage control equipment shall be returned to the ship (if removed), verified to be fully operational/ready for use and properly stowed.

   i. All navigation devices and equipment shall be tested to ensure proper operation.

   j. Work on all compartments whose water tight integrity is essential to the safety of the ship shall be completed and, where authorized, satisfactorily tested.

III. PRIOR TO GETTING UNDERWAY.

1. Prior to Sea Trials following extended in-port or lay-up time, the following preliminary inspections should be conducted (reference (s), section 1.3.2):

   a. Inspect the underwater sea chests.

   b. Clean the sea chests of marine growth and debris if required.

   c. Inspect underwater hull for foreign material or objects.

   d. Inspect and clean as necessary condenser sea water sides.

   NOTE: CVNS IN JAPAN HAVE THEIR HULLS INSPECTED PER QUARTERLY REQUIREMENTS SET BY NAVSEA.

   e. Ensure correct hoses for blowing sea chests are available on board and can be made up to hose connections provided for this purpose.

   f. Establish operability of each item of machinery to be used during the trial.

      (1) Test equipment to validate minimal equipments available to conduct operations in accordance with technical specifications.

(2) Specific emphasis should be placed on fire pumps, anchor equipment and steering systems.

2. Ensure instrumentation to be used for obtaining trial data is properly installed, calibrated and certified.

a. The NSA shall determine, in conjunction with the Commanding Officer, any special instrumentation required such as flow meters, torsion meters and calorimeters. Government Loaned Equipment may be made available with NAVSEA approval. The NSA will ensure the installation of any other temporary test instrumentation and equipment necessary for the trials except as otherwise stated herein or as indicated on the list of Government Furnished Equipment.

b. Unless otherwise specified, the NSA shall ensure the installation of all temporary instrumentation and equipment regardless of who furnished it. All temporary instrumentation and equipment shall be removed from the ship by the NSA upon conclusion of the trial. It shall be the NSA's responsibility to maintain Government Loaned Equipment in proper working order. The NSA shall calibrate, test and otherwise ensure both temporary and permanent instrumentation utilized to collect data for trials is reliable. Government furnished flow meters on loan from Naval Ship Systems Engineering Station Philadelphia will be calibrated by Naval Ship Systems Engineering Station.

c. Verify proper installation, adjustment and operability of torsion meter, if installed (reference (s), section 1.4.1.f).

d. Care shall be taken that proper draft and trim of the ship are maintained throughout the duration of the trial (reference (s), section 1.4.1.g).

(1) Firefighting systems shall be completely installed, tested and placed in operating condition before the ship is fueled.

(2) Fuel ship and adjust draft and trim to attain trial requirements.

e. Prior to departure, check all communications equipment, including radio, interior communications circuits, telephones and special signal circuits that may be used during the trial.

f. Zero set EM log.

g. Settle Navigation System and gyrocompass.

h. Test arresting gear systems, including barricade (as applicable).

i. Test Visual Landing Aid systems (as applicable).

j. Conduct static JP-5 System Certification. Test Control Console functions and conduct system stripping, transferring and purifying operations, as necessary, in preparation for underway systems dynamic operations.

IV. UNDERWAY ENGINEERING AND OTHER MAJOR TESTS.

1. The following systems shall be tested to the extent authorized in the NSA's Work Package and test procedures identified in the trial agenda and be in an operating condition at the time of Sea Trial (reference (ap), Chapter 094c). Table 1 summarizes general items. Procedural precedence is current PMS, equipment technical manuals and NAVSEA technical manuals procedures:

   a. Newly installed, modified or overhauled ventilating, heating and air conditioning systems.

   b. Newly installed, modified or overhauled firefighting systems and damage control equipment.

   c. Newly installed, modified or overhauled alarms and safety devices.

      (1) All alarm systems shall be operative.

      (2) Gages and safety devices shall be checked and all final adjustments completed in accordance with technical specifications.

      (3) SSTG Resistance Temperature Element settings may be made according to reference (ar), Table 231-3-2 during dockside testing at 0 to 100 percent load or during Sea Trials, whichever gives the highest temperature reading (reference (ar), section 3.10.3.4.1-.3).

   d. Newly installed, modified or overhauled interior communication systems.

   e. Newly installed, modified or overhauled radio and navigation systems.

2. Propulsion systems.

   a. Particular attention shall be paid to boiler water treatment levels during Dock and Sea Trials. Additional tests of water chemistry and increased bottom blowdown frequency shall be planned (reference (as), section 2.4.12).

   b. A full power run shall be scheduled following each regular maintenance availability to ascertain the propulsion plant is capable of full power operation. The following general rules shall be observed during all full power trials and during other machinery trials to which they may be applicable, consistent with conditions imposed (reference (s), section 1.4.1.e):

      (1) In diesel powered ships not required to be fitted with torsion meters, brake horsepower developed by the main propulsion engines may be closely approximated by careful observations of fuel injection rack positions and compared with data taken during shop tests, where output has been previously measured directly on a dynamometer, or equivalent.

      (2) Fuel used for the trials should be comparable to that used during shop tests.

      (3) Average power developed by diesel-electric plants may be computed from kilowatt output from each propulsion generator set. Such observations shall be taken at intervals of not greater than 15 minutes for the duration of the run.

(4) In ships required to be fitted with torsion meters, readings of torque and RPM should be taken at sufficiently frequent intervals to produce an essentially continuous record. The record should be averaged at 15-minute intervals, for the duration of the run.

3. Main lube oil systems: Post-availability Sea Trial operations will normally jar and vibrate the lube oil system enough to break loose foreign material hidden in the system, even after flushing. To contain this foreign material, muslin or nylon bags shall be kept in the lube oil strainers from initial operation through final Sea Trials (reference (ar), section 3.10.3.4.3). Filter bags and disposable filters shall remain in propulsion machinery lubricating oil systems until Sea Trials are completed, except where 25 or 40 micron filter elements are required for the propulsion lubricating oil system, remove the disposable filter elements and install the applicable cleanable filter elements upon completion of Sea Trials (reference (at), section 3.7.3.5.2).

4. Reduction gear systems for new and overhauled gears: At the first Sea Trial, determine proper tooth contact of main pinions and gears and conduct operational tests. After trials, in addition to inspections that may be directed by the proper authority, remove the inspection plates and examine the tooth contact and the condition of the teeth to note changes that occurred during the trial (reference (au), section 5.3.9).

5. Turbine casing joints: Experience has shown when new bolting is installed, particularly steam chest bolting exposed to temperatures above 900°F, the bolting shall be rechecked and retightened after initial dockside steaming and again after Sea Trials following the overhaul (reference (ar), section 8.7.6).

6. Turbine bearing Resistance Temperature Element Settings: Make the initial settings before initially operating the bearing. Make the final settings before the Inspection Survey (INSURV) Trial or final Post Overhaul Trial if an INSURV Trial is not run. Base these settings on the highest values observed from the ship Sea Trials or shipbuilder test form data taken during all previous trials (reference (ar), section 3.10.3.4.2).

7. Propulsion demonstrations (reference (ap), Chapter 200f).

   a. Runs ahead at various power levels, using all main propulsion unit combinations, including cruising speed and maximum full-power ahead.

   b. Runs astern, using all main propulsion unit combinations, including maximum full-power astern.

   c. For Builder's Sea Trials only: Emergency reversals and crash stops, including maximum design full-power ahead to maximum design full power astern and vice versa.

   d. Maximum speed steering gear tests ahead, limited speed steering tests astern and such other ship maneuvering tests as the specifications may require.

   e. Twenty percent boiler overload test on one boiler (as applicable).

   f. Boiler flexibility tests (as applicable).

   g. Locked-shaft tests (as applicable).

8. Anchor gear demonstration (including towing winch demonstration, if installed) (reference (av), section 3.8.1).

   a. Complete all inspections, repairs and adjustments prior to conducting drop tests.

b. Conduct drop tests by or under the direction of experienced personnel from the repair activity.

c. Conduct drop test in accordance with the test agenda based on type of repairs conducted. Do not allow more than 15 fathoms (90 ft) of chain to run free without stopping. Observe the 65 fathom (390 ft) maximum depth for the drop test.

NOTE: 65 FATHOM DROP TEST IS ONLY REQUIRED FOR NEW INSTALLATIONS AND TYPICALLY CONDUCTED AT ORIGINAL SHIP DELIVERY BUILDERS'S SEA TRIALS.

d. Conduct anchor retrieval rate test to determine adequacy of power units.

9. Distilling plant test: Conduct twenty-four-hour production capacity check. A shorter test period is permissible with concurrence of the NSA and so indicated in the trials agenda (reference (aw), section 7.7.6.3.5).

10. Steering gears: Ensure limits are determined (or have been determined) during current or previous Sea Trials and are posted on the ship control console and in the steering gear room (reference (aw), section 2.2.3).

a. Reference (ax), Table 562-2-1 lists the astern limits for several (but not all) ship classes and may be used as a reference. Any limits posted on the ship control console or in the steering gear room shall be strictly followed.

b. Conduct an analysis of the hydraulic fluid contamination by a naval test facility as required in accordance with PMS or whenever one of the following conditions exists:

(1) Immediately before the first Sea Trials following a maintenance availability.

(2) Immediately after Sea Trials following a maintenance availability.

11. Auxiliary propulsion units/Thruster engines: Conduct testing in accordance with the trial agenda based on scope of repairs conducted in accordance with the NSA's contract specifications (reference (s), section 1.4).

12. Electrical ship service generating and distribution system: Conduct testing in accordance with the trial agenda based on scope of repairs conducted in accordance with the NSA's contract specifications (reference (s), section 1.4).

13. Surface ship stabilizing devices: Conduct testing in accordance with the trial agenda based on scope of repairs conducted in accordance with the NSA's contract specifications (reference (ay), section 7.9.4.4).

a. Conduct an analysis of the hydraulic fluid contamination by a naval test facility as required in accordance with PMS or whenever one of the following conditions exists:

(1) Immediately before the first Sea Trials following a maintenance availability.

(2) Immediately after Sea Trials following a maintenance availability.

14. Washdown countermeasures and miscellaneous topside demonstrations: Conduct testing in accordance with the trial agenda based on scope of repairs conducted in accordance with the NSA's contract specifications (reference (s), section 1.4).

15. Ballast or deballast ship (when applicable): Conduct testing in accordance with the trial agenda based on scope of repairs conducted in accordance with the NSA's contract specifications (reference (s), section 1.4).

16. Sonar, radar and navigation system demonstrations. Conduct testing in accordance with the trial agenda based on scope of repairs conducted in accordance with the NSA's contract specifications.

17. Underway replenishment demonstrations: Conduct testing (including special winch tests, as applicable) in accordance with the trial agenda based on scope of repairs conducted in accordance with the NSA's contract specifications.

18. Other demonstrations and tests: Conduct testing in accordance with the trial agenda based on scope of repairs conducted in accordance with the NSA's contract specifications. Consideration should also be given to those equipments repaired or overhauled by Ship's Force and subsequent testing is required to validate operability. These items may be tested or demonstrated during Sea Trials providing:

    a. Such tests do not significantly extend the duration of Sea Trials.

    b. Such tests are within the capability of Ship's Force.

    c. Such tests have a prescribed PMS MRC procedure or an equivalent procedure provided by Ship's Force or in service engineering agent which has technical authority concurrence.

V. AIRCRAFT OPERATIONS (IF APPLICABLE).

1. Certify Aircraft Launch and Recovery Equipment (as required).

2. Conduct flight deck certification (as applicable) in accordance with applicable TYCOM instructions (reference (az)).

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TABLE 1.

UNDERWAY TESTS

	Light off distilling plants and conduct 24 hour capacity test
	Test fathometer
	Test Countermeasure Washdown system
	Test navigation radar comparing fixes with visual fixes
	Test Electronic Warfare Support Measures and Identification Friend or Foe
	Conduct infrared communications device checks (Nancy lights)
	Test fire fighting systems, to include Flight Deck and Hangar Bay for aviation capable units
	Test aircraft support systems
	Test steering systems in all modes ahead and astern at optimum design speed for the steering systems in accordance with ship steering technical manuals or ship information book
	Operationally test JP-5 system and components as required for JP-5 System Certification
	Warm up catapults and shoot no loads
	Operate emergency diesel generators carrying ship's load
	Run in shaft seals shifting to forward and after seals
	Test all Aircraft Control and Tracking functions
	Test air conditioning, ventilation and refrigeration systems
	Demonstrate Prairie/Masker Air operation
	Demonstrate Darken Ship
	Operate both forward and after Oxygen-Nitrogen plants
	Test Jet Blast Deflector cooling water systems

NOTE: IF THESE TESTS WERE PERFORMED AND CERTIFIED BY THE INDUSTRIAL ACTIVITY WITHIN TWO (2) MONTHS OF SEA TRIALS AND THE TEST RESULTS WERE SATISFACTORY, THE ITEM MAY BE REDUCED IN SCOPE OR OMITTED.

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APPENDIX L

MINIMUM DOCK TRIALS REQUIREMENTS

(SUBMARINES ONLY)

1. Dock Trials. Ship's Force Dock Trials provide the opportunity to test and check out systems, components and portable equipment prior to the Fast Cruise training period simulating underway conditions. Although normally a period of one day is assigned for integrated Ship's Force Dock Trials, tests and evolutions performed in the one to two weeks prior to the Dock Trial date may be accepted by the CO as fulfilling the requirements of this paragraph. The purpose of Dock Trials is to afford the ship an opportunity to demonstrate that major systems and equipments are in fact ready to support Sea Trials. It is expected that individual equipments will have been satisfactorily tested prior to commencement of the integrated operational tests afforded by Ship's Force Dock Trials.

1.1 Supervising Authority. The industrial activity may desire to conduct "machinery checkouts" or system checks prior to the Ship's Force Dock Trials in order to test the propulsion plant or other ship's systems. In order to support these evolutions, close liaison between the ship's CO and the industrial activity will be required. For these evolutions, completion of repairs or modifications to all ship's systems are not required except for those systems which directly support the proposed tests.

1.2 Scheduling of Tests. The scheduling of Ship's Force Dock Trials is flexible. Ship's Force Dock Trials may be scheduled by mutual agreement between the ship and the supervising authority but must take place prior to certification of crew/material readiness with adequate time allowed for collection of deficiencies discovered during the Ship's Force Dock Trials. Preparation of the agenda and schedule for the Dock Trials is the CO's responsibility.

1.3 Extent of Trials. Ship's Force Dock Trials are conducted by the Ship's Force and are normally unhampered by repair work. This applies to the entire ship not just the propulsion plant. The trials may be witnessed by the industrial activity.

1.3.1 Tests. The term "test" shall include, where applicable:

a. The review and use of a procedure for correct line-up, starting, operation and securing of systems or equipments.

b. Rigging, connecting and using all hoses, fittings and devices required for the test evolution.

c. Operation of systems in all modes, such as emergency, hand, override, cross-connected, normal, local, etc.

d. Checking all electrical and mechanical, local and remote indicators for proper readings.

e. Testing communications between normal control station and other locations involved in operating the system or performing the evolution.

f. Calibration and adjustment of equipments, systems and devices where required.

g. Inventory consumables, fittings, devices and portable test equipment to ensure that sufficient amounts are on board for proper operation throughout the trials.

1.3.2 Specific Test Areas. There are specific tests which relate to both systems and ship safety which must be conducted in preparation for Sea Trials.

a. The following are specific alongside tests which shall be conducted during Dock Trials:

(1) Check the sound powered phone system between all stations.

(2) Check the announcing system between all stations.

(3) Test collision alarm and diving alarm.

(4) Test general alarm.

(5) Test each light on Ballast Control Panel (BCP).

(6) Test whistle.

(7) Check emergency lights.

(8) Operate all hydraulic plants using each installed pump.

(9) Conduct a complete air charge using only ship's compressors.

(10) Conduct a normal battery charge using ship's motor generator on shore power.

(11) Conduct low pressure blow of all Main Ballast Tanks (MBT). Thereafter conduct the dockside portions of URO 022 (remote static blow and local static blow).

(12) Fill sanitary tanks and then blow/pump them.

(13) Operate each main vent in hand and power. Following operation, with valves shut, conduct a controlled removal of MBT vent covers, one at a time, to check MBT vents for leaks.

(14) Operate the outboard induction in hand and power.

(15) Operate the diesel engine exhaust valve in hand and power.

(16) Operate inboard induction valve.

(17) Raise, train and lower periscopes, snorkel, radar and antenna masts and fairings as applicable.

(18) Test operation of radio transmitters and receivers on all antennas.

(19) Operate all sonar and radar equipment at rated conditions.

(20) Take and plot Global Positioning System fixes using each antenna.

(21) Test operation of drain pump using each bilge suction.

(22) Test operation of trim system and pump by pumping to and from each tank and by pumping to and from sea (if applicable).

(23) Review and enter the diving trim calculation provided by the shipyard Naval Architects (or equivalent).

(24) Test operation of portable submersible pump from each installed outlet.

(25) Fire inboard slugs from torpedo room.

(26) Fire inboard slugs from weapons launch console.

(27) Test magazine flooding system.

(28) Operate each lube oil system including pumps, controllers, purifiers and indicators.

(29) Energize the Navigation System and gyrocompasses; determine that they settle out and take an azimuth; check all repeaters.

(30) Check fresh water system, have water samples analyzed.

(31) Test the capstans.

(32) Test bow plane rigging (where applicable).

(33) Test bow/sail and stern plane tilting in hand, normal power and emergency. Test normal and emergency plane angle indicators.

(34) Test rudder in hand, normal and emergency power. Test normal and emergency rudder angle indicators.

(35) Check alignment of periscopes, TBTs and all bearing and range repeaters.

(36) Test the engine order telegraphs.

(37) Test Automatic Bus Transfer Devices.

(38) Operate each watertight door and hatch, each bulkhead flapper and each intercompartment air salvage valve.

(39) Check operation of escape hatch fittings.

(40) Operate signal ejectors by impulse and hand using dummy signal. Fire water slugs from all launchers, both locally and remotely.

(41) Turn on and check running lights for brightness and proper lenses (to be done at night).

(42) Check freon air conditioning system.

(43) Check underwater log.

(44) Check 400 Hz MG sets.

(45) Check out galley equipment.

(46) Check fathometer.

(47) Check bilge flooding alarms.

(48) Check dummy log.

(49) Check ship service air system.

(50) Check out vapor compressor distilling units.

(51) Check anchor windlass and brake operation.

(52) Check battery water system. (NA for SVRLA-equipped ships)

(53) Check out atmosphere monitoring equipment, both installed and portable.

(54) Operate oxygen generator, CO_2 scrubbers, CO burners and emergency air breathing system.

(55) If possible, lower, train, operate and raise the SPM.

(56) Ensure that all required PMS to ship depth detectors is complete.

(57) Verify that the PMS for this diesel engine high vacuum cutout is current.

(58) Check main propulsion. (Should be done during the propulsion plant test program)

(59) Ensure seven-day supply of oxygen onboard, test operate the Electrolytic Oxygen Generator(s) (EOG).

APPENDIX M

MINIMUM FAST CRUISE REQUIREMENTS

(SUBMARINES ONLY)

1. Fast Cruise Requirements. Asterisk items are the minimum requirements for an industrial activity availability of less than six months duration. All listed items are the minimum requirements for an industrial activity availability of greater than six months duration.

a. All Ships (as applicable):

*****(1) Station the maneuvering watch and check each system and piece of equipment for proper operation. (For availability less than six months duration, system/equipment checks are **not** required).

*(2) Station the normal underway watch (section watches).

(3) Simulate getting underway and return to port (day and night).

*(4) Walk through all major Sea Trial evolutions, including cycling of hull and back-up valves to be tested during the deep dive.

*(5) Exercise the reduced visibility detail.

*(6) Emergency ventilate a compartment.

(7) Spot check storage and availability of spare parts and tools. Verify adequacy of stores and provisions.

*(8) Rig for dive and rig for surface.

*(9) Simulate diving and surfacing.

*(10) Rig for deep submergence.

(11) Rig for various quiet conditions.

(12) Drill at loss of power to various circuits including lighting, communications, 400 Hz power, etc.

(13) Battery charge - Normal or equalizer as required. (NA for SVRLA-equipped ships)

*(14) Conduct the following emergency drills:

*****(a) Fire.

*(b) Collision.

*(c) Flooding.

*(d) Toxic Gas.

(e) Abandon Ship.

*(f) Man Overboard.

(g) Submarine Escape.

(h) Loss of AC Power.

(i) Emergency Ventilation.

(j) Loss of Air Conditioning.

(k) Loss of Lighting.

(l) Loss of Interior Communications.

(15) Exercise the crew at battle stations.

(16) Conduct communications and ESM drills.

*(17) Conduct an air charge to all air banks. (For availabilities less than six months duration "Conduct an air charge").

*(18) Bleed oxygen and ventilate ship. Ensure a seven day supply of oxygen is onboard and EOG(s)/Integrated Low Pressure Electrolyzer are fully operational. Ships without EOG(s) may provide a seven day supply of oxygen in O2 candle form and have oxygen banks inerted until after availability completion.

(19) Simulate anchoring.

(20) Operate atmosphere control equipment and take air samples.

*(21) Check out all interior communications circuits, including battle telephones.

(22) Simulate submerged patrol, performing all evolutions and operating equipment normally used.

*(23) Operate freshwater/seawater heat exchangers at sufficient load to verify proper operation (not fouled with marine growth).

(24) Submarines shall meet all requirements of reference (p), Appendix D, Part 3.

b. Additional requirements for SSBN/SSGNs. SSBN/SSGNs shall conduct exercises in casualties to missile tube breather valves which would result in:

(1) Flooding.

(2) Introducing toxic gases into the missile compartment from gas generators.

APPENDIX N

MINIMUM SEA TRIALS REQUIREMENTS FOR CHIEF OF NAVAL OPERATIONS AVAILABILITIES LESS THAN SIX MONTHS DURATION

(SUBMARINES ONLY)

1. Sea Trial Agenda. This Appendix delineates the minimum requirements incident to Sea Trials following a Chief of Naval Operations availability of less than six months duration. Additional events listed in Appendix O, Minimum Sea Trials Requirements for Chief of Naval Operations Availabilities Greater Than Six Months Duration (Submarines only), may be included by the shipyard based on the scope of the work accomplished and/or as desired by the CO.

2. Sea Trial Policy. The following policies apply to conduct of trials and tests associated with industrial activity availabilities, NAVSEA or Naval Surface Warfare Center, Carderock Division sponsored Trials/Tests or any other situation where the ship is requested to conduct trials or tests:

a. No test or trial event shall be conducted that requires crew intervention to avoid exceeding normal operating limits. Trial agendas will be based on the expectation that the ship will remain within normal operating limits of the SOE and at angles less than 30 degrees.

b. The trial director(s) must be prepared to project whether the next event might exceed normal operating limits based on the empirical results of the previous event. A run that is predicted to exceed normal operating limits should be deleted along with the more demanding runs of that sequence.

c. Any run which will result in exceeding normal operating limits of the SOE or 30 degree angles but which is essential to provide adequate test data must be specifically approved by the TYCOM. The test/trial sponsor will obtain this permission.

d. A violation of the SOE limit or exceeding a 30 degree angle, not previously approved, should be reported by unit SITREP. The TYCOM will resolve the situation.

e. Specific written approval by the TYCOM is not required to operate outside the upper limits of the SOE (i.e., shallow and fast) while conducting the following operations during Sea Trials or tests in accordance with an agenda approved by the ISIC, NAVSEA or higher authority:

(1) Conducting full power runs or cavitation curves.

(2) NAVSEA sponsored acoustic trials in accordance with Naval Surface Warfare Center, Carderock Division acoustic trial agenda.

f. In cases where troubleshooting is required, it must meet the following criteria or a formally approved change to the agenda is mandatory.

(1) The troubleshooting does not violate any policy listed in paragraphs 2.a. through 2.e. of this Appendix or any other requirement of the trials agenda.

(2) The troubleshooting will not result in the ship being in a certain condition before that condition is reached during the normal testing sequence. For example, troubleshooting requiring the ship to be deeper than 200 feet cannot be done until after the deep dive. Likewise, troubleshooting requiring large angles or turn rates cannot be done until after the completion of the steering and diving operational tests and the large angle tests.

g. Each person involved in Sea Trials should be allowed to obtain a minimum of six hours of continuous, uninterrupted sleep during any 24-hour period.

3. Test Phasing. The Sea Trials should be scheduled and phased to support actions enroute to the test dive area, in the test dive area, prior to the deep dive, etc., subject to the amplifying notes.

a. The following tests and evolutions shall be carried out on the surface enroute to the test dive area and prior to the initial tightness dive:

(1) Underway. Rig for dive.

(2) Ship's Force instruct Sea Trials riders on the proper use of Emergency Air Breathing System.

(3) At slow speed, conduct operational test of rudder in all modes (local and remote) in accordance with applicable class operating procedures.

(4) Navigation system check. Take fixes by all means available and compare.

(5) Test underwater log(s) using the base course/reciprocal course method (i.e., inertial reference method) or other approved functional procedures to determine accuracy.

(6) Test accuracy of all bearing transmitters and indicators. Compare sonar, visual and radar bearings.

(7) Check operation of all radars. Demonstrate accuracy by conducting simultaneous radar and visual plot.

(8) Inspect stern tube packing gland/seals and circulating water flow.

(9) Test fathometer(s) and compare with charted soundings.

(10) Run ahead at maximum allowable surface speed long enough for temperatures to reach a stable value. After readings have stabilized, at maximum allowable surface speed, operate the rudder through full throw in each direction, in all remote modes of operation.

(11) Ahead, at maximum allowable surface speed, to back emergency.
For SSBN/SSGN 726 Class only - Answer ahead standard. Once ship speed has stabilized, perform back emergency for 5 minutes.

(12) Run astern up to a back full bell. Full power run astern to be consistent with the main engine limits of the applicable Steam and Electric Plant Manual. Operate rudder through full throw.
For SSBN/SSGN 726 Class only - Run astern up to a back full bell for 5 minutes, followed by 60 SRPM for 5 minutes. Operate rudder through full throw (See Note 1).

(13) Check operation and accuracy of ship's gyro compass.

(14) Rendezvous with escort, if an escort is required. Conduct radio and sonar communications checks (See Note 2).

(15) Rig out bow planes, if applicable. Test bow/fairwater and stern planes in all modes.

(16) Flood variable tanks to computed compensation less a safety factor.

(17) Operate trim and drain pumps.

(18) Test variable ballast system for proper operation.

(19) Perform both a low pressure blow and an EMBT blow for as long as necessary to verify system operability. A static blow shall not be used to test the EMBT blow system. For SSN 23 only: Additionally, perform an MBT 6 normal blow from the BCP for a minimum duration of 2 seconds to verify that air flows into MBT 6 as indicated by a reduction in air bank pressure. For SSBN/SSGN 726 Class submarines only: Additionally, perform a high pressure blow for as long as necessary to verify system operability.

(20) Check that initial EMBT Blow system actuating air pressure and air bank pressure is within +0 PSIG, -200 PSIG of nominal operating air pressure.

(21) Ensure all MBT blow systems are in a normal line up configuration.

(22) Additional requirements may be imposed at the discretion of the CO.

b. The following tests and evolutions shall be carried out immediately prior to or during the initial tightness dive:

(1) Obtain navigational fix and take sounding. Maximum depth of water is 400 feet as specified in reference (q).

(2) Rig ship for deep submergence. Line up propulsion plant for maximum reliability. All systems shall be in the maximum secure condition with unnecessary sea systems isolated (See Note 3).

(3) Station additional personnel throughout the ship to inspect for leaks.

(4) Transmit commencing initial tightness dive message. Submerge the ship per the Ship Systems Manual Operating Procedures. If desired to conduct periscope depth tests, the ship may be submerged to periscope depth.

(5) Check operation of ship control systems, including depth indication (See Note 4).

(6) When escort is required, communicate with escort on RAC/WQC at each depth increment or at 10 minute intervals, whichever is sooner. If communications are lost, return to depth at which communications can be established before continuing (See Note 2).

(7) All hands inspect for leaks and report them.

(8) Inspect the discharge of all automatic drains in each EMBT Blow quadrant for sea water leakage prior to the first dive when the ballast tanks are flooded (e.g., at periscope depth).

(9) At periscope depth, operate all masts checking optics and leakage. Observe speed and depth restrictions for masts without violation of the SOE (See Note 5). Event may be performed following initial dive, if sea state prevents operation at periscope depth.

(10) Test operation of trim and drain system discharging to sea.

(11) If not at 150 feet for SSN 688 Class submarines (155 feet for SSN 774 Class submarines), (160 feet for SSBN/SSGN 726 and SSN 21 Class submarines), proceed to 150 feet for SSN 688 Class submarines (155 feet for SSN 774 Class submarines), (160 feet for SSBN/SSGN 726 and SSN 21 Class submarines) and obtain SAT 1/3 trim in accordance with the Ship's Operating Manual. Take readings as required to make a check of ballasting.

(12) At 200 feet:

(a) Adjust trim (See Note 6).

(b) Inspect for leaks.

(c) Communicate with escort at each depth increment or at 10-minute intervals, whichever is sooner. If communications are lost, return to depth at which communications can be re-established before continuing (See Note 2).

(13) At 200 feet, in accordance with reference (ae):

(a) Check accuracy of gauges and repeaters (See Note 4).

(b) Evaluate signal ejectors or launchers. Conduct operational test of each by hand and impulse methods, as applicable (See Note 7).

(c) Check shafting bearings and stern tubes for excessive heating, leakage and noise. Main shaft seals must be tested at each depth specified in reference (ae) testing one seal for 20 minutes, and shifting to the other seal. Test the second seal for 20 minutes or until the boat is ready to go to the next depth, whichever comes first.

(d) Cycle rudder and planes through full throw at slow speed to check for binding.

(e) Operate all Main and Auxiliary Sea Water hull and back-up valves and those other seawater system valves worked during the availability (using remote closures, as applicable, from flooding control stations) that are required to maintain propulsion and other functions vital to the ship's operation.

NOTE: REQUIRED SYSTEMS ARE LISTED IN PARAGRAPH 4b OF REFERENCE (ae). OBSERVE RESTRICTIONS ON OPERATION OF SYSTEMS LISTED IN PARAGRAPH 4d OF REFERENCE (ae).

(f) Test operation of trim and drain system discharging to sea.

(g) Cycle main ballast tank vents hydraulically to check for binding.

(14) Test the SPM (See Note 13 in Appendix O of this chapter).

(15) Additional requirements may be imposed at the discretion of the CO.

c. The following tests and evolutions shall be carried out following the initial tightness dive and prior to the deep dive:

(1) Transmit initial tightness dive complete message.

(2) A minimum of six hours of Individual Ship Exercises submerged for crew training.

(3) Charge air banks and battery as necessary. The ship may be submerged while charging air banks provided the depth of the ship does not exceed other guidelines in this instruction, or those of the flooding bill or ship's operating procedure.

(4) If escort is required, detach escort after initial tightness dive. Escort will then proceed to station for deep dive. Ensure that deep dive rendezvous time and location are clearly established before escort is released. The escort may be retained for additional testing during the transit as described in Appendix P. Transit depths shall not exceed depth as described in Appendix P.

(5) Additional requirements may be imposed at the discretion of the CO.

d. The following tests and evolutions shall be carried out immediately prior to or during the deep dive:

(1) Check that initial EMBT Blow system actuating air pressure and air bank pressure is within +0 PSIG, -200 PSIG of nominal operating air pressure.

(2) Verify MBT systems lined up for normal operation.

(3) Take sounding. Accurately fix ship's position within the specified dive area in accordance with reference (q). Transmit the commencing deep dive message.

(4) Proceed to normal submergence depth and obtain 1/3 speed trim. Use conservative angles and speed on initial dive.

(5) Trim ship to maintain neutral buoyancy (See Note 6).

(6) Rig ship for deep submergence. Line up propulsion plant for maximum reliability. All systems shall be in the maximum secure condition with unnecessary sea systems isolated (See Note 3).

(7) Station additional personnel throughout the ship to inspect for leaks.

(8) At 400 feet and then in increments of 100 feet descending to one-half the maximum operating depth and every 100 feet or other lesser specified increments thereafter down to the maximum authorized operating depth:

(a) Adjust trim (See Note 6).

(b) Inspect for leaks.

(c) Communicate with escort (if escort required) at each 100 foot depth increment or at 10 minute intervals, whichever is sooner. If communications are lost, return to a depth at which communications can be re-established before continuing (See Note 2).

NOTE: REQUIRED SYSTEMS ARE LISTED IN PARAGRAPH 4b OF REFERENCE (ae). OBSERVE RESTRICTIONS ON OPERATION OF SYSTEMS LISTED IN PARAGRAPH 4d OF REFERENCE (ae).

(9) At depths listed for hull valve cycling in reference (ae) including the maximum authorized operation depth:

(a) Check accuracy of gauges and repeaters (See Note 4).

(b) Evaluate signal ejectors or launchers. Conduct operational test of each by hand and impulse methods, as applicable (See Note 7).

(c) Check shafting bearings and stern tubes for excessive heating, leakage and noise. Main shaft seals must be tested at each depth specified in reference (ae) testing one seal for 20 minutes, and shifting to the other seal. Test the second seal for 20 minutes or until the boat is ready to go to the next depth, whichever comes first.

(d) Cycle rudder and planes through full throw to check for binding. Cycling of rudder and planes through full throw should be limited to 90% of test depth.

(e) Operate all Main and Auxiliary Sea Water hull and back-up valves and those other seawater system valves worked during the availability (using remote closures, as applicable, from flooding control stations) that are required to maintain propulsion and other functions vital to the ship's operation at increments of depth specified in reference (ae).

NOTE: TRASH DISPOSAL UNITS (TDU) WITH BALL VALVES WILL NOT BE OPERATED BELOW 200 FEET. TDUs WITH FLAPPER VALVES WILL NOT BE OPERATED BELOW 150 FEET.

(f) Operate trim and drain pumps, discharging to sea.

(g) Cycle main ballast tank vents to check for binding. Main ballast tank vents will be cycled hydraulically except at test depth where they will be cycled manually.

(10) Surface fully with EMBT blow in accordance with applicable URO MRC. Check air bank pressures before and after blow. For SSN 23 only: Perform an MBT 6 normal blow from the BCP until MBTs 6A and 6B are blown to residual water levels.

(11) Transmit completion of deep dive message.

(12) Additional requirements may be imposed at the discretion of the Commanding Officer.

e. The following tests and evolutions shall be carried out submerged following the deep dive:

(1) Full power run (See Notes 8, 9 and 10).

(2) Emergency stop (See Notes 9 and 10).

(3) Steering and diving operation at full speed (See Note 11).

(4) Steep angles - operate ship through several depth changes using large up and down angles. Check operation of ship machinery (See Note 9).

(5) Time raising each periscope and mast at maximum depth and speed for which they are designed. Check training feature where applicable.

(6) Run and observe air conditioning plants throughout trials noting deficiencies. Operate the Lithium Bromide air conditioning plant (if installed) to demonstrate ability to carry entire maximum existing ship's air conditioning load or 100 percent capacity.

(7) Additional requirements may be imposed at the discretion of the Commanding Officer.

4. Sea Trial Conclusion. At the conclusion of Sea Trials, and based on a review of Sea Trial deficiencies and TYCOM concurrence, the submarine may transit to a port other than the overhauling activity. During this transit the submarine shall not operate at depths greater than one-half test depth plus fifty feet, unless specifically authorized by NAVSEA, and shall not be released for unrestricted operations until final certification is received via message from the TYCOM (Appendix BO).

NOTES

1. **For SSBN/SSGN 726 Class submarines only - This surface evolution, full power run astern, shall be conducted only if maintenance was accomplished on the reduction gears, the astern throttle(s) or the main shaft thrust bearing.**

2. In the execution of any Sea Trial, whether escorted or not, submarine COs are reminded of their responsibility to communicate with escorts and/or shore authorities within the prescribed previously agreed upon time limits to avoid initiation of lost submarine procedures.

3. Reference (ae) (C9094.2 (Series)) prescribes procedures for system operation during the deep dive.

4. Compare all depth and pressure gauges. Depth and pressure gauges should be checked as soon as each next specified depth is reached.

5. Any evolutions (e.g., mast testing, propeller cavitation data collection, etc.) required by the Sea Trials Agenda which violate the ship's SOE must be approved by the TYCOM prior to Sea Trials in accordance with paragraph 2 of this Appendix.

6. Deep dive should be conducted using moderate speed and constantly adjusting trim, at depths indicated in paragraphs 3.b.(12)(a) and 3.d.(8)(a) of this Appendix, to maintain neutral buoyancy. Moderate speed shall be defined as that range of speed that allows the ship to recover from a loss of stern plane control or flooding casualty.

7. Integrity of launchers or signal ejectors shall be established by admitting sea pressure through equalizing lines or flooding connection and the muzzle valve/door operated before conducting operational tests. Shoot water slugs from specified launchers or signal ejectors, at depths specified by reference (ae). Shoot pyrotechnics on initial dive and at test depth on deep dive only if work was accomplished on the launchers or signal ejectors or if an escort vessel is required for the trial.

8. Run full power submerged for at least two hours. Operate at minimum non-cavitating depth but not to exceed 400 feet, in accordance with reference (q); water depth is not limited for this event.

9. Note that the required sequence of events is initial dive, deep dive, full power run submerged, back emergency, then high speed maneuverability and steep angle tests. Initial high speed ship control tests, steep angle tests and exercises at major casualties shall be conducted in water that does not exceed one and one-half times design test depth.

10. The submerged full power run with an ahead flank bell is to be terminated with a back emergency bell, consistent with current Main Propulsion Operating Limits (shaft torque is not a limiting factor in this test). The duration of the back emergency bell will be limited to 45 seconds, to be followed immediately by an appropriate ahead bell. The 45 second limit will:

a. Standardize the crashback requirements throughout the submarine force.

b. Provide a backing transient similar to that experienced in response to a stern plane jam.

c. Be short enough that no ship will gather sternway.

11. At maximum safe speed, operate the rudder and planes through full throw in both directions, in all remote modes of operation.

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APPENDIX O

MINIMUM SEA TRIALS REQUIREMENTS FOR CHIEF OF NAVAL OPERATIONS AVAILABILITIES GREATER THAN SIX MONTHS DURATION

(SUBMARINES ONLY)

1. Sea Trial Agenda. This Appendix provides the minimum requirements following a major Depot availability of greater than six months duration. Due to unique ship configuration, work performed or operational area requirements, these events may be re-sequenced as they are integrated with the testing required to certify shipyard and Ship's Force work, and the additional events required by the Commanding Officer of the submarine. TYCOM approval and NAVSEA concurrence with these changes is obtained when NAVSEA concurs and the cognizant TYCOM approves the agenda.

2. Sea Trial Policy. The following applies to the conduct of trials and tests associated with ships following major industrial activity availabilities, NAVSEA or Naval Surface Warfare Center, Carderock Division sponsored Trials/Tests or any other situation where the ship is requested to conduct trials or tests:

a. No test or trial event shall be conducted that requires crew intervention to avoid exceeding normal operating limits. Trial agendas will be based on the expectation that the ship will remain within the normal operating limits of the SOE and at angles less than 30 degrees.

b. The trial director(s) must be prepared to project whether the next event might exceed normal operating limits based on the empirical results of the previous event. A run that is predicted to exceed normal operating limits should be deleted along with the more demanding runs of that sequence.

c. Any run which will result in exceeding normal operating limits of the SOE or 30 degree angles but which is essential to provide adequate test data must be specifically approved by the TYCOM. The test/trial sponsor will obtain this permission.

d. A violation of the SOE limit or exceeding a 30 degree angle, not previously approved, should be reported by unit SITREP. The TYCOM will resolve the situation.

e. Specific written approval by the TYCOM is not required to operate outside the upper limits of the SOE (i.e., shallow and fast) while conducting the following operations during Sea Trials or tests in accordance with an agenda approved by the ISIC, NAVSEA or higher authority:

(1) Conducting full power runs or cavitation curves.

(2) Conducting NAVSEA sponsored acoustic trials in accordance with Naval Surface Warfare Center, Carderock Division acoustic trial agenda.

(3) The 200 foot EMBT blow conducted at the conclusion of the initial tightness dive.

f. In cases where troubleshooting is required, it must meet the following criteria or a formally approved change to the agenda is mandatory.

(1) The troubleshooting does not violate any policy listed in paragraphs 2.a. through 2.e. of this Appendix or any other requirement of the trials agenda.

(2) The troubleshooting will not result in the ship being in a certain condition before that condition is reached during the normal testing sequence. For example, troubleshooting requiring the ship to be deeper than 200 feet cannot be done until after the deep dive. Likewise, troubleshooting

requiring large angles or turn rates cannot be done until after the completion of the steering and diving operational tests and the large angle tests.

(3) The depth authorization for sea trials is automatically suspended upon re-entry to the SUBSAFE certification boundary or casualty affecting recoverability, salvage, watertight integrity or operation of the ship's control surfaces. The ship shall not operate at a depth greater than 200 feet until re-entry is certified to the TYCOM and the TYCOM grants approval to operate (resume sea trials) to test depth.

(4) In the instance of SUBSAFE REC conducted only to adjust Flood Control hydraulic valve/hull closure timing (discovered during individual valve/hull closure cycling or during Flood Control System Operation), the ship is authorized to continue with Sea Trials without specific message correspondence from TYCOM and the most recent depth message is considered valid, provided that:

(a) The ship initiates a REC to correct the identified valve/hull closure timing deficiency and the ship operates no deeper than 200 feet while valve/hull closure timing adjustments are in progress.

(b) Valve/hull closure timing, as well as applicable flood control system timing, is verified to be within specification prior to resumption of the deep dive or proceeding to depths greater than 200 feet.

(c) The REC is closed and a report is made to TYCOM on material deficiencies and corrective actions taken related to Flood Control valve/hull closure timing adjustments prior to resumption of the deep dive or proceeding to depths greater than 200 feet.

g. Each person involved in Sea Trials should be allowed to obtain a minimum of six hours of continuous, uninterrupted sleep during any 24 hour period.

3. Test Phasing. The Sea Trials should be scheduled and phased to support actions en route to the test dive area, in the test dive area, prior to the deep dive, etc., subject to amplifying notes as follows:

a. The following tests and evolutions may be carried out at any time during Sea Trials.

(1) Test operation of fresh water production (distilling plants or reverse osmosis systems) noting deficiencies.

(2) Test operation of high pressure and low pressure air compressors.

(3) Run and observe air conditioning plants throughout trials noting deficiencies. Operate air conditioning plant to demonstrate ability to carry the maximum existing ship's air conditioning load, or 100 percent capacity.

(4) Run and observe refrigeration plant throughout trials, noting deficiencies.

(5) Operate IFF and ESM equipment. If possible, use aircraft.

(6) Test all radio transmitters, receivers, and electronic equipment. Test on all possible antenna combinations including emergency antennas and emergency radio equipment.

(7) Fire control system operation. Check target designation system, alignment of sensors to bench marks and transmissions to receivers. Compute fire control solutions on available contacts. Conduct transmission checks to tubes.

(8) Check operation of magazine flooding if not tested in industrial activity.

(9) Additional requirements may be imposed at the discretion of the CO.

b. The following tests and evolutions, summarized in Appendix P, shall be carried out on the surface en route to the test dive area and prior to the initial tightness dive:

(1) Underway. Rig for dive.

(2) Ship's Force instruct Sea Trial riders on the proper use of Emergency Air Breathing system.

(3) At slow speed, conduct operational tests of rudder in all modes (local and remote) in accordance with applicable class operating procedures.

(4) Navigation system check. Take fixes by all means available and compare.

(5) Test underwater log(s) using the base course/reciprocal course method (i.e., inertial reference method) or other approved functional procedures to determine accuracy.

(6) Test accuracy of all bearing transmitters and indicators. Compare sonar, visual and radar bearings.

(7) Check operation of all radars. Determine accuracy by conducting simultaneous radar and visual plot.

(8) Inspect stern tube packing gland/seals and circulating water flow.

(9) Test Dead Reckoning Analyzer Indicator (if installed) or Dead Reckoning Analyzer (if installed), Dead Reckoning Tracers (if installed) and Revolution Per Minute (RPM) indication.

(10) Test fathometer(s) and compare with charted soundings.

(11) Run ahead at maximum allowable surface speed long enough for temperatures to reach a stable value. After readings have stabilized, at maximum allowable surface speed, operate the rudder through full throw in each direction, in all remote modes of operation. Time evolution and compare with design values. (See Note 1).

(12) Ahead, at maximum allowed surface speed, to back emergency.
For SSBN/SSGN 726 Class **only** - Answer ahead standard. Once ship speed has stabilized, perform back emergency for 5 minutes. This event may be conducted after the submerged full power run.

(13) Run astern up to a back full bell for 10 minutes or to meet the intent of a more restrictive industrial activity test. Full power run astern to be within the main engine limits of the applicable Steam and Electric Plant Manual. Operate rudder through full throw (measure degrees per second travel and compare with design values).
For SSBN/SSGN 726 Class **only** - Run astern up to a back full bell for 5 minutes, followed by 60 SRPM for 5 minutes. Operate rudder through full throw (measure degrees per second travel and compare with design values). (See Note 3).

(14) Check operation and accuracy of ship's gyrocompass.

(15) Rendezvous with escort. Conduct radio and sonar communications checks (See Note 4).

(16) Test all bottomside sonars.

(17) Rig out bow planes, if applicable. Test bow/fairwater and stern planes in all modes.

(18) Flood variable tanks to computed compensation less a safety factor.

(19) Record megger/capacitance readings of all antennas, as appropriate.

(20) Operate trim and drain pumps (See Note 5).

(21) Test variable ballast system for proper operation.

(22) Perform both a low pressure blow and an EMBT blow for as long as necessary to verify system operability. A static blow shall not be used to test the EMBT blow system. For SSN 23 only: Additionally, perform an MBT 6 normal blow from the BCP for a minimum duration of 2 seconds to verify that air flows into MBT 6 as indicated by a reduction in air bank pressure. For SSBN/SSGN 726 Class submarines only: Additionally, perform a high pressure blow for as long as necessary to verify system operability.

(23) Operate the Emergency Propulsion Motor for 10 minutes.

(24) Surface ventilate ship.

(25) Check that initial EMBT Blow system actuating air pressure and air bank pressure is within +0 PSIG, -200 PSIG of nominal operating air pressure.

(26) Ensure all MBT blow systems are in a normal line up.

(27) Start atmosphere control equipment.

(28) Additional requirements may be imposed at the discretion of the CO.

c. The following tests and evolutions, summarized in Appendix P, shall be carried out immediately prior to or during the initial tightness dive:

(1) Obtain navigational fix and take soundings. Maximum depth of water is 400 feet as specified in reference (q).

(2) Rig ship for Deep Submergence. Line up propulsion plant for maximum reliability. All systems shall be in the maximum secure condition with unnecessary sea systems isolated (See Note 6).

(3) Station additional personnel throughout the ship to inspect for leaks.

(4) Transmit commencing initial tightness dive message. Submerge the ship per the Ship Systems Manual Operating Procedures. If desired to conduct periscope depth tests, the ship may be submerged to periscope depth.

(5) Check operation of ship control systems, including depth indication (See Note 7).

(6) Equalize signal ejectors or launchers. Shoot pyrotechnics from each by hand and impulse methods (See Note 8).

(7) Communicate with escort on RAC/WQC at each depth increment or at 10 minute intervals, whichever is sooner. If communications are lost, return to depth at which communications can be established before continuing (See Note 4).

(8) All hands inspect for leaks and report them.

(9) Inspect the discharge of all automatic drains in each EMBT Blow quadrant for sea water leakage prior to the first dive when the ballast tanks are flooded (e.g., at periscope depth).

(10) Operate all periscopes checking optics and leakage. Operate all masts.

(11) Test full throw of rudder and planes at slow speeds.

(12) Test operation of trim and drain system discharging to sea.

(13) If not at 150 feet for SSN 688 Class submarines (155 feet for SSN 774 Class submarines), (160 feet for SSBN/SSGN 726 Class and SSN 21 Class submarines), proceed to 150 feet for SSN 688 Class submarines (155 feet for SSN 774 Class submarines), (160 feet for SSBN/SSGN 726 Class and SSN 21 Class submarines) and obtain SAT 1/3 trim in accordance with the Ship's Operating Manual. Take readings as required to make a check of ballasting.

(14) Test all sonar equipment on each hydrophone. In addition, for SSBN/SSGN 726 Class submarines, test the Emergency Underwater Telephone (BQC) on each hydrophone.

(15) At 200 feet:

(a) Adjust trim (See Note 10).

(b) Inspect for leaks.

(c) Communicate with escort at each depth increment or at 10 minute intervals, whichever is sooner. If communications are lost, return to depth at which communications can be re-established before continuing (See Note 4).

(16) At 200 feet as specified in reference (ae):

(a) Check accuracy of depth gauges and repeater (See Note 7).

(b) Equalize signal ejectors or launchers and conduct operational tests (See Note 8).

(c) Check shaft bearings and stern tubes for excessive heating, leakage and noise. Test one seal for 20 minutes and shift to the other seal. Test the second seal for 20 minutes or until the boat is ready to go to the next depth, whichever comes first.

(d) Cycle rudder and planes through full throw, at slow speeds, to check for binding (See Note 11).

(e) Operate all hull and back-up valves (using remote closures, as applicable, from flooding control stations) of seawater systems required to maintain propulsion and other functions vital to the ship's operation.

NOTE: REQUIRED SYSTEMS ARE LISTED IN PARAGRAPH 4.b. OF REFERENCE (ae). OBSERVE RESTRICTION ON OPERATION OF SYSTEMS LISTED IN PARAGRAPH 4.d. OF REFERENCE (ae).

(f) Check operation of bulkhead ventilation valves and watertight doors for binding (excluding lower escape hatches).

(g) Operate trim and drain pumps, discharging to sea.

(h) Cycle components of each torpedo tube. Check for leakage. Establish integrity of torpedo tubes by admitting sea pressure through equalizing lines or flooding connection before cycling components (See Note 2).

(i) Cycle main ballast tank vents hydraulically to check for binding.

(j) Equalize TDU with sea pressure through trim line, then cycle the muzzle valve.

(17) Conduct an EMBT blow from 200 feet keel depth. Check bank pressure before and after surfacing. Surfacing with EMBT blow may be delayed to accommodate additional testing or transit as explained in Appendix P.

(18) Additional requirements may be imposed at the discretion of the CO.

d. The following tests and evolutions, summarized in Appendix P, shall be carried out following the initial tightness dive and prior to the deep dive:

(1) Transmit initial tightness dive completion message.

(2) A minimum of six hours of Individual Ship Exercises submerged for crew training.

(3) Charge air banks and battery as necessary. The ship may be submerged while charging air banks provided the depth of the ship does not exceed other guidelines in this instruction or those of the flooding bill or ship's operating procedures.

(4) Detach escort after initial tightness dive. Escort will then proceed to station for deep dive. Ensure that deep dive rendezvous time and location are clearly established before escort is released. The escort may be retained for additional testing during the transit as described in Appendix P. Transit depth shall not exceed depth as described in Appendix P.

(5) Additional requirements may be imposed at the discretion of the CO.

e. The following tests and evolutions, may be carried out following the initial tightness dive but are not required to be completed prior to the deep dive:

(1) Snorkel on each engine designed for snorkeling. (See Notes 9 and 12).

(2) Test the SPM (See Note 13).

(3) Check hovering system (See Note 9).

(4) Additional requirements may be imposed at the discretion of the CO.

f. The following tests and evolutions, summarized in Appendix P, shall be carried out immediately prior to or during the deep dive:

(1) Check that initial EMBT Blow system actuating air pressure and air bank pressure is within +0 PSIG, -200 PSIG of nominal operating air pressure.

(2) Verify MBT system lined up for normal operation.

(3) Take soundings. Maximum water depth is given in reference (q). Accurately fix the ship's position within the specified dive area, in accordance with reference (q). Transmit commencing deep dive message.

(4) Proceed to normal submergence depth and obtain slow speed trim. Use conservative angles and speed.

(5) Trim ship to maintain neutral buoyancy (See Note 10).

(6) Rig ship for deep submergence. Line up propulsion plant for maximum reliability. All systems should be in the maximum secure condition with unnecessary sea systems isolated (See Note 6).

(7) Station additional personnel throughout the ship to inspect for leaks.

(8) At 400 feet and then in increments of 100 feet descending to one-half the maximum operating depth and every 100 feet or other lesser specified increments thereafter down to the maximum authorized operating depth:

(a) Adjust trim (See Note 10).

(b) Inspect for leaks.

(c) Communicate with escort at each depth increment or at 10 minute intervals, whichever is sooner. If communications are lost, return to depth at which communications can be re-established before continuing (See Note 4).

(9) At depths listed for hull valve cycling in reference (ae) (as applicable), except maximum authorized operating depth:

(a) Check accuracy of depth gauges and repeater (See Note 7).

(b) Equalize signal ejectors or launchers and conduct operational tests (See Note 8).

(c) Check shaft bearings and stern tubes for excessive heating, leakage and noise. Main shaft seals must be tested at each depth specified in reference (ae), testing one seal for 20 minutes and shifting to the other seal. Test the second seal for 20 minutes or until the boat is ready to go to the next depth, whichever comes first.

(d) Cycle rudder and planes through full throw, at slow speeds, to check for binding (See Note 11).

(e) Operate all hull and back-up valves (using remote closures, as applicable, from flooding control stations) of seawater systems required to maintain propulsion and other functions vital to the ship's operation at increments of depth specified in reference (ae).

NOTE: REQUIRED SYSTEMS ARE LISTED IN PARAGRAPH 4.b. OF REFERENCE (ae). OBSERVE RESTRICTION ON OPERATION OF SYSTEMS LISTED IN PARAGRAPH 4.d. OF REFERENCE (ae).

(f) Check operation of bulkhead ventilation valves and watertight doors for binding (excluding lower escape hatches).

(g) Operate trim and drain pumps, discharging to sea.

(h) Cycle components of each torpedo tube. Check for leakage. Establish integrity of torpedo tubes by admitting sea pressure through equalizing lines or flooding connection before cycling components (See Notes 2 and 9).

(i) Cycle main ballast tank vents to check for binding. Main ballast tank vents will be cycled hydraulically except at test depth where they will be cycled manually.

(j) Equalize TDU with sea pressure through trim line.

NOTE: DURING SEA TRIALS DO NOT OPERATE TDUs WITH BALL VALVES BELOW 200 FEET OR TDUs WITH FLAPPER VALVES BELOW 150 FEET.

(10) At maximum authorized operating depth:

(a) Repeat item (9) (a) - Depth gauges and repeaters. (See Note 7)

(b) Equalize signal ejectors or launchers. Shoot pyrotechnics from each by hand and impulse methods, as applicable (See Note 8).

(c) Repeat item (9) (c) - Shafting and bearings.

(d) Repeat item (9) (e) - Cycle hull and back-up valves as specified in reference (ae).

(e) Repeat item (9) (f) - Bulkhead ventilation valves and watertight doors.

(f) Repeat item (9) (g) - Trim and drain pumps.

(g) Repeat item (9) (h) - Torpedo tubes. (See Notes 2 and 9)

(h) Repeat item (9) (i) - Cycle main ballast tank vents, manually only, and check for binding.

(i) Repeat item (9) (j) - Equalize TDU with sea pressure through trim line.

(11) Prior to blow, visually inspect discharge of automatic drains in each EMBT quadrant for seawater leakage. Surface fully with EMBT blow from maximum authorized operating depth (not to exceed maximum depth permitted by the SOE at the initial speed required for the test). Check air bank pressures before and after blow. For SSN 23 only: Perform an MBT 6 normal blow from the BCP until MBTs 6A and 6B are blown to residual water levels.

(12) Additional requirements may be imposed at the discretion of the CO.

g. The following tests and evolutions shall be carried out on the surface following the deep dive:

(1) Transmit completion of deep dive message.

(2) Note condition of periscope optics.

(3) Measure resistance to ground of all external electrical cables.

(4) Take radio antenna megger/capacitance readings (as appropriate) immediately after surfacing, again in one-half hour, and compare with readings obtained in item 3.b.(20) of this appendix.

(5) Measure resistance across and to ground from each side of all sonar hydrophones, projectors, and transducers or run applicable sonar hydrophone and transducer fault localization test (See Note 14).

(6) Measure rodmeter coil and button resistance and coil insulation resistance to ground.

(7) Open all lower hatches, except **DO NOT** open weapons shipping hatch while at sea. Check the upper hatch seals, Logistics Escape Trunks/Logistics Plug Trunks inter-seals and penetrations for leakage. Open the sonar sphere access door, where applicable, and check sonar sphere for leakage. Weapons shipping trunk shall be opened and checked dockside, immediately upon return from sea trials, for evidence of leakage.

h. The following tests and evolutions shall be carried out submerged following the deep dive:

(1) Full power run (See Notes 15, 16 and 17).

(2) Emergency stop (See Notes 15 and 16).

(3) Steering and diving operation at full speed (See Notes 16 and 18).

(4) Steep angles - operate ship through several depth changes using large up and down angles to check operation of ship machinery (See Note 16).

(5) Time raising each periscope and mast at maximum depth and speed for which they are designed. Check training feature where applicable.

(6) Comply with CS/CCS test program with regard to firing of water slugs and testing of torpedo tubes (See Note 2).

(7) Run ahead at maximum speed allowed by SOE. Operate torpedo tube shutters and ejection pump shutters. If shutters do not open, gradually reduce speed until shutters open. This establishes "stall speed" for each shutter.

(8) Additional requirements may be imposed at the discretion of the CO.

4. Sea Trial Conclusion. At the conclusion of Sea Trials, and based on a review of Sea Trial deficiencies and TYCOM concurrence, the submarine may transit to a port other than the overhauling activity. During this transit the submarine shall not operate at depths greater than one-half test depth plus fifty feet, unless specifically authorized by NAVSEA, and shall not be released for unrestricted operations until all RECs are closed and final URO certification is received, per the Submarine Safety (SUBSAFE) Requirements Manual.

NOTES

1. Temporary condensate strainers that cannot be monitored for differential pressure shall be inspected and cleaned during sea trials following at least one hour of operation at between 45 and 55 percent reactor power, and prior to operation at higher power levels, in accordance with reference (ao).

2. Fire water slugs from torpedo tubes at the depths and speeds required by the CS/CCS test program (or Combat Systems Assessment or Non-Propulsion Electronic System Operability, Verification and Evaluation, as applicable).

3. For SSBN/SSGN 726 Class only - This surface evolution, full power run astern, shall be conducted only if maintenance was accomplished on the reduction gears, the astern throttle(s) or the main shaft thrust bearing.

4. In the execution of any Sea Trial, whether escorted or not, submarine COs are reminded of their responsibility to communicate with escorts and/or shore authorities within prescribed, previously agreed upon, time limits to avoid initiation of inadvertent lost contact or submarine disaster procedures.

5. Pumps should be tested in the industrial activity, prior to Sea Trials, to determine that they can pump against a test depth head.

6. Reference (ae) prescribes procedures for system operation during deep dive.

7. Compare all depth and pressure gauges. Depth and pressure gauges should be checked as soon as the next specified depth is reached.

8. Integrity of launchers or signal ejectors shall be established by admitting sea pressure through equalizing lines or flooding connection and the muzzle valve/door operated before conducting operational tests. Shoot water slugs from specified launchers or signal ejectors, at depths specified by reference (ae). Shoot pyrotechnics on initial dive and at test depth on deep dive. Shooting of pyrotechnics during the initial dive shall be accomplished in conjunction with the 200 foot EMBT Blow. Shooting of pyrotechnics at test depth during the deep dive shall be accomplished in conjunction with the test depth EMBT Blow.

9. If major structural modifications were accomplished, those seawater systems which are not required for normal safe operation of the ship at test depth, but which have been designed for and may be subjected to test depth pressure, should not be subjected to submergence pressure during the initial dive to any specified depth (e.g., blown sanitary tanks). If major structural modifications were not accomplished, those sea water systems which are not required for normal safe operation of the ship at test depth, but which have been designed for and may be subjected to test depth pressure, may be equalized and operated on the initial dive to test depth (See reference (ae)).

10. Deep dive should be conducted using moderate speed and constantly adjusting trim, at depths indicated in paragraph 3.c.(15)(a) and 3.f.(8)(a) of this Appendix, to maintain neutral buoyancy. Moderate speed shall be defined as that range of speed that allows the ship to recover from a loss of stern plane control or flooding casualty or as otherwise directed by NAVSEA.

11. Cycling of rudder and planes through full throw should be limited to 90% of test depth.

12. Check operation of electrodes, head valve and each snorkel safety circuit.

13. The following table summarizes SPM limitations:

TABLE 1. SPM Limitation Table

Operational Cycle	Extend	Retract	Train	Operate*	Drag*
Sea Trials (Post Overhaul, New Construction)	200 Ft 5 Kts	200 Ft 5 Kts	200 Ft 5 Kts	200 Ft 5 Kts	200 Ft 10 Kts
Operational Submarines (Hydraulic Units)	200 Ft 5 Kts	200 Ft 5 Kts	Test Depth 5 Kts	Test Depth 5 Kts	Test Depth 10 Kts
Operational Submarines (Electro-Mechanical Units)	Test Depth 5 Kts	Test Depth 5 Kts	Test Depth 5 Kts	Test Depth 5 Kts	Test Depth 10 Kts

*** Do not violate the SOE of the ship.**

Ref: NAVSEA MSG 282003Z June 88

14. The spherical array need not be done if an array purge or power into the array measurements are scheduled at a later date.

15. The submerged full power run with an ahead flank bell is to be terminated with a back emergency bell, consistent with current Main Propulsion Operating Limits (shaft torque is not a limiting factor in this test). The duration of the back emergency bell will be limited to 45 seconds, to be followed immediately by an appropriate ahead bell. The 45 second limit will:

a. Standardize the crashback requirements throughout the submarine force.

b. Provide a backing transient similar to that experienced during a stern plane jam.

c. Be short enough that no ship will gather sternway.

16. Note that the required sequence of events is initial dive, deep dive, full power run submerged, back emergency, then high speed maneuverability and steep angle tests. Initial high speed ship control tests, steep angle tests and exercises at major casualties shall be conducted in water that does not exceed one and one-half times design test depth.

17. Run full power submerged for at least two hours. CO may schedule full power run for four hours if he deems it necessary. Submarine depth during the submerged full power run should be in accordance with reference (q), based on the EMBT blow from maximum authorized operating depth being previously accomplished.

18. At maximum safe speed, operate the rudder and planes through full throw in both directions in all remote modes of operation. Time evolutions and check against design values.

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APPENDIX P

SUMMARY OF SIGNIFICANT POST REPAIR SEA TRIAL REQUIREMENTS

(SUBMARINES ONLY)

SEA TRIALS	INITIAL TIGHTNESS DIVE	TRANSIT	DEEP DIVE
Policy Reference	Appendix O Paragraph 3.c.	Appendix O Paragraph 3.d.	Appendix O Paragraph 3.f.
Start Depth	Surface	Surface to 400 Ft	Surface to 400 Ft
Conduct Depth	Periscope depth or about 150 ft for SSN 688 Class (155 ft for SSN 774 Class), (160 ft SSN 21 and SSBN/SSGN 726 Class) if sea state dictates for trim. Remaining events of Appendix O, Paragraph 3.c. no deeper than 200 ft.	Surface to 400 Ft but not to exceed deepest depth previously escorted or valve cycling accomplished. Additional trials and testing permitted within the ISE, crew rest and other requirements of this instruction.	200 Ft increments to ½ max Op depth, then 100 ft increments to max Op depth in accordance with Appendix O, Paragraph 3.f.
Maximum Keel Depth	200 Ft	400 Ft	Maximum Authorized Operating Depth.
Finish Event	Surface from 200 Ft with EMBT blow.*	Rendezvous with escort	Deep dive will be terminated with an EMBT blow from max authorized Op depth.
Escort Required	Yes**	No	Yes
Water Depth	400 Ft in accordance with reference (q).	Unlimited.	Reference (q).

* - **May be delayed to permit additional testing, commencing pre-transit valve cycling or transit submerged. However, first surface after initial tightness dive must be by EMBT blow from 200 feet and must be conducted prior to deep dive.**

** - **An escort is required on the initial tightness dive and on subsequent first dives to any deeper depths, i.e., the first dive to any depth requires an escort. EMBT blow escort requirements given in paragraph 3.6.8.4.7 of this chapter.**

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APPENDIX AA

SAMPLE SHIP'S REQUEST FOR PERMISSION TO COMMENCE FAST CRUISE

(SURFACE SHIPS ONLY)

FM USS (SHIP NAME)//
TO(APPLICABLE TYCOM)/N43//
INFO CNO WASHINGTON DC//OP55//N86 OR N88//
SUPERVISING AUTHORITY//
COMNAVSEASYSCOM WASHINGTON DC//04X/04X1/04X2/08//
COMCARGRU (GROUP NO.)//
PEO CARRIERS//PMS312// (AS APPLICABLE FOR CARRIERS)//
PEO THEATER SURFACE COMBATANTS//PMS400F// (AS APPLICABLE FOR COMBATANTS)//
PEO EXW//PMS470/PMS325// (AS APPLICABLE FOR AUXILIARIES, LITTORALS AND PATROL CRAFT)//
PEO MUW//PMS490// (AS APPLICABLE FOR MINE WARFARE)//
OTHER UNITS (IF APPLICABLE)//
BT
UNCLAS //N09080//
MSGID/GENADMIN/(ORIG)//
SUBJ/(SHIP NAME AND HULL NO.) FAST CRUISE//
REF/A///
AMPN/REF A IS //
RMKS/1. ALL FORCES AFLOAT WORK ITEMS AND TRAINING NECESSARY FOR SEA TRIALS INCLUDING THOSE DEFICIENCIES LIST REF A HAVE BEEN SATISFACTORILY COMPLETED.
2. USS _____ READY FOR SEA WITH EXCEPTION OF REMOVING SHORE SERVICES. ALL REQUIRED STORES AND SPARE PARTS ON BOARD.
TECHNICAL DOCUMENTATION ON BOARD.

A.
B.
C.
D.

3. REQUEST PERMISSION TO COMMENCE FAST CRUISE//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX AB

SAMPLE SHIP'S REPORT OF FAST CRUISE COMPLETION

(SURFACE SHIPS ONLY)

FM USS (SHIP NAME)//
TO (APPLICABLE TYCOM)//N43//
INFO CNO WASHINGTON DC//OP55//N6 OR N8//
COMNAVSEASYSCOM WASHINGTON DC//04X/04X1/04X2/08//
SUPERVISING AUTHORITY//
(APPLICABLE FLEET COMMANDER)//N43//
COMCARGRU (GROUP NO.)//
PEO CARRIERS//PMS312// (AS APPLICABLE FOR CARRIERS)//
PEO THEATER SURFACE COMBATANTS//PMS400F// (AS APPLICABLE FOR COMBATANTS)//
PEO EXW//PMS470/PMS325// (AS APPLICABLE FOR AUXILIARIES, LITTORALS AND PATROL CRAFT)//
PEO MUW//PMS490// (AS APPLICABLE FOR MINE WARFARE)//
BT
UNCLAS //N09080//
MSGID/GENADMIN/(orig)//
SUBJ/(SHIP NAME AND HULL NO.) FAST CRUISE//
REF/A/RMG/(orig)/(dtg)//
REF/B/DOC/COMFLTFORCOM/(DATE)//
NARR/REF A IS TYCOM MSG AUTHORIZING COMMENCEMENT OF FAST CRUISE. REF B IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOL II. //
RMKS/1. FAST CRUISE AUTHORIZED BY REF A COMPLETED AT (DATE/TIME). NO MAJOR DEFICIENCIES NOTED IN CREW OR EQUIPMENT. REQUEST PERMISSION TO COMMENCE SEA TRIAL IN ACCORDANCE WITH REF B AT (DATE/TIME).//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX AC

SAMPLE SUPERVISING AUTHORITY READINESS FOR SEA TRIAL MESSAGE

(SURFACE SHIPS ONLY)

FM (SUPERVISING AUTHORITY)//
TO USS (SHIP'S NAME)//
INFO CNO WASHINGTON DC//OP66//N86 OR N88//
COMNAVSEASYSCOM WASHINGTON DC//04X/04X1/04X2//
(APPLICABLE FLEET COMMANDER)//N43//
(APPLICABLE TYCOM)//N43//
(ISIC)//
PEO CARRIERS//PMS312// (AS APPLICABLE FOR CARRIERS)//
PEO THEATER SURFACE COMBATANTS//PMS400F// (AS APPLICABLE FOR COMBATANTS)//
PEO EXW//PMS470/PMS325// (AS APPLICABLE FOR AUXILIARIES, LITTORALS AND PATROL CRAFT)//
PEO MUW//PMS490// (AS APPLICABLE FOR MINE WARFARE)//
BT
UNCLAS //N09080//
MSGID/GENADMIN/(SUPERVISING AUTHORITY NAME)//
SUBJ/USS (SHIP NAME AND HULL NO.) READINESS FOR SEA TRIALS//
REF/A/DOC/COMFLTFORCOM (DATE)//
AMPN/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II//
RMKS/1. IAW REF A (SUPERVISING AUTHORITY) REPORTS THAT ALL WORK NECESSARY FOR SEA TRIALS, HAVE BEEN SATISFACTORILY COMPLETED.
2. SEA TRIALS TO COMMENCE AT (TIME AND DATE) CONTINGENT UPON (APPLICABLE TYCOM) APPROVAL//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX BA

SAMPLE TYCOM MESSAGE CONCERNING ESCORT SERVICES FOR INDUSTRIAL ACTIVITY AVAILABILITIES OF LESS THAN SIX MONTHS DURATION

(SUBMARINES ONLY)

FM COMSUB <LANT/PAC><NORFOLK VA/PEARL HARBOR HI>//N4//
TO COMSUB<RON/GRU NO.>//{ISIC of Escort Ship}
USS <ESCORT SHIP NAME>//
INFO CNO WASHINGTON DC//N77//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>//N43//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/PMS 394 and PMS 399 (AS APPLICABLE)/08O/07Q//
DIRSSP WASHINGTON DC //205//{For SSBN/SSGN only}
<SUPERVISING AUTHORITY>//<CODES>//
<SUBOPAUTH>// {If other than parent TYCOM}
COMSUBDEVRON FIVE SILVERDALE WA//N3//
COMSUB<RON/GRU NO.>//{ISIC of Sea Trial Ship}
CTF TWO SIX//
CTG TWO SIX PT ONE//
NSCSES NORFOLK VA//112//
DSU SAN DIEGO CA//00//
NAVUNSEAWARCENDIV NEWPORT RI//02245//
NAVUNSEAWARCENDET WEST PALM BEACH FL//3812//
NAVUNSEAWARCENDET AUTEC ANDROS ISLAND BAHAMAS//05//
NAVSURFWARCEN CARDEROCKDIV BETHESDA MD//1921//
PEOSUBCBTWPNSYS WASHINGTON DC//PMO417//
NAVORDTESTU CAPE CANAVERAL FL//SPP40//{For SSBN/SSGN only}
COMSUBGRU <NINE/TEN> //N3//{For SSBN/SSGN only}
USS <SEA TRIAL SHIP NAME> //
BT
UNCLAS //N03120//
MSGID/GENADMIN/COMSUB<LANT/PAC>//
SUBJ/(SUBS) SUBMARINE SEA TRIAL SUPPORT SERVICES//
REF/A/<RMG/DOC>/<SUPERVISING AUTHORITY>/<DATE/DTG>//
REF/B/DOC/COMFLTFORCOM/<DATE>//
NARR/REF A IS SEA TRIAL SUPPORT REQUEST. REF B IS JOINT FLEET MAINTENANCE MANUAL//
RMKS/1. REF A REQUESTED AND IAW REF B USS <NAME OF ESCORT SHIP> IS APPROVED AS ESCORT FOR USS <SEA TRIAL SHIP NAME> FOR SEA TRIALS OCCURRING <DDMMMYY>.
2. FOR COMSUB<RON/GRU NO.> PROVIDE GOLD DOLPHIN RIDER ONBOARD USS <NAME OF ESCORT SHIP>.
3. DIRLAUTH ALCON FOR EVENT SCHEDULES AND SCHEDULE CHANGES.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX BB

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING CREW CERTIFICATION AND MATERIAL CONDITION FOR FAST CRUISE AND SEA TRIALS FOR INDUSTRIAL ACTIVITY AVAILABILITIES LESS THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM COMSUB<RON/GRU NO.>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4/40//
INFO <SUPERVISING AUTHORITY>//<CODES>//
USS <SHIP NAME>//
COMSUBGRU<NO.>//N4//
BT
UNCLAS//N09094//
MSGID/GENADMIN/COMSUB<RON/GRU NO.>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> CREW AND MATERIAL CERTIFICATION//
REF/A/DOC/COMFLTFORCOM/<DATE>//
REF/B/DOC/NAVSEA/<DATE>//
REF/C/DOC/NAVSEA/<DATE>//
NARR/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL. REF B IS SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL, NAVSEA 0924-LP-062-0010. REF C IS NAVSEA URO MRC TECHNICAL MANUAL//
RMKS/1. CREW CERTIFICATION CONDUCTED AND SATISFACTORILY COMPLETED IAW REF A.
2. IAW REFS A AND B, COMSUB<RON/GRU NO.> CERTIFIES THE SUBSAFE CERTIFICATION BOUNDARY OF <SHIP NAME/HULL NO.> INSTALLED, REPAIRED AND/OR TESTED BY FORCES AFLOAT IS SATISFACTORY FOR SEA TRIALS TO TEST DEPTH. ALL SUBSAFE CONTROLLED WORK PACKAGES ARE CLOSED. CERTIFICATION REQUIREMENTS OF REF B HAVE BEEN SUSTAINED FOR THE REMAINDER OF THE SUBSAFE CERTIFICATION BOUNDARY. ALL OTHER CONTROLLED WORK PERFORMED BY SHIP'S FORCE HAS BEEN COMPLETED AND SATISFACTORILY RETESTED AND THE APPROPRIATE WORK PACKAGES CLOSED.
3. MATERIAL/SALVAGE CONDITION CERTIFIED READY FOR SEA UPON COMPLETION OF THE FOLLOWING CORRECTIVE ACTIONS:
A.
B.
4. THERE ARE NO OUTSTANDING RECS. THE FOLLOWING DEPARTURES FROM SPECIFICATION ARE CURRENTLY OUTSTANDING:

DEPARTURE NO.	TYPE	SYSTEM/COMPONENT	RESTRICTION (IF ANY)
A.			
B.			

5. ALL URO MRC AND MANDATORY TESTS/INSPECTIONS SPECIFIED IN REF C HAVE BEEN ACCOMPLISHED OR VERIFIED TO BE WITHIN THE REQUIRED PERIODICITY.
6. COMSUB<RON/GRU NO.> REPORTS READINESS OF USS <SHIP NAME/HULL NO.> FOR COMMENCEMENT OF FAST CRUISE. CO USS <SHIP NAME/HULL NO.> CONCURS.//
7. SUBJECT TO SATISFACTORY COMPLETION OF FAST CRUISE AND RESOLUTION OF MANDATORY DEFICIENCIES COMSUB<RON/GRU NO.> CONSIDERS USS <SHIP NAME/HULL NO.> MATERIAL CONDITION READINESS SATISFACTORY FOR COMMENCEMENT OF SEA TRIALS.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX BC

MAJOR TRIAL AND INSPECTION MILESTONES FOR INDUSTRIAL ACTIVITY AVAILABILITIES LESS THAN SIX MONTHS DURATION

(SUBMARINES ONLY)

EVENT	COGNIZANCE	APPROXIMATE SCHEDULE	CORRESPONDING APPENDIX
A. Periodic Monitoring Inspections	ISIC/TYCOM Representative	Start to completion	
B. Pre-Criticality Inspection (2 Days – Nuclear Powered Submarines Only)	ISIC (Only required when the reactor has been shutdown greater than 16 weeks)	Within 1 month of criticality	
C. Escort Recommendation (Message) or Waiver Request Message	TYCOM	Sea Trials -28 days	Appendix BA Para 3.6.8.3.9.b.(4) for Waivers
D. NAVSEA Approval of Escort Waiver	NAVSEA	Sea Trials -14 days	
E. Phase II Crew Certification/Material Inspection	ISIC/Crew Certification not required unless crew turnover greater than 15%. Material Inspection on a case by case basis	Prior to Fast Cruise	
F. Approve Sea Trials Agenda	ISIC	Prior to Fast Cruise (-7 to -14 days)	
G. Salvage Inspection	ISIC	Sea Trials –10 days	
H. Dock Trials (1 day or less)	CO of Ship	Sea Trials –10 days	
I. Audit Re-Entry Control, Departure from Specifications, URO MRCs (Formal Report Required)	ISIC	Sea Trials –4 days	
J. Crew and Material Certification Message	ISIC	Sea Trials -4 days	Appendix BB, BQ
K. Supervising Authority SUBSAFE Certification Continuity Report	Supervising Authority	Sea Trials -4 days	Reference (t), Paragraph 6.3.2.3.1
L. Readiness for Fast Cruise	CO of Ship	Sea Trials -4 days	Appendix BH
M. Grant Permission to Conduct Fast Cruise	ISIC	Sea Trials -4 days	Appendix BI
N. Commence Fast Cruise	CO of Ship	Sea Trials –3 days (1 to 2 days in duration)	

EVENT	COGNIZANCE	APPROXIMATE SCHEDULE	CORRESPONDING APPENDIX
O. Report Ship Readiness for Sea Trials	CO of Ship	Sea Trials -1 day	Appendix BJ
P. Message Update of Material Certification Status and Readiness for Sea Trials	ISIC	Sea Trials -1 day	Appendix BK
Q. Authorization to Commence Sea Trials and Depth Authorization Message	TYCOM	Sea Trials -1 day	Appendix BD, BR
R. Commence Sea Trials	CO of Ship	0	
S. Daily Sea Trials SITREP/Status Report	CO of Ship	At Least Daily During Sea Trials	Appendix BM
T. Supervising Authority SUBSAFE Certification Continuity Report	Supervising Authority	Follow-On Sea Trials-1 day	Reference (t), Paragraph 6.3.2.3.1
U. Report Ship Readiness for Follow-On Sea Trials	CO of Ship	Follow-On Sea Trials -1 day	Appendix BE
V. Update of Material Status prior to Follow-on Sea Trials.	ISIC	Follow-On Sea Trials-1 day	Appendix BF, BQ
W. TYCOM Authorization to Commence Follow-On Sea Trials and Depth Authorization	TYCOM	Follow-On Sea Trials-1 day	Appendix BG, BR
X. Sea Trials Completion Message	CO of Ship to ISIC and TYCOM	+1 day After Sea Trials	Appendix BL
Y. Sea Trials Completion Message	Supervising Authority	+1 day After Sea Trials	Format similar to Reference (t) Appendix B3.8
YA.	ISIC	+1 day After Sea Trials	Appendix BS
Z. URO Message	TYCOM	+1 day After Sea Trials	Appendix BO, BT

NOTE: UNLESS OTHERWISE INDICATED, SCHEDULE DATES ARE REFERENCED TO SEA TRIALS UNDERWAY DATE.

APPENDIX BD

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING SEA TRIALS DEPTH AUTHORIZATION FOR INDUSTRIAL ACTIVITY AVAILABILITIES LESS THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//
TO USS <SHIP NAME>//
INFO CNO WASHINGTON DC//N87//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08O/07Q//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>//N43//
DIRSSP WASHINGTON DC//205// {For SSBN/SSGN only}
COMSUBGRU <NO.>//
COMSUBRON< NO.>//
<SUPERVISING AUTHORITY>//<CODES>//
BT
UNCLAS //N09094//
MSGID/GENADMIN/COMSUB<LANT/PAC>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> SEA TRIALS DEPTH AUTHORIZATION//
REF/A/DOC/<SUPERVISING AUTHORITY>/<DATE>//
REF/B/RMG/ COMSUB<RON/GRU NO.>/<DTG>//{APPENDIX BK}
REF/C/RMG/ USS <SHIP NAME>/<DTG>//{APPENDIX BJ}
NARR/ REF A IS <SUPERVISING AUTHORITY> SUBSAFE CERTIFICATION CONTINUITY REPORT FOR <SHIP NAME/HULL NO.>. REF B IS COMSUB<RON/GRU NO.> REPORT OF MATERIAL CONDITION OF SHIP NOT WORKED BY THE SHIPYARD. REF C IS SHIP REPORT OF SATISFACTORY COMPLETION OF FAST CRUISE
RMKS/1. REF A CERTIFIED THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS <SHIP NAME/HULL NO.> INSTALLED, REPAIRED AND/OR TESTED BY THE SHIPYARD IS SATISFACTORY FOR SEA TRIALS TO TEST DEPTH.
2. REF B CONFIRMS THAT THE CERTIFICATION OF THE REMAINDER OF ITEMS WITHIN THE SUBSAFE CERTIFICATION BOUNDARY OF USS <SHIP NAME/HULL NO.> HAS BEEN SUSTAINED. ACCORDINGLY, THE STATUS OF THE SUBSAFE CERTIFICATION BOUNDARY OF USS <SHIP NAME/HULL NO.> IS SATISFACTORY FOR SEA TRIALS TO TEST DEPTH.
3. REF B AND C REPORTED COMPLETION OF FAST CRUISE AND READINESS TO PROCEED ON SEA TRIALS.
4. USS <SHIP NAME/HULL NO.> IS AUTHORIZED TO DIVE UNDER DELIBERATE AND CONTROLLED CONDITIONS TO <SPECIFIED DEPTH>.

NOTE: IF AN UNSATISFACTORY CONDITION OR SEAWATER LEAKAGE IN EXCESS OF THE SPECIFICATION IS FOUND DURING THE CONDUCT OF THE CONTROLLED DIVE TO TEST DEPTH, AT THE DISCRETION OF THE COMMANDING OFFICER THE SHIP MAY CONTINUE TO TEST DEPTH UNLESS THE COMMANDING OFFICER DETERMINES IT APPROPRIATE TO ABORT THE DIVE.

5. EXCEPT AS LISTED IN 6. BELOW, THIS DEPTH AUTHORIZATION IS AUTOMATICALLY SUSPENDED UPON RE-ENTRY TO THE SUBSAFE CERTIFICATION BOUNDARY OR CASUALTY AFFECTING RECOVERABILITY, SALVAGE, WATERTIGHT INTEGRITY, OR OPERATION OF SHIP'S CONTROL SURFACES. THE SHIP SHALL NOT OPERATE AT A DEPTH GREATER THAN 200 FEET UNTIL RE-ENTRY IS CERTIFIED. TYCOM APPROVAL IS REQUIRED PRIOR TO COMMENCING A SUBSEQUENT DEEP DIVE TO CERTIFY WORK ACCOMPLISHED TO CORRECT SUBSAFE DEFICIENCIES DISCOVERED DURING THE SEA TRIAL.
6. RE-ENTRY CONTROL TO ADJUST FLOOD CONTROL HYDRAULIC VALVE TIMING WILL BE CERTIFIED BY THE COMMANDING OFFICER. TYCOM CERTIFICATION IS NOT REQUIRED, AND A SITREP WILL BE TRANSMITTED PRIOR TO RESUMPTION OF OPERATION BELOW 200 FEET.

7. FOLLOWING COMPLETION OF THE SEA TRIALS AGENDA, THE SHIP IS RESTRICTED TO ONE HALF OF TEST DEPTH PLUS FIFTY FEET UNTIL RECEIPT OF AN UNRESTRICTED OPERATIONS MESSAGE FROM <TYPE COMMANDER>. THE MESSAGE WILL BE SENT FROM <TYPE COMMANDER> FOLLOWING REVIEW AND ACCEPTANCE OF SEA TRIALS DATA BY <SUPERVISING AUTHORITY>. THE MESSAGE IS SENT WITHIN 24 HOURS FOLLOWING SHIPYARD RECEIPT OF SEA TRIAL DATA.
8. ALL SEA TRIALS SITREPS ARE TO BE SENT USING IMMEDIATE PRECEDENCE.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX BE

SAMPLE SHIP MESSAGE TO TYCOM CONCERNING READINESS FOR FOLLOW-ON SEA TRIALS FOR INDUSTRIAL ACTIVITY AVAILABILITIES LESS THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM USS <SHIP NAME>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
INFO COMSUBDEVRON FIVE SILVERDALE WA//N3//
COMSUBGRU <NO.>//N5//
COMSUB<RON/GRU NO.>//
<SUPERVISING AUTHORITY>//<CODES>//
BT
UNCLAS //N09094//
MSGID/GENADMIN//USS <SHIP'S NAME>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.>READINESS FOR <FOLLOW-ON (NOTE 1)>SEA TRIALS//
REF/A/DOC/<SUPERVISING AUTHORITY>/<DATE>//
REF/B/DOC/COMFLTFORCOM/<DATE>//
REF/ REF A IS <SUPERVISING AUTHORITY> SUBSAFE CERTIFICATION CONTINUITY REPORT FOR <SHIP NAME/HULL NO.>**.** REF B IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II.//
RMKS/1. REF A CERTIFIED THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS <SHIP NAME/HULL NO.> INSTALLED, REPAIRED AND/OR TESTED BY THE SHIPYARD IS SATISFACTORY FOR SEA TRIALS TO TEST DEPTH.
2. USS <SHIP NAME/HULL NO.> AND CREW REPORTED READY TO PROCEED IAW REF B, ON <FOLLOW-ON (NOTE 1)> SEA TRIALS WITH THE FOLLOWING EXCEPTIONS:
    A. REMOVAL OF SHORE SERVICE CONNECTIONS.
    B.
3. MATERIAL CONDITION SUPPORTS ADEQUATE CREW REST FOR UNDERWAY AT <TIME AND DATE>.
4. REQUEST PERMISSION TO COMMENCE <FOLLOW-ON (NOTE 1)> SEA TRIALS.//
BT

NOTE: UPCOMING TRIAL WHICH IS SUBJECT OF THIS CERTIFICATION (E.G., SECOND SEA TRIAL, ETC.).

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX BF

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING MATERIAL CERTIFICATION FOR FOLLOW-ON SEA TRIALS IN CASES WHERE A PREVIOUS SEA TRIAL WAS ABORTED OR CORRECTIVE ACTIONS FOR SEA TRIAL DEFICIENCIES REQUIRE AN ADDITIONAL DEEP DIVE FOR INDUSTRIAL ACTIVITY AVAILABILITIES LESS THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM COMSUB<RON/GRU NO.>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
INFO COMSUBDEVRON FIVE SILVERDALE WA//N4//
COMSUBGRU <NO.>//N4//
USS <SHIP NAME>//
<SUPERVISING AUTHORITY>//<CODES>//
BT
UNCLAS //N09094//
MSGID//GENADMIN/COMSUB<RON/GRU NO.>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.>MATERIAL CERTIFICATION/ READINESS FOR <FOLLOW-ON (NOTE 1)> SEA TRIALS//
REF/A/DOC/ COMFLTFORCOM/<DATE>//
REF/B/RMG/COMSUB<RON/GRU NO.>/<DTG>//{APPENDIX BK}
REF/C/DOC/NAVSEA /<DATE>//
REF/D/RMG/USS <SHIP NAME>/<DTG>//{APPENDIX BE}
NARR/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II. REF B IS COMSUB<RON/GRU NO.> MSG TO TYCOM ON MATERIAL STATUS PRIOR TO INITIAL SEA TRIALS. REF C IS NAVSEA 0924-LP-062-0010, SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL. REF D IS USS <SHIP NAME/HULL NO.> REPORT OF READINESS FOR FOLLOW-ON SEA TRIALS.//
RMKS/1. IAW REF A AND C, THIS MSG CERTIFIES THAT NO MANDATORY DEFICIENCIES FOR <FOLLOW-ON (NOTE 1)> SEA TRIALS HAVE BEEN IDENTIFIED. THERE HAVE BEEN NO RECS OPENED AND NO FORCES AFLOAT SUBSAFE DEPARTURES FROM SPECIFICATION PROCESSED SINCE THE START OF THE INITIAL SEA TRIALS <OR, SUBSEQUENT TO REF B, REPORT ANY MANDATORY DEFICIENCIES DISCOVERED WITH CORRECTIVE ACTION, AND IF RECS AND/OR DEPARTURES FROM SPECIFICATIONS WERE PROCESSED SINCE THE START OF THE INITIAL SEA TRIALS, REPORT ALL RECS OPENED SINCE THE START OF INITIAL SEA TRIALS ARE CLOSED AND/OR ALL SUBSAFE DEPARTURES FROM SPECIFICATIONS PROCESSED SINCE THE START OF SEA TRIALS ARE RESOLVED NOTE 2.>
2. THERE ARE NO SUBSAFE DEPARTURES FROM SPECIFICATIONS WITH CONDITIONS WHICH HAVE NOT BEEN SATISFIED. THE FOLLOWING DEPARTURES FROM SPECIFICATIONS ARE CURRENTLY OUTSTANDING:

DEPARTURE NO.	TYPE	SYSTEM/COMPONENT	RESTRICTION (IF ANY)
A.			
B.			

3. SHIP REPORTED READINESS FOR FOLLOW-ON SEA TRIALS IN REF D.//
BT

NOTE 1: UPCOMING TRIAL WHICH IS SUBJECT OF THIS CERTIFICATION (E.G., SECOND SEA TRIAL, ETC.).

NOTE 2: LIST ALL RE-ENTRIES TO MATERIAL CERTIFICATION BOUNDARY AND ALL WORK ON SYSTEMS AFFECTING RECOVERABILITY, SALVAGE, WATERTIGHT INTEGRITY, OR OPERATION OF SHIP'S CONTROL SURFACES WITH CORRECTIVE ACTION SINCE RELEASE FOR FAST CRUISE MESSAGE.

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX BG

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING FOLLOW-ON SEA TRIALS DEPTH AUTHORIZATION FOR INDUSTRIAL ACTIVITY AVAILABILITIES LESS THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//
TO USS <SHIP NAME>//
INFO CNO WASHINGTON DC//N87//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08O/07Q//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>//N43//
DIRSSP WASHINGTON DC//{FOR SSBN/SSGN}
COMSUBGRU <NO.>//
COMSUB<RON/GRU NO.>//
<SUPERVISING AUTHORITY>//<CODES>//
BT
UNCLAS //N09094//o
MSGID/GENADMIN/COMSUB<LANT/PAC>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> <FOLLOW-ON (NOTE 1)> SEA TRIALS DEPTH AUTHORIZATION//
REF/A/DOC/<SUPERVISING AUTHORITY>/<DATE>//
REF/B/RMG/ COMSUB<RON/GRU NO.>/<DTG>//{APPENDIX BF}
REF/C/RMG/ USS <SHIP NAME>/<DTG>//{APPENDIX BE}
NARR/ REF A IS <SUPERVISING AUTHORITY> SUBSAFE CERTIFICATION CONTINUITY REPORT FOR <SHIP NAME/HULL NO.>. REF B IS COMSUB<RON/GRU NO.> IS REPORT OF MATERIAL CONDITION OF SHIP NOT WORKED BY THE SHIPYARD. REF C IS SHIP REPORT OF READINESS FOR <FOLLOW-ON (NOTE 1)> SEA TRIALS
RMKS/1. REF A CERTIFIED THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS <SHIP NAME/HULL NO.> INSTALLED, REPAIRED, AND/OR TESTED BY THE SHIPYARD IS SATISFACTORY FOR <FOLLOW-ON (NOTE 1)> SEA TRIALS TO TEST DEPTH.
2. REF B AND C CONFIRM THAT CREW IS READY FOR <FOLLOW-ON (NOTE 1)> SEA TRIALS AND REPORT THE CERTIFICATION OF THE REMAINDER OF ITEMS WITHIN SUBSAFE CERTIFICATION BOUNDARY OF USS <SHIP NAME/HULL NO.> HAS BEEN SUSTAINED. ACCORDINGLY, THE STATUS OF THE SUBSAFE CERTIFICATION BOUNDARY OF USS <SHIP NAME/HULL NO.> IS SATISFACTORY FOR <FOLLOW-ON (NOTE 1)> SEA TRIALS TO TEST DEPTH.
3. USS <SHIP NAME/HULL NO.> IS AUTHORIZED TO DIVE UNDER DELIBERATE AND CONTROLLED CONDITIONS TO <SPECIFIED> DEPTH IAW THE <FOLLOW-ON (NOTE 1)> SEA TRIALS AGENDA CONCURRED IN BY REF B AND APPROVED BY REF C.

NOTE: IF AN UNSATISFACTORY CONDITION OR SEAWATER LEAKAGE IN EXCESS OF THE SPECIFICATION IS FOUND DURING THE CONDUCT OF THE CONTROLLED DIVE TO TEST DEPTH, AT THE DISCRETION OF THE COMMANDING OFFICER THE SHIP MAY CONTINUE TO TEST DEPTH UNLESS THE COMMANDING OFFICER DETERMINES IT APPROPRIATE TO ABORT THE DIVE.

4. EXCEPT AS LISTED IN 5. BELOW, THIS DEPTH AUTHORIZATION IS AUTOMATICALLY SUSPENDED UPON RE-ENTRY TO THE SUBSAFE CERTIFICATION BOUNDARY OR CASUALTY AFFECTING RECOVERABILITY, SALVAGE, WATERTIGHT INTEGRITY, OR OPERATION OF SHIP'S CONTROL SURFACES. THE SHIP SHALL NOT OPERATE AT A DEPTH GREATER THAN 200 FEET UNTIL RE-ENTRY IS CERTIFIED. TYCOM APPROVAL IS REQUIRED PRIOR TO COMMENCING A SUBSEQUENT DEEP DIVE TO CERTIFY WORK ACCOMPLISHED TO CORRECT SUBSAFE DEFICIENCIES DISCOVERED DURING THE SEA TRIAL.
5. RE-ENTRY CONTROL TO ADJUST FLOOD CONTROL HYDRAULIC VALVE TIMING WILL BE CERTIFIED BY THE COMMANDING OFFICER, TYCOM CERTIFICATION IS NOT REQUIRED, AND A SITREP WILL BE TRANSMITTED PRIOR TO RESUMPTION OF OPERATION BELOW 200 FEET.

6. FOLLOWING COMPLETION OF THE SEA TRIALS AGENDA, THE SHIP IS RESTRICTED TO ONE HALF OF TEST DEPTH PLUS FIFTY FEET UNTIL RECEIPT OF AN UNRESTRICTED OPERATIONS MESSAGE FROM <TYPE COMMANDER>. THE MESSAGE WILL BE SENT FROM <TYPE COMMANDER> FOLLOWING REVIEW AND ACCEPTANCE OF SEA TRIALS DATA BY <SUPERVISING AUTHORITY>. THE MESSAGE IS SENT WITHIN 24 HOURS FOLLOWING SHIPYARD RECEIPT OF SEA TRIAL DATA.
7. ALL SEA TRIALS SITREPS ARE TO BE SENT USING IMMEDIATE PRECEDENCE.//

NOTE 1: UPCOMING TRIALS WHICH ARE SUBJECT OF THIS CERTIFICATION (E.G., SECOND SEA TRIALS, ETC.).

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX BH

SAMPLE SHIP MESSAGE TO ISIC CONCERNING READINESS FOR FAST CRUISE FOR INDUSTRIAL ACTIVITY AVAILABILITIES LESS THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM USS <SHIP NAME>//
TO COMSUB<RON/GRU NO.>//
INFO COMSUBDEVRON FIVE SILVERDALE WA//N3//
COMSUBGRU <NO.>//N5//
<SUPERVISING AUTHORITY>/<CODES>//
BT
UNCLAS //N09094//
MSGID/GENADMIN/USS <SHIP NAME>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> READINESS FOR FAST CRUISE//
REF/A/DOC/<SUPERVISING AUTHORITY>/<DATE>//
REF/B/RMG/COMSUB<RON/GRU NO.>/<DTG>//{APPENDIX BB}
REF/C/DOC/COMFLTFORCOM/<DATE>//
NARR/ REF A IS <SUPERVISING AUTHORITY> SUBSAFE CERTIFICATION CONTINUITY REPORT. REF B IS COMSUB<RON/GRU NO.> REPORT OF READINESS FOR FAST CRUISE AND SEA TRIALS. REF C IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II.//
1. REFS A AND B REPORTED READINESS OF SHIP FOR FAST CRUISE AND SEA TRIALS. USS <SHIP NAME/HULL NO.> AND CREW ARE READY FOR SEA TRIALS IAW REF C WITH THE FOLLOWING EXCEPTIONS:
    A. COMPLETION OF FAST CRUISE.
    B. REMOVAL OF SHORE SERVICE CONNECTIONS.
2. REQUEST PERMISSION TO START FAST CRUISE.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX BI

SAMPLE ISIC MESSAGE TO SHIP AUTHORIZING COMMENCEMENT OF FAST CRUISE FOR INDUSTRIAL ACTIVITY AVAILABILITIES LESS THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM COMSUB<RON/GRU NO.>//
TO USS <SHIP NAME>//
INFO CNO WASHINGTON DC//N77//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>//N43//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08O/07Q//
COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
DIRSSP WASHINGTON DC //205//{For SSBN/SSGN only}
<SUBOPAUTH>// {If other than parent TYCOM}
COMSUBDEVRON FIVE SILVERDALE WA//N3//
COMSUBGRU <NO.>//N5//
<SUPERVISING AUTHORITY>/<CODES>//
BT
UNCLAS //N09094//
MSGID/GENADMIN/USS <SHIP NAME>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> READINESS FOR FAST CRUISE//
REF/A/DOC/<SUPERVISING AUTHORITY>/<DATE>//
REF/B/RMG/COMSUB<RON/GRU NO.>/<DTG>//{APPENDIX BB}
REF/C/RMG/ USS <SHIP NAME>/<DTG>//{APPENDIX BH}
REF/D/DOC/ COMFLTFORCOM/<DATE>//
NARR/ REF A IS <SUPERVISING AUTHORITY> SUBSAFE CERTIFICATION CONTINUITY REPORT. REF B IS COMSUB<RON/GRU NO.> REPORT OF READINESS FOR FAST CRUISE AND SEA TRIALS. REF C USS <SHIP NAME> IS REPORT OF READINESS FOR FAST CRUISE AND SEA TRIALS. REF D IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II.//
1. REF A REPORTED <SUPERVISING AUTHORITY> ASSIGNED WORK COMPLETE AND READINESS FOR FAST CRUISE AND SEA TRIALS.
2. REF B REPORTED REMAINING PORTIONS OF SUBSAFE BOUNDARY NOT WORKED BY <SUPERVISING AUTHORITY> MAINTAINED CERTIFIED AND READINESS FOR FAST CRUISE AND SEA TRIALS.
3. REF C REPORTED SHIP'S FORCE READINESS FOR FAST CRUISE AND SEA TRIALS AND REQUESTED PERMISSION TO COMMENCE FAST CRUISE.
4. IAW WITH REF D USS <SHIP NAME> IS AUTHORIZED TO COMMENCE FAST CRUISE. <SHIP NAME> IS DIRECTED TO REPORT COMPLETION OF FAST CRUISE AND ALL SUBSAFE DEFICIENCIES IDENTIFIED DURING FAST CRUISE TO COMSUB<RON/GRU NO.>, COMSUB<LANT/PAC> AND <SUPERVISING AUTHORITY>.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX BJ

SAMPLE SHIP MESSAGE TO ISIC AND TYCOM CONCERNING READINESS FOR SEA TRIALS FOR INDUSTRIAL ACTIVITY AVAILABILITIES LESS THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM USS <SHIP NAME>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
COMSUB<RON/GRU NO.>//
INFO COMSUBDEVRON FIVE SILVERDALE WA//N3//
COMSUBGRU <NO.>//N5//
<SUPERVISING AUTHORITY>//<CODES>//
BT
UNCLAS //N09094//
MSGID/GENADMIN//USS <SHIP'S NAME>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.>READINESS FOR SEA TRIALS//
REF/A/DOC/ COMFLTFORCOM/<DATE>//
NARR/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II//
RMKS/1. FAST CRUISE COMPLETED <TIME AND DATE>.
2. IAW REF A, USS <SHIP NAME/HULL NO.> AND CREW REPORTED READY TO PROCEED ON SEA TRIALS WITH THE FOLLOWING EXCEPTIONS:
    A. REMOVAL OF SHORE SERVICE CONNECTIONS.
    B.
3. MATERIAL CONDITION SUPPORTS ADEQUATE CREW REST FOR UNDERWAY AT <TIME AND DATE>.
4. REQUEST PERMISSION TO COMMENCE SEA TRIALS.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX BK

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING FINAL MATERIAL CERTIFICATION PRIOR TO SEA TRIALS FOR INDUSTRIAL ACTIVITY AVAILABILITIES LESS THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM COMSUB<RON/GRU NO.>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
INFO COMSUBDEVRON FIVE SILVERDALE WA//N4//
COMSUBGRU <NO.>//N4//
USS <SHIP NAME>//
<SUPERVISING AUTHORITY>//<CODES>//
BT
UNCLAS //N09094//
GENADMIN/COMSUB<RON/GRU NO.>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> MATERIAL CERTIFICATION/ READINESS FOR SEA TRIALS//
REF/A/DOC/ COMFLTFORCOM/<DATE>//
REF/B/RMG/COMSUB<RON/GRU NO.>/<DTG>//{APPENDIX BB}
REF/C/RMG/USS<SHIP NAME>/<DTG>//{APPENDIX BJ}
REF/D/DOC/NAVSEA /<DATE>//
NARR/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II. REF B IS COMSUB<RON/GRU NO.> MSG TO TYCOM ON CREW CERT. REF C IS SHIP REPORT OF COMPLETION OF FAST CRUISE AND READINESS FOR SEA TRIALS. REF D IS NAVSEA 0924-LP-062-0010, SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL.
RMKS/1. IAW REFS A AND D, THIS MSG CERTIFIES THAT NO MANDATORY DEFICIENCIES FOR SEA TRIALS HAVE BEEN IDENTIFIED AS REPORTED IN REF B AND C. THERE HAVE BEEN NO RECS OPENED AND NO SUBSAFE DEPARTURES FROM SPECIFICATION PROCESSED SINCE THE START OF FAST CRUISE. <OR, REPORT ANY MANDATORY DEFICIENCIES DISCOVERED WITH CORRECTIVE ACTION, AND IF RECS AND/OR DEPARTURES FROM SPECIFICATIONS WERE PROCESSED SINCE THE START OF FAST CRUISE, REPORT ALL RECS OPENED SINCE THE START OF FAST CRUISE ARE CLOSED AND/OR ALL SUBSAFE DEPARTURES FROM SPECIFICATIONS PROCESSED SINCE THE START OF FAST CRUISE ARE RESOLVED.> (NOTE 1.)
2. THERE ARE NO SUBSAFE DEPARTURES FROM SPECIFICATIONS WITH CONDITIONS WHICH HAVE NOT BEEN SATISFIED. THE FOLLOWING ADDITIONAL DEPARTURES FROM SPECIFICATIONS WERE GENERATED SUBSEQUENT TO REF B. <If None, indicate NONE>

DEPARTURE NO.	TYPE	SYSTEM/COMPONENT	RESTRICTION (IF ANY)
A.			
B.			

3. REQUEST PERMISSION TO COMMENCE SEA TRIALS. CO <SHIP NAME/HULL NO.> CONCURS.//
BT

NOTE 1: LIST ALL RE-ENTRIES TO MATERIAL CERTIFICATION BOUNDARY AND ALL WORK ON SYSTEMS AFFECTING RECOVERABILITY, SALVAGE, WATERTIGHT INTEGRITY, OR OPERATION OF SHIP'S CONTROL SURFACES WITH CORRECTIVE ACTION SINCE RELEASE FOR FAST CRUISE MESSAGE.

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX BL

SAMPLE SHIP MESSAGE TO ISIC AND TYCOM CONCERNING MATERIAL CERTIFICATION UPON COMPLETION OF SEA TRIALS FOR INDUSTRIAL ACTIVITY AVAILABILITIES LESS THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM USS <SHIP NAME>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
COMSUB<RON/GRU NO.>//
<SUPERVISING AUTHORITY>//<CODES>//
INFO CNO WASHINGTON DC//N77//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08O/07Q//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>//N43//
DIRSSP WASHINGTON DC//{FOR SSBN/SSGN}
COMSUBDEVRON FIVE SILVERDALE WA//N4//
COMSUBGRU<NO.>//N4//
BT
UNCLAS //N09094//
GENADMIN/COMSUB<RON/GRU NO.>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> SATISFACTORY COMPLETION OF SEA TRIALS//
REF/A/DOC/ COMFLTFORCOM/<DATE>//
NARR/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II.
RMKS/1. USS <SHIP NAME> REPORTS SATISFACTORY COMPLETION OF SEA TRIALS. ALL TESTING REQUIRED BY THE SEA TRIALS TEST AGENDA AND REF (A) HAVE BEEN COMPLETED. <OR REPORT ALL TESTING NOT COMPLETED PER NOTE 1>.
2. THERE WERE NO SUBSAFE DEFICIENCIES IDENTIFIED. <OR REPORT ALL SUBSAFE DEFICIENCIES>.
3. THE <SUPERVISING AUTHORITY> TEST DIRECTOR CONCURS WITH THIS REPORT.
BT

NOTE 1: LIST ALL RE-ENTRIES TO MATERIAL CERTIFICATION BOUNDARY AND ALL WORK ON SYSTEMS AFFECTING RECOVERABILITY, SALVAGE, WATERTIGHT INTEGRITY, OR OPERATION OF SHIP'S CONTROL SURFACES WITH CORRECTIVE ACTION SINCE RELEASE FOR FAST CRUISE MESSAGE.

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX BM

SUBMARINE SEA TRIAL SITUATION REPORT
(SITREP LESS THAN SIX MONTHS)

FM USS <SHIP NAME>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
INFO CNO WASHINGTON DC//N77//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>N43//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08O//
DIRSSP WASHINGTON DC//205// {For SSBN/SSGN Only}
<SUBOPAUTH>// {IF OTHER THAN PARENT TYCOM}
COMSUBDEVRON FIVE SILVERDALE WA//N3//
COMSUBGRU <NO.>//N5//
COMSUB<RON/GRU NO.>//
<SUPERVISING AUTHORITY>//<CODES>//
(OTHER UNITS IN AREA IF APPLICABLE)//
BT
UNCLAS //N09094//
MSGID/GENADMIN/USS <SHIP NAME>//
SUBJ/(TYPE AVAILABILITY) SITREP (SEQUENTIAL NUMBER)//
REF/A/DOC/COMFLTFORCOM/<DATE>//
REF/B/DOC/AS APPLICABLE/<DATE>//
NARR/ REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II.
RMKS/1. CO'S SUMMARY, EVENTS 1-9 COMPLETED WITH THE FOLLOWING DEFICIENCIES NOTED:
A. SUBSAFE/URO DEFICIENCIES.
1) NON-ISOLABLE SEAWATER LEAKS
(A) #1 SCOPE HULL GLAND LEAK 1 DPM AT 20% TD
(B) SSW-30 (BODY-BONNET LEAK)
(C) DE-7 (STEM SEAL LEAK)
(D) RUDDER RAM
(E) EHP P46-3P
(F) TD-89 (FWD ESCAPE TRUNK DRAIN)
(G) #2 SCOPE INBOARD HOIST CYLIDER FITTING
(H) #1 SCOPE INBOARD HOIST CYLINDER FITTING
(I) STERN PLANES RAM PACKING
(J) STBD RETRACTABLE BOW PLANE EXTEND RETRACT CYLINDER
(K) AHP-525 (PARKER CHECK VALVE SEAT LEAK)
(L) SSW-20 UPSTREAM FLANGE
(M) EHP P025-01S (WHIP ANTENNA)
(N) INNER STERN PLANES RAM PACKING
2) ISOLABLE SEAWATER LEAK
(A) TDU VENT, TD-104 LEAKS 3 DPM AT 65% TD
(B) ASW-5 BODY-BONNET LEAK
OTHER DEFICENCIES
(A) STERN PLANES AUX ANGLE INDICATOR ON BCP DOES NOT ILLUMINATE, URO-16
(B) MSW-2 CYCLE TIME SHUT IS 10.1 SEC
(C) MBT 3A WILL NOT OPEN
B. NON-SUBSAFE/URO DEFICIENCIES.
1) SCULLERY DRAIN LEAKING AT FITTING F-18, 27 DPM
2) 3 FLOOR TILES IN CREWS MESS LIFTED AFFECTING SANITATION
3) CO HOT WATER SHOWER RECIRC PUMP FAILED

2. PREVIOUS DEFICIENCIES REPORTED AND STATUS.

(LIST ALL PREVIOUS DEFICIENCIES AND CURRENT STATUS-THE GOAL IS TO CAPTURE THE COMPLETE MATERIAL CONDITION IN EACH MESSAGE) STATUS = REPAIRED (R), CORRECTIVE ACTION REQUIRED (CAR), NOT APPLICABLE (NA)

EXAMPLE –

1) SCULLERY DRAIN LEAKING AT FITTING F-18, 27 DPM -R
2) 3 FLOOR TILES IN CREWS MESS LIFTED AFFECTING SANITATION - CAR
3) CO HOT WATER SHOWER RECIRC PUMP FAILED - CAR
4) #1 SCOPE HULL GLAND LEAK 1 DPM AT 20% TD - CAR
5) TDU VENT, TD-104 LEAKS 3 DPM AT 65% TD - CAR
6) STERN PLANES AUX ANGLE INDICATOR ON BCP DOES NOT ILLUMINATE, URO-16 - R
3. ADDITIONAL INFO.
1) DESCRIBE ANY ADDITIONAL INFO DESIRED OR LIST "NONE".
4. **TYCOM, NAVSHIPYD, AND NAVSEA REPS CONCUR-DO NOT CONCUR (AS APPROPRIATE).//**
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX BN

SAMPLE MESSAGE CONCERNING
MOD ALERT NOTIFICATION

(SUBMARINES ONLY)

FM <INDUSTRIAL ACTIVITY>
TO COMSUB<RON/GRU NO.>//{ISIC of Escort Ship}
COMSUBLANT
COMSUBPAC
COMSUBDEVRON FIVE SILVERDALE WA//N3/N4//
DSU SAN DIEGO CA//00//
USS <ESCORT SHIP NAME>//
INFO CNO WASHINGTON DC//N77//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>//N43//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/395/08O/92Q//
DIRSSP WASHINGTON DC //205//{For SSBN/SSGN only}
<SUPERVISING AUTHORITY>//<CODES>//
<SUBOPAUTH>// {If other than parent TYCOM}
COMSUB<RON/GRU NO.>//{ISIC of Sea Trial Ship}
COMSUBDEVRON FIVE DET SAN DIEGO CA//
CTF TWO SIX//
CTG TWO SIX PT ONE//
NSCSES NORFOLK VA//112//
COMSUBGRU <NINE/TEN> //N3//{For SSBN/SSGN only}
USS <SHIP NAME/HULL NO.>{SEA TRIAL UNIT}//
BT
UNCLAS //N03120//
MSGID/GENADMIN/<INDUSTRIAL ACTIVITY>//
SUBJ/(SUBS) SUBMARINE SEA TRIAL SUPPORT SERVICES/ MOD ALERT NOTIFICATION//
REF/A/DOC/COMFLTFORCOM/<DATE>//
NARR/REF A IS JOINT FLEET MAINTENANCE MANUAL//
RMKS/1. IAW REF A REQUIREMENTS, USS <SHIP NAME/HULL NO.> IS SCHEDULED FOR
SEA TRIALS OCCURRING <DDMMMYY>. REQUEST SRDRS MOD ALERT BE SCHEDULED
TO COVER SEA TRIAL PERIOD.
2. ANY CHANGES IN ALERT POSTURE REQUIREMENTS WILL BE FORWARDED.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX BO

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING URO FOR INDUSTRIAL ACTIVITY AVAILABILITIES LESS THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//
TO USS <SHIP NAME>//
INFO CNO WASHINGTON DC//
COMNAVSEASYSCOM WASHINGTON DC//392/08O/07Q//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>//
DIRSSP WASHINGTON DC//{FOR SSBN/SSGN}
COMSUBGRU <NO.>//
COMSUB<RON/GRU NO.>//
<SUPERVISING AUTHORITY>//
SUBMEPP PORTSMOUTH NH//1814.1//
BT
UNCLAS //N09094//
MSGID/GENADMIN/COMSUB<LANT/PAC>//
SUBJ/(SUBS) UNRESTRICTED OPERATION OF USS <SHIP NAME/HULL NO.>//
REF/A/RMG/ USS <SHIP NAME>/<DTG>//
REF/B/RMG/<SUPERVISING AUTHORITY>/<DTG>//
REF/C/DOC/COMFLTFORCOMINST 4790.3//
REF/D/DOC/ NAVSEA 0924-LP-062-0010//
REF/E/DOC/ COMSUB<PAC/FOR>/<DATE>//
NARR/REF A IS USS <SHIP NAME> MSG CONCERNING COMPLETION OF SEA TRIALS. REF B IS THE <SUPERVISING AUTHORITY> REPORT OF SATISFACTORY REVIEW OF SEA TRIALS TEST DATA AND SATISFACTORY MATERIAL CONDITION FOLLOWING DEPOT AVAILABILITY. REF C IS THE JOINT FLEET MAINTENANCE MANUAL. REF D IS THE SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL. REF E IS THE COM<LANT/PAC>NOTE C3120 CONCERNING SUBMARINE DEPTH AUTHORIZATIONS AND RESTRICTIONS//
RMKS/1. REF A REPORTED THE SATISFACTORY COMPLETION OF SEA TRIALS WITH NO SUBSAFE DEFICIENCIES IDENTIFIED. (IF SPECIFIC SUBSAFE DEFICIENCIES WERE IDENTIFIED BUT WERE NOT DEEP DIVE RETEST FAILURES LIST SPECIFICS – DEEP DIVE TEST FAILURES WILL REQUIRE A FOLLOW-ON SEA TRIAL).
2. REF B REPORTED SATISFACTORY REVIEW OF SEA TRIAL AGENDA BY <SUPERVISING AUTHORITY> AND SATISFACTORY MATERIAL CONDITION OF THE SHIP FOLLOWING SEA TRIALS.
3. TYCOM AUTHORIZES, USS <SHIP NAME/HULL NO.> TO CONDUCT OPERATIONS TO <SPECIFIED> DEPTH, SUBJECT TO THE FOLLOWING RESTRICTIONS: <LIST RESTRICTIONS IF THEY EXIST OR STATE "NONE">.
4. CONTINUED CERTIFICATION FOR OPERATIONS TO TEST DEPTH IS SUBJECT TO COMPLIANCE WITH REF C AND REF D.
5. URO/MRC PERIODICITIES FOLLOWING THE MINOR DEPOT AVAILABILITY COMMENCE ON <DATE> IN ACCORDANCE WITH VOLUME VI, SECTION 25.2.3.1.B OF REF C.
6. THIS MSG REMAINS IN EFFECT UNTIL INCLUDED IN A FUTURE REVISION OF REF E.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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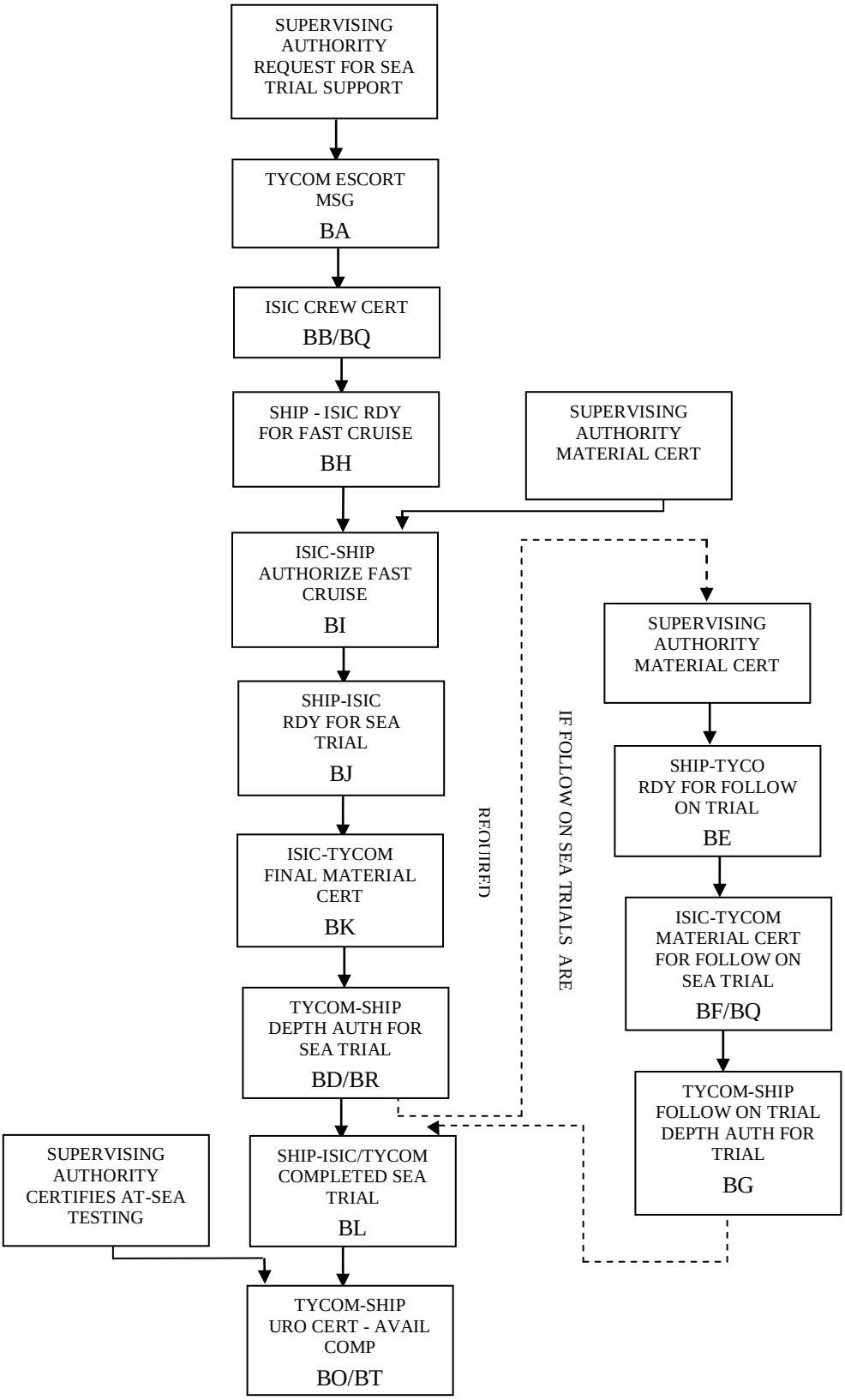
APPENDIX BP

Message Scenario for CNO Availabilities of Less than Six Months in Duration



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APPENDIX BQ

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING FLY-BY-WIRE CREW CERTIFICATION AND FLY-BY-WIRE MATERIAL CONDITION FOR AT-SEA TESTING OR FAST CRUISE AND SEA TRIALS

(SUBMARINES ONLY)

FM COMSUB<RON/GRU NO.>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4/40//
INFO CNO WASHINGTON DC//N77//
COMNAVSEASYSCOM WASHINGTON DC//394/07/07Q/07T2/05Z5/05U//
PEO SUB WASHINGTON DC//450//
COMSUBGRU <NO.>//N4//
COM<LANT/PAC>FLT<NORFOLK VA/PEARL HARBOR HI>N43//
NAVSURFWARCEN CARDEROCKDIV BETHESDA MD//5600//
COMREGSUPPGRU <CITY ST>//
<SUPERVISING AUTHORITY>//<CODES>// (IF APPLICABLE)
USS <SHIP NAME/HULL NO>//
BT
UNCLAS //N04790//
MSGID/GENADMIN/COMSUB<RON/GRU NO.>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> FLY-BY-WIRE SHIP CONTROL SYSTEMS /(FBW SCS) MATERIAL CERTIFICATION//
REF/A/MSG/NAVSURFWARCEN CARDEROCK/<DTG>//
REF/B/DOC/NAVSEA/-//
NARR/REF A IS NSWC CARDEROCK DIVISION MESSAGE ADDRESSING FBW SCS MATERIAL CERTIFICATION AND READINESS FOR AT-SEA OPERATION. REF B IS FBW MANUAL, T9044-AD-MAN-010.//
RMKS/1. PER REF A THE ISEA CERTIFIES USS <SHIP NAME/HULL NO.> FBW SCS MAINTENANCE AND RECOMMENDS THE MATERIAL CONDITION OF USS <SHIP NAME/HULL NO.> FBW SCS IS SATISFACTORY FOR AT-SEA TESTING.
2. THE ISEA AND ISIC COMPLETED AN FBW SCS CERTIFICATION AUDIT WITH <LIST NUMBER OR WRITE “NO”> IMMEDIATE CORRECTIVE ACTION/S AND <LIST NUMBER OR WRITE “NO”> REPORT OF CORRECTIVE ACTION. PER REF A ALL CORRECTIVE ACTIONS ARE COMPLETED AND REPORTED TO ISIC.
3. THE CREW IS KNOWLEDGEABLE AND PROFICIENT AND HAS PROPER NUMBER OF TRAINED OPERATORS.
4. THERE ARE NO CONDITIONAL FBW SCS DEPARTURE FROM SPECIFICATIONS OR DEVIATIONS AND WAIVERS THAT HAVE NOT BEEN SATISFIED.
5. ALL DOCKSIDE TESTING IS COMPLETE. PER REF A ALL AT-SEA TESTING TO BE COMPLETED PER THE SHIPS CONTROL SYSTEMS TRIAL AGENDA OR AS STATED IN DEPARTURE FROM SPECIFICATIONS/DEVIATIONS/WAIVERS. PRIOR TO THE COMPLETION OF THE SHIPS CONTROL SYSTEMS AT-SEA TESTING THE FOLLOWING RESTRICTIONS ARE IN EFFECT:
A.*<TYPICAL RESTRICTIONS, HOWEVER LIST ONLY THOSE REQUIRED BASED UPON WORK ACCOMPLISHED, IF NONE - WRITE “NONE”.*
B. AUTOMATIC MODE MAY BE USED FOR COURSE KEEPING (SURFACED AND SUBMERGED), COURSE CHANGING (SURFACE AND SUBMERGED),
AND DEPTH KEEPING.
C. DEPTH CHANGES SHALL BE CONDUCTED IN MANUAL MODE.>
6. THE FBW SCS MATERIAL CONDITION OF THOSE PARTS OF THE SHIP INSTALLED, REPAIRED AND TESTED BY THE ISEA AND ACTIVITIES PERFORMING WORK IS SATISFACTORY. ISIC CONCURS WITH ISEA’S RECOMMENDATION THAT THE MATERIAL CONDITION IS SATISFACTORY FOR AT-SEA TESTING.

7. REQUEST TYCOM APPROVAL FOR FBW SCS USE IN SUPPORT OF AT-SEA TESTING <IAW THE RESTRICTIONS CITED IN PARA 5 *IF APPLICABLE*>.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX BR

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING AUTHORIZATION TO USE FLY-BY-WIRE SHIP CONTROL SYSTEMS

(SUBMARINES ONLY)

FM COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//
TO USS <SHIP NAME>//
INFO CNO WASHINGTON DC//N77//
COMNAVSEASYSCOM WASHINGTON DC//394/07/07Q/07T2/05Z5/05U//
PEO SUB WASHINGTON DC//450//
COMSUBGRU <NO.>//N4//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>N43//
NAVSURFWARCEN CARDEROCKDIV BETHESDA MD//5600//
COMREGSUPPGRU <CITY ST>//
<SUPERVISING AUTHORITY>//<CODES>// (IF APPLICABLE)
COMSUB<RON/GRU NO.>//
BT
UNCLAS //N04790//
MSGID/GENADMIN/COMSUB<LANT/PAC>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> AUTHORIZATION TO USE FLY-BY-WIRE SHIP CONTROL SYSTEMS IN SUPPORT OF < AT-SEA TESTING/ SEA TRIALS /INSURV SEA TRIALS AS APPROPRIATE> //
REF/A/MSG/<*CERTIFICATION ACTIVITY*>/<DTG>//
REF<*OTHER REFERENCES AS APPROPRIATE*>
NARR/<REF A IS <*CERTIFICATION ACTIVITY*> CREW, FBW SCS MATERIAL CERTIFICATION AND READINESS FOR AT-SEA OPERATION. *DEFINE ANY ADDITIONAL REFERENCES*>.//
RMKS/1. REF A CERTIFIED THE FLY-BY-WIRE (FBW) SHIP CONTROL SYSTEMS (SCS) MATERIAL CONDITION OF USS <SHIP NAME/HULL NO.> SATISFACTORY FOR INSURV SEA TRIALS.
2. USS <SHIP NAME/HULL NO.> FBW SCS AS REPORTED IN REF A HAS BEEN CERTIFIED AND USE IS AUTHORIZED IN SUPPORT OF < AT-SEA TESTING/ SEA TRIALS /INSURV SEA TRIALS *AS APPROPRIATE*>.
PER REF A ALL AT-SEA TESTING TO BE COMPLETED PER THE SHIPS CONTROL SYSTEMS TRIAL AGENDA OR AS STATED IN DEPARTURE FROM SPECIFICATIONS/DEVIATIONS/WAIVERS. PRIOR TO THE COMPLETION OF THE SHIPS CONTROL SYSTEMS AT-SEA TESTING THE FOLLOWING RESTRICTIONS ARE IN EFFECT:
A.<*TYPICAL RESTRICTIONS, HOWEVER LIST ONLY THOSE REQUIRED BASED UPON WORK ACCOMPLISHED, IF NONE - WRITE "NONE"*.
B. *AUTOMATIC MODE MAY BE USED FOR COURSE KEEPING (SURFACED AND SUBMERGED), COURSE CHANGING (SURFACED AND SUBMERGED), AND DEPTH KEEPING.*
C. DEPTH CHANGES SHALL BE CONDUCTED IN MANUAL MODE.>
3. THIS CERTIFICATION IS VALID THROUGHOUT < AT-SEA TESTING/ SEA TRIALS /INSURV SEA TRIALS *AS APPROPRIATE*> UNLESS A DEFICIENCY IS DISCOVERED. SHIP SPEED IS RESTRICTED TO LESS THAN 20 KNOTS WHEN A FBW SCS FAULT CONDITION RESULTS IN A MAJOR NON-CONFORMANCE AFFECTING CONTROL OF SHIPS PITCH, HEADING, DEPTH OR CONTROL SURFACES. THESE DEFICIENCIES MUST BE REPORTED TO NAVSEA AND THE APPROPRIATE FLEET AND TYPE COMMANDERS. CERTIFICATION OF THE FBW SCS MATERIAL CONDITION SHALL BE SUSPENDED UNTIL NAVSEA AND TYCOM REVIEW THE REPORT. THE SHIP'S SPEED IS RESTRICTED TO LESS THAN 20 KNOTS UNTIL SATISFACTORY RESOLUTION OF THE MAJOR NON-CONFORMANCE AND TYCOM APPROVAL TO OPERATE THE FBW SCS TO PREVIOUSLY AUTHORIZED CONDITIONS IS GRANTED, UNLESS SPECIFICALLY ADDRESSED IN THE <*"TRIAL AGENDA" - FOR CNO AVAILS / "STATED IN DEPARTURE FROM SPECIFICATIONS/DEVIATIONS/WAIVERS" FOR AT-SEA TESTING NOT IN CNO AVAIL*>.//

BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX BS

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING FLY-BY-WIRE MATERIAL CERTIFICATION UPON COMPLETION OF AT-SEA TESTING OR SEA TRIALS

(SUBMARINES ONLY)

FM COMSUB<RON/GRU NO.>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4/40//
INFO CNO WASHINGTON DC//N77//
COMNAVSEASYSCOM WASHINGTON DC//394/07/07Q/07T2/05Z5/05U//
PEO SUB WASHINGTON DC//450//
COMSUBGRU <NO.>//N4//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>N43//
NAVSURFWARCEN CARDEROCKDIV BETHESDA MD//5600//
COMREGSUPPGRU <CITY ST>//
<SUPERVISING AUTHORITY>//<CODES>// (IF APPLICABLE)
USS < SHIP NAME/HULL NO>//
BT
UNCLAS //N04790//
MSGID/GENADMIN/COMSUB<RON/GRU NO.>//
SUBJ/ USS < SHIP NAME/HULL NO> FLY-BY-WIRE SHIP CONTROL SYSTEMS
/(FBW SCS) AT-SEA TESTING COMPLETION//
REF/A/MSG/NAVSURFWARCEN CARDEROCK/<DTG>//
REF/B/MSG/ USS < SHIP NAME/HULL NO>/<DTG>//
REF/C/DOC/NAVSEA/-//
NARR/REF A IS NSWC CARDEROCK DIVISION MESSAGE ADDRESSING FBW SCS
MATERIAL CERTIFICATION AND READINESS FOR AT-SEA OPERATION. REF B IS
USS < SHIP NAME/HULL NO> MESSAGE ADDRESSING COMPLETION OF AT-SEA TESTING
FOR FBW SCS. REF C IS FBW MANUAL T9044-AD-MAN-010.//
RMKS/1. PER REF B ISIC CERTIFIES USS < SHIP NAME/HULL NO> FBW SCS
AT-SEA TESTING IS COMPLETED SATISFACTORILY.
2. THERE ARE NO CONDITIONAL FBW SCS DEPARTURE FROM SPECIFICATIONS
OR DEVIATIONS AND WAIVERS THAT HAVE NOT BEEN SATISFIED.
3. THE FOLLOWING SEA TRIALS DEFICIENCIES WERE NOTED AND REQUIRE
CORRECTION OR HAVE BEEN CORRECTED:
<NONE *OR LIST DEFICIENCIES AND INDICATE IF CORRECTIVE ACTION IS REQUIRED*>.
4. THE FOLLOWING RESTRICTIONS ARE IN EFFECT:
<NONE *OR LIST DEFICIENCIES*>.
5. THE FBW SCS MATERIAL CONDITION OF THOSE PARTS OF THE SHIP
INSTALLED, REPAIRED AND TESTED BY THE ISEA AND ACTIVITIES PERFORMING
WORK IS SATISFACTORY. ISIC CONCURS WITH ISEA'S RECOMMENDATION THAT
THE MATERIAL CONDITION IS SATISFACTORY FOR UNRESTRICTED OPERATION.
6. REQUEST TYCOM APPROVAL FOR FBW SCS USE IN SUPPORT OF UNRESTRICTED
OPERATION.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX BT

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING URO FOR FLY-BY-WIRE SHIP CONTROL SYSTEMS

(SUBMARINES ONLY)

FM COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//
TO USS <SHIP NAME>//
INFO CNO WASHINGTON DC//N77//
COMNAVSEASYSCOM WASHINGTON DC//394/07/07Q/07T2/05Z5/05U//
PEO SUB WASHINGTON DC//450//
COMSUBGRU <NO.>//N4//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>N43//
NAVSURFWARCEN CARDEROCKDIV BETHESDA MD//5600//
COMREGSUPPGRU <CITY ST>//
<SUPERVISING AUTHORITY>//<CODES>// (IF APPLICABLE)
COMSUB<RON/GRU NO.>//
BT
UNCLAS //N04790//
MSGID/GENADMIN/COMSUB<LANT/PAC>//
SUBJ/ USS < SHIP NAME/HULL NO> FLY-BY-WIRE SHIP CONTROL SYSTEMS
/(FBW SCS) MATERIAL CERTIFICATION//
REF/A/DOC/NAVSEA MANUAL T9044-AD-MAN-010/-//
REF/B/MSG/< COMSUB<RON/GRU NO.>/<DTG>//
REF/C/ DOC/COMFLTFORCOM/<DATE>//
NARR/REF A IS THE REQUIREMENTS MANUAL FOR SUBMARINE FLY-BY-WIRE SHIP
CONTROL SYSTEMS. REF B IS COMSUB<RON/GRU NO.> MSG RECOMMENDING UNRESTRICTED
USE OF < SHIP NAME/HULL NO> FLY-BY-WIRE SHIP CONTROL SYSTEMS
IN SUPPORT OF SUBMARINE OPERATION. REF C IS COMFLTFORCOMINST 4790.3, JOINT
FLEET MAINTENANCE MANUAL //
RMKS/1. IAW REF A AND B ORIG CERTIFIES THE MATERIAL CONDITION
OF FBW SCS CERTIFICATION BOUNDARY FOR USS < SHIP NAME/HULL NO>
IS SATISFACTORY FOR OPERATION WITH THE RESTRICTIONS OF
PARA 2 AND 3 BELOW.
2. SHIPS SPEED IS RESTRICTED TO LESS THAN 20 KNOTS WHEN A FBW SCS
FAULT CONDITION OCCURS AND WOULD RESULT IN A MAJOR NON-CONFORMANCE
AFFECTING CONTROL OF SHIPS PITCH, HEADING, DEPTH AND CONTROL
SURFACES OR UNTIL SATISFACTORY RESOLUTION OF THE MAJOR
NON-CONFORMANCE AND TYCOM APPROVAL TO OPERATE FBW SCS TO PREVIOUSLY
APPROVED CONDITIONS IS GRANTED.*<LIST ANY ADDITIONAL RESTRICTION AS APPLICABLE>*
3. CONTINUED CERTIFICATION FOR UNRESTRICTED USE OF FLY-BY-WIRE SHIP
CONTROL SYSTEMS IN SUPPORT OF SUBMARINE UNRESTRICTED OPERATION IS
SUBJECT TO COMPLIANCE WITH REF A AND C.//.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX CA

SAMPLE SRDRS SUPPORT SERVICES MESSAGE FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS DURATION

(SUBMARINES ONLY)

FM COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N43/N3//
TO COMSUBDEVRON FIVE SILVERDALE WA//N31//
(COMSUB SQD/GRP (ISIC)//
USS (Sea Trial Unit)//
USNS <SRDRS SUPPORT SHIP>
USS (SHIP NAME)//(ESCORT)
USS <BACKUP ESCORT SHIP>
USS <MOORING SUPPORT SHIP>
INFO CNO WASHINGTON DC//21//23//
COMNAVSEASYSCOM WASHINGTON DC//(PMS 392/PMS 394 AND PMS 399 (as applicable))/08O/SEA07Q//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>//N43/N33//
COMSUBPAC PEARL HARBOR HI//N31/N4/N43//
COMSUBLANT NORFOLK VA//N31/N4/N43//
COMSECOND/THIRD>FLT//
COMNAVSURF<LANT/PAC> NORFOLK VA/SAN DIEGO CA>//N31/N4//
COMSEALOG<LANT/PAC> <NORFOLK VA/SAN DIEGO CA>
(SUPERVISING AUTHORITY)>//100/200/300/1200/1210//)
COMSUBDEVRON FIVE DET SAN DIEGO CA//
CTF TWO SIX/THREE FOUR//
CTF <26.1/34.1/34.2/34.3 (as applicable)>//
DSU SAN DIEGO CA//00//
COMSUBGRU<NINE/TEN> {For SSBN/SSGN only}
DIRSSP WASHINGTON DC//SP00/SP201// {For SSBN/SSGN only}
<MOORING SUPPORT SHIP ISIC>
<ESCORT SHIP ISIC>
BT
UNCLAS //N03120//
MSGID/GENADMIN/COMSUB<LANT/PAC>//
SUBJ/(SUBS) SUBMARINE SEA TRIAL SUPPORT SERVICES//
REF/A/DOC/COMFLTFORCOM/<DATE>//
AMPN/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL.//
RMKS/1. IAW REF A THE FOLLOWING ASSIGNMENTS APPLY FOR (STRL UNIT NAME AND HULL NO.) SEA TRIALS OCCURRING DD-DDMMMSHIP ASSIGNMENTS BELOW ARE FOR PLANNING AND COORDINATION PURPOSES AND WILL BE IN EFFECT PENDING ISIC APPROVAL.

A. SRDRS SUPPORT SHIP - USNS <NAME>
B. RESCUE PORT - <PORT FROM WHICH CONDUCTING SEA TRIALS>
C. RESCUE PORT REPRESENTATIVE - COMSUBRON <ISIC of Sea Trial Unit>
D. RESCUE AIRFIELD - <NAME OF AIRFIELD NEAR SEA TRIAL PORT>
E. MOORING SUPPORT SHIP - USS <NAME> (ASSIGNED BY NUMBERED FLEET SEPCOR)
F. GOLD DOLPHIN OBSERVER - (ASSIGNED BY ISIC)
G. ESCORT VESSEL - USS <NAME> (ASSIGNED BY NUMBERED FLEET SEPCOR)
H BACKUP ESCORT VESSEL - USS <NAME> (ASSIGNED BY NUMBERED FLEET SEPCOR FOR NEW CONSTRUCTION TRIALS)
I. TYCOM EMBARKED REP -

2. FOR COMSUBDEVRON FIVE:
REQUEST SRDRS BE PLACED IN MOD-ALERT STATUS TO SUPPORT SEA TRIALS FOR USS <NAME> ON DD-DDMMM. IT IS ANTICIPATED ESCORT SERVICES AND SRDRS MOD-ALERT STATUS WILL BE REQUIRED THROUGH DD-MON.
3. FOR (STRL UNIT),
A. INCLUDE THE FOLLOWING INFO ADDEES ON FINAL TEST DEPTH DEEP DIVE CHECK REPORT/SITREP; COMSUBLANT NORFOLK VA, COMSUBPAC PEARL HARBOR HI, COMSUBDEVRON FIVE SILVERDALE WA, USNS <SRDRS SUPPORT SHIP>, USS <ESCORT SHIP>, USS <BACKUP ESCORT SHIP>, USS <MOORING SUPPORT SHIP>, DSU SAN DIEGO CA AND NSSC PEARL HARBOR HI (as applicable).
B. ONCE ESCORT, SRDRS SERVICES ARE NO LONGER REQUIRED, RELEASE IAW ISIC OPS DIRECTIVE.
4. DIRLAUTH ALCON FOR EVENT SCHEDULES AND SCHEDULE CHANGES//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX CB

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING CREW CERTIFICATION FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM COMSUB<RON/GRU NO.>
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4/40//
INFO <SUPERVISING AUTHORITY>//<CODES>//
USS <SHIP NAME>
COMSUBGRU <NO.>//N4//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08//
BT
UNCLAS//N09094//
MSGID/GENADMIN/COMSUB<RON/GRU NO.>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> CREW AND MATERIAL CERTIFICATION//
REF/A/DOC/COMFLTFORCOM/<DATE>//
REF/B/DOC/NAVSEA 0924-LP-062-0010/<DATE>//
REF/C/DOC/NAVSEA/<DATE>//
NARR/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL. REF B IS SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL. REF C IS NAVSEA URO MRC TECHNICAL MANUAL.//
RMKS/1. CREW CERTIFICATION CONDUCTED AND SATISFACTORILY COMPLETED IAW REF A.
2. IAW REFS A AND B, COMSUB<RON/GRU NO.> CERTIFIES THE MATERIAL CONDITION SUBSAFE CERTIFICATION BOUNDARY OF <SHIP NAME/HULL NO.> INSTALLED, REPAIRED AND/OR TESTED BY FORCES AFLOAT IS SATISFACTORY FOR SEA TRIALS TO TEST DEPTH. ALL SUBSAFE CONTROLLED WORK PACKAGES ARE CLOSED. CERTIFICATION REQUIREMENTS OF REF B HAVE BEEN SUSTAINED FOR THE REMAINDER OF THE SUBSAFE CERTIFICATION BOUNDARY. ALL OTHER CONTROLLED WORK PERFORMED BY SHIP'S FORCE HAS BEEN COMPLETED AND SATISFACTORILY RETESTED AND THE APPROPRIATE WORK PACKAGES CLOSED.
3. MATERIAL/SALVAGE CONDITION CERTIFIED READY FOR SEA UPON COMPLETION OF THE FOLLOWING CORRECTIVE ACTIONS:
A.
B.
4. THERE ARE NO OUTSTANDING REC'S. THE FOLLOWING DEPARTURES FROM SPECIFICATION ARE CURRENTLY OUTSTANDING:

DEPARTURE NO.	TYPE	SYSTEM/COMPONENT	RESTRICTION (IF ANY)
A.			
B.			

5. ALL URO MRC AND MANDATORY TESTS/INSPECTIONS SPECIFIED IN REF B AND C HAVE BEEN ACCOMPLISHED OR VERIFIED TO BE WITHIN THE REQUIRED PERIODICITY.
6. COMSUB<RON/GRU NO.> REPORTS READINESS OF USS <SHIP NAME/HULL NO.> FOR COMMENCEMENT OF FAST CRUISE. CO USS <SHIP NAME/HULL NO.> CONCURS.//
7. SUBJECT TO SATISFACTORY COMPLETION OF FAST CRUISE AND RESOLUTION OF MANDATORY DEFICIENCIES COMSUB<RON/GRU NO.> CONSIDERS USS <SHIP NAME/HULL NO.> MATERIAL CONDITION READINESS SATISFACTORY FOR COMMENCEMENT OF SEA TRIALS.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX CC

MAJOR TRIAL AND INSPECTION MILESTONES FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS DURATION

(SUBMARINES ONLY)

EVENT	COGNIZANCE	APPROXIMATE SCHEDULE	CORRESPONDING APPENDIX
A. Periodic Monitoring Inspections	ISIC/TYCOM Representative	Start to completion	
B. Pre-Criticality Inspection	ISIC/TYCOM Representative	Criticality/Integrated Propulsion Plant Test Program -6 weeks for NAVSEA 08 RSE (Pre-Crit) and -4 weeks for PORSE	
C. Pre-Criticality Examination in accordance with reference (o)	NAVSEA/Fleet Commander	Criticality/Integrated Propulsion Plant Test Program -4 weeks for NAVSEA 08 RSE (Pre-Crit) and -2 weeks for PORSE	
D. Fast Cruise, Sea Trials and Completion Prerequisites ("Countdown Message")	TYCOM	Sea Trials -90 days	Appendix CD
E. Approve Sea Trials Agenda	ISIC/TYCOM Representative NAVSEA for Propulsion Trials; Director Strategic Systems Project Office for Poseidon/TRIDENT Weapons Trials	Sea Trials -60 days	
F. SRDRS Support Message	ISIC	Sea Trials -45 days	Appendix CA
G. Phase I Crew Certification	ISIC/TYCOM Representative	Sea Trials -35 days	
H. Salvage Inspection	ISIC/TYCOM Representative	Sea Trials -28 days	
I. Escort Recommendation (Message)	ISIC/TYCOM Representative	Sea Trials -28 days	
J. Dock Trials	CO of Ship	Sea Trials -21 days	
K. Phase II Crew Certification and Material Inspection	ISIC/TYCOM Representative	Sea Trials -9 days	

EVENT	COGNIZANCE	APPROXIMATE SCHEDULE	CORRESPONDING APPENDIX
L. Audit Re-Entry Control, Departure from Specifications, URO MRCs (Formal Report Required)	ISIC/TYCOM Representative	Sea Trials -9 days	
M. Crew and Material Certification Message	ISIC/TYCOM Representative (Includes Events J & K)	Sea Trials -9 days	Appendix CB
N. Supervising Authority Message Verifying Material Condition Satisfactory for Fast Cruise	Supervising Authority	Sea Trials -9 days	Reference (t), Appendix B.3.1
O. Readiness for Fast Cruise	CO of Ship	Sea Trials -9 days	Appendix CJ
P. NAVSEA Message Certifying Systems Satisfactory for Sea Trials and Depth Authorization	NAVSEA	Sea Trials -9 days	Reference (t), Appendix B.3.2
Q. Message Certifying Crew and Material Readiness to NAVSEA/Authorize Ship to Commence Fast Cruise Upon Receipt of NAVSEA Permission to Conduct Critical Operations	TYCOM	Sea Trials -8 days	Appendix CE
R. Grant Permission to Conduct Critical Operations Message	NAVSEA	Sea Trials -7 days	
S. Commence Fast Cruise	CO of Ship	Sea Trials -7 days (2 days on, 1 off, 2 on)	
T. Report Completion of Fast Cruise and Ready for Sea Trials Message, CO concurs	Supervising Authority to TYCOM	Sea Trials -1 day	Reference (t), Appendix B.3.3
U. Report Ship Readiness for Sea Trials	CO of Ship	Sea Trials -1 day	Appendix CK
V. Update of material certification status for Sea Trials	ISIC	Sea Trials -1 day	Appendix CH
W. Authorization to Commence Sea Trials and Depth Authorization Message	TYCOM	Sea Trials -1 day	Appendix CF
X. Commence Sea Trials	CO of Ship	0	
Y. Daily Sea Trials SITREP/Status Report	Supervising Authority, TYCOM, CO of Ship	At Least Daily During Sea Trials	Appendix F
Z. Follow-on Sea Trials Completion Prerequisites	TYCOM	Initial Sea Trial Interruption Date day	Appendix CL
AA. Report of Readiness for Follow-On Sea Trials	Supervising Authority to NAVSEA	Follow-On Sea Trials -1 day	Reference (t), Appendix B.3.5

EVENT	COGNIZANCE	APPROXIMATE SCHEDULE	CORRESPONDING APPENDIX
AB. NAVSEA SUBSAFE Material Condition and Depth Authorization for Follow-on Sea Trials	NAVSEA	Follow-On Sea Trials -1 day	Reference (t), Appendix B.3.6
AC Report Ship Readiness for Follow-On Sea Trials	CO of Ship	Follow-On Sea Trials -1 day	Appendix CN
AD. Update of Material Status prior to Follow-on Sea Trials.	ISIC	Follow-On Sea Trials -1 day	Appendix CM
AE. TYCOM Authorization to Commence Follow-On Sea Trials and Depth Authorization	TYCOM	Follow-On Sea Trials -1 day	Appendix CO
AF. Sea Trials Completion Message	Supervising Authority	+1 day After Sea Trials	Reference (t), Appendix B.3.8
AG. NAVSEA Message Certifying Ship satisfactory for URO	NAVSEA	+1 day After Sea Trials	Reference (t), Appendix B.3.9
AH. Report Material Condition of Ship Subsequent to Sea Trials	ISIC	+1 day After Sea Trials	Appendix CI
AI. URO Message	TYCOM	+1 day After Sea Trials	Appendix CG

NOTES:

1. SEE PARAGRAPH 3.6.8.4.5 OF THIS CHAPTER FOR ADDITIONAL GUIDANCE CONCERNING ISIC/TYCOM REPRESENTATIVE CONDUCTED INSPECTIONS.

2. IN THE EVENT THAT SEA TRIALS ARE ABORTED AND/OR AN ADDITIONAL SEA TRIAL BECOMES NECESSARY, A SPECIAL "COUNTDOWN MESSAGE" (APPENDIX CL OF THIS CHAPTER) SHALL BE INITIATED BY THE TYCOM.

3. UNLESS OTHERWISE INDICATED, SCHEDULE DATES ARE REFERENCED TO SEA TRIALS UNDERWAY DATE.

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APPENDIX CD

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING COMPLETION PREREQUISITES FOR AVAILABILITIES OF GREATER THAN SIX MONTHS DURATION

(SUBMARINES ONLY)

FM COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
TO USS <SHIP NAME>//
COMSUB<RON/GRU NO.>//
<SUPERVISING AUTHORITY>//<CODES>//
INFO CNO WASHINGTON DC//N77//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>// N43//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08//
DIRSSP WASHINGTON DC //205//{FOR SSBN/SSGN}
<SUBOPAUTH>//{IF OTHER THAN PARENT TYCOM}
COMSUBGRU <NO.>//N3//
COMSUBDEVRON FIVE SILVERDALE WA//N3//
BT
UNCLAS//N09094//
MSGID/GENADMIN/TYCOM//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> <TYPE AVAILABILITY> FAST CRUISE, SEA TRIAL AND COMPLETION PREREQUISITES//
REF/A/DOC/COMFLTFORCOM/<DATE>//
REF/B/DOC/NAVSEA/<DATE>//
NARR/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II. REF B IS NAVSEA 0924-LP-062-0010, SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL//
RMKS/1. REFS A AND B PRESCRIBE TYCOM AND NAVSEA REQUIREMENTS FOR INDUSTRIAL AVAILABILITY FAST CRUISE, SEA TRIAL AND COMPLETION.
2. FOLLOWING REPORTS AND AUTHORIZATIONS ARE PREREQUISITES TO START OF FAST CRUISE:
A. COMSUB<RON/GRU NO.> MSG TO TYCOM IAW REF A THAT CREW CERTIFICATION AND MATERIAL CONDITION IS SATISFACTORY FOR FAST CRUISE AND SEA TRIALS. {APPENDIX CB}.
B. <SUPERVISING AUTHORITY> MSG TO NAVSEA AND TYCOM IAW REF B THAT MATERIAL CONDITION OF THOSE PARTS OF <SHIP NAME/HULL NO.> INSTALLED, REPAIRED AND/OR TESTED BY THE SHIPYARD ARE SATISFACTORY FOR POST <TYPE AVAILABILITY> TRIALS, INCLUDING CORRECTION OF ALL CAT I AUDIT RECOMMENDATIONS HAVE BEEN SATISFACTORILY RESOLVED. {REFERENCE B, APPENDIX B.3.1}
C. CO, USS <SHIP NAME/HULL NO.> MSG TO TYCOM IAW REF A STATING THAT CREW AND SHIP ARE READY FOR SEA TRIALS, LISTING EXCEPTIONS SUCH AS COMPLETION OF FAST CRUISE. {APPENDIX CJ}
D. NAVSEA (PMS 392) MSG TO TYCOM IAW REF B CERTIFYING MATERIAL CONDITION OF USS <SHIP NAME/HULL NO.> FOR SPECIFIC TRIAL OPERATING DEPTH. {REFERENCE B, APPENDIX B.3.2}
E. TYCOM MSG TO NAVSEA 08 AND CO, USS <SHIP NAME/HULL NO.> IAW REF A REQUESTING NAVSEA AUTHORIZATION FOR CRITICAL REACTOR OPERATIONS AND GRANTING SHIP PERMISSION TO START FAST CRUISE UPON RECEIPT OF THIS AUTHORIZATION. {APPENDIX CE}
F. NAVSEA 08 MSG AUTHORIZING CRITICAL REACTOR OPERATIONS FOR FAST CRUISE AND SEA TRIALS
3. FOLLOWING REPORTS AND AUTHORIZATIONS ARE PREREQUISITES TO START OF SEA TRIALS:
A. <SUPERVISING AUTHORITY> MSG TO TYCOM IAW REF B REPORTING COMPLETION OF FAST CRUISE AND READINESS FOR SEA TRIALS. {REFERENCE B, APPENDIX B.3.3}
B. CO, USS <SHIP NAME/HULL NO.> MSG TO TYCOM IAW REF A AFTER COMPLETION OF FAST CRUISE REPORTING READINESS FOR SEA TRIALS. {APPENDIX CK}
C. COMSUB<RON/GRU NO.> MSG TO TYCOM IAW REF A PROVIDING STATUS OF MATERIAL CONDITION CERTIFICATION SUBSEQUENT TO FAST CRUISE. {APPENDIX CH}

D. COMSUB<LANT/PAC> MSG TO CO, USS <SHIP NAME/HULL NO.> IAW REF A GRANTING PERMISSION TO PROCEED ON SEA TRIALS LISTING ANY OPERATIONAL RESTRICTIONS. {APPENDIX CF}
4. USS <SHIP NAME/HULL NO.> SEA TRIALS WILL BE UNDER OPCON OF <SUBOPAUTH>.
5. CO, USS <SHIP NAME/HULL NO.> IS REQUESTED TO PROVIDE SEA TRIAL SITREPS AT INTERVALS OF 24 HRS OR LESS AND IDENTIFY ITEMS MANDATORY FOR CORRECTION PRIOR TO COMPLETION OF <TYPE AVAILABILITY>. {APPENDIX F}
6. IN THE EVENT SEA TRIALS ARE ABORTED OR CORRECTIVE ACTIONS FOR SEA TRIAL DEFICIENCIES REQUIRE AN ADDITIONAL DEEP DIVE, TYCOM WILL RELEASE ANOTHER PREREQUISITES COMPLETION MESSAGE PRIOR TO THE FOLLOW-ON SEA TRIALS. {APPENDIX CL}
7. FOLLOWING REPORTS AND AUTHORIZATIONS ARE PREREQUISITES TO CONDUCT OF SUBMERGED OPERATIONS AFTER <TYPE AVAILABILITY> COMPLETION:
A. <SUPERVISING AUTHORITY> MSG TO NAVSEA IAW REF B REPORTING SUBSAFE MATERIAL CONDITION TO SUPPORT URO. {REFERENCE B, APPENDIX B.3.8}
B. NAVSEA TO TYCOM MSG IAW REF B CERTIFYING MATERIAL CONDITION OF USS <SHIP NAME/HULL NO.> SATISFACTORY FOR UNRESTRICTED OPERATIONS TO DESIGN TEST DEPTH. {REFERENCE B, APPENDIX B.3.9}
C. COMSUB<RON/GRU NO.> MSG TO TYCOM IAW REF A REPORTING MATERIAL CONDITION OF SHIP AND URO MRC STATUS SUBSEQUENT TO SEA TRIALS. {APPENDIX CI}
D. TYCOM MSG TO CO, USS <SHIP NAME/HULL NO.> IAW REF B AUTHORIZING CONDUCT OF UNRESTRICTED OPERATIONS TO DESIGN TEST DEPTH. {APPENDIX CG}//
BT

NOTE: MESSAGES LISTED IN PARAGRAPHS 2 THROUGH 6 OF THIS APPENDIX SHOULD BE ASSIGNED APPROPRIATE PRECEDENCE AND PARALLELED BY TELEPHONE TO ACTION ADDEES CITING DATE-LINE GROUP OF FORTHCOMING MESSAGES. ALL ADDEES OF THIS MESSAGE ARE TO BE INCLUDED AS ADDEES ON THE MESSAGES LISTED IN PARAGRAPHS 2 THROUGH 6 OF THIS APPENDIX.

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX CE

SAMPLE TYCOM MESSAGE TO NAVSEA CONCERNING FAST CRUISE AND CRITICAL REACTOR OPERATIONS FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
TO COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08O//
USS <SHIP NAME>//
INFO CNO WASHINGTON DC//N77//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>//N43//
DIRSSP WASHINGTON DC//205// {For SSBN/SSGN Only}
COMSUBDEVRON FIVE SILVERDALE WA//N3//
COMSUBGRU <NO.>//N5//
COMSUB<RON/GRU NO.>//
<SUPERVISING AUTHORITY>//<CODES>//
BT
UNCLAS //N09094//
MSGID/GENADMIN/<TYCOM>//
SUBJ/(SUBS) FAST CRUISE FOR USS <SHIP NAME/HULL NO.>//
REF/A/RMG/COMSUB<RON/GRU NO.>/<DTG>/NOTAL//{APPENDIX CB}
REF/B/RMG/<SUPERVISING AUTHORITY>/<DTG>//
REF/C/RMG/NAVSEA/<DTG>//
REF/D/RMG/USS <SHIP>/<DTG>//{APPENDIX CJ}
NARR/REF A IS ISIC MSG TO TYCOM ON CREW CERT. REF B IS <SUPERVISING AUTHORITY> TO NAVSEA AND TYCOM ON SUBSAFE AND MATERIAL CONDITION READINESS. REF C IS NAVSEA MSG TO TYCOM ON SUBSAFE MATERIAL CONDITION READINESS AND DEPTH RECOMMENDATION FOR SEA TRIALS. REF D IS USS <SHIP'S NAME/HULL NO.> MSG TO COMMENCE FAST CRUISE.
RMKS/1. REFS A, B AND C REPORTED SATISFACTORY COMPLETION OF CREW/MATERIAL CERTIFICATION TO SUPPORT FAST CRUISE AND SEA TRIALS. REF D REPORTED SHIP AND CREW READY TO PROCEED ON SEA TRIALS WITH EXCEPTIONS NOTED AND REQUESTED PERMISSION TO COMMENCE FAST CRUISE.
2. FOR NAVSEA 08: REQUEST AUTHORIZATION FOR USS <SHIP NAME/HULL NO.> TO CONDUCT CRITICAL REACTOR OPERATIONS FOR FAST CRUISE AND SEA TRIALS.
3. FOR CO USS <SHIP NAME.>: PERMISSION GRANTED TO START FAST CRUISE UPON RECEIPT OF NAVSEA AUTHORIZATION TO TAKE REACTOR CRITICAL//

BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX CF

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING SEA TRIALS DEPTH AUTHORIZATION FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM COMSUB*<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>*//
TO USS *<SHIP NAME>*//
INFO CNO WASHINGTON DC//
COMNAVSEASYSCOM WASHINGTON DC//
*<LANT/PAC>*FLT*<NORFOLK VA/PEARL HARBOR HI>*//
<DIRSSP WASHINGTON DC FOR SSBN>//
COMSUBGRU *<NO.>*//
COMSUBRON *<NO.>*//
<SUPERVISING AUTHORITY>//
BT
UNCLAS //N09094//
MSGID/GENADMIN/COMSUB*<LANT/PAC>*//
SUBJ/(SUBS) UNRESTRICTED OPERATION OF USS *<SHIP NAME/HULL NO.>* //
REF/A/MSG/COMNAVSEASYSCOM/<DTG>// {B.3.9}
REF/B/DOC/NAVSEA 0924-LP-062-0010//
REF/C/DOC/COMSUB*<LANT/PAC>*NOTE C3120//
NARR/REF A IS NAVSEA URO MSG FOR USS *<SHIP NAME/HULL NO.>*. REF B IS THE SUBSAFE REQUIREMENTS MANUAL. REF C CONTAINS TYCOM AUTHORIZED SUBMARINE OPERATING AND TEST DEPTHS.//
RMKS/1. REF A CERTIFIED THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS *<SHIP NAME/HULL NO.>* INSTALLED, REPAIRED, AND/OR TESTED BY THE SHIPYARD IS SATISFACTORY AND RECOMMENDED THAT USS *<SHIP NAME/HULL NO.>* BE AUTHORIZED TO CONDUCT UNRESTRICTED OPERATIONS TO TEST DEPTH.
2. *<TYCOM>* CONFIRMS THAT CERTIFICATION OF THE REMAINDER OF ITEMS NOT COVERED BY REF A WITHIN THE SUBSAFE CERTIFICATION BOUNDARY HAS BEEN SUSTAINED. ACCORDINGLY, USS *<SHIP NAME/HULL NO.>* IS AUTHORIZED TO CONDUCT OPERATIONS TO <SPECIFIED> DEPTH, SUBJECT TO THE FOLLOWING RESTRICTIONS: *<list restrictions if they exist or state "NONE">*.
3. CONTINUED CERTIFICATION FOR OPERATIONS TO TEST DEPTH IS SUBJECT TO COMPLIANCE WITH REF B. URO MRC PERIODICITIES COMMENCE ON *<DATE>*.
4. THIS MESSAGE REMAINS IN EFFECT UNTIL INCLUDED IN A FUTURE REVISION OF REF C.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX CG

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING URO FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM COMSUB*<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>*//
TO USS *<SHIP NAME>*//
INFO CNO WASHINGTON DC//
COMNAVSEASYSCOM WASHINGTON DC//
*<LANT/PAC>*FLT *<NORFOLK VA/PEARL HARBOR HI>*//
<DIRSSP WASHINGTON DC FOR SSBN>//
COMSUBGRU *<NO.>*//
COMSUBRON *<NO.>*//
<SUPERVISING AUTHORITY>//
BT
UNCLAS //N09094//
MSGID/GENADMIN/COMSUB*<LANT/PAC>*//
SUBJ/(SUBS) USS *<SHIP NAME/HULL NO.>* SEA TRIALS DEPTH AUTHORIZATION//
REF/A/MSG/COMNAVSEASYSCOM/*<DTG>*//{B.3.2}
REF/B/MSG/SUPERVISING AUTHORITY/*<DTG>*//{B.3.3}
REF/C/LTR/NAVSEA *<SER NO./DATE>*//
REF/D/LTR/COMSUB*<LANT/PAC>*/*<SER NO./DATE>*//
NARR/REF A IS NAVSEA SUBSAFE MATERIAL CONDITION READINESS REPORT AND SEA TRIALS DEPTH RECOMMENDATION FOR USS *<SHIP NAME/HULL NO.>*. REF B IS <SUPERVISING AUTHORITY> REPORT OF USS *<SHIP NAME/HULL NO.>* FAST CRUISE COMPLETION AND READINESS FOR SEA TRIALS. REF C CONCURRED IN THE SEA TRIAL AGENDA FOR USS *<SHIP NAME/HULL NO.>*. REF D APPROVED THE SEA TRIAL AGENDA FOR USS *<SHIP NAME/HULL NO.>*.//
RMKS/1. REF A CERTIFIED THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS *<SHIP NAME/HULL NO.>* INSTALLED, REPAIRED AND/OR TESTED BY THE SHIPYARD IS SATISFACTORY FOR SEA TRIALS TO TEST DEPTH.
2. THIS MESSAGE CONFIRMS THAT THE CERTIFICATION OF THE REMAINDER OF ITEMS WITHIN THE SUBSAFE CERTIFICATION BOUNDARY OF USS *<SHIP NAME/HULL NO.>* HAS BEEN SUSTAINED. ACCORDINGLY, THE STATUS OF THE SUBSAFE CERTIFICATION BOUNDARY OF USS *<SHIP NAME/HULL NO.>* IS SATISFACTORY FOR SEA TRIALS TO TEST DEPTH *<SUBJECT TO ANY RESTRICTIONS IN PARA 2 OF REF A if any are identified>*.
3. REF B REPORTED COMPLETION OF FAST CRUISE AND READINESS TO PROCEED ON SEA TRIALS.
4. USS *<SHIP NAME/HULL NO.>* IS AUTHORIZED TO DIVE UNDER DELIBERATE AND CONTROLLED CONDITIONS TO <SPECIFIED> DEPTH IAW THE SEA TRIAL AGENDA CONCURRED IN BY REF C AND APPROVED BY REF D.//
5. EXCEPT AS LISTED IN 6. BELOW, THIS DEPTH AUTHORIZATION IS AUTOMATICALLY SUSPENDED UPON RE-ENTRY TO THE SUBSAFE CERTIFICATION BOUNDARY OR CASUALTY AFFECTING RECOVERABILITY, SALVAGE, WATERTIGHT INTEGRITY OR OPERATION OF SHIP'S CONTROL SURFACES. THE SHIP SHALL NOT OPERATE AT A DEPTH GREATER THAN 200 FEET UNTIL RE-ENTRY IS CERTIFIED TO TYCOM AND TYCOM GRANTS APPROVAL TO OPERATE TO PREVIOUSLY AUTHORIZED DEPTH.
6. RE-ENTRY CONTROL TO ADJUST FLOOD CONTROL HYDRAULIC VALVE TIMING WILL BE CERTIFIED BY THE COMMANDING OFFICER, TYCOM CERTIFICATION IS NOT REQUIRED, AND A SITREP WILL BE TRANSMITTED PRIOR TO RESUMPTION OF OPERATION BELOW 200 FEET.
7. AT THE CONCLUSION OF SEA TRIALS, THE SHIP SHALL NOT OPERATE AT DEPTHS GREATER THAN ONE-HALF TEST DEPTH PLUS FIFTY FEET UNTIL RECEIPT OF THE URO AUTHORIZATION MESSAGE FROM THE TYCOM.

8. ALL SEA TRIALS SITREPS ARE TO BE SENT USING IMMEDIATE PRECEDENCE.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX CH

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING MATERIAL CERTIFICATION PRIOR TO SEA TRIALS FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM COMSUB<RON/GRU NO.>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N43/N402//
INFO COMSUBDEVRON FIVE SILVERDALE WA//N4//
COMSUBGRU <NO.>//N4//
USS <SHIP NAME>//
BT
UNCLAS //N09094//
GENADMIN/COMSUB<RON/GRU NO.>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> MATERIAL CERTIFICATION/ READINESS FOR SEA TRIALS//
REF/A/RMG/COMSUB<LANT/PAC>/<DTG>// {APPENDIX CD}
REF/B/DOC/COMFLTFORCOM/<DATE>//
REF/C/RMG/COMSUB<RON/GRU NO.>/<DTG>/NOTAL// {APPENDIX CB}
REF/D/DOC/NAVSEA /<DATE>//
NARR/REF A IS TYCOM MSG TO USS <SHIP'S NAME/HULL NO.> ON COMPLETION PREREQUISITES FOR AVAILABILITIES GREATER THAN SIX MONTHS. REF B IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II. REF C IS COMSUB<RON/GRU NO.> MSG TO TYCOM ON CREW CERT. REF D IS NAVSEA 0924-LP-062-0010, SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL.
RMKS/1. IAW REFS A AND B, THIS MSG CERTIFIES THAT NO MANDATORY DEFICIENCIES FOR SEA TRIALS HAVE BEEN IDENTIFIED. THERE HAVE BEEN NO RECS OPENED AND NO SUBSAFE DEPARTURES FROM SPECIFICATION PROCESSED SINCE THE START OF FAST CRUISE. <OR, REPORT ANY MANDATORY DEFICIENCIES DISCOVERED WITH CORRECTIVE ACTION, AND IF RECS AND/OR DEPARTURES FROM SPECIFICATIONS WERE PROCESSED SINCE THE START OF FAST CRUISE, REPORT ALL RECS OPENED SINCE THE START OF FAST CRUISE ARE CLOSED AND/OR ALL SUBSAFE DEPARTURES FROM SPECIFICATIONS PROCESSED SINCE THE START OF FAST CRUISE ARE RESOLVED (NOTE 1.)>
2. THERE ARE NO SUBSAFE DEPARTURES FROM SPECIFICATIONS WITH CONDITIONS WHICH HAVE NOT BEEN SATISFIED. THE FOLLOWING ADDITIONAL DEPARTURES FROM SPECIFICATIONS WERE GENERATED SUBSEQUENT TO REF C.

DEPARTURE NO.	TYPE	SYSTEM/COMPONENT	RESTRICTION (IF ANY)
A.			
B.			

3. REQUEST PERMISSION TO COMMENCE SEA TRIALS. CO <SHIP NAME> CONCURS.//
BT

NOTE 1: LIST ALL RE-ENTRIES TO MATERIAL CERTIFICATION BOUNDARY AND ALL WORK ON SYSTEMS AFFECTING RECOVERABILITY, SALVAGE, WATERTIGHT INTEGRITY, OR OPERATION OF SHIP'S CONTROL SURFACES WITH CORRECTIVE ACTION SINCE RELEASE FOR FAST CRUISE MESSAGE.

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX CI

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING MATERIAL CERTIFICATION UPON COMPLETION OF SEA TRIALS FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM COMSUB<RON/GRU NO.>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N43/402//
INFO COMSUBDEVRON FIVE SILVERDALE WA//N4//
COMSUBGRU<NO.>//N4//
USS <SHIP NAME>//
BT
UNCLAS //N09094//
GENADMIN/COMSUB<RON/GRU NO.>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.>MATERIAL CERTIFICATION//
REF/A/MSG/<SUPERVISING AUTHORITY>//
REF/B/MSG/<TYCOM>/<DTG>//{APPENDIX CD}
REF/C/DOC/COMFLTFORCOM/<DATE>//
REF/D/DOC/NAVSEA/<DATE>//
REF/E/DOC/NAVSEA/<DATE OF CURRENT REVISION>//
NARR/REF A IS <SUPERVISING AUTHORITY> REPORT CONCERNING SUBSAFE MATERIAL CONDITION TO SUPPORT URO. REF B IS THE TYCOM MSG TO USS <SHIP'S NAME/HULL NO.> ON COMPLETION PREREQUISITES FOR AVAILABILITIES GREATER THAN SIX MONTHS. REF C IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II. REF D IS NAVSEA 0924-LP-062-0010, SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL. REF E IS NAVSEA, URO REQUIREMENTS MANUAL.
RMKS/1. IAW REF A THE <SUPERVISING AUTHORITY> REPORTED THE SATISFACTORY COMPLETION OF ALL SEA TRIALS, COMPLETION OF CONTROLLED DIVES, AND THE RESOLUTION OF MANDATORY SEA TRIAL DEFICIENCIES. IAW WITH REFS B AND C THERE IS NO DEFERRED SUBSAFE WORK AND THERE ARE NO SUBSAFE DEPARTURES FROM SPECIFICATIONS WITH CONDITIONS WHICH HAVE NOT BEEN SATISFIED. <OR, REPORT ANY FORCES AFLOAT ASSIGNED DEFERRED SUBSAFE WORK AND/OR OUTSTANDING CONDITIONAL DEPARTURES FORM SPECIFICATIONS INCLUDING DEPARTURE NUMBER, SHORT TITLE AND CALCULATED COMPLETION DATE.>
2. THIS MESSAGE CERTIFIES THAT ALL WORK ACCOMPLISHED BY FORCES AFLOAT WITHIN THE SUBSAFE CERTIFICATION BOUNDARY SINCE CERTIFICATION FOR SEA TRIALS HAS BEEN SATISFACTORILY COMPLETED AND RETESTED IAW REF C. CERTIFICATION REQUIREMENTS OF REF D HAVE BEEN SUSTAINED FOR THE REMAINDER OF THE SUBSAFE CERTIFICATION BOUNDARY. <LIST ALL RE-ENTRIES TO MATERIAL CERTIFICATION BOUNDARY AND ALL WORK ON SYSTEMS AFFECTING RECOVERABILITY, SALVAGE, WATERTIGHT INTEGRITY, OR OPERATION OF SHIP'S CONTROL SURFACES WITH CORRECTIVE ACTION SINCE RELEASE FOR FAST CRUISE MESSAGE.>
3. ALL URO MRC MANDATORY TESTS/INSPECTIONS SPECIFIED IN REF E HAVE BEEN ACCOMPLISHED OR VERIFIED TO BE WITHIN THE REQUIRED PERIODICITY.//
BT

NOTE: LIST ALL RE-ENTRIES TO MATERIAL CERTIFICATION BOUNDARY AND ALL WORK ON SYSTEMS AFFECTING RECOVERABILITY, SALVAGE, WATERTIGHT INTEGRITY, OR OPERATION OF SHIP'S CONTROL SURFACES WITH CORRECTIVE ACTION SINCE RELEASE FOR FAST CRUISE MESSAGE.

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX CJ

SAMPLE SHIP MESSAGE TO TYCOM CONCERNING READINESS FOR FAST CRUISE FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM USS <SHIP NAME>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
INFO CNO WASHINGTON DC//N77//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>N43//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08O//
DIRSSP WASHINGTON DC//205// {For SSBN/SSGN Only}
<SUBOPAUTH>// {IF OTHER THAN PARENT TYCOM}
COMSUBDEVRON FIVE SILVERDALE WA//N3//
COMSUBGRU <NO.>//N5//
COMSUB<RON/GRU NO.>//
<SUPERVISING AUTHORITY>//<CODES>//
BT
UNCLAS //N09094//
MSGID/GENADMIN/USS <SHIP NAME>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> READINESS FOR FAST CRUISE//
REF/A/RMG/<SUPERVISING AUTHORITY>/<DTG>//
REF/B/RMG/COMSUB<RON/GRU NO.>/<DTG>//{APPENDIX CB}
REF/C/DOC/COMFLTFORCOM/<DATE>//
REF/D/RMG/<TYCOM>/<DTG>//{APPENDIX CD}
NARR/ REF A IS <SUPERVISING AUTHORITY> REPORT OF READINESS FOR FAST CRUISE AND SEA TRIALS. REF B IS COMSUB<RON/GRU NO.> REPORT OF READINESS FOR FAST CRUISE AND SEA TRIALS. REF C IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II. REF D IS TYCOM MSG TO USS <SHIP'S NAME/HULL NO.> ON COMPLETION PREREQUISITES FOR AVAILABILITIES GREATER THAN SIX MONTHS.
1. REFS A AND B REPORTED READINESS OF SHIP FOR FAST CRUISE AND SEA TRIALS. IAW REFS C AND D, USS <SHIP NAME/HULL NO.> AND CREW ARE READY FOR SEA TRIALS WITH THE FOLLOWING EXCEPTIONS:
    A. COMPLETION OF FAST CRUISE.
    B. REMOVAL OF SHORE SERVICE CONNECTIONS.
2. REQUEST PERMISSION TO START FAST CRUISE.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX CK

SAMPLE SHIP MESSAGE TO TYCOM CONCERNING READINESS FOR SEA TRIALS FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM USS <SHIP NAME>
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4/40/405//
INFO COMSUBDEVRON FIVE SILVERDALE WA//N3//
COMSUBGRU <NO.>//N5//
COMSUB<RON/GRU NO.>//
BT
UNCLAS //N09094//
MSGID/GENADMIN//USS <SHIP'S NAME>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.>READINESS FOR SEA TRIALS//
REF/A/DOC/COMFLTFORCOM/<DATE>//
NARR/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II//
RMKS/1. FAST CRUISE COMPLETED <TIME AND DATE>.
2. IAW REF A, USS <SHIP NAME/HULL NO.> AND CREW READY TO PROCEED ON SEA TRIALS WITH THE FOLLOWING EXCEPTIONS:
    A. REMOVAL OF SHORE SERVICE CONNECTIONS.
    B.
3. MATERIAL CONDITION SUPPORTS ADEQUATE CREW REST FOR UNDERWAY AT <TIME AND DATE>.
4. REQUEST PERMISSION TO COMMENCE SEA TRIALS.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX CL

SAMPLE TYCOM MESSAGE CONCERNING RESUMPTION OF SEA TRIALS COMPLETION PREREQUISITES FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS DURATION

(SUBMARINES ONLY)

FM COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//
TO COMNAVSEASYSCOM WASHINGTON DC//PMS392/PMS350 {for SSN21 only}/08O//
COMSUB<RON/GRU NO.>//
<SUPERVISING AUTHORITY>//<CODES>//
USS <SHIP NAME>//
INFO CNO WASHINGTON DC//N77//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>//N43//
DIRSSP WASHINGTON DC//205// {SSBN/SSGN Only}
<SUBOPAUTH>//<CODES>//
COMSUBDEVRON FIVE SILVERDALE WA//N4//
COMSUBGRU <NO.>//N4//
BT
UNCLAS //N09094
MSGID/GENADMIN/<TYCOM>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> SEA TRIAL RESUMPTION AND INDUSTRIAL ACTIVITY AVAILABILITY COMPLETION PREREQUISITES//
REF/A/RMG/COMSUB<LANT/PAC> /<DTG>//{APPENDIX CD}
REF/B/DOC/COMFLTFORCOM/<DATE>//
REF/C/DOC/NAVSEA /<DATE>//
NARR/REF A IS TYCOM MSG TO USS <SHIP'S NAME/HULL NO.> ON COMPLETION PREREQUISITES FOR AVAILABILITIES GREATER THAN SIX MONTHS. REF B IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II. REF C IS NAVSEA 0924-LP-062-0010, SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL.
RMKS/1. REF A SPECIFIED PREREQUISITES IN SUPPORT OF USS <SHIP NAME/HULL NO.>FAST CRUISE, INITIAL INDUSTRIAL ACTIVITY AVAILABILITY SEA TRIALS AND COMPLETION. THESE TRIALS WERE ACCOMPLISHED AND <INDUSTRIAL ACTIVITY NAME> HAS CONDUCTED REPAIRS TO USS <SHIP NAME> REQUIRING ADDITIONAL SEA TRIALS. THIS MSG PROVIDES TO ALCON REPORTS AND AUTHORIZATIONS PREREQUISITE TO COMMENCING ADDITIONAL SEA TRIALS:

A. SUPERVISING AUTHORITY SHALL DRAFT REVISED SEA TRIAL AGENDA TO SUPPORT THE FOLLOW-ON TRIALS. THIS AGENDA SHALL BE FORMALLY APPROVED BY COMSUB<RON/GRU NO.> (ACTING FOR TYCOM) AND CONCURRED IN BY NAVSEA PRIOR TO CONDUCT OF SEA TRIALS.

B. SUPERVISING AUTHORITY MSG TO NAVSEA, INFO TYCOM, THAT MATERIAL CONDITION OF SYSTEMS AND EQUIPMENTS INSTALLED, REPAIRED AND/OR TESTED BY <INDUSTRIAL ACTIVITY> IS SATISFACTORY FOR CONDUCT OF FOLLOW-ON SEA TRIALS. AS A MINIMUM, REPORT SHOULD STATE STATUS OF ALL INCOMPLETE CAT 1A AUDIT ITEMS AND THAT ALL WORK HAS BEEN PERFORMED IAW REF C. {REFERENCE C, APPENDIX B.3.5}

C. USS <SHIP NAME/HULL NO.> MSG TO TYCOM STATING THAT CREW AND SHIP ARE READY FOR FOLLOW-ON SEA TRIALS LISTING EXCEPTIONS. {APPENDIX CN}

D. ISIC MSG TO TYCOM THAT THE MATERIAL CONDITION OF THOSE SUBSAFE CERTIFICATION BOUNDARY PARTS OF USS <SHIP NAME> INSTALLED, REPAIRED AND/OR TESTED BY FORCES AFLOAT {Ship's Force and/or FMA} ARE SATISFACTORY IAW REF B FOR FOLLOW-ON SEA TRIALS. {APPENDIX CM}

E. NAVSEA MSG TO TYCOM RECERTIFYING MATERIAL CONDITION OF USS <SHIP NAME/HULL NO.> FOR SPECIFIC TRIAL OPERATING DEPTH. {REFERENCE B, APPENDIX B.3.6}

F. TYCOM MSG TO USS <SHIP NAME/HULL NO.> GRANTING PERMISSION TO CONDUCT FOLLOW-ON SEA TRIALS. {APPENDIX CO}

2. USS <SHIP NAME/HULL NO.>SEA TRIALS WILL BE UNDER OPCON OF (_____).

3. CO, USS <SHIP NAME/HULL NO.>IS REQUESTED TO PROVIDE SEA TRIAL SITREPS AT INTERVALS OF 24 HRS OR LESS AND IDENTIFY ITEMS MANDATORY FOR CORRECTION PRIOR TO COMPLETION OF INDUSTRIAL AVAILABILITY.
4. FOLLOWING REPORTS AND AUTHORIZATIONS ARE PREREQUISITES TO INDUSTRIAL AVAILABILITY COMPLETION:

A. SUPERVISING AUTHORITY MSG TO NAVSEA AND TYCOM IAW REF C REPORTING COMPLETION OF AUTHORIZED WORK AND CAT 1A AUDIT ITEMS LISTING EXCEPTIONS. MSG SHOULD RECOMMEND <TYPE OF AVAILABILITY> COMPLETION AND LIST PROPOSED GUARANTEE WORK ITEMS.

B. NAVSEA MSG TO TYCOM IAW REF C CERTIFYING MATERIAL CONDITION OF USS <SHIP NAME/HULL NO.> IS SATISFACTORY FOR UNRESTRICTED OPERATIONS TO DESIGN TEST DEPTH.

C. ISIC MSG TO TYCOM AND USS <SHIP NAME/HULL NO.> REPORTING MATERIAL CONDITION OF SHIP AND URO MRC STATUS SUBSEQUENT TO SEA TRIALS. {APPENDIX CI}

D. TYCOM MSG TO CO, USS <SHIP NAME/HULL NO.> IAW REF C AUTHORIZING CONDUCT OF UNRESTRICTED OPERATIONS TO DESIGN TEST DEPTH. {APPENDIX CG}

5. MSGS LISTED IN PARA 1 THROUGH 4 ABOVE SHOULD BE ASSIGNED APPROPRIATE PRECEDENCE AND PARALLELED BY PHONCON TO ACTION ADDEES CITING DTG OF FORTHCOMING MSG. ALL ADDEES OF THIS MSG TO BE INCLUDED AS ADDEES ON MSG LISTED IN PARA 1 THROUGH 4 ABOVE.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX CM

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING MATERIAL CERTIFICATION FOR FOLLOW-ON SEA TRIALS IN CASES WHERE A PREVIOUS SEA TRIAL WAS ABORTED OR CORRECTIVE ACTIONS FOR SEA TRIAL DEFICIENCIES REQUIRE AN ADDITIONAL DEEP DIVE FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM COMSUB<RON/GRU NO.>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N43/N402//
INFO COMSUBDEVRON FIVE SILVERDALE WA//N4//
COMSUBGRU <NO.>//N4//
USS <SHIP NAME>//
BT
UNCLAS //N09094//
MSGID//GENADMIN/COMSUB<RON/GRU NO.>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.>MATERIAL CERTIFICATION/ READINESS FOR <FOLLOW-ON (NOTE 1)> SEA TRIALS//
REF/A/RMG/TYCOM/<DTG>//{APPENDIX CL}
REF/B/DOC/COMFLTFORCOM/<DATE>//
REF/C/RMG/COMSUB<RON/GRU NO.>/<DTG>/NOTAL//{APPENDIX CH}
REF/D/DOC/NAVSEA /<DATE>//
REF/E/DOC/NAVSEA/<DATE OF CURRENT REVISION>//
NARR/REF A IS TYCOM MSG TO USS <SHIP'S NAME/HULL NO.> ON RESUMPTION OF SEA TRIAL PREREQUISITES FOR AVAILABILITIES GREATER THAN SIX MONTHS. REF B IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II. REF C IS COMSUB<RON/GRU NO.> MSG TO TYCOM ON MATERIAL STATUS PRIOR TO INITIAL SEA TRIALS. REF D IS NAVSEA 0924-LP-062-0010, SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL. REF E IS NAVSEA URO REQUIREMENTS MANUAL.//
RMKS/1. IAW REFS A AND B, THIS MSG CERTIFIES THAT NO MANDATORY DEFICIENCIES FOR <FOLLOW-ON (NOTE 1)> SEA TRIALS HAVE BEEN IDENTIFIED. THERE HAVE BEEN NO RECS OPENED AND NO SUBSAFE DEPARTURES FROM SPECIFICATIONS PROCESSED SINCE THE START OF THE INITIAL SEA TRIALS <OR, REPORT ANY MANDATORY DEFICIENCIES DISCOVERED WITH CORRECTIVE ACTION, AND IF RECS AND/OR DEPARTURES FROM SPECIFICATIONS WERE PROCESSED SINCE THE START OF THE INITIAL SEA TRIALS, REPORT ALL RECS OPENED SINCE THE START OF INITIAL SEA TRIALS ARE CLOSED AND/OR ALL SUBSAFE DEPARTURES FROM SPECIFICATIONS PROCESSED SINCE THE START OF SEA TRIALS ARE RESOLVED NOTE 2.>
2. THERE ARE NO SUBSAFE DEPARTURES FROM SPECIFICATIONS WITH CONDITIONS WHICH HAVE NOT BEEN SATISFIED. THE FOLLOWING DEPARTURES FROM SPECIFICATIONS ARE CURRENTLY OUTSTANDING:

DEPARTURE NO.	TYPE	SYSTEM/COMPONENT	RESTRICTION (IF ANY)
A.			
B.			

3. ALL URO MRC MANDATORY TESTS/INSPECTIONS SPECIFIED IN REF E HAVE BEEN ACCOMPLISHED OR VERIFIED TO BE WITHIN THE REQUIRED PERIODICITY.//
BT

NOTE 1: UPCOMING TRIAL WHICH IS SUBJECT OF THIS CERTIFICATION (E.G., SECOND SEA TRIAL, ETC.).

NOTE 2: LIST ALL RE-ENTRIES TO MATERIAL CERTIFICATION BOUNDARY AND ALL WORK ON SYSTEMS AFFECTING RECOVERABILITY, SALVAGE, WATERTIGHT INTEGRITY, OR OPERATION OF SHIP'S CONTROL SURFACES WITH CORRECTIVE ACTION SINCE RELEASE FOR FAST CRUISE MESSAGE.

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX CN

SAMPLE SHIP MESSAGE TO TYCOM CONCERNING READINESS FOR FOLLOW-ON SEA TRIALS FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM USS <SHIP NAME>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4/40/405//
INFO COMSUBDEVRON FIVE SILVERDALE WA//N3//
COMSUBGRU <NO.>//N5//
COMSUB<RON/GRU NO.>//
BT
UNCLAS //N09094//
MSGID/GENADMIN//USS <SHIP'S NAME>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.>READINESS FOR SEA TRIALS//
REF/A/DOC/COMFLTFORCOM/<DATE>//
NARR/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II//
RMKS/1. IAW REF A, USS <SHIP NAME/HULL NO.>AND CREW REPORTED READY TO PROCEED ON FOLLOW-ON (NOTE 1)SEA TRIALS WITH THE FOLLOWING EXCEPTIONS:
A. REMOVAL OF SHORE SERVICE CONNECTIONS.
B.
2. MATERIAL CONDITION SUPPORTS ADEQUATE CREW REST FOR UNDERWAY AT <TIME AND DATE>.
3. REQUEST PERMISSION TO COMMENCE FOLLOW-ON SEA TRIALS.//
BT

NOTE 1: UPCOMING TRIAL WHICH IS SUBJECT OF THIS CERTIFICATION (E.G., SECOND SEA TRIAL, ETC.).

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX CO

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING FOLLOW-ON SEA TRIALS DEPTH AUTHORIZATION FOR INDUSTRIAL ACTIVITY AVAILABILITIES GREATER THAN SIX MONTHS IN DURATION

(SUBMARINES ONLY)

FM COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//
TO USS <SHIP NAME>//
INFO CNO WASHINGTON DC//
COMNAVSEASYSCOM WASHINGTON DC//
<LANT/PAC>FLT<NORFOLK VA/PEARL HARBOR HI>//
<DIRSSP WASHINGTON DC FOR SSBN>//
COMSUBGRU <NO.>//
COMSUBRON <NO.>//
<SUPERVISING AUTHORITY>//
BT
UNCLAS //N09094//
MSGID/GENADMIN/COMSUB<LANT/PAC>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> <FOLLOW-ON (1)> SEA TRIALS DEPTH AUTHORIZATION//
REF/A/MSG/COMNAVSEASYSCOM/<DTG>//{B.3.6}
REF/B/LTR/NAVSEA/<SER NO./DATE>//
REF/C/LTR/COMSUB<LANT/PAC><SER NO./DATE>//
NARR/REF A IS NAVSEA SUBSAFE MATERIAL CONDITION READINESS REPORT AND <FOLLOW-ON (1)> SEA TRIALS DEPTH RECOMMENDATION FOR USS <SHIP NAME/HULL NO.>. REF B CONCURRED IN THE <FOLLOW-ON (1)> SEA TRIALS AGENDA FOR USS <SHIP NAME/HULL NO.>. REF C APPROVED THE <FOLLOW-ON (1)> SEA TRIALS AGENDA FOR USS <SHIP NAME/HULL NO.>. //
RMKS/1. REF A CERTIFIED THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS <SHIP NAME/HULL NO.> INSTALLED, REPAIRED AND/OR TESTED BY THE SHIPYARD IS SATISFACTORY FOR <FOLLOW-ON (1)> SEA TRIALS TO TEST DEPTH.
2. THIS MSG CONFIRMS THAT THE CERTIFICATION OF THE REMAINDER OF ITEMS WITHIN SUBSAFE CERTIFICATION BOUNDARY OF USS <SHIP NAME/HULL NO.> HAS BEEN SUSTAINED. ACCORDINGLY, THE STATUS OF THE SUBSAFE CERTIFICATION BOUNDARY OF USS <SHIP NAME/HULL NO.> IS SATISFACTORY FOR <FOLLOW-ON (1)> SEA TRIALS TO TEST DEPTH <SUBJECT TO RESTRICTIONS IN PARA 2 OF REF A *if any are identified*>.
3. USS <SHIP NAME/HULL NO.> IS AUTHORIZED TO DIVE UNDER DELIBERATE AND CONTROLLED CONDITIONS TO <SPECIFIED> DEPTH IAW THE <FOLLOW-ON (1)> SEA TRIALS AGENDA CONCURRED IN BY REF B AND APPROVED BY REF C.
4. EXCEPT AS LISTED IN 5. BELOW, THIS DEPTH AUTHORIZATION IS AUTOMATICALLY SUSPENDED UPON RE-ENTRY TO THE SUBSAFE CERTIFICATION BOUNDARY OR CASUALTY AFFECTING RECOVERABILITY, SALVAGE, WATERTIGHT INTEGRITY, OR OPERATION OF SHIP'S CONTROL SURFACES, THE SHIP SHALL NOT OPERATE AT A DEPTH GREATER THAN 200 FEET UNTIL RE-ENTRY IS CERTIFIED TO TYCOM AND TYCOM GRANTS APPROVAL TO OPERATE TO PREVIOUSLY AUTHORIZED DEPTH.
5. RE-ENTRY CONTROL TO ADJUST FLOOD CONTROL HYDRAULIC VALVE TIMING WILL BE CERTIFIED BY THE COMMANDING OFFICER, TYCOM CERTIFICATION IS NOT REQUIRED, AND A SITREP WILL BE TRANSMITTED PRIOR TO RESUMPTION OF OPERATION BELOW 200 FEET.//
BT

(1): UPCOMING TRIALS WHICH ARE SUBJECT OF THIS CERTIFICATION (E.G., SECOND SEA TRIALS, ETC.).

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX CP

SUBMARINE SEA TRIAL SITUATION REPORT
(SITREP GREATER THAN SIX MONTHS)

FM USS <SHIP NAME>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
INFO CNO WASHINGTON DC//N77//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>N43//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08O//
DIRSSP WASHINGTON DC//205// {For SSBN/SSGN Only}
<SUBOPAUTH>// {IF OTHER THAN PARENT TYCOM}
COMSUBDEVRON FIVE SILVERDALE WA//N3//
COMSUBGRU <NO.>//N5//
COMSUB<RON/GRU NO.>//
<SUPERVISING AUTHORITY>//<CODES>//
(OTHER UNITS IN AREA IF APPLICABLE)//
BT
UNCLAS //N09094//
MSGID/GENADMIN/USS <SHIP NAME>//
SUBJ/(TYPE AVAILABILITY) SITREP (SEQUENTIAL NUMBER)//
REF/A/DOC/COMFLTFORCOM/<DATE>//
REF/B/DOC/AS APPLICABLE/<DATE>//
NARR/ REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II.
RMKS/1. CO'S SUMMARY, EVENTS 1-9 COMPLETED WITH THE FOLLOWING DEFICIENCIES NOTED:
A. SUBSAFE/URO DEFICIENCIES.
1) NON-ISOLABLE SEAWATER LEAKS
(A) #1 SCOPE HULL GLAND LEAK 1 DPM AT 20% TD
(B) SSW-30 (BODY-BONNET LEAK)
(C) DE-7 (STEM SEAL LEAK)
(D) RUDDER RAM
(E) EHP P46-3P
(F) TD-89 (FWD ESCAPE TRUNK DRAIN)
(G) #2 SCOPE INBOARD HOIST CYLIDER FITTING
(H) #1 SCOPE INBOARD HOIST CYLINDER FITTING
(I) STERN PLANES RAM PACKING
(J) STBD RETRACTABLE BOW PLANE EXTEND RETRACT CYLINDER
(K) AHP-525 (PARKER CHECK VALVE SEAT LEAK)
(L) SSW-20 UPSTREAM FLANGE
(M) EHP P025-01S (WHIP ANTENNA)
(N) INNER STERN PLANES RAM PACKING
2) ISOLABLE SEAWATER LEAK
(A) TDU VENT, TD-104 LEAKS 3 DPM AT 65% TD.
(B) ASW-5 BODY-BONNET LEAK
OTHER DEFICIENCIES
(A) STERN PLANES AUX ANGLE INDICATOR ON BCP DOES NOT ILLUMINATE, URO-16
(B) MSW-2 CYCLE TIME SHUT IS 10.1 SEC
(C) MBT 3A WILL NOT OPEN
B. NON-SUBSAFE/URO DEFICIENCIES.
1) SCULLERY DRAIN LEAKING AT FITTING F-18, 27 DPM
2) 3 FLOOR TILES IN CREWS MESS LIFTED AFFECTING SANITATION
3) CO HOT WATER SHOWER RECIRC PUMP FAILED

2. PREVIOUS DEFICIENCIES REPORTED AND STATUS.

(LIST ALL PREVIOUS DEFICIENCIES AND CURRENT STATUS-THE GOAL IS TO CAPTURE THE COMPLETE MATERIAL CONDITION IN EACH MESSAGE) STATUS = REPAIRED (R), CORRECTIVE ACTION REQUIRED (CAR), NOT APPLICABLE (NA)

EXAMPLE –

1) SCULLERY DRAIN LEAKING AT FITTING F-18, 27 DPM -R
2) 3 FLOOR TILES IN CREWS MESS LIFTED AFFECTING SANITATION - CAR
3) CO HOT WATER SHOWER RECIRC PUMP FAILED - CAR
4) #1 SCOPE HULL GLAND LEAK 1 DPM AT 20% TD - CAR
5) TDU VENT, TD-104 LEAKS 3 DPM AT 65% TD - CAR
6) STERN PLANES AUX ANGLE INDICATOR ON BCP DOES NOT ILLUMINATE, URO-16 - R
3. ADDITIONAL INFO.
1) DESCRIBE ANY ADDITIONAL INFO DESIRED OR LIST "NONE".
4. **TYCOM, NAVSHIPYD, AND NAVSEA REPS CONCUR-DO NOT CONCUR (AS APPROPRIATE).//**
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX CQ

SAMPLE MESSAGE CONCERNING MOD ALERT NOTIFICATION

(SUBMARINES ONLY)

FM <INDUSTRIAL ACTIVITY>
TO COMSUB<RON/GRU NO.>//{ISIC of Escort Ship}
COMSUBLANT
COMSUBPAC
COMSUBDEVRON FIVE SILVERDALE WA//N3/N4//
DSU SAN DIEGO CA//00//
USS <ESCORT SHIP NAME>//
INFO CNO WASHINGTON DC//N77//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>//N43//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/PMS 394 and PMS 399 (AS APPLICABLE)/08O/92Q//
COMSUBDEVRON FIVE DET SAN DIEGO CA//
DIRSSP WASHINGTON DC //205//{For SSBN/SSGN only}
<SUPERVISING AUTHORITY>//<CODES>//
<SUBOPAUTH>// {If other than parent TYCOM}
COMSUB<RON/GRU NO.>//{ISIC of Sea Trial Ship}
CTF TWO SIX//
CTG TWO SIX PT ONE//
NSCSES NORFOLK VA//112//
COMSUBGRU <NINE/TEN> //N3//{For SSBN/SSGN only}
USS <SHIP NAME/HULL NO.>{SEA TRIAL UNIT}//
BT
UNCLAS //N03120//
MSGID/GENADMIN/<INDUSTRIAL ACTIVITY>//
SUBJ/(SUBS) SUBMARINE SEA TRIAL SUPPORT SERVICES/ MOD ALERT NOTIFICATION//
REF/A/DOC/COMFLTFORCOM/<DATE>//
NARR/REF A IS JOINT FLEET MAINTENANCE MANUAL//
RMKS/1. IAW REF A REQUIREMENTS, USS <SHIP NAME/HULL NO.> IS SCHEDULED FOR
SEA TRIALS OCCURRING <DDMMMYY>. REQUEST SRDRS MOD ALERT BE SCHEDULED
TO COVER SEA TRIAL PERIOD.
2. ANY CHANGES IN ALERT POSTURE REQUIREMENTS WILL BE FORWARDED.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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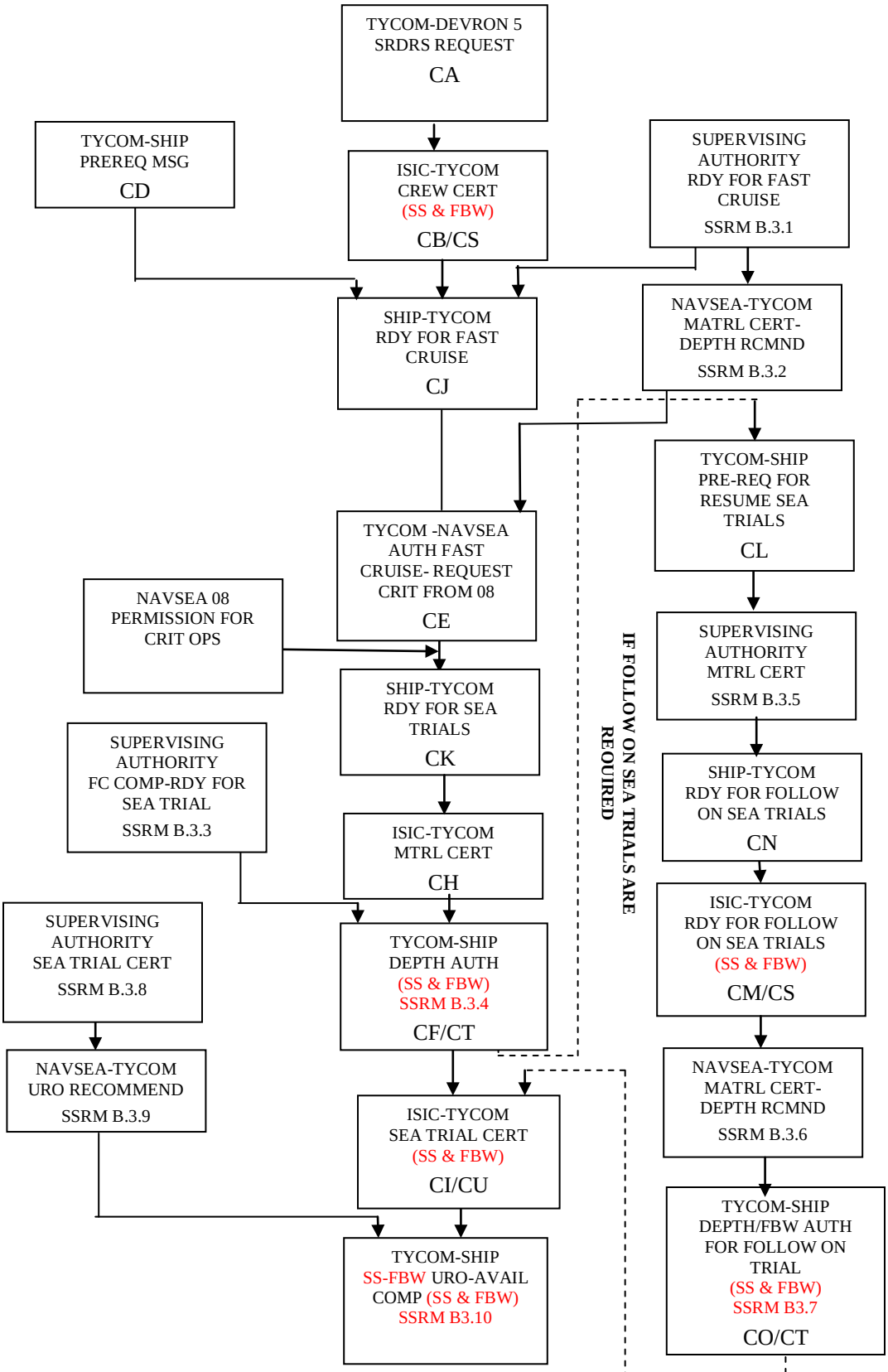
APPENDIX CR

Message Scenario for CNO Availabilities of Greater than Six Months in Duration



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APPENDIX CS

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING FLY-BY-WIRE CREW CERTIFICATION AND FLY-BY-WIRE MATERIAL CONDITION FOR AT-SEA TESTING OR FAST CRUISE AND SEA TRIALS

(SUBMARINES ONLY)

FM COMSUB<RON/GRU NO.>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4/40//
INFO CNO WASHINGTON DC//N77//
COMNAVSEASYSCOM WASHINGTON DC//394/07/07Q/07T2/05Z5/05U//
PEO SUB WASHINGTON DC//450//
COMSUBGRU <NO.>//N4//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>N43//
NAVSURFWARCEN CARDEROCKDIV BETHESDA MD//5600//
COMREGSUPPGRU <CITY ST>//
<SUPERVISING AUTHORITY>//<CODES>// (IF APPLICABLE)
USS < SHIP NAME/HULL NO>//
BT
UNCLAS //N04790//
MSGID/GENADMIN/COMSUB<RON/GRU NO.>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> FLY-BY-WIRE SHIP CONTROL SYSTEMS
/(FBW SCS) MATERIAL CERTIFICATION//
REF/A/MSG/NAVSURFWARCEN CARDEROCK/<DTG>//
REF/B/DOC/NAVSEA/-//
NARR/REF A IS NSWC CARDEROCK DIVISION MESSAGE ADDRESSING FBW SCS
MATERIAL CERTIFICATION AND READINESS FOR AT-SEA OPERATION. REF
B IS FBW MANUAL, T9044-AD-MAN-010.//
RMKS/1. PER REF A THE ISEA CERTIFIES USS <SHIP NAME/HULL NO.> FBW
SCS MAINTENANCE AND RECOMMENDS THE MATERIAL CONDITION OF
USS <SHIP NAME/HULL NO.> FBW SCS IS SATISFACTORY FOR AT-SEA TESTING.
2. THE ISEA AND ISIC COMPLETED A FBW SCS CERTIFICATION AUDIT WITH
<LIST NUMBER OR WRITE "NO"> IMMEDIATE CORRECTIVE ACTION/S AND
<LIST NUMBER OR WRITE "NO"> REPORT OF CORRECTIVE ACTION. PER REF
A ALL CORRECTIVE ACTIONS ARE COMPLETED AND REPORTED TO ISIC.
3. THE CREW IS KNOWLEDGEABLE AND PROFICIENT AND HAS PROPER NUMBER
OF TRAINED OPERATORS.
4. THERE ARE NO CONDITIONAL FBW SCS DEPARTURE FROM SPECIFICATIONS
OR DEVIATIONS AND WAIVERS THAT HAVE NOT BEEN SATISFIED.
5. ALL DOCKSIDE TESTING IS COMPLETE. PER REF A ALL AT-SEA TESTING
TO BE COMPLETED PER THE SHIP'S CONTROL SYSTEM TRIAL AGENDA OR AS
STATED IN DEPARTURE FROM SPECIFICATIONS/DEVIATIONS/WAIVERS. PRIOR TO THE
COMPLETION OF THE SHIP'S CONTROL SYSTEM AT-SEA TESTING THE
FOLLOWING RESTRICTIONS ARE IN EFFECT:
A.<*TYPICAL RESTRICTIONS, HOWEVER LIST ONLY THOSE REQUIRED BASED UPON WORK ACCOMPLISHED, IF NONE – WRITE "NONE"*.
B. AUTOMATIC MODE MAY BE USED FOR COURSE KEEPING (SURFACED AND SUBMERGED),
COURSE CHANGING (SURFACED AND SUBMERGED), AND DEPTH KEEPING.
C. DEPTH CHANGES SHALL BE CONDUCTED IN MANUAL MODE.>
6. THE FBW SCS MATERIAL CONDITION OF THOSE PARTS OF THE SHIP
INSTALLED, REPAIRED AND TESTED BY THE ISEA AND ACTIVITIES PERFORMING
WORK IS SATISFACTORY. ISIC CONCURS WITH ISEA'S RECOMMENDATION THAT THE MATERIAL
CONDITION IS SATISFACTORY FOR AT-SEA TESTING.

7. REQUEST TYCOM APPROVAL FOR FBW SCS USE IN SUPPORT OF AT-SEA TESTING < IAW THE RESTRICTIONS CITED IN PARA 5 *IF APPLICABLE*>.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX CT

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING AUTHORIZATION TO USE FLY-BY-WIRE SHIP CONTROL SYSTEMS

(SUBMARINES ONLY)

FM COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//
TO USS <SHIP NAME>//
INFO CNO WASHINGTON DC//N77//
COMNAVSEASYSCOM WASHINGTON DC//394/07/07Q/07T2/05Z5/05U//
PEO SUB WASHINGTON DC//450//
COMSUBGRU <NO.>//N4//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>N43//
NAVSURFWARCEN CARDEROCKDIV BETHESDA MD//5600//
COMREGSUPPGRU <CITY ST>//
<SUPERVISING AUTHORITY>//<CODES>//(IF APPLICABLE)
COMSUB<RON/GRU NO.>//
BT
UNCLAS//N04790//
MSGID/GENADMIN/COMSUB<LANT/PAC>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> AUTHORIZATION TO USE FLY-BY-WIRE SHIP CONTROL SYSTEMS IN SUPPORT OF < AT-SEA TESTING/SEA TRIALS/INSURV SEA TRIALS *AS APPROPRIATE*> //
REF/A/MSG/<*CERTIFICATION ACTIVITY*>/<DTG>//
REF<*OTHER REFERENCES AS APPROPRIATE*>
NARR/<REF A IS <*CERTIFICATION ACTIVITY*> CREW, FBW SCS MATERIAL CERTIFICATION AND READINESS FOR AT-SEA OPERATION. *DEFINE ANY ADDITIONAL REFERENCES*>.//
RMKS/1. REF A CERTIFIED THE FLY-BY-WIRE (FBW) SHIP CONTROL SYSTEMS (SCS) MATERIAL CONDITION OF USS <SHIP NAME/HULL NO.> SATISFACTORY FOR INSURV SEA TRIALS.
2. USS <SHIP NAME/HULL NO.> FBW SCS AS REPORTED IN REF A HAS BEEN CERTIFIED AND USE IS AUTHORIZED IN SUPPORT OF
< AT-SEA TESTING/SEA TRIALS/INSURV SEA TRIALS *AS APPROPRIATE*>.
PER REF A ALL AT-SEA TESTING TO BE COMPLETED PER THE SHIP'S CONTROL SYSTEM TRIAL AGENDA OR AS STATED IN DEPARTURE FROM SPECIFICATIONS/DEVIATIONS/WAIVERS. PRIOR TO THE COMPLETION OF THE SHIP'S CONTROL SYSTEM AT-SEA TESTING THE FOLLOWING RESTRICTIONS ARE IN EFFECT:
A.<*TYPICAL RESTRICTIONS, HOWEVER LIST ONLY THOSE REQUIRED BASED UPON WORK ACCOMPLISHED, IF NONE - WRITE "NONE"*.
B. *AUTOMATIC MODE MAY BE USED FOR COURSE KEEPING (SURFACED AND SUBMERGED), COURSE CHANGING (SURFACED AND SUBMERGED), AND DEPTH KEEPING.*
C. DEPTH CHANGES SHALL BE CONDUCTED IN MANUAL MODE.>
3. THIS CERTIFICATION IS VALID THROUGHOUT < AT-SEA TESTING/SEA TRIALS/INSURV SEA TRIALS *AS APPROPRIATE*> UNLESS A DEFICIENCY IS DISCOVERED. SHIP SPEED IS RESTRICTED TO LESS THAN 20 KNOTS WHEN A FBW SCS FAULT CONDITION RESULTS IN A MAJOR NON-CONFORMANCE AFFECTING CONTROL OF SHIPS PITCH, HEADING, DEPTH OR CONTROL SURFACES. THESE DEFICIENCIES MUST BE REPORTED TO NAVSEA AND THE APPROPRIATE FLEET AND TYPE COMMANDERS. CERTIFICATION OF THE FBW SCS MATERIAL CONDITION SHALL BE SUSPENDED UNTIL NAVSEA AND TYCOM REVIEW THE REPORT. THE SHIP'S SPEED IS RESTRICTED TO LESS THAN 20 KNOTS UNTIL SATISFACTORY RESOLUTION OF THE MAJOR NON-CONFORMANCE AND TYCOM APPROVAL TO OPERATE THE FBW SCS TO PREVIOUSLY AUTHORIZED CONDITIONS IS GRANTED, UNLESS SPECIFICALLY ADDRESSED IN THE <*"TRIAL AGENDA" - FOR CNO AVAILS/"STATED IN DEPARTURE FROM SPECIFICATIONS/DEVIATIONS/WAIVERS" FOR AT-SEA TESTING NOT IN CNO AVAIL*>.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX CU

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING FLY-BY-WIRE MATERIAL CERTIFICATION UPON COMPLETION OF AT-SEA TESTING OR SEA TRIALS

(SUBMARINES ONLY)

FM COMSUB<RON/GRU NO.>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4/40//
INFO CNO WASHINGTON DC//N77//
COMNAVSEASYSCOM WASHINGTON DC//394/07/07Q/07T2/05Z5/05U//
PEO SUB WASHINGTON DC//450//
COMSUBGRU <NO.>//N4//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>N43//
NAVSURFWARCEN CARDEROCKDIV BETHESDA MD//5600//
COMREGSUPPGRU <CITY ST>//
<SUPERVISING AUTHORITY>//<CODES>// (IF APPLICABLE)
USS < SHIP NAME/HULL NO>//
BT
UNCLAS //N04790//
MSGID/GENADMIN/COMSUB<RON/GRU NO.>//
SUBJ/ USS < SHIP NAME/HULL NO> FLY-BY-WIRE SHIP CONTROL SYSTEMS
/(FBW SCS) AT-SEA TESTING COMPLETION//
REF/A/MSG/NAVSURFWARCEN CARDEROCK/<DTG>//
REF/B/MSG/ USS < SHIP NAME/HULL NO>/<DTG>//
REF/C/DOC/NAVSEA/-//
NARR/REF A IS NSWC CARDEROCK DIVISION MESSAGE ADDRESSING FBW SCS
MATERIAL CERTIFICATION AND READINESS FOR AT-SEA OPERATION. REF B IS
USS < SHIP NAME/HULL NO> MESSAGE ADDRESSING COMPLETION OF AT-SEA TESTING
FOR FBW SCS. REF C IS FBW MANUAL T9044-AD-MAN-010.//
RMKS/1. PER REF B ISIC CERTIFIES USS < SHIP NAME/HULL NO> FBW SCS
AT-SEA TESTING IS COMPLETED SATISFACTORILY.
2. THERE ARE NO CONDITIONAL FBW SCS DEPARTURE FROM SPECIFICATIONS
OR DEVIATIONS AND WAIVERS THAT HAVE NOT BEEN SATISFIED.
3. THE FOLLOWING SEA TRIALS DEFICIENCIES WERE NOTED AND REQUIRE
CORRECTION OR HAVE BEEN CORRECTED:
<NONE *OR LIST DEFICIENCIES AND INDICATE IF CORRECTIVE ACTION IS REQUIRED*>.
4. THE FOLLOWING RESTRICTIONS ARE IN EFFECT:
<NONE *OR LIST DEFICIENCIES*>.
5. THE FBW SCS MATERIAL CONDITION OF THOSE PARTS OF THE SHIP
INSTALLED, REPAIRED AND TESTED BY THE ISEA AND ACTIVITIES PERFORMING
WORK IS SATISFACTORY. ISIC CONCURS WITH ISEA'S RECOMMENDATION THAT
THE MATERIAL CONDITION IS SATISFACTORY FOR UNRESTRICTED OPERATION.
6. REQUEST TYCOM APPROVAL FOR FBW SCS USE IN SUPPORT OF UNRESTRICTED
OPERATION.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX CV

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING URO FOR FLY-BY-WIRE SHIP CONTROL SYSTEMS

(SUBMARINES ONLY)

FM COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//
TO USS <SHIP NAME>//
INFO CNO WASHINGTON DC//N77//
COMNAVSEASYSCOM WASHINGTON DC//394/07/07Q/07T2/05Z5/05U//
PEO SUB WASHINGTON DC//450//
COMSUBGRU <NO.>//N4//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>N43//
NAVSURFWARCEN CARDEROCKDIV BETHESDA MD//5600//
COMREGSUPPGRU <CITY ST>//
<SUPERVISING AUTHORITY>//<CODES>// (IF APPLICABLE)
COMSUB<RON/GRU NO.>//
BT
UNCLAS //N04790//
MSGID/GENADMIN/COMSUB<LANT/PAC>//
SUBJ/ USS < SHIP NAME/HULL NO> FLY-BY-WIRE SHIP CONTROL SYSTEMS
/(FBW SCS) MATERIAL CERTIFICATION//
REF/A/DOC/NAVSEA MANUAL T9044-AD-MAN-010/-//
REF/B/MSG/< COMSUB<RON/GRU NO.>/<DTG>//
REF/C/ DOC/COMFLTFORCOM/<DATE>//
NARR/REF A IS THE REQUIREMENTS MANUAL FOR SUBMARINE FLY-BY-WIRE SHIP
CONTROL SYSTEMS. REF B IS COMSUB<RON/GRU NO.> MSG RECOMMENDING UNRESTRICTED
USE OF < SHIP NAME/HULL NO> FLY-BY-WIRE SHIP CONTROL SYSTEMS
IN SUPPORT OF SUBMARINE OPERATION. REF C IS COMFLTFORCOMINST 4790.3, JOINT
FLEET MAINTENANCE MANUAL //
RMKS/1. IAW REF A AND B ORIG CERTIFIES THE MATERIAL CONDITION
OF FBW SCS CERTIFICATION BOUNDARY FOR USS < SHIP NAME/HULL NO>
IS SATISFACTORY FOR OPERATION WITH THE RESTRICTIONS OF
PARA 2 AND 3 BELOW.
2. SHIP'S SPEED IS RESTRICTED TO LESS THAN 20 KNOTS WHEN A FBW SCS
FAULT CONDITION OCCURS AND WOULD RESULT IN A MAJOR NON-CONFORMANCE
AFFECTING CONTROL OF SHIPS PITCH, HEADING, DEPTH AND CONTROL
SURFACES OR UNTIL SATISFACTORY RESOLUTION OF THE MAJOR
NON-CONFORMANCE AND TYCOM APPROVAL TO OPERATE FBW SCS TO PREVIOUSLY
APPROVED CONDITIONS IS GRANTED.*<LIST ANY ADDITIONAL RESTRICTION AS APPLICABLE>*
3. CONTINUED CERTIFICATION FOR UNRESTRICTED USE OF FLY-BY-WIRE SHIP
CONTROL SYSTEMS IN SUPPORT OF SUBMARINE UNRESTRICTED OPERATION IS
SUBJECT TO COMPLIANCE WITH REF A AND C.//.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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VOLUME II

PART I

CHAPTER 4

FLEET MAINTENANCE AVAILABILITIES

REFERENCES.

(a) NAVSEAINST 4790.8/OPNAVINST 4790.4 - Ships' Maintenance and Material Management (3-M) Manual
(b) COMNAVSUBFOR OPORD 2000
(c) NAVSEAINST C9210.30 - Procedure for Administration of Nuclear Reactor Plant Preventive Maintenance and Tender Nuclear Support Facilities Preventive Maintenance on Ships
(d) NAVSEA 0989-LP-043-0000 - Commissioned Surface Ship General Reactor Plant Overhaul and Repair Specification
(e) OPNAVINST 4700.7 - Maintenance Policy for U.S. Naval Ships
(f) COMLANTFLTINST 5400.2 - U.S. Atlantic Fleet Regulations
(g) COMPACFLTINST 5400.3 - U.S. Pacific Fleet Regulations
(h) NAVSEAINST C9210.4 - Changes, Repairs and Maintenance to Nuclear Powered Ships
(i) COMLANTFLTINST 4700.10 - Policies and Procedures For Fleet Technical Support (Cancelled)
(j) COMPACFLTINST 4341.1 - Fleet Technical Assistance (FTA) Program (Cancelled)
(k) NAVSEA S9213-33-MMA-000 - Radiological Controls for Ships
(l) OPNAVINST 3120.33 - Submarine Extended Operating Cycle (SEOC) Program
(m) OPNAVINST C3000.5 - Operation of Naval Nuclear Powered Ships
(n) NAVSEA S9086-DA-STM-000 - NSTM Chapter 100 (Hull Structures)
(o) NAVSEA S9086-C4-STM-000 - NSTM Chapter 094 (Trials)
(p) COMNAVSUBFORINST 5400.25 - Standard Submarine Supply Department Organization and Regulations Manual
(q) COMNAVSUBFORINST 5400.29 - Standard Submarine Navigation/Operations Department Organization and Regulations Manual
(r) COMNAVSUBFORINST 5400.40 - Standard Submarine Combat Systems Department Organization and Regulations Manual (SSN)
(s) COMNAVSUBFORINST 5400.41 - Standard Submarine SSBN 726 Class Weapons Department Organization and Regulations Manual
(t) COMNAVSUBFORINST 5400.47 - Standard Submarine Combat Systems Department Organization and Regulations Manual (SSGN)
(u) NAVSEA 0924-LP-062-0010 - Submarine Safety (SUBSAFE) Requirements Manual
(v) OPNAVINST 9110.1 - Policy Concerning Submarine Test and Operating Depths
(w) OPNAVINST C9210.2 - Engineering Department Manual for Naval Nuclear Propulsion Plants
(x) NAVSEAINST C9094.2 - Submarine Valve Operation Requirements for Builders and Post-Overhaul Sea Trial Test Dives

LISTING OF APPENDICES.

A Sample Message to TYCOM from ISIC Requesting Concurrence to Defer, Delete or Shorten a Scheduled CMAV
B Sample TYCOM Message Concerning Escort Services for IDD or PIRA Availabilities
C Suggested Format for a Message Work Candidate
D Business Case Analysis Tool
E1 Availability Key Event List
E2 CMAV Key Event Codes
F Availability Planning Message (Submarines Only)
G Final 100 Hours for Scheduled CMAV

H Availability Milestone Schedule
I Availability Planning Response Message (Submarines Only)
J Major Trial and Inspection Milestones for IDD and PIRA Availabilities
K Sample ISIC Message to TYCOM Concerning Crew Certification and Material Condition for Fast Cruise and Sea Trials for IDD or PIRA Availabilities
L Sample Ship Message to ISIC and TYCOM Concerning Material Certification Upon Completion of Sea Trials for IDD or PIRA Availabilities
M Dock Trials Guidelines for IDD or PIRA Availabilities
N Fast Cruise Requirements for IDD or PIRA Availabilities
O Sample ISIC Message to TYCOM Concerning Final Material Certification Prior to Sea Trials for IDD or PIRA Availabilities
P Sample TYCOM Message to Ship Concerning Sea Trials Depth Authorization for IDD or PIRA Availabilities
Q Minimum Sea Trials Requirements for IDD or PIRA Availabilities
R Submarine Sea Trial Situation Report (SITREP)
S Sample TYCOM Message To Ship Concerning URO for IDD or PIRA Availabilities
T Sample Ship Message to TYCOM Concerning Readiness for Follow-On Sea Trials for IDD or PIRA Availabilities
U Sample ISIC Message to TYCOM Concerning Material Certification for Follow-On Sea Trials in Cases Where a Previous Sea Trial was Aborted or Corrective Actions for Sea Trial Deficiencies Require an Additional Deep Dive for IDD or PIRA Availabilities
V Sample TYCOM Message to Ship Concerning Follow-On Sea Trials Depth Authorization for IDD or PIRA Availabilities
W Sample Ship Message to ISIC Concerning Readiness for Fast Cruise for IDD or PIRA Availabilities
X Sample ISIC Message to Ship Authorizing Commencement of Fast Cruise for IDD or PIRA Availabilities
Y Sample Ship Message to ISIC and TYCOM Concerning Readiness for Sea Trials for IDD or PIRA Availabilities

4.1 PURPOSE. Provide guidance for the implementation of policies set forth in references (a) through (x) for Fleet Maintenance Availability planning, scheduling, and execution. Policy, procedures and guidance regarding utilization of Fleet Technical Assistance (FTA) program resources are contained in Volume VI, Chapter 2 of this manual.

4.2 DEFINITIONS.

4.2.1 Fleet Maintenance Activity. All government waterfront ship maintenance and modernization, activities, e.g., Regional Maintenance Centers, Naval Ship Repair Facilities, Naval Submarine Support Facilities, Naval Intermediate Maintenance Facilities, TRIDENT Refit Facilities, Weapons Repair Facilities, Naval Shipyards, tenders and other activities of that type responsible for the processing, screening and brokering, and execution of work candidates.

4.2.2 Lead Maintenance Activity. The single activity responsible for integrating all maintenance and modernization on US Naval ships during any type availability. The Lead Maintenance Activity (LMA) is the activity responsible for planning and coordinating the work of the Executing Activities in Continuous Maintenance (CM). The LMA may also be an Executing Activity.

4.2.3 Executing Activity. The public or private enterprise that is assigned or awarded the responsibility for accomplishing the actual production work to effect repairs or modernization to ships.

4.2.4 Business Case Analysis. A critical evaluation of late identified work, new work or growth work, based on the benefit of completing the work, the cost of the work to be performed including premiums, available work capacity and material resources, the risk to other work and schedule impact.

4.2.5 Planning Board for Maintenance. The regularly scheduled meeting of the ship's Maintenance Team, as required by Chapter II-II-1 and defined in Chapter VI-41 of this manual, to discuss ship wide maintenance issues. Chaired by the Ashore Ship's Maintenance Manager, this forum provides a review of current planned off-ship and organizational maintenance, Current Ship's Maintenance Project (CSMP) quality and accuracy, future maintenance and modernization planning, and fiscal concerns. The objective is to ensure clarity of intent for both the ship's efforts and the shore infrastructure with respect to total ship maintenance, operational schedules, and other concerns affecting ship material readiness.

4.2.6 Maintenance and Modernization Business Plan. The Maintenance and Modernization Business Plan (MMBP), located in Volume VI, Chapter 33 of this manual, prepared six to eight months in advance of the fiscal year, is the ship's plan for maintenance and modernization effort for a fiscal year. The ship's maintenance team prepares the plan. The Maintenance Team applies its knowledge of the ship's material condition and Type Commander (TYCOM) scheduled modernization and Chief of Naval Operations (CNO) availabilities in the prospective operating cycle to develop the budget recommendation for funding maintenance requirements. The plan is based on an assessment of the ship's anticipated material condition, the validated CSMP including Class Maintenance Plan (CMP) applicable tasks, planned fleet alterations, outstanding Departures from Specifications (DFS), Casualty Reports (CASREP) and Board of Inspection and Survey material discrepancies. The MMBP shall address funding required for CNO availabilities advanced planning and CM opportunities.

4.2.7 Immediate Superior In Command. In the context of this chapter the following may act in support of or in the place of the Immediate Superior In Command (ISIC) for maintenance:

a. Surface Ships - Class Squadron Commander.

b. Carriers - Commander Naval Air Forces (LANT/PAC).

c. Submarines - Submarine Squadron Commander or Submarine Squadron Support Unit.

d. Submarine Tenders - Commander Submarine Force, U.S. Pacific Fleet.

4.3 FLEET MAINTENANCE AVAILABILITIES. Fleet Maintenance Availabilities consist of the following:

4.3.1 Ship's Force Upkeep. A Ship's Force Upkeep is a scheduled period in which the ship is principally engaged in self-maintenance.

4.3.2 Scheduled Continuous Maintenance Availability. A Scheduled Continuous Maintenance Availability (CMAV) is a scheduled availability normally 2 to 6 weeks in duration and normally scheduled once per non-deployed quarter during a period when the ship will be in port.

NOTE: **SUBMARINE MAINTENANCE MODERNIZATION AVAILABILITIES MAY BE 2 TO 6 MONTHS LONG. THESE AVAILABILITIES CAN BE MANAGED SEPARATE FROM THE REQUIRED MAINTENANCE AVAILABILITIES OR INCORPORATED IN THE REQUIRED MAINTENANCE PERIODS AT THE DISCRETION OF THE PLANNING BOARD FOR MAINTENANCE (PB4M) AND ISIC. MODERNIZATION AVAILABILITIES WILL INCLUDE KEY EVENTS AND CERTIFICATION MILESTONES PRIOR TO AT-SEA OPERATIONS AND MAY REQUIRE SEA TRIALS AS APPROVED BY THE PB4M AND ISIC IN ACCORDANCE WITH THIS CHAPTER.**

a. Submarines - One 35-day regular CMAV every 3 to 4 months, of which 21 days are dedicated to production work. The Pre-Overseas Movement 1 availability should normally be scheduled for 42 days to allow for front loading of pre-deployment and deployment maintenance, alterations and installs. For SSBNs one 28 day CMAV per each patrol cycle. For SSGNs the maintenance schedule for a 15-month operating cycle has a single 100 day CMAV maintenance period and three forward deployed 21 day CMAVs. The Scheduled Continuous Availability requirement is mandatory. It cannot be deferred,

deleted or shortened without TYCOM (N43) concurrence. Appendix A of this chapter contains a sample message to TYCOM from ISIC requesting concurrence to defer, delete or shorten a scheduled CMAV.

b. Carriers - As Scheduled.

c. Surface Ships - At a minimum, one 3-week CMAV per non-deployed quarter of which two weeks are for production work and the last week in all CMAVs is for Ship's Force job close out and testing.

4.3.3 Unscheduled Continuous Maintenance Availability. The Unscheduled CM Availability is a single yearlong availability, for the period 01 October through 30 September, scheduled for each ship every fiscal year. The Year Long Unscheduled CM Availability is for the scheduling and completion of non-emergent work items that are not accomplished during any other schedule availability.

4.3.4 Emergent Availability. The Emergent Availability (EM) is designed for work of such an urgent nature, normally C-3 and C-4 CASREPS, that the heightened risk of disruption and paying of premiums is accepted, and planning horizons are shortened.

4.4 COMMON ELEMENTS.

4.4.1 Responsibilities. Responsibilities for the Maintenance Policies and Procedures for Fleet availabilities are as follows:

4.4.1.1 Immediate Superior In Command.

a. Coordinate scheduling of availabilities at LMAs with TYCOMs.

(1) Monitor corrective maintenance action taken by LMA/Executing Activities.

(2) Schedule and conduct inspections of Forces Afloat.

(3) Monitor progress of availabilities.

b. Initiate the required budgetary actions for funding availabilities.

c. Ensure all authorized alterations are identified by priority based on material availability.

d. Identify the routine package to be accomplished based on Master Job Catalog (MJC) review.

e. Review results of scheduled monitoring inspections and testing that could result in significant new work or could impact scheduled work.

f. Identify required special evolutions associated with availabilities in support of Pre-Overseas Movement preparations and pre-availability test and inspection requirements.

g. Issue availability planning message.

h. (Submarines only) Ensure all Periodic Maintenance Requirement (PMR) and Unrestricted Operation Maintenance Requirement Card maintenance actions intended for accomplishment during availability are identified.

i. (Submarines only) Send a Sea Trials Support Services message to specify Deep Submergence Rescue System "modified-alert" requirements in accordance with Appendix B of this chapter.

j. (Submarines only) Provide updated Sea Trials status by telephone to Commander, Submarine Development Squadron (COMSUBDEVRON) FIVE if Deep Submergence Rescue System "modified-alert" support services are in use.

k. (Submarines only) Identify key events for each CMAV during the pre-arrival conference. Determine if Fast Cruise and/or Sea Trails is/are required based on the scope of the availability work, alterations and modernization. The ISIC will task the PB4M/Regional Maintenance Center (RMC) to submit the Fast Cruise and/or Sea Trails agendas for ISIC approval in accordance with paragraph 4.6.3.3 of this chapter.

l. (Submarines only) Monitor Ship and Executing Activity preparations to transition to a CMAV period and make final report that the ship has transitioned to the CMAV period after the completion of the arrival conference to the Group and TYCOM.

4.4.1.2 Regional Maintenance Center/Lead Maintenance Activity. (As appropriate)

a. Develop recommended Key Event schedule and present to the ISIC/Ship's Force.

b. Conduct ship checks, plan work candidates and order required material.

c. Recommend rejected work candidates to the RMC ISIC, as applicable.

d. Develop strategy for calibration of gages, instruments and tools.

e. Identify and order Long Lead Time Material (LLTM).

f. Review the Availability Work Package, write Formal Work Procedure (FWP)/Technical Work Documents (TWD), identify critical jobs and develop an Integrated Work Schedule (IWS) to aid in tracking and coordination of all work.

g. Conduct the Work Package Execution Review (WPER).

h. Conduct arrival conference.

i. Conduct daily and weekly meetings.

j. Issue Departure and Assessment report in accordance with paragraph 4.6.3.2.e of this chapter.

4.4.1.3 Ship's Maintenance Team. (Commanding Officer (CO))

a. Validate, broker, schedule, and track through execution all maintenance candidates.

b. Manage Ship's MMBP.

c. Maintain a current and valid CSMP that serves as the single authoritative source for all maintenance requirements.

d. Develop, plan and coordinate Ship's Force Upkeeps, CMAVs, CMs, and EMs and repairs within the resources provided.

e. Prioritize all deferred maintenance actions intended for accomplishment during an availability.

f. Develop a strategy for calibration of gages, instruments and tools.

g. Publish a policy concerning number of duty sections, liberty, ship cleanliness, tagout procedures, tank closeout and installation of blank flanges of otherwise exposed fluid systems, waveguide and air systems before the availability starts.

h. Assign an Officer/Chief Petty Officer to serve as the Availability Coordinator, responsible for coordinating the completion of all pre-availability and availability milestones.

4.4.1.4 Assigning Lead Maintenance Activity/Ship's Force Maintenance Responsibility. The RMC/ISIC assigns work responsibility for each maintenance item in an availability work package. The assignment of work responsibility will be such that split responsibility between two organizations does not occur for the same unit task on a maintenance action. The following guidelines apply:

a. The Fleet Maintenance Activity (FMA) will remove all controlled system interference as defined in Volume V, Part I, Chapter 2 of this manual and Ship's Force will remove all other interference.

b. The following are examples of maintenance actions requiring Intermediate Level shop work that will be assigned as "ship-to-shop":

(1) Calibration and repair of portable equipment, removable gages, and rack-out electronic equipment/meters.

(2) Manufacture of components which do not require fit-up in a larger assembly, or that are fabricated with a sample provided by Ship's Force.

(3) Small flanged or bolted valves and operators sized 2.5 IPS and below.

(4) Small components such as pumps, motors, controllers, deck plates, access covers and lockers.

4.4.1.5 Fleet Maintenance Activity/Nuclear Regional Maintenance Department Radiological Controls Support. In order to fully use the FMA radiological controls resources, Ship's Force shall request FMA/Nuclear Regional Maintenance Department (NRMD) radiological support for their jobs that involve significant radiological controls. The following guidelines apply:

a. FMA/NRMD will provide full radiological control support including material, surveys, supervision and instructions for radiological aspects of the job.

b. FMA/NRMD will provide mock-up training, when necessary, for Ship's Force personnel performing the actual work.

c. Ship's Force jobs which fall into this category include, but are not limited to, retention tank (or equivalent) inspection, nuclear instrument detector replacement, and primary plant venting or draining evolutions.

d. As an example, during a retention tank inspection, an FMA/NRMD would:

(1) Construct and certify the containment tent.

(2) Conduct the necessary pre-job, in process and post-job surveys.

(3) Train Ship's Force personnel in the use of air fed hoods.

(4) Provide radiological monitoring.

(5) Review and comment on the Ship's Force work procedure.

e. The FMA/NRMD should develop standard radiological work procedures to be used in developing FWPs/TWDs in support of Ship's Force jobs. The service of the Fleet Maintenance Support Branch should be used by FMAs, when necessary, to formulate these work procedures.

4.4.2 Submission of Work Candidates.

4.4.2.1 Documenting Requests. Requests by Ship's Force for corrective maintenance assistance or support equipment from outside activities will be appropriately documented on an Automated Work Request form 4790-2K or form 4790-2L of reference (a) or message work candidate in accordance with paragraph 4.4.2.2 of this chapter, and prioritized in accordance with reference (a). The work candidate will be promptly forwarded for processing. The description of the deficiency or support requested and the action desired shall be complete and clear. This description must be in sufficient detail to allow LMA personnel to plan, obtain parts and assemble the correct tools.

4.4.2.2 Message Work Candidates. Messages may be used to notify the FMA as early as possible when data systems up-lines are not available. This is particularly applicable to ships in transit between FMAs, and ships scheduled to return to port shortly before starting an availability. Accordingly, ships should submit message work candidate requests to the parent RMC/ISIC, with an information copy to the tending LMA and tending Squadron/RMC (if different), for items of this type. Where the change of LMA occurs coincident with a change in Operational Control, the (new) tending Squadron/RMC should be action addressee for the message, with both the parent RMC/ISIC and (new) LMA as information addresses. Appendix C of this chapter provides the format for a message work candidate.

4.4.3 Critical Jobs. Critical Jobs (CJ) are those jobs or series of jobs that require special management attention and normally present the greatest risk to on-time completion of the key event or availability. The Executing Activity should be judicious in designating jobs as CJs to prevent diverting management attention from those jobs which are, in fact, critical to on time completion of the availability. Consideration shall be given to, but not limited to, the following in determining the CJs:

a. Little or no room for delay exists.

b. Establishing plant conditions.

c. LLTM.

d. Complexity of job or special skills or resources required.

e. Significant test requirements.

f. Not previously accomplished by the Executing Activity (alterations, etc.).

4.4.4 Integrated Work Schedule. The IWS is an integrated timeline that includes plant conditions, major work steps, tests and recertification used to progress all jobs as determined by the Naval Supervisory Authority (NSA)/LMA. The IWS should include:

a. Establishing plant conditions.

b. Major production steps.

c. Testing/Recertification.

d. Closing out work procedures.

4.4.5 Technical Assistance and Assessment. Technical assistance and assessments are to be assigned as work candidates within any of the following Fleet maintenance availabilities:

a. CMAV.

b. CM.

c. EM Availabilities.

4.4.6 Late Work and Scope Control.

a. The complete LMA Availability work package is defined and agreed upon at the WPER. To provide for adequate time to plan the work and acquire the necessary materials in an efficient manner, the work cut-off date should not exceed Arrival minus 30 days. A minimum of 30 days will be allotted for work brokered to I-level activities. This will allow a WPER to take place at A-21. If these minimum thresholds cannot be complied with, the Maintenance Team will complete a Business Case Analysis in accordance with paragraph 4.4.6.b. of this chapter.

b. The Maintenance Team will perform a Business Case Analysis as a method of identifying risks associated with adding work after A-30. The Business Case Analysis is described in Appendix D of this chapter. Late work should not extend the availability completion date. The RMC/ISIC will take appropriate actions to make job tradeoffs, defer jobs to a subsequent availability or seek outside assistance to conduct the work.

c. Non-mission essential late work may be accepted on a case by case basis. The ISIC will provide approval authority for all late work after establishing that the LMA can support the additional work load and the scope of work does not impact the ship's operational schedule or schedule of other operational units.

4.4.7 Memorandum of Agreement. For all surface ship availabilities not assigned to an FMA, a Memorandum of Agreement (MOA) will be issued. The purpose of the MOA is to define areas of responsibility for all activities involved with the availability. For all submarine availabilities involving maintenance within the Submarine Safety (SUBSAFE) boundary, a MOA will be issued.

4.4.8 Radiological Controls. Nuclear powered vessels are responsible to implement and ensure adherence to radiological controls in accordance with reference (k). Industrial activities authorized to perform nuclear maintenance are responsible to engineer appropriate radiological controls into assigned work.

4.4.9 Ship to Shop Material Control. Positive identification and control of ship to shop transfer of equipment and components is maintained through the use of a Ship to Shop tag. The Ship to Shop tag may also be used in conjunction with other methods specified by the Executing Activity or the LMA. Each Executing Activity shall make sure that positive control exists for those subcomponents of equipment and components received with a Ship to Shop tag attached. The procedure for using the Ship to Shop tag is provided in Volume V, Part I, Chapter 11 of this manual.

4.4.10 Shipchecks. The LMA or Executing Activity shall conduct ship checks, if the tended ship is available, to verify the scope of work, identify interference, obtain equipment technical data, identify shipping (rigging) paths, verify system/equipment configuration, and obtain additional problem identification data from Ship's Force. Shipchecks shall be conducted as early in the planning phase as possible.

4.4.11 Lead Maintenance Activity Daily Production Meeting. This meeting is for the coordination of ongoing work for all availabilities. The LMA Repair Officer/Production Officer, or their designated representatives, will conduct a Daily Production Meeting for all ships in availabilities.

a. Purpose. The primary purpose of the LMA Daily Production Meeting is to establish a joint Executing Activity/Ship's Force production plan and eliminate schedule conflicts that impact work for at least the next seven shifts (56 hours). It further tracks the current status of CJs. The results of this meeting are

used to assess overall progress of the work, develop recovery plans when necessary and to ensure all the activities understand the production plan and support requirements during a minimum of the next seven shifts (56 hours).

b. Execution. The Daily Production Meeting will be held as early in the day as practicable.

c. Attendees. Representatives of the LMA Waterfront Operations, the Executing Activities, the tended ship, and LMA Supply or Fleet and Industrial Supply Center, as appropriate, shall attend this daily production meeting and participate in its agenda. Others may attend as requested by the LMA.

d. Agenda. The following agenda will be used for the LMA Daily Production Meeting. Additional items may be added at the discretion of the Waterfront Operations Officer, Repair Officer or Production Officer.

(1) Discuss specific work scheduled to be accomplished and support required over the next seven shifts.

(2) Discuss projected site evolutions (ship moves, weapons moves, pier maintenance, or changes of command, etc.) which could impact production work.

(3) Discuss respective ship evolutions such as stores load or Fast Cruise that could impact production work.

(4) The Executing Activity brief on the current status of CJs on each ship.

(5) Review Safety of Ship Maintenance Item List, necessary safety precautions and their status.

4.4.12 Lead Maintenance Activity Progress Review. This review will be conducted weekly for surface force ships and submarines in CMAVs.

a. Purpose. The primary purpose of the LMA progress review is to ascertain that CJs and Key Events are progressing satisfactorily for on time completion of the availability. The meeting shall also identify and resolve any issues, conflicts or differences since availability start or last review. These meetings may be conducted in conjunction with a ship's PB4M.

b. Execution. This review shall be conducted by the Waterfront Operations, Repair Officer, Production Officer, or their representatives and be scheduled so as not to conflict with daily production meetings.

c. Attendees. As a minimum the following shall attend this review.

(1) Waterfront Operations Officer, Repair Officer, or Production Officer.

(2) Ship Superintendent and designated Executing Activity representatives.

(3) Tended ship CO.

(4) Availability Coordinator and designated Ship representatives.

(5) ISIC/RMC designated representatives.

(6) Maintenance Support Team (MST) Officer In Charge (OIC) (if applicable).

d. Agenda. As a minimum the following agenda shall be used for LMA progress review. Additional items may be added at the discretion of the Waterfront Operations Officer, Repair Officer, Production Officer, ship CO, or ISIC. Attendees shall be prepared to discuss their respective portions of the agenda.

(1) Specific work scheduled for accomplishment during the availability.

(2) Projected Executing Activity and ship evolutions which could impact production work on ship(s).

(3) Discuss current status of CJs and Key Events listed in Appendix E1 (Submarines Appendix E2).

(4) Heavily loaded Executing Activity work centers and impact on the availability.

(5) Status of funds, supplies and equipage funding.

(6) Status of outstanding DFS scheduled for correction during the availability.

(7) Outstanding high priority repair material status.

(8) Provide Automated Work Requests (AWR) or a list of completed work with applicable 3-M final action taken codes in accordance with reference (a).

(9) For ships with work in the Year Long CM or EM Availability no separate formal meeting is required. Rather, issues with these availabilities should be a part of the routine PB4M held by the ship's maintenance team or special meetings as needed to properly monitor and manage the ongoing maintenance.

4.4.13 100 Hour Transition Periods (Submarines only). The 100 hours at the beginning and at the end of a CMAV are critical times for availability execution. The ISIC, LMA and ship are responsible for coordinating the 100 hour plan. Any job or event that is viewed as hindering the start of the availability shall be included in the 100 hour plan. Communication is vital to ensuring a full understanding of all work and associated requirements.The 100 hour transition plans will be outlined in the Availability Planning Message in accordance with Appendix F. Details for the first and final 100 hours shall be as follows.

4.4.13.1 First 100 Hour Plan (Submarines only). The First 100 Hour Plan will notionally start the first full work day of the availability. The items listed below are the focus of the first 100 hours and will be discussed at the Arrival Conference.

a. Establishing plant conditions/work controls.

b. Working hours.

c. Jobs still requiring ship checks will be listed in the availability planning message.

d. Test forms required for Ship's Force retest of FMA work will be delivered to the ship within the first 100 hours for Ship's Force to review, plan and write procedures as necessary.

e. Time critical jobs that will start during the first 100 hours.

4.4.13.2 Final 100 Hour Plan (Submarines only). The Final 100 Hour Plan will notionally begin four days prior to the last day of the ship's scheduled CMAV. Items listed below must be completed prior to the 100 hour point. Appendix G will provide an outline of the final 100 hours.

a. Production work complete - it is vital all production work is completed by the 100 hour point to allow for the remaining event to occur without delay.

b. Weapons handling.

c. Testing associated with production work is completed.

d. Sail closeout.

4.5 SHIP'S FORCE UPKEEP. Ship's Force Upkeep availability is a scheduled period in which the ship is conducting self-maintenance in accordance with reference (a), training, supporting inspections by outside activities, and performing routine shipboard evolutions. Ship's Force Upkeep availability can be accomplished at sea when the ability of the ship to perform its assigned missions and tasks is not affected and the work is accomplished onboard the ship. Scheduled Ship's Force Upkeep periods shall not be interrupted for other than emergency reasons.

4.5.1 Upkeep Work Planning.

4.5.1.1 Planning Sources. The upkeep work package shall be developed using three sources:

a. Planned Maintenance System (PMS) shall be scheduled in accordance with reference (a).

b. Reactor Plant PMS shall be scheduled in accordance with reference (c).

c. CSMP will be reviewed to ensure scheduling and accomplishment of all work which is within Ship's Force capability.

4.5.1.2 Ship's Force Planning Actions.

a. Preparation for Ship's Force Upkeep should be the normal activity of the maintenance team and be discussed at PB4M meetings.

b. Review all Ship's Force screened CSMP work candidates and identify those items to be accomplished within the scheduled Ship's Force Upkeep period.

c. Identify CJs.

d. Develop an IWS in accordance with paragraph 4.4.4 of this chapter to aid in tracking and sequencing CJs.

e. Establish strategy for Ship's Force calibration of gages, instruments, and tools based on the onboard Calibration Recall List.

f. Develop FWPs, Controlled Work Packages, and TWDs, as required, in accordance with Volume V, Part I, Chapter 2 of this manual.

g. (Submarines only) Identify operational Unrestricted Operation (URO) Maintenance Requirement Cards (MRC) to be accomplished during the availability. The ship shall identify the plan to accomplish PMRs called down by the ISIC and identify any conflicts affecting the PMR execution.

4.5.2 Ship's Force Upkeep Work Execution. Duty section, division meetings, and/or shift briefings will be conducted as necessary to discuss current status of work and projected work progress expected for the period covered. The status and projections will be based on CJs and the IWS and should be reviewed at the regular ship's PB4M Maintenance Team meetings.

4.5.3 Ship's Force Upkeep Work Completion.

4.5.3.1 Management Closeout Procedures. Upon completion of repairs, FWPs, Controlled Work Packages, and TWDs will be closed out in accordance with Volume V, Part I, Chapter 2 of this manual. Update the CSMP. Ensure non-conformances (Waivers/Deviations or Departures from Specification) submitted during the availability by any activity are approved prior to trials at sea (if held) and not later than the completion of the availability.

4.5.3.2 Dock Trials/Fast Cruise/Sea Trials. Dock Trials, Fast Cruise and Sea Trials shall be conducted as required. Sample agendas in Part I, Chapter 3 of this volume may be modified, as necessary, to ensure the equipment which was worked during the upkeep is exercised prior to at sea operation.

4.5.4 Ship Certification Prior to Underway (Submarines only). Ship and Executing Activity provide the ISIC a written report of ship's certification continuity prior to underway in accordance with Volume V, Part I, Chapter 5 of this manual. If Upgrades/Alterations or Major Repair Work of the FBW SCS was performed, the ISIC will accomplish a 100% audit, as defined in Volume V, Part I, Chapter 9 of this manual of the work. ISIC and TYCOM will use the FBW message reporting process for certification specified in Part I, Chapter 3 of this volume for availabilities of less than six months duration.

4.6 SCHEDULED CONTINUOUS MAINTENANCE AVAILABILITY.

4.6.1 Scheduled Continuous Maintenance Availability Planning. Thorough, detailed planning is an absolute prerequisite to effective CMAV execution. Effective CMAV management begins well before the ship arrives with material procurement and job planning. Appendix H of this chapter is a typical CMAV Milestone Schedule to be used by all activities involved in planning and executing the availability.

4.6.1.1 Scheduled Continuous Maintenance Availabilities Planning Sources. A significant portion of the CMAV Work Package can be identified in advance from five basic sources. Submarines, will also execute a planning availability as described in sub-paragraph f. below.

a. Ship's CSMP. This document contains work items deferred during previous maintenance availabilities as the result of inadequate material support, outstanding DFS, drydock requirements, etc. To ensure the CSMP accurately reflects the required ship's maintenance, the Maintenance Team and ISIC will review each ship's CSMP in detail with Ship's Force during routine PB4Ms and prior to every maintenance availability.

b. Ship's Force Planned Maintenance. Ship's Force shall conduct a review of PMS and Reactor Plant PMS requirements and ensure all maintenance actions are identified.

c. PMR/URO electronic files (Submarines only). Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) Activity provides electronic files of PMR/URO maintenance requirements for each ship, as applicable. The ISIC will load these requirements into each ship's CSMP for a specific CMAV.

d. Alterations (Fleet Alterations, Program Alterations, Ship Alterations, Machinery Alterations, Alteration and Improvements, Strategic Systems Program Alterations, etc.). The RMC/ISIC will enter alterations on the ship's CSMP that the TYCOM has authorized for accomplishment. The Ship Maintenance Team/RMC/ISIC calls out alterations for a specific CMAV based on material availability and Executing Activity capacity as identified by the Executing Activity. Within funding constraints and TYCOM guidance, all alterations authorized on the TYCOM Alteration Management System (Submarine Force only)/Fleet Modernization Program (FMP) are candidates for accomplishment during each CMAV.

e. Work Routines. A set of standard routines from the MJC should be planned for every CMAV. The ISIC/RMC tailors each CMAV routine package to the needs of the ship by calling out additional routines to document periodic, interim dry docking, URO maintenance (as applicable), and calibration recall requirements, as appropriate.

f. Planning availability. (Submarines only) A scheduled one week planning availability will normally be scheduled approximately four weeks prior to a scheduled regular CMAV. The purpose of the planning availability is to allow the LMA and other activities scheduled to perform maintenance during the regular CMAV to conduct ship checks and job scoping early enough to write required FWPs/TWDs, order material and develop a cohesive plan for the regular availability. Only underway limiting repairs should be accomplished during a planning availability. Paragraphs of 4.6.1 and all A-30 items from Appendix H of this chapter shall be addressed and focused on during the planning availability. The results of the planning availability directly feed into the WPER.

4.6.1.2 Scheduled Continuous Maintenance Availability Planning Functions. The Maintenance Team/RMC/ISIC will take the following actions in planning a CMAV. Surface Ships see Part II, Chapter 1 of this volume for maintenance validation, screening and brokering.

a. Work Package Submission. Ensure that ships submit a CMAV work packages as scheduled in accordance with Appendix H of this chapter. Message work packages may be sent if the ship is not in port. This singular action has significant impact on the ability of both the RMC/ISIC and Executing Activity to properly plan for the CMAV, and determine potential impacts on other planned work.

b. PMR/URO Review (Submarine only). Review PMR/URO requirements and ensure all maintenance actions intended for accomplishment during the CMAV are identified and entered in the CSMP. Using the PMR scheduling system as described in Volume VI, Chapter 24 of this manual, the ISIC will request that all applicable PMR work be added to the ship's CSMP when the SUBMEPP CD-ROM is received. This work is applicable if it is prescribed for the ship and is due in accordance with the associated schedule. PMR and URO work is mandatory. PMR requirements are to be accomplished on or before the scheduled due date listed in the SUBMEPP provided report as contained in the TYCOM PMR scheduling system. PMR requirements which are not accomplished by their scheduled completion date will be rescheduled and identified to the TYCOM in accordance with Volume VI, Chapter 24, paragraph 24.7.3.i of this manual. UROs are to be accomplished by the scheduled due dates or appropriate waivers or DFS must be requested.

c. FMP Review. Review FMP and ensure all authorized alterations intended for accomplishment during the CMAV are identified by priority based on material availability as identified by the Executing Activity. Ensure they are properly entered into the CSMP.

d. MJC Review. Review the MJC and identify the routine package to be accomplished during the CMAV. Ensure it is properly entered into the CSMP.

e. Review work candidates for applicability of Master Specification Catalog task lists.

f. Draft Key Event Schedule.

g. Work Package Screening. Screen and forward the assigned prioritized work package to the Executing Activity. Maintenance Team/RMC/ISIC responsibilities for work package screening are established in reference (a). Additional specific requirements are:

(1) Ensure work candidates meet the criteria for the level of work and are correctly prioritized in accordance with reference (a).

(2) If the assistance requested is for use of the Executing Activity facilities or technical guidance in order for Ship's Force to accomplish planned or corrective maintenance, the submitting ship and TYCOM should be advised to use MJC Routine N0000EXCNA740, (Facilities for Ship's Force Work).

(3) If a work candidate is received in message format, the RMC/ISIC shall input the message work candidate into the Maintenance Data System (MDS). For a ship in transit, the parent RMC/ISIC must advise the RMC/ISIC to which the ship is reporting of the desired disposition of the message work candidate.

(4) Designate controlled work as defined in Volume V, Part I, Chapter 5 of this manual. Indicate the appropriate governing Key Event.

(5) (Submarines only). If the equipment is contained in the PMR program and the repair can possibly satisfy the PMR requirement, the ISIC will designate the work as Special Interest in Block 10, note the PMR MJC Job Control Number (JCN) in Block 49, and instruct to call out the MJC item. Enter remarks as necessary in Block 49 preceded by "SQ-", and sign in Block C.

h. From the Key Event schedule, develop an IWS in accordance with paragraph 4.4.4 of this chapter to aid in tracking and sequencing CJs.

i. CMAV Funding. CMAV funding targets are developed as a part of each ship's MMBP. RMC/ISIC will establish CMAV funding targets in order to properly and responsibly administer funds, and gain optimum readiness return on each dollar invested.

j. Submarine Engineering Management, Monitoring and Fleet Support Program Office Performance Monitoring Team (PMT)/Supervisor of Shipbuilding Newport News PMS 312C Material Condition Assessment (MCA) Review. Review scheduled Submarine Engineering Management, Monitoring and Fleet Support Program Office/PMT/PMS 312C MCA inspections, monitoring and testing that may result in significant new work for the Executing Activity or Ship's Force; or that may impact scheduled Ship's Force or Executing Activity work.

k. Outside Activity Support. Identify outside activities (e.g., Naval Surface Warfare Center, Carderock Division (NSWCCD), Alteration Installation Team, Naval Undersea Warfare Center, Supervising Authority, RMC, Industrial Activity Tiger Team, etc.) participating in the CMAV and their associated support requirements.

l. Special Evolutions. Identify required special evolutions associated with pre-availability tests and inspections.

m. WPER. The WPER is conducted with the Executing Activity (and Ship's Force if available) as scheduled in accordance with Appendix H of this chapter. The purpose is to finalize the CMAV work package and required evolutions. This is accomplished as noted below. This meeting may be conducted in conjunction with the ship's PB4M.

(1) Attendees will include the Maintenance Team/ISIC Material Officer/TYCOM Ship's Coordinator, Maintenance Planning Manager, RMC, Maintenance Manager, Production Officer representative, Executing Activity, Ship's Engineer Officer, MST OIC, Availability Coordinator and the Ship Superintendent (as applicable).

(2) Assemble the proposed CMAV work package from the CSMP, PMR/UROs, FMP and MJC, as applicable.

(3) Screen the proposed work package to designate the work to be accomplished during the CMAV.

(4) Prioritize the proposed work package.

(5) (Submarines only). Identify Safety of Ship Maintenance Items List evolutions in Volume IV, Chapter 10, paragraph 10.4.8 of this manual.

(6) Designate the CJs.

(7) Integrate Executing Activity recommended CMAV Key Event schedule with other ISIC/Ship planned events for the ship, such as weapons moves, fueling, and training events.

(8) Review scheduled PMT/MCA testing that may result in significant new work after the CMAV starts.

(9) Establish the CMAV berth for pre-staging material and support equipment.

(10) Review adequacy of available testing and support equipment needed for the CMAV.

(11) Identify other outside activities participating in the CMAV and associated support requirements.

(12) Identify required special evolutions associated with pre-availability tests and inspections. The result of the CMAV WPER should be an executable work package within the CMAV time frame, budget, and Executing Activity capacity.

n. Re-screen Work Candidates. Re-screen and assign rejected work candidates (in accordance with Part II, Chapter 1 of this volume). Notify ship of final disposition of each item.

o. Issue Availability Planning Message (Submarines only). No later than two weeks prior to start of the CMAV, send the Availability Planning Message prepared in accordance with Appendix F of this chapter and reviewed during the CMAV WPER, to the ship. It should describe the major work scheduled, controlling Executing Activity and Ship's Force Key Events, PMT/MCA testing, PMR jobs scheduled, alterations to be accomplished by the Executing Activity and Ship's Force, any other scheduled evolutions and 100 hour transition plans. This message should identify the current numbers of components due or overdue from the Calibration/Weight Test Recall Program.

4.6.1.3 Issue Availability Planning Response Message (Submarines only). No later than one week prior to the start of the CMAV, the ship shall certify readiness to transition to a CMAV period, and address any concerns with the Availability Planning Message to TYCOM/ISIC in accordance with Appendix I of this chapter. The following items shall be addressed in the ship's report:

a. Schedule requirements such as action items from Availability Planning Message, schedule of key events, ability to conduct 100 hour transition plans.

b. Ship material preparation such as a report status of parts for Ship's Force work and desires for ISIC/TYCOM assistance in procurement and ensuring all outstanding CASREPs, SUBS, ZOZZS and TDENTS are identified in availability planning message.

c. Ship's Force integrated schedule such as miscellaneous programs (calibration, small valve maintenance, etc.), drills and trainers that will affect Ship's Force ability to support production work, preservation zones and planned maintenance (to include PMS, Reactor Plant PMS, and PMT/KMRCs).

d. CO's report of readiness or concerns: CO review above items and availability planning message and report readiness and exceptions to transition to CMAV period.

NOTE: ALL WORK CANDIDATES SUBMITTED AFTER A-30 SHALL BE SCREENED AND CONTROLLED AS LATE WORK IN ACCORDANCE WITH PARAGRAPH 4.4.6 OF THIS CHAPTER.

4.6.1.4 Arrival Conference. This conference is conducted by the LMA. The Arrival Conference purpose is to provide an executive level brief to the RMC/ISIC, Executing Activity, MST OIC (if applicable) and ship's CO on the total scope of the CMAV effort and shall be conducted as discussed below. Note that the Arrival Conference may be conducted in conjunction with the PB4M.

a. Attendees. The Arrival Conference is hosted by the responsible FMA and attended by the following personnel:

(1) RMC/ISIC Material representative(s).

(2) Executing Activity representative(s).

(3) Tended ship, (recommended, as applicable, are the CO, Department Heads, and Availability Coordinator).

(4) Site PMT/MCA Officer.

(5) MST OIC (if applicable).

b. Agenda. The following items comprise the agenda to be covered during the Arrival Conference:

(1) Introduction of key FMA, Executing Activity and ship personnel.

(2) CMAV material and funding status.

(3) Review the CMAV Key Event schedule for potential conflicts.

(4) Special evolutions scheduled during the availability.

(5) Validate that critical jobs to be accomplished by the Executing Activities and Ship's Force are properly sequenced in the IWS.

(6) Introduce the LMA representative as the single point of contact for all elements of the CMAV, including responsibility for coordination of all Executing Activities and Ship's Force. This point of contact may be the Port Engineer, Project Manager, or Ship Superintendent, as applicable.

(7) Alterations to be accomplished.

(8) Significant material issues.

(9) Review status of outstanding DFS, as applicable.

(10) Results of arrival inspections and PMT/MCA testing.

(11) Issue meeting schedule for the CMAV.

c. Tended Ship Actions. The ship takes the following actions at this conference:

(1) Submit a list of key Ship's Force personnel, including officers, Leading Petty Officers/Work Center Supervisors, Quality Assurance Inspectors, Calibration Coordinator and Availability Coordinator.

(2) Verify that all known work candidates requiring outside assistance have been identified and work candidates submitted to the LMA/TYCOM or submit known late work candidates for immediate screening.

(3) Discuss potential Executing Activity/Ship's Force work interface concerns.

(4) Identify Ship's Force/MST (if assigned) planned evolutions that could impact scheduled work and verify that they are properly sequenced in the IWS.

d. RMC/ISIC Actions. During this conference, the RMC/ISIC staff will take the following actions (if not already done):

(1) Review any late work candidates submitted by the ship not addressed at the Arrival Conference, and screen them appropriately. The entire Executing Activity CMAV work package should have been fully identified at the Arrival Conference. The goal is to control late work in accordance with paragraph 4.4.6 of this chapter. Should the late work presented at the conference require that other work be deferred, that work to be deferred shall be clearly understood. A Business Case Analysis described in Appendix D of this chapter should be conducted.

(2) (Submarines and Aircraft Carriers only). Brief the Key Events schedule for the availability. The ship's Key Events should normally be scheduled in the Pre-CMAV/Availability Planning Message, concurred with by the ship's CO on arrival and input to the MDS by the RMC/ISIC prior to the Arrival Conference. CJs controlling the CMAV completion shall be identified for special management attention by the ISIC, LMA, Executing Activity and Ship's Force.

4.6.2 Continuous Maintenance Availability Execution. CMAVs are complex evolutions characterized by detailed management, closely coordinated RMC/ISIC, Executing Activity and Ship's Force work, systems testing, and other sequenced evolutions such as weapons movements, diver operations and training. Successful CMAV execution requires the closest possible communication and coordinated efforts by the RMC/ISIC, Executing Activity and Ship's Force.

4.6.3 Continuous Maintenance Availability Completion Procedures. The following procedures will be utilized for completing a CMAV. Exceptions are provided for those CMAVs of less than four weeks, or are of a minor scope where the PB4M may be an appropriate forum.

4.6.3.1 Management Reports Close-out Procedures. Upon completion of a scheduled availability, the MDS files must be updated to reflect the current status of work. To accomplish this goal and to ensure that all activities understand the status of all work, the following procedures will be followed:

a. Upon completion of the assigned work, the LMA or Executing Activity will present a copy of the work candidate or a list of completed JCNs with the applicable final action codes to the ship to obtain concurrence that the described work was completed. Ship's Force will complete all AWRs in accordance with reference (a). Within 2 weeks of completion, the Executing Activities who have performed any configuration change shall submit the form 4790 CK of reference (a) to Ship's Force for submission to Configuration Data Managers Database - Open Architecture.

b. Within two working days after the completion of an availability, all work centers will ensure that final man-hours have been entered. The ship's superintendent may sign off all Executing Activity routines for the ship. Completed work candidates and AWRs will be a product of the CMAV Departure and Assessment Conference of paragraph 4.6.3.2 of this chapter.

c. On the third working day after the completion of an availability, the Maintenance Team will ensure that the CSMP ship and shore files reflects the current status of the ship's JCNs and request a Selected Job Management Report by priority for the ship.

d. On the fourth working day after the completion of an availability, the ship's superintendent will annotate each incomplete JCN on the final Selected Job Management Report by JCN as to its present status and actions required in order to complete the item. Lead work centers must update this status into the MDS.

e. Within seven working days after the completion of an availability, the Executing Activity will forward copies of the annotated Selected Job Management Report to the ship and ISIC.

f. Review status of outstanding DFSs.

4.6.3.2 End of Scheduled Continuous Maintenance Availability Departure and Assessment Conference. This comprehensive review and critique of the availability is another cornerstone of the continuous improvement policy regarding Fleet maintenance.

a. Purpose. The CMAV Departure and Assessment Conference is held to:

(1) Review the conduct of the availability and identify those improvements necessary to increase the effectiveness of Fleet maintenance.

(2) Identify the work that was completed during this CMAV and complete the appropriate documents (e.g., work candidates, AWRs, etc.) or produce the list necessary to update the ship's CSMP to reflect the completed work.

(3) Identify and reschedule to a future CMAV, the work deferred during this CMAV.

(4) Identify any incomplete work candidates and plan of action to complete items.

(5) Establish the basic requirements (i.e., initial work package, sequence number and tentative dates) for the next CMAV.

(6) Review status of outstanding DFSs.

b. Execution. The Departure and Assessment Conference will be held during the last week of the CMAV at a time agreed upon by the Executing Activity Repair Officer/Production Officer and the ship. This meeting may be held in conjunction with the final weekly Management Conference or Progress Review.

c. Attendees. The Departure and Assessment Conference is chaired by the LMA Repair Officer. The following personnel shall attend this meeting and participate in its agenda:

(1) ISIC Supply Materials, Weapons/Combat Systems, Electronics Material Officer, and Submarine Engineering Management, Monitoring and Fleet Maintenance Support Program Office/PMT Staff personnel (as applicable).

(2) LMA Repair Officer, Production Officer, and Ship Superintendent, or their designated representatives.

(3) Tended ship CO, MST OIC (if applicable), Engineer and Availability Coordinator.

(4) Others as directed by the TYCOM, ISIC or Executing Activity CO.

(5) Executing Activity representatives.

d. Agenda. The following agenda shall be used for reviewing and assessing the CMAV. Additional items may be added at the discretion of the TYCOM, ISIC, Executing Activity or ship. Attendees will be prepared to address their respective portions of the agenda.

(1) Review of the CMAV work package to establish status of each item and, for items completed satisfactorily, complete the work candidate/AWR.

(2) Review incomplete work candidates that will remain open from this CMAV and identify plan of action to complete these items.

(3) Identify and reschedule to a future CMAV the work deferred during this CMAV.

(4) Assess the scheduling, execution and quality of work accomplished by each activity during the CMAV.

(5) Assess the quality of general services provided by the Executing Activity site.

(6) Review recommendations for process improvements and possible LEAN initiatives.

(7) Assess lost time that prevented or delayed execution of scheduled work. (Lost time internal to the Executing Activity, e.g., waiting for transportation, assist work center, etc. and lost time caused by the ship such as waiting access, tagout, other Ship's Force support.)

e. Results. The LMA shall consolidate the minutes of this meeting into the Departure and Assessment Report to the ISIC. The report shall include:

(1) List of completed work and/or completed work candidates/AWRs for direct input into MDS to update the ship's CSMP and Configuration Data Managers Database - Open Architecture.

(2) Preliminary establishment of the next CMAV.

(3) List of policies and processes identified as requiring review for improvement. Proposed process improvements and corrective actions suggested to improve the effectiveness of future CMAVs.

(4) Lessons learned from the availability.

4.6.3.3 Fast Cruise/Sea Trials. The ISIC may schedule a one to two day Fast Cruise as part of the CMAV Key Event schedule. This is normally the last major Key Event prior to CMAV completion. As a minimum, the Fast Cruise agenda will include specified drills and evolutions necessary to re-establish proficiency in basic ship operations. It will also include sufficient formal testing to certify that the equipments and systems are fully ready to operate at sea in an operational environment. For CMAVs less than four weeks, the requirement for a Fast Cruise shall be at the ISIC discretion. The necessity of Sea Trials is a function of work performed during a CMAV and may not be required. If the duration or complexity of the CMAV is determined to be sufficient to warrant Sea Trials, the Ship/ISIC/TYCOM (as required by specific Force policy) shall determine if a formal Sea Trial Agenda is necessary, and if required, task the RMC/ship to prepare a formal Sea Trial Agenda for ISIC/TYCOM approval.

4.6.4 Hot Wash. For long duration or complex CMAVs, or in cases where there are significant lessons to be learned, Hot Wash will be conducted. The Hot Wash should be within 30 days of completion of the availability. Hot Wash is described in Volume VI Chapter 39 of this Manual. All key NSA, RMC, LMA, Executing Activity and Maintenance Team personnel shall attend it. The agenda and details of the meeting shall be determined by the RMC and Maintenance Team and shall be of appropriate length to evaluate the overall scope of the work accomplished. For small non-complex CMAVs, the intent of Hot Wash may be accomplished in conjunction with another meeting such as a PB4M. The Hot Wash process provides the maintenance and modernization community with a process to

identify, resolve, and provide feedback communication on barriers causing inefficiencies or waste within business processes. While there are several milestone meetings within the availability planning and execution process, the feedback process exists to continually collect information to improve processes.

4.6.5 Maintenance Management Performance Goals. (Submarine Tenders and Assault Craft Units only) The following maintenance management performance goals are established for Submarine Tenders and Assault Craft Unit Repair and Weapons Repair Departments. COs and Repair Officers are responsible for making every effort to attain these goals.

4.6.5.1 Activity Performance Summary. The Activity Performance Summary is a compilation of manpower statistics and production indices that are cumulative on a monthly basis. The following information summarizes the content and use of this report:

a. This report is produced weekly on a cumulative basis for the current month and analyzed by the Production Officer and Repair Officer. This analysis should help determine the relative accuracy and adequacy of the manhour accounting for each work center. The data reflects how each work center is loaded with production work.

b. On the last day of the month, a complete monthly cumulative report is produced. A thorough review and analysis is conducted by the Repair Officer and Production Officer, similar to the weekly review.

c. Following review and analysis, the Repair Officer approves the data and the required reports are submitted to the TYCOM. The TYCOM in turn forwards the data to higher authority.

d. The Performance Summary provides management with data to determine the capacity of the activity for CMAV maintenance, and subsequent monitoring of the activity maintenance effort conducted on ships. The determination of activity capacity for ship maintenance is the gauge by which managers can evaluate activity productivity while reviewing the report of manhour expenditures.

e. Activity capacity is a function of both total manpower and the distribution of personnel within the activity. A comparison of Repair Department manning to the manpower authorization should be conducted periodically to ensure activity work centers are not undermanned with respect to rate, Navy Enlisted Classification, and/or number of personnel. This review may determine that local action is required to schedule formal schools leading to the Navy Enlisted Classification acquisition where shortages exist, or may dictate a temporary or permanent reassignment of resources from one work center to another.

f. Part One of the activity Performance Summary shows the manpower distribution within the Activity. The Analyst Records and Report Section is responsible for collecting manning information from the activity departments and divisions as a basic input to the Performance Summary. The manning level of the Repair Department is monitored to ensure that this department is properly manned across its work centers.

g. Part Two of the activity Performance Summary provides departmental manpower usage indicators and statistics. The Productivity Index is a key indicator of activity employment. Each Productivity Index is a ratio of production manhours expended to the production manhours available. Available manhours are computed from the number of production personnel assigned each day, assuming an eight hour work day and no more than five working days per week.

h. Part Three of the activity Performance Summary is a breakdown of activity manhours expended aboard each tended ship.

i. Part Four of the activity Performance Summary shows the status of work screened for activity accomplishment.

j. Part Five of the activity Performance Summary provides the same manhour usage information as Part Two, but broken down by work center.

4.6.5.2 Available Production Hours. The standard workday consists of eight hours of available production work each work day, five days a week. Weekends and national holidays are not considered to have available production work hours. It further requires that TYCOMs will establish policies that maximize available production hours within the context of the total activity mission profile. The activity CO shall implement the eight hour production work day for activity personnel. Reduction in this available effort will be for requisite industrial training, skill qualification, facilities maintenance, and capability certification efforts needed to meet the activity's Mission Profile requirements.

4.6.5.3 Performance Indices.

a. All factors relative to the following indices must be accurately reflected in the baseline of the FMA computer management system. These factors are:

(1) Assigned Manhours. The number of personnel assigned to the activity as production and production support, over the normal eight hour work day and the number of days tending (exclusive of weekends, holidays and days underway), comprise the "Assigned (Gross Available) Manhours".

(2) Production Manhours. The manhours actually expended in the progress and completion of work requests authorized for activity accomplishment are those expended by personnel assigned to the activity work centers. The expended manhours by personnel from other departments are not included in the activity's indices, but are credited to other special work centers on the Performance Summaries.

(3) Productive Support Ratio for the Department is defined as:

$$\frac{\text{Total Assigned Support Personnel}}{\text{Total Assigned Production Personnel}}$$

b. A Productive Support Ratio of between 0.65 and 0.85 shall be maintained. A ratio of greater than 0.85 is indicative of an excessive number of FMA personnel assigned to non-FMA tasks. A ratio of less than 0.65 is indicative of a shortage of personnel in Quality Assurance, Planning and other critical production support work centers.

c. Supervisory Ratio. The Supervisory Ratio, production personnel to permanent support personnel, must be a minimum ratio of 7:1.

d. Supply Production Support. Production work centers shall not have supply function production support personnel assigned such as Repair Parts Petty Officers. The supply support function is assigned to the Planning and Estimating and Repair Other Vehicle work centers. When the production work centers must provide technical details for Repair Other Vehicle supply requests, such research time shall be reported as production time against the applicable work request. Production managers must ensure the Automated Material Requisitioning system is fully utilized to preclude wasted labor by activity personnel in copying supply data already available from the computer.

e. Department Productivity Index.

(1) The Productivity Index for the Department is defined as:

$$\frac{\text{Total Production Manhours Expended by Department}}{\text{Personnel for the Reported Period}}$$

Total Production Personnel x 8 hours per day x Total Number of Days Tending for the Reported Period

(2) A Productivity Index for the department should average between 0.55 and 0.75. An index of greater than 0.75 indicates:

(a) Insufficient assignment of production personnel resulting in significant overtime work or deferral of requisite technical skill training and qualification, and proficiency or general military training.

(b) An excessive amount of overtime work caused by improper workloading of an activity by the ISIC.

(c) Inaccurate reporting of manhours.

(d) Inaccurate accounting of assigned personnel (e.g., 340 assigned personnel working and reporting production hours but only 310 shown in the computer as assigned).

f. Work Center Productivity Index. A Productivity Index for individual production work centers for the month could range from 0.25 to 1.35 with a norm of 0.85. However, if the quarterly average for a production work center is less than 0.40, the number of personnel should be reduced.

g. Repair Utilization Index. Repair Utilization Index for the Department is:

$$\frac{\text{Total Support Manhours + Expended Production Manhours}}{\text{Total Production and Support Manhours Assigned}}$$

The Department Repair Utilization Index should average between 0.45 and 0.65 for the month.

h. Long-Term Non-FMA Duty Index. There are two special work center codes established to monitor the total Repair Department (10J) and Weapons Repair Department (10K), if assigned, personnel detailed to non-activity duties for greater than 30 continuous days. These numbers should not exceed ten percent of the total assigned activity personnel averaged for the calendar quarter.

4.7 YEAR LONG CONTINUOUS MAINTENANCE. The CM is a single yearlong availability, for the period 01 October through 30 September, scheduled for each ship every fiscal year. The Year Long Continuous Maintenance (YLCM) availability is for the scheduling and completion of non-emergent work items that are not accomplished during any other scheduled availability.

4.7.1 Year Long Continuous Maintenance Planning. Planning sources and actions are similar to those for the CMAV and are included above. Since the Continuous Availability is a year long it has no specific arrival date as a reference for the planning milestones. As a result the milestone dates for the yearlong availability are consistent with those for the scheduled availability but are referenced to the planned execution date(s) of the work item(s). This approach for non-emergent work is intended to reduce premiums and waste for most work candidates by allowing the work to be planned, resourced with manpower and materials in a routine way. The Planning Milestones are included in Appendix H of this chapter. The definition of Executing Activity scope that takes place in the WPER of a CMAV does not occur in the YLCM availability as a discrete signal point. Rather LMAs should continuously define scope and schedule across the LMA and assigned Executing Activities at the times described in Appendix H of this chapter.

4.7.2 Year Long Continuous Maintenance Work Execution. During the execution period of work items in the YLCM availability, measures should be taken to ensure that Ship's Force, LMA and Executing Activities remain appraised of:

a. Status of work to be accomplished.

b. Identities of designated contact personnel.

c. Status of material and other resources.

d. Current schedule status.

e. Special Evolutions that may impact completion of the work items.

4.7.3 Continuous Maintenance Completion. At the end of the fiscal year the availability should be entered as complete and a new availability established for the new fiscal year.

4.8 EMERGENT AVAILABILITY. The EM availability is designed for work of such an urgent nature that the heightened risk of paying premiums is accepted and planning horizons are shortened. This type of availability is for C3/C4 CASREPs, or a C2 CASREP with reasonable potential to become a C3/C4 CASREP. They are identified as emergent maintenance and ordinarily funded from emergent funds. Emergent work will be scheduled to minimize premiums in as much as the operational schedule will permit. C2 CASREPs will normally be corrected using the CM Process. Consideration will be given to schedule all maintenance, including emergent, at an opportune time to reduce premiums. The RMC Commander may, with the respective TYCOM's approval, convert Emergent Maintenance funds to execute CNO availability or CM.

4.8.1 Emergent Availability Planning. Planning sources and actions are similar to those for the CMAV and are included above. In the case of the EM availability, the milestone dates for the availability are not consistent with those for the scheduled availability and produce added risk of disruptions and payment of premiums. This risk is acceptable only because of the affect of the work on the mission capability of the tended ship. The definition of scope and schedule for emergent work occurs after the definition for both scheduled CMAV and unscheduled CM availabilities when Executing Activities may already be fully loaded and material may need extra effort to be expedited. Additionally, it may result in already scheduled work being deferred.

4.8.2 Work Execution. During the execution period of work items in the EM Availability measures should be taken to ensure that Ship's Force, LMA and Executing Activities remain appraised of:

a. Status of work to be accomplished.

b. Identities of designated contact personnel.

c. Status of material and other resources.

d. Current schedule status.

e. Special evolutions that may impact completion of the work items.

4.8.3 Availability Completion. At the end of the fiscal year the availability should be entered as complete and a new availability established for the new fiscal year.

4.9 INTERIM DRYDOCKING/PRE-INACTIVATION RESTRICTED AVAILABILITIES. (Submarines Only.) A scheduled availability for repair activity accomplishment of specific maintenance items, such as URO MRCs. The availability, together with a Material Condition Assessment in accordance with reference (l), can request that the CNO extend the ship's operating interval and/or operating cycle. A Pre-Inactivation Restricted Availability (PIRA) is specifically used to extend the operating interval and/or operating cycle to the inactivation availability for

the submarine. An Interim Drydocking (IDD) is specifically used to extend the submarine's operating interval and/or operating cycle to the next CNO scheduled availability other than an inactivation availability. Appendix J of this chapter contains a list of Major Trial and Inspection Milestones for IDD and PIRA availabilities.

4.9.1 Type Commander/Immediate Superior In Command (Group or Squadron) Responsibilities.

a. Authorize new items and growth industrial work items.

b. Monitor and approve all changes in established milestones, not internal to industrial activity completion dates.

c. Issue direction when the quality or completeness of industrial activity work is in question.

d. Notify the TYCOM when essential Ship's Force work cannot be completed on the scheduled contract or Key Event completion date. Make recommendations for assistance where appropriate.

e. Periodically assess and monitor shipboard conditions during the availability.

f. Prior to Fast Cruise, the ISIC Quality Assurance Officer shall conduct a formal audit of Ship's Force Re-Entry Control (REC) and DFS Records. Using the SUBMEPP PMR and URO MRC scheduling reports and current industrial activity/Ship's Force updates to the latest report, ensure all required "D"-Level PMR and URO MRC accomplishment is current. The ISIC shall forward the audit results to the TYCOM via the cognizant Commander, Submarine Group. The ISIC will then report to the TYCOM by message in accordance with message sample format of Appendix K of this chapter the status of the crew/material certification. An update of this certification is needed prior to Sea Trial and following the rescinding of certification noted in paragraph 4.9.9 of this chapter.

g. Conduct a material inspection of the ship prior to Fast Cruise.

4.9.2 Certification Availabilities (Less Than Six Months) (Submarines Only).

a. Duties and Responsibilities for Sea Trials and Inspections. Reference (b), as applicable, delineates the TYCOM's responsibility for operational control of assigned submarines during trials and for assuring that the crew and ship have attained satisfactory state of training, administrative, operational and material readiness for at-sea operations during the trials. Appendix L of this chapter provides a Sample Ship Message to ISIC and TYCOM Concerning Material Certification Upon Completion of Sea Trials.

b. General Instructions for Industrial Activity Availability Trials and Inspections.

(1) Fast Cruise may not commence until Dock Trials have been satisfactorily completed and a satisfactory state of crew training (if required) and material readiness (if required), as delineated by this manual, has been certified. The required inspections and tests and their associated time periods may be modified by the TYCOM upon request from the cognizant ISIC.

(2) Sea Trials involving escorts will not normally be scheduled to commence on a weekend. When circumstances are such that Sea Trials must be rescheduled or planned to commence on a weekend to avoid costly delays, TYCOM approval will be obtained by the ISIC.

(3) Critical operation of reactors while nuclear powered ships are in a naval or commercial industrial activity will be governed by reference (m). The CO may authorize critical operation of the reactor in support of tasks assigned the ship. However, as long as the ship remains in an industrial activity, the CO will notify the Supervising Authority well in advance of any critical operation of the ship's reactor. This notification shall include the nature and duration of such operations.

(4) In conducting the inspections required herein, inspectors should be guided by the concept that at the start of Fast Cruise, the ship should be, in all respects, ready for Sea Trials with the exception of the additional training the crew will receive during the Fast Cruise.

(5) The requirement for TYCOM SUBSAFE certification of SUBSAFE boundaries not entered by the industrial activity and the material readiness upon completion of an industrial activity availability imposes additional responsibilities on the ISIC inspectors. Included in the material inspection will be a review of all outstanding Forces Afloat DFS as defined in Volume V, Part I, Chapter 8 of this manual. A review of the Ship's Force REC Records is necessary for SUBSAFE work accomplished by Forces Afloat in accordance with Volume V, Part I, Chapter 5 of this manual, along with a review of the applicable URO MRC status.

(6) The ISIC certification message, in accordance with Appendix K, will also provide a status report of any outstanding Re-Entries, Forces Afloat DFS and delinquent URO MRCs. The scope and nature of this inspection will vary dependent upon the extent and length of the availability. In this regard:

(a) Material certification may be made subject to the correction of specific deficiencies. (Deficiencies are such that they can be readily identified and listed).

(b) Material certification should be postponed to a later date when deficiencies are so significant or so numerous as to preclude correction in the time remaining before the scheduled start of Fast Cruise.

(c) Deficiencies that could affect the safe operation of the ship during Sea Trials must be corrected, reinspected and reported to the TYCOM as having been corrected prior to the start of Fast Cruise.

(7) Inspectors must determine that all work/testing necessary to support Sea Trials has in fact been completed or identified for completion prior to the start of Fast Cruise including the following:

(a) All ship's systems which affect safe operation during Sea Trials must be operable.

(b) All work necessary for safe operation of the ship during Sea Trials which was undertaken by the industrial activity, Ship's Force, FMA, or other outside activities must have been satisfactorily completed and tested. Included must be a check for any special configuration or installations ensuring that they have been authorized by the proper authority, that their impact has been fully assessed and that the Sea Trial Agenda includes these impacts or limitations.

(8) Following the completion of the required training and material readiness certification, COs must keep the cognizant ISIC fully informed of any changes in personnel, training and/or material status which could affect the validity of certification. Prompt TYCOM notification is required to permit revision or Operational Orders and services required.

(9) Underway trials following IDDs/PIRAs, particularly initial submerged and test depth trials, must be undertaken with the knowledge that the crew lacks recent experience operating as a unit and that the ship's structure and fittings have not been tested in an at-sea environment. All tests and procedures must be conducted carefully and methodically. Systems and components designed to operate at test depth should not be demonstrated at that depth for the sole purpose of proving the design, but instead should be operated at the deepest depth at which they might be used. For example, the hovering system should not be demonstrated at test depth. Trials and tests which are inherently hazardous should not be conducted.

(10) A schedule is required for each underway, dockside or simulated trial. Prerequisites of the first underway period are: satisfactory ship's material condition as shown by the successful completion of alongside tests, salvage inspection, Ship's Force Dock Trial, and a satisfactory state of training as shown by the successful completion of crew certification inspection and Fast Cruise. Fast Cruise deficiencies affecting safe operations revealed in either material conditions or state of training must be corrected prior to getting underway for Sea Trials.

(11) The trial schedule shall include a minimum of six hours of Individual Ship Exercises (ISE) for Ship's Force training. This ISE should be sequenced as soon as practical after the initial tightness dive and should include the necessary evolutions to allow each watch section ship control party to familiarize themselves with their assigned stations and duties. The ship should be operated at moderate speed to develop proficiency prior to the deep dive and full power run. Testing may be scheduled during the ISE period on a not-to-interfere basis with training. The time spent in the initial tightness dive, if at moderate speed, may be included as one section's training. The requirement to provide each watch section ship control party with about two hours experience submerged at moderate speed prior to the deep dive and full power run is mandatory for ship's safety.

(12) All trial periods must be organized such that each member of the command has an opportunity to get six uninterrupted hours of rest during each 24 hour period encompassed by the trials. Sea Trial events which can be accomplished by normal watch sections may be conducted concurrently with crew rest periods.

(13) Prior to getting underway for Sea Trials, Shipyard, Ship’s Force and Type Commander shall jointly agree that the required seven day supply of Oxygen (O2) and seven day supply of Carbon Dioxide (CO2) removal capacity will be available in each compartment, based upon the number of expected occupants of that compartment, independent of the supply and removal capacity in the other compartment(s).

(14) After the conclusion of Sea Trials, the submarine shall not be operated at depths greater than 1/2 Test Depth plus 50 feet, unless specifically authorized by the TYCOM, and shall not be released for unrestricted operations until all RECs are closed and the TYCOM issues the unrestricted operations authorization message.

(15) After the conclusion of Sea Trials, and based upon a review of Sea Trial deficiencies and TYCOM authorization, the submarine may transit to a port other than the industrial activity.

4.9.3 Operating Depth Policy. The TYCOM's policy with respect to maximum allowable operating depths during trials, evolutions to be performed at the various depths, and the prescribed maximum water depth applicable in each case is stated in Volume VI, Chapter 26 of this manual. In every instance where the maximum authorized operating depth is exceeded, a report shall be made in accordance with reference (n), section 3.3.5.c.

4.9.4 Propulsion Plant Tests (If Required). For full power trials provisions of reference (o), Section 6 applies. Submarine depth during the submerged full power trial should be consistent with the applicable Submerged Operating Envelope (SOE), based on the Emergency Main Ballast Tank (EMBT) blow from maximum authorized operating depth being previously accomplished. The full power submerged ahead test for commissioned nuclear powered submarines shall be terminated by a back emergency bell. The duration of the back emergency shall be limited to 45 seconds, to be followed immediately by an appropriate ahead bell. Caution must be exercised to avoid developing stern way.

4.9.5 Phase II Crew/Material Condition Inspection. A Phase II Crew Certification Inspection is normally not required, but should be determined on a case basis by the parent ISIC. If there will be less than 15% personnel turnover, crew certification may be waived. Should the CO determine that alterations accomplished or the transfer of experienced personnel warrant a crew certification, a formal request shall be submitted to the ISIC. When required, crew certification will be performed in accordance with references (p) through (t). The material

certification consisting of an ISIC audit of all Ship's Force SUBSAFE work in accordance with Volume V, Part I, Chapter 9 of this manual will need to be conducted for all industrial activity availabilities since the extent of the availability is such that an independent evaluation by an organization other than Ship's Force is required.

4.9.6 Pre-Critical Inspections. For availabilities where the reactor will be shutdown for 16 weeks or more, it is considered prudent to use an inspection plan similar to that employed by NAVSEA. Normally, the crew's readiness can be assessed within two days using such a plan, which should encompass the following:

a. An administrative review.

b. Observation of basic drills and evolutions not requiring reactor operation.

c. Personnel interviews.

d. Material inspection.

4.9.6.1 Scheduling of Pre-Critical Inspections. The ISIC Pre-Critical Inspection should be scheduled by the responsible ISIC about four weeks prior to criticality. The TYCOM should be advised as soon as possible in advance of the tentative date for the ISIC Pre-Critical Inspection and confirmed dates should be established about one month in advance of the inspection.

4.9.6.2 Composition of the Inspection Team. The Pre-Critical Inspection Team should consist of:

a. A nuclear trained member of the cognizant ISIC Staff, usually the Squadron Training Officer.

b. A qualified nuclear trained officer with experience as an Engineer Officer.

4.9.6.3 Reports of Inspection.

a. The Senior Inspector should provide the inspected unit with an informal report of findings by the inspection team, copy to the cognizant ISIC and TYCOM.

b. The ship's CO shall review the findings of the inspection team and make necessary adjustments to his training program to ensure his crew's readiness for criticality. He shall keep the cognizant ISIC advised of his training plan and his assessment of his crew's progress.

c. The cognizant ISIC shall review the inspection findings, the CO's training plan and progress evaluations and direct follow-up reviews and/or inspections necessary to verify the ship's readiness for criticality.

4.9.7 Dock Trials. Dock Trials must, as a minimum, test those systems/equipments repaired or altered during the availability. The CO should use Appendix M of this chapter as a guide in preparing the Dock Trial Agenda.

4.9.8 Fast Cruise. Fast Cruise may commence immediately upon completion of Dock Trials and shall consist of the minimum requirements as set forth in Appendix N. The requirement for a Fast Cruise may be less than or greater than 24 hours in length depending upon the length of the availability and the time since the crew last operated the ship at sea. The CO, with ISIC concurrence, will determine length of the Fast Cruise. Prior to the ship commencing Fast Cruise, the Supervising Authority shall report to the ship, by message, that all mandatory work approved for accomplishment during the availability is completed. When the ship is ready for sea, with the exception of conducting Fast Cruise and after receipt of the SUBSAFE material certification report from the performing activity as required by reference (u) and Volume V of this manual, the ship will request permission from the ISIC by priority message to commence Fast Cruise. The ISIC will then, if satisfied with the state of crew training and material readiness, authorize the ship to commence Fast Cruise by message, information copy to CNO, Fleet Commander, NAVSEA, and the TYCOM.

a. A 24 hour rest and repair period will normally be scheduled following Fast Cruise and prior to the start of Sea Trials. This rest and repair period may be extended or reduced at the discretion of the ISIC.

b. COs should consider the work and alterations accomplished during the availability when determining the extent of the Fast Cruise. The minimum requirements are listed and identified with an asterisk in Appendix N of this chapter.

4.9.9 Sea Trials. Following completion of Fast Cruise the ISIC will notify the TYCOM of satisfactory completion of Fast Cruise and readiness for Sea Trials using the message format of Appendix O. The submarine TYCOM will authorize the ISIC to allow the ship to get underway for Sea Trials using the message format of Appendix P. Sea Trials are required only as necessary to test work completed during the availability but must include those mandatory requirements identified in Appendix Q of this chapter. The industrial activity shall include at least two days in the availability for conduct of Sea Trials. The industrial activity shall prepare a Sea Trial Agenda for Sea Trials conducted after an availability at the industrial activity. For an availability at a FMA, the submarine shall prepare the Sea Trial Agenda, assisted by the industrial activity. The submarine involved shall submit the Sea Trial Agenda to the ISIC for approval, with an information copy to the TYCOM. During the Sea Trial the submarine CO will keep the TYCOM aware of the progress of the Sea Trial through periodic Situational Reports using the message format of Appendix R of this chapter. The frequency of these Situational Reports will be identified by the TYCOM or the Sea Trial Agenda. Extensions or reductions of the Sea Trial period may be granted where warranted by the scope of the work accomplished. Where extension of the Sea Trial period and a change in the availability schedule is required, requests for such extensions must be submitted by the industrial activity to the TYCOM as early as practical. All deficiencies resulting from Sea Trials will be satisfactorily resolved prior to the completion of the availability. If no Sea Trial deficiencies are found, the availability may be completed with TYCOM occurrence at the completion of Sea Trials.

NOTE: SUBSEQUENT TO THE MESSAGES, APPENDICES O AND S OF THIS CHAPTER, ANY DEFICIENCY DISCOVERED AND THE CORRECTIVE ACTION TAKEN WHICH AFFECTS THE WATERTIGHT INTEGRITY, THE RECOVERABILITY OF THE SHIP, THE OPERATIONS OF THE SHIP'S CONTROL SURFACES OR THE SHIP'S SALVAGE CAPABILITY SHALL BE REPORTED TO THE TYCOM BY THE SUPERVISING AUTHORITY/ISIC/TYCOM REPRESENTATIVE BY MESSAGE. PREVIOUS CERTIFICATION MESSAGES SHALL BE SUSPENDED. WHEN A REVIEW OF THE DEFICIENCY IS COMPLETED BY THE TYCOM, THE TYCOM WILL CERTIFY THAT THE SHIP'S SUBSAFE CERTIFICATION BOUNDARY IS SATISFACTORY FOR SEA TRIALS TO A SPECIFIED DEPTH.

a. Assignment of Escort Ship.

(1) In accordance with reference (v), an escort shall be provided during deep dive submergence trials for ships completing an availability for repair of collision/grounding damage where deformation is observed to be in the hull integrity envelope and/or supporting structure.

(2) In accordance with reference (v), the requirement for providing an escort during deep dive submergence trials upon completion of all other availabilities will be evaluated by Commander, NAVSEA on a case basis. Commander, NAVSEA will advise the applicable Submarine Force Commander in writing whether or not an escort will be required based on the scope of work in the availability. In general, an industrial activity availability of less than six months duration should not require an escort, since the work typically performed in these availabilities is limited in scope, is carefully controlled and, therefore, does not result in substantial risk of unidentified or incomplete work adversely affecting the SUBSAFE boundary.

(3) Escort requirements should be determined early so that an escort satisfying the requirements of Part I, Chapter 3, paragraph 3.6.8.4.7.b.(6), of this volume can be scheduled if required. The TYCOM will in turn request services from the Fleet Commander as applicable. As a general rule, pressure hull work which could not affect hull circularity will not require an escort.

(4) Waiver of escort requirements may be requested by message when necessary. The ISIC will request the waiver as soon as possible. The TYCOM will pass the request to Commander, NAVSEA for approval. An escort waiver request message is to include all of the following specific statements, as applicable:

(a) A ( ) inch by ( ) inch hull cut between frames ( ) and ( ) including a ( ) inch section of frame ( ) was the only major hull integrity work accomplished during the availability. If no hull frame cut was made, a positive statement to that effect is required.

(b) The hull cut weld satisfactorily passed Radiographic Testing and 7 day Magnetic Particle Testing nondestructive tests.

(c) Post repair frame circularity check readings are within specifications.

b. Assignment of Deep Submergence Rescue System During Submarine Sea Trials.

(1) A Submarine Rescue Diving Recompression System will be placed in a modified alert status at the beginning of Sea Trials requiring an escort following an industrial availability or major maintenance availability for:

(a) Ships initial tightness and deep dive events.

(b) Subsequent Sea Trials until the completion of the initial dive to design test depth.

(c) If, in the TYCOM's judgment, a Sea Trial requires an escort due to major hull cuts.

(2) The ship conducting Sea Trials will notify COMSUBDEVRON FIVE in Silverdale, WA when Submarine Rescue Diving Recompression System services are no longer required due to completion of the events in paragraph 4.9.9 of this chapter or due to delay in completing Sea Trials.

c. The ship's normal loadout of Lithium Hydroxide canisters, Lithium Hydroxide curtains, Emergency Air Breathing masks, Submarine Escape Immersion Ensemble suits and oxygen candles is not sufficient to support this increase in personnel. Therefore, an additional four Lithium Hydroxide canisters, four Lithium Hydroxide curtains, one Emergency Air Breathing mask, one Submarine Escape Immersion Ensemble suit and two Oxygen candles shall be carried for each rider exceeding normal crew manning. Lithium Hydroxide canisters, Emergency Air Breathing masks, Submarine Escape Immersion Ensemble suits and Lithium Hydroxide curtains are to be obtained from the industrial activity.

4.9.10 Interrupted Sea Trials. In the event a Sea Trial is interrupted, or an additional Sea Trial becomes necessary, the following requirements are to be met. These requirements shall be invoked if the ship returns to port for industrial activity repairs which affect SUBSAFE certification or which will require at-sea testing.

a. The submarine will draft a revised Sea Trials Agenda to support resumption of the trials. This agenda shall be provided to the ISIC for concurrence and TYCOM for information.

b. Ship’s Force will report by message (format of Appendix T of this chapter) that Ship's Force is ready for follow-on sea trials.

c. The ISIC shall report by message (format of Appendix U of this chapter) to the TYCOM that the material condition of those SUBSAFE Certification boundaries that were installed, repaired and/or tested by Ship's Force is satisfactory for resuming Sea Trials.

d. Upon completion of all of the requirements in paragraphs 4.9.10.a. and b. above, the TYCOM will provide a message (Appendix V of this chapter) to the ISIC granting permission to proceed with the conduct of Sea Trials and authorize the ship to dive to the Sea Trial operating depth.

APPENDIX A

SAMPLE MESSAGE TO TYCOM FROM ISIC REQUESTING CONCURRENCE TO DEFER, DELETE OR SHORTEN A SCHEDULED CMAV

(MESSAGE IS NOT REQUIRED FOR CMAV'S 32 DAYS OR LONGER IN DURATION)

FM COMSUB<RON NO.>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
INFO COMSUBGRU <NO.>//N5//
NSSC <LOCATION>//N4//
<SUPERVISING AUTHORITY>//<CODES>//
BT
UNCLAS//N09094//
MSGID/GENADMIN//USS <SHIP'S NAME>//
SUBJ/(SUBS) REQUEST TO <MISS/SHORTEN> USS <SHIP NAME/HULL NO.> CMAV//
REF/A/DOC/COMFLTFORCOM/<DATE>//
NARR/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II//
RMKS/1. DUE TO <CAUSE OF MISSING/SHORTENING AVAIL> THE USS<SHIP NAME> WILL NOT BE ABLE TO MEET THE SCHEDULED CMAV REQUIREMENTS PER REF A.
2. THE FOLLOWING INFORMATION IS PROVIDED TO SUPPORT <SHORTENING/MISSING> THE SCHEDULED CMAV.
A. CMAV NUMBER:
B. CMAV DATES:
C. CMAV DURATION: (NUMBER OF DAYS)
D. ACTIVE CASREPS:
<CASREP #, DESCRIPTION, REPAIR PLAN>
E. ACTIVE SUBS:
<SUBS DESCRIPTION, REPAIR PLAN>
F. SCHEDULED CMAV DATES FOR THE NEXT TWELVE MONTHS:
G. IMPACT ON FUTURE WORKLOAD TO I-LEVEL MAINTENANCE ACTIVITY:
H. STATUS OF K-MRCS: (NUMBER SCHEDULED, NUMBER COMPLETE AND NUMBER OVERDUE)
I. NUCLEAR PMS ISSUES:
H. STATUS OF PATS/POTS IF CNO AVAILABILITY PENDING:
3. <ADDITIONAL REMARKS>
4. REQUEST CONCURRENCE TO <MISS/SHORTEN> SCHEDULED CMAV <FISCAL QUARTER, YEAR>.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAIN LANGUAGE ADDRESS DIRECTORY (PLAD) IS UTILIZED.

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APPENDIX B

SAMPLE TYCOM MESSAGE CONCERNING ESCORT SERVICES FOR IDD OR PIRA AVAILABILITIES

FM COMSUB <LANT/PAC><NORFOLK VA/PEARL HARBOR HI>//N4//
TO COMSUB<RON/GRU NO.>//{ISIC of Escort Ship}
USS <ESCORT SHIP NAME>//
INFO CNO WASHINGTON DC//N77//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>//N43//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08O/07Q//
DIRSSP WASHINGTON DC //205//{For SSBN/SSGN only}
<SUPERVISING AUTHORITY>//<CODES>//
<SUBOPAUTH>// {If other than parent TYCOM}
COMSUBDEVRON FIVE SILVERDALE WA//N3//
COMSUB<RON/GRU NO.>//{ISIC of Sea Trial Ship}
CTF TWO SIX//
CTG TWO SIX PT ONE//
NSCSES NORFOLK VA//112//
DSU SAN DIEGO CA//00//
NAVUNSEAWARCENDIV NEWPORT RI//02245//
NAVUNSEAWARCENDET WEST PALM BEACH FL//3812//
NAVUNSEAWARCENDET AUTEC ANDROS ISLAND BAHAMAS//05//
NAVSURFWARCEN CARDEROCKDIV BETHESDA MD//1921//
PEOSUBCBTWPNSYS WASHINGTON DC//PMO417//
NAVORDTESTU CAPE CANAVERAL FL//SPP40//{For SSBN/SSGN only}
COMSUBGRU <NINE/TEN> //N3//{For SSBN/SSGN only}
USS <SEA TRIAL SHIP NAME> //
BT
UNCLAS //N03120//
MSGID/GENADMIN/COMSUB<LANT/PAC>//
SUBJ/(SUBS) SUBMARINE SEA TRIAL SUPPORT SERVICES//
REF/A/<RMG/DOC>/<SUPERVISING AUTHORITY>/<DATE/DTG>//
REF/B/DOC/COMFLTFORCOM/<DATE>//
NARR/REF A IS SEA TRIAL SUPPORT REQUEST. REF B IS JOINT FLEET MAINTENANCE MANUAL//
RMKS/1. REF A REQUESTED AND IAW REF B USS <NAME OF ESCORT SHIP> IS APPROVED AS ESCORT FOR USS <SEA TRIAL SHIP NAME> FOR SEA TRIALS OCCURRING <DDMMMYY>.
2. FOR COMSUB<RON/GRU NO.> PROVIDE GOLD DOLPHIN RIDER ONBOARD USS <NAME OF ESCORT SHIP>.
3. DIRLAUTH ALCON FOR EVENT SCHEDULES AND SCHEDULE CHANGES.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX C

SUGGESTED FORMAT FOR A MESSAGE WORK CANDIDATE

FM: USS (SHIP NAME)//
TO: TYCOM/RSG/RMC/ISIC//
INFO: FMA TO PERFORM WORK//
ISIC OF FMA (IF DIFFERENT FROM REQUESTING SHIPS ISIC)//
TYCOM//N40//
BT
(CLASSIFICATION)//NO4790//
MSGID/GENADMIN//SHIP//
SUBJ/MESSAGE WORK CANDIDATE//
REF/A/DOC/COMFLTFORCOM/(DATE)//
AMPN/REF A IS COMFLTFORCOMINST 4790.3,
JOINT FLEET MAINTENANCE MANUAL//
RMKS/1. UIC
2. WORK CENTER
3. JSN
4. APL/AEL
B. (SHIP'S HULL NO.)
5. EQUIP NAME
6. WHEN DISCOVERED
7. STATUS
8. CAUSE
9. DEFERRAL REASON
13. IDENTIFICATION/EQUIP SERIAL NUMBER
14. EIC
15. SAFETY HAZARD (LEAVE BLANK OR STATE SAFETY HAZARD AND EXPLAIN IN BLK 35)
16. LOCATION
17. WHEN DISCOVERED
25. SF MHRS EXPENDED (1 HR=0001)
26. DEFERRAL DATE
28. DEADLINE DATE
35. REMARKS/DESCRIPTION
37. CSMP SUMMARY
38. FIRST CONTACT
40. SECOND CONTACT/SUPERVISOR
41. PRIORITY
42. T/A
46. SPECIAL PURPOSE
47. BLUE PRINTS/TECH MANUAL/PLANS/ETC
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX D

BUSINESS CASE ANALYSIS TOOL

To use this tool, first analyze the safety and mission impact of the damage to be repaired using Table 1. Determine the Hazard-Mission Index. Then consider the impact on schedule and cost using Table 2 and obtain the Cost - Schedule Index. On the next sheet, select the appropriate CO Modifier and sum the indices to obtain the Risk Index. Determine indicated action from the Business Case Analysis Table.

Table 1 - Hazard Severity and Impact to Mission

	Hazard Severity			
Impact to Mission	Catastrophic	Critical	Major	Minor
Frequent	1	1	3	6
Probable	1	2	4	7
Occasional	2	3	5	
Remote	3	4	6	
Improbable	5			

Table 2 - Cost Severity and Impact to Schedule

	Cost Severity			
Impact to Schedule	Extreme	Significant	Major	Minor
Frequent			7	4
Probable			6	3
Occasional		8	5	1
Remote	7	6	4	1
Improbable	5	3	2	1

Impact to Mission Likelihood		Impact to Schedule Likelihood	
Description	Explanation	Description	Explanation
Frequent	Likely to adversely impact mission/operation of ship/ship's future schedule/critical systems regularly. Work to rectify this deficiency must be undertaken at the first opportunity.	Frequent	The undertaking of the work or combination of availability of Long Lead Time Material and Work Completion WILL delay the schedule greater than 5 working days.
Probable	Could adversely impact mission/operation of ship/ship's future schedule/critical system several times. Work to rectify this deficiency should be programmed in the current availability.	Probable	The undertaking of the work or combination of availability of Long Lead Time Material and Work Completion COULD delay the schedule greater than 2 working days.
Occasional	Unlikely, but could be reasonably expected to adversely impact mission/operation ship/ship's future schedule/critical system occasionally. Work to rectify this deficiency should be considered during the current availability depending upon schedule and cost.	Occasional	The undertaking of the work or combination of availability of Long Lead Time Material and Work Completion COULD BE REASONABLY expected to delay the schedule not greater than 2 working days.
Remote	Unlikely, but could possibly impact mission/operation of ship/ship's future schedule/critical system at some time. Work to rectify this deficiency should be considered and programmed to meet the ship's operational schedule.	Remote	The undertaking of the work or combination of availability of Long Lead Time Material and Work Completion is UNLIKELY BUT POSSIBLE to delay the schedule.
Improbable	So unlikely that there should be no adverse impact to mission/operation of ship/ship's future schedule/critical system. Work to rectify this deficiency should be programmed in due course.	Improbable	The undertaking of the work or combination of availability of Long Lead Time Material and Work Completion is SO UNLIKELY to delay the schedule it can be assumed it will not affect schedule.

Hazard Severity if Work Not Undertaken		**Cost Severity Impact**	
Description	Explanation	Description	Explanation
Catastrophic	Failure of System could result in total loss of ship or critical system. Resultant damage would be beyond economical repair.	Catastrophic	The increase in cost due to Growth & New Work, delay to start of work, cost or availability of material is so great that it either represents funding that would need to be sourced from another activity, or it constitutes a G&NW premium of 60% or higher.
Critical	Failure of System could result in significant damage to the ship or critical system. Resultant damage would require intervention of support agency. Usually damage to Primary structure/Water Tight Integrity.	Critical	The increase in cost due to Growth & New Work, delay to start of work, cost or availability of material, represents a very large increase that it either can be covered in the existing budget plan but would adversely impact the remaining financial plan or it constitutes a G&NW premium of 40% to 60%.
Major	Failure could result in the temporary loss or deterioration of the system requiring repair action.	Major	The increase in cost, while large, is either able to be covered inside the existing budget plan with little impact to the remaining financial plan or it constitutes a Growth & New Work premium of 20% to 40%.
Minor	Failure could result in the need for minor defect repair action, continued operation without significant loss of output is possible.	Minor	The increase in cost is very small and is either able to be covered inside the existing budget plan with no impact to the remaining financial plan or it constitutes a Growth & New Work premium of 0% to 20%.

Commanding Officer's Concern	CO's Top 5	add -2
Commanding Officer's Concern	Concerned	add -1
Commanding Officer's Concern	Not Concerned	add 0

Business Case Analysis (Table 1 + Table 2 + CO's Concerns) = Risk Index			
Risk Index	Relative Level of Risk	Decision	Amplifying Comments
1 to 9	Low	MT continue	Represents work that is either a safety concern or mission critical, or is relatively low cost and no impact to schedule.
10 to 17	Med	MT reschedule or conduct more rigorous BCA	Represents work that is either of reasonably high cost or a high risk to schedule impact, or of little to no safety or mission critical concern. This work should either be rescheduled, cancelled, or subject to a more comprehensive BCA.
18 to 20	High	MT reschedule or cancel	Represents work that is either of high cost or extreme schedule impact, or of little to no safety or mission critical concern.

APPENDIX E1

AVAILABILITY KEY EVENT LIST

(FOR SUBMARINES SEE APPENDIX E2)

KEY EVENT CODE	ABBREVIATION	SCHEDULING GUIDANCE
01	ARRIVAL	
02	ESTABLISH PLANT CONDITIONS	
03	DIESEL INSPECT	
04	PMT	
05	COMPLETE OPEN AND INSPECT WORK	
06	DRYDOCKING	
07	UNDOCKING	
08	PIER EVOLUTIONS	
09	ADJACENT SHIP EVOLUTIONS	
10	SYSTEM TESTING COMPLETE	
11	WEAPONS MOVEMENT	
12	SHIPS CEREMONY	
13	SHIPS TRAINING EVOLUTION	
14	STORES ON/OFF LOAD	
15	HAZARDOUS EVOLUTIONS	
16	BERTH SHIFT	
17	SAIL CLOSE-OUT	
18	FUEL MOVEMENT	
19	SHIP INSPECTION	
20	PROPULSION PLANT START UP	
21	FAST CRUISE	1-2 DAYS PRIOR TO SEA TRIALS
22	SEA TRIALS	1-2 DAYS AFTER FAST CRUISE
23	UNDERWAY	

KEY EVENT CODE	ABBREVIATION	SCHEDULING GUIDANCE
24	TENDER UNDERWAY	
25	TENDER REPLENISH	
26	FLIGHT DECK OPS	
27	ALL OTHER	
28	ALL WORK COMPLETE	3 DAYS PRIOR TO END OF AVAILABILITY
29	END OF AVAILABILITY	

APPENDIX E2

CMAV KEY EVENT CODES

(SUBMARINES ONLY BASED UPON TYPICAL MINIMUM 21 PRODUCTION DAY SCHEDULE)

EVENT #	KEY EVENT	SCHEDULING GUIDANCE
1	ARRIVAL	
2	ESTABLISH PLANT CONDITIONS	PER 100 HOUR PLAN
3	DIESEL INSPECT	AS REQUIRED BY PMS PERIODICITY, COORDINATION WITH ISIC AND DIESEL INSPECTOR
4	FLEET TECH SUPPORT TROUBLESHOOTING COMPLETE	PER 100 HOUR PLAN
5	TEMP SERVICES INSTALLED	PER 100 HOUR PLAN
6	SAIL RACETRACK/STAGING INSTALLED	PER 100 HOUR PLAN
7	VLS PLATFORM INSTALLED	PER 100 HOUR PLAN
8	PMT MONITORING PERIOD COMMENCE	PER 100 HOUR PLAN
9	SALVAGE INSPECTION	AS REQUIRED
10	Rx PLANT COOL DOWN	AS REQUIRED
11	Rx PLANT HEAT-UP	AS REQUIRED
12	NON-AVAILABILITY EVENT, INSPECTION OR EVALUATION THAT MAY IMPACT SCHEDULE	AS REQUIRED
13	BERTH SHIFT	AS REQUIRED
14	FUEL MOVEMENT	AS REQUIRED
15	BALLASTING EVOLUTIONS	AS REQUIRED
16	WEAPONS MOVEMENT	AS REQUIRED
17	DIVER OPERATIONS	AS REQUIRED
18	SHIPS TRAINING EVOLUTION	AS REQUIRED
19	STORES ON/OFF LOAD	AS REQUIRED
20	SHIP TO SHOP WORK CUTOFF	AS REQUIRED
21	O2/N2 LOADING/UNLOADING	AS REQUIRED
22	HAZARDOUS EVOLUTIONS	AS REQUIRED
23	TEMP SERVICES REMOVAL	PRIOR TO FINAL 100 HOURS OF AVAIL

EVENT #	KEY EVENT	SCHEDULING GUIDANCE
24	VLS PLATFORM REMOVAL	COMPLETED PRIOR TO FINAL 100 HOURS OF AVAIL
25	TANK CLOSEOUTS	COMPLETED PRIOR TO FINAL 100 HOURS OF AVAIL
26	SAIL CLOSE-OUT	COMPLETED PRIOR TO FINAL 100 HOURS OF AVAIL
27	TD SYSTEM COMPLETE	COMPLETED PRIOR TO FINAL 100 HOURS OF AVAIL
28	ASW/MSW SYSTEM COMPLETE	COMPLETED PRIOR TO FINAL 100 HOURS OF AVAIL
29	HYDRAULIC SYSTEMS COMPLETE	COMPLETED PRIOR TO FINAL 100 HOURS OF AVAIL
30	ELECTRICAL SYSTEMS COMPLETE	COMPLETED PRIOR TO FINAL 100 HOURS OF AVAIL
31	A/C SYSTEM COMPLETE	COMPLETED PRIOR TO FINAL 100 HOURS OF AVAIL
32	VENTILATION SYSTEM COMPLETE	COMPLETED PRIOR TO FINAL 100 HOURS OF AVAIL
33	REFRIGERATION SYSTEM COMPLETE	COMPLETED PRIOR TO FINAL 100 HOURS OF AVAIL
34	AIR SYSTEMS COMPLETE	COMPLETED PRIOR TO FINAL 100 HOURS OF AVAIL
35	PROPULSION PLANT WORK COMPLETE	COMPLETED PRIOR TO FINAL 100 HOURS OF AVAIL (TYPICALLY 20TH PRODUCTION DAY)
36	ALL WORK COMPLETE (INCLUDES PRODUCTION, AIT AND PRIVATE CONTRACTOR WORK)	COMPLETED PRIOR TO FINAL 100 HOURS OF AVAIL (TYPICALLY 20TH PRODUCTION DAY)
37	PROPULSION PLANT TESTING COMPLETE	COMPLETED PRIOR TO FINAL 100 HOURS OF AVAIL (TYPICALLY 21ST PRODUCTION DAY)
38	PRODUCTION WORK SYSTEM TESTING COMPLETE	COMPLETED PRIOR TO FINAL 100 HOURS OF AVAIL (TYPICALLY 21ST PRODUCTION DAY)
39	FAST CRUISE PRE-UNDER WAYS	96 TO 4 HRS PRIOR TO FAST CRUISE
40	PRE-UNDER WAYS	96 TO 4 HRS PRIOR TO UNDERWAY
41	DOCK TRIALS COMPLETE	72 HOURS PRIOR TO END OF AVAIL
42	PROPULSION PLANT START UP	PER FINAL 100 HOURS

EVENT #	KEY EVENT	SCHEDULING GUIDANCE
43	FAST CRUISE	1-2 DAYS PRIOR TO SEA TRIALS/UNDERWAY PERIOD
44	SEA TRIALS	1-2 DAYS AFTER FAST CRUISE (AS DIRECTED BY ISIC)
45	END OF AVAILABILITY	
46	ALL OTHER	
47	SHIP'S UNDERWAY	POST KEY EVENT 43

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APPENDIX F

AVAILABILITY PLANNING MESSAGE (SUBMARINES ONLY)

FM COMSUBRON (SQUADRON NO.)//
TO USS (SHIP NAME AND HULL NO.)//
TYCOM (COMSUBLANT/COMSUBPAC)//
INFO FMA (ACTIVITY)//
BT
(CLASSIFICATION) //N04790//
MSGID/GENADMIN/COMSUBRON// (AS APPROPRIATE)
SUBJ: (SUBS) AVAILABILITY PLANNING FOR USS (SHIP NAME AND HULL NO.)//
REF/ (AS APPROPRIATE)//
RMKS/1. FOL EVENTS PLANNED FOR NEXT AVAIL
A. MAJOR JOBS (ANNOTATE SHIPS FORCE OR FMA)
(1) ESD_____
(2) ESD_____
(3) ESD_____
B. CONTROLLING KEY EVENT/DATES:
(1)
(2)
(3)
C. MAJOR PMR JOBS:
(1)
(2)
(3)
D. ALTS FOR FMA ACCOMPLISHMENT:
(1)
(2)
(3)
E. ALTS FOR S/F ACCOMPLISHMENT:
(1)
(2)
(3)
F. ALTS FOR OUTSIDE ACTIVITY (INDUSTRIAL ACTIVITY, VENDOR, ALT)
G. DEPARTURES FROM SPECIFICATION TO BE CLEARED:
H. OTHER EVOLUTIONS/EVENTS://
I. FIRST 100 HOUR PLANNING ITEMS
a. Day 1 (date)
(1)
b. Day 2 (date)
(1)
c. Day 3 (date)
(1)
d. Day 4 (date)
(1)
J. FINAL 100 HOUR PLANNING ITEMS
a. Day 1 (date)
(1)
b. Day 2 (date)
(1)
c. Day 3 (date)
(1)
d. Day 4 (date)
(1)

BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

APPENDIX G

FINAL 100 HOURS FOR SCHEDULED CMAV

Prior to 100 hrs	96 hours	72 hours	48 hours	24 hours	Transition day
Production days →	C-4	C-3	C-2	C-1	C-0
- Production work complete. - Production work Testing complete. - Sail closeout. Pre-under ways. - Fast Cruise. - WAF closeout. - Weapons load complete. - Departure Conference complete. - Production related temp services removed. - Commence Dock Trials. - NRMD Rx Plant Certification.	- Pre-under ways. - Fast Cruise - FINAL WAF AUDIT. - Crew watch bills and berthing bills complete. - (Ships office/Exec Pre-under ways complete). - Rx Startup for Rx Testing.	- Pre-under ways. - Fast Cruise - SUBSAFE /QA Certification complete. - Complete Dock Trials.	- Rx Start-up to support Fast Cruise. - Fast Cruise. - Commence Pre-under ways for all +48hr and sooner Pre-under ways.	- Pre-under ways. - Crew rest and final admin.	- Rx Start-up. - Pre-under ways complete.

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APPENDIX H

AVAILABILITY MILESTONE SCHEDULE

Note: Contracting milestones are located in Part II, Chapter 2, Appendix D of this volume.

* Times are in days

NO.	MILESTONE	Responsible Activity	Scheduled CMAV *	Year-Long CM *	Remarks
1	Identify drawing development assignments, including Class Drawings.	PARMs/TYCOM/ NAVSEA	A-390	NA	Send to RMC and Planning Yard.
2	Assign drawing development responsibility.	PEO Ships	A-390	NA	
3	Issue Hull Modernization Plan (HMP)/Letter Of Authorization AITs.	SPM/NAVSEA/ TYCOM	A-360	NA	HMPs to be issued in March each year to maintenance Teams to support MMBP. Letter of Authorizations will be posted at A-360.
4	Establish Availability in NMD/NEMAIS/LDS/or other work control information system, as appropriate.	Maintenance Team	A-360	NA	Availabilities will be established in the applicable planning data base when known or work is ready to be screened.
5	Request Availability Funding for planning repair work.	NSA	A-345	NA	This provides funds for early executor planning.
6	Task/Fund SID Development.	SPM/NSA/AIT/ TYCOM/RMC Manager	A-330	NA	
7	Ship checks completed for alterations.	Planning Yard	A-270	NA	No FFP considerations relate to this date.
8	Screen CMP and TYCOM routines.	TYCOM	A-270	NA	Push CMP work items to CSMP NOT LATER THAN A-270.
9	Provide Incremental Funds for ordering Long Lead Time Material for both repair and Alt/mod work to meet required dates.	SYSCOM/TYCOM	A-270	NA	
10	Issue/Deliver SIDs to NSA for Contractor(s) (KTRs) and AITs.	Planning Yard	A-180	NA	This is a change from A-4. Including all SIDs for AITs. For FFP contracts, this milestone should occur at A-8 when possible and NOT LATER THAN A-180.

NO.	MILESTONE	Responsible Activity	Scheduled CMAV *	Year-Long CM *	Remarks
11	Request Availability Funding for both repair & modernization work.	NSA/RMC	A-180	NA	
12	All Modernization Risk Assessments (including waivers) submitted.	PARM SPM TYCOM	A-175	NA	
13	All Modernization Risk Assessments (including waivers) approved.	TYCOM	A-150	NA	
14	Identification of AIT Support/Schedule/Impact requirements.	AIT Manager	A-135	NA	A-168 for FFP/IDIQ. Need to develop a complete requirements list. Needs to be integrated with repair requirements by the KTR and presented at the WPER.
15	Identification of AIT support/schedule impact requirements.	AIT Manager	A-135	NA	A-168 for FFP/IDIQ.
16	Certification Plan(s) (e.g., ILS, software, etc.) approved. Final date for modernization Ship Change (SC) approval. LOA locked.	SPM PARM PM	A-120	NA	SPM approves Hull Certification. All unresolved planned not authorized PNA modernization Ship Changes (SCs) are removed from the authorization letter at this date. Please note: There is an interim policy covering the Fleet Commanders C5I MP policy for approving the Weapon System Baseline Certification at A-30.
17	Identify all outside activities (e.g., Naval Surface Warfare Center (NSWC), Alteration Installation Team, etc.) participating in the Availability and associated support requirements.	TYCOM	A-90	NA	
18	Award AIT contracts for work not being done by prime KTR.	AIT Sponsor	A-90	NA	

NO.	MILESTONE	Responsible Activity	Scheduled CMAV *	Year-Long CM *	Remarks
19	Solicit Bids.	RMC	NA	NA	A-50 for FFP/IDIQ. If CMAV is to be performed under an IDIQ contract and is over $500k we may need to add 30 days for solicitation in accordance with Fair Value purchasing policy. This would reset the CMAV solicit bid milestone to A-70.
20	Review CSMP and ensure all deferred maintenance actions intended for accomplishment during the availability identified by priority and submit to the TYCOM/ISIC.	Maintenance Team	A-50	NA	
21	Provide Availability Funding for Modernization to the RMC/LMA.	SYSCOMS/PEO/ TYCOM	A-45	NA	Includes funding for AITs support services.
22	Review PMS, Reactor Plant PMS, CSMP, and testing requirements and ensure all Ship's Force maintenance actions scheduled for accomplishment during the availability are identified.	Maintenance Team	A-40	NA	
23	Review PMR/URO requirements and ensure all maintenance actions intended for accomplishment during the availability are identified.	ISIC (Subs only)	A-40	NA	
24	Review TYCOM Alteration Management System/FMP and ensure all authorized alterations intended for accomplishment during the availability are identified by priority based on material availability as identified by the LMA.	TYCOM	A-40	NA	
25	Review the MJC and identify the routine package to be accomplished during the availability.	TYCOM	A-40	NA	

NO.	MILESTONE	Responsible Activity	Scheduled CMAV *	Year-Long CM *	Remarks
26	Review CSMP T/A 2 items. Identify and order LLTM.	FMA	A-40	NA	
27	I-level work package fully brokered.	Maintenance Team/ Ship's Force	A-40	E-14	Intent is to fully broker all known work to I-level by this date. This allows for routine procurement of materials and brokering of work candidates to other Executing Activities if necessary.
28	Establish funding targets for budgeting purposes for the availability.	Funding Activity	A-40	NA	
29	Review the availability work package, begin writing FWPs/TWDs, identify critical jobs and develop the integrated work schedule to aid in tracking and coordination of all work.	LMA	A-40	E-14	
30	100% of D-level maintenance work package 2Ks planned, estimated.	Planning Activity	A-35	E-14	A-60 for FFP/IDIQ.
31	I-level work package fully accepted.	Planning Activity	A-33	E-14	Intent is for I-level to accept or reject all work brokered to it up to this point in time, work entering later in the process will be subject to normal Business Case Analysis. At this point the I-level activity work has been locked. Any remaining work will be re-brokered to another Executing Activity, rescheduled or rejected.
32	100% of maintenance work D level package 2Ks locked.	Maintenance Team	A-30	E-7	A-60 for FFP/IDIQ.
33	Submit I-level work package and schedule to the LMA for integration.	RMC	A-30	E-14	A-15 for FFP/IDIQ.
34	Submit executing activity work package and schedules to the LMA for integration.	All Executing Activities	A-30	E-14	

NO.	MILESTONE	Responsible Activity	Scheduled CMAV *	Year-Long CM *	Remarks
35	Develop recommended Key Events schedule and present to ISIC/Ship's Force/TYCOM.	LMA	A-30	NA	
36	Begin to integrate executing activity schedules.	LMA	A-30	E-7	
37	Review scheduled Ship's Maintenance Monitoring Support Office, PMT, MCA inspections and testing that may result in significant new work for the FMA or Ship's Force or that may impact scheduled Ship's Force and/or FMA work.	TYCOM	A-30	NA	
38	100% of O-level maintenance work package locked.	Maintenance Team	A-30	NA	A-60 for FFP/IDIQ Intent is to provide work to be accomplished so that an integrated execution schedule can be developed for the WPER.
39	Identify to RMC/ISIC /TYCOM rejected work candidates.	LMA	A-30	NA	
40	Begin processing all new work as "late work". See Appendix D for Business Case Analysis.	RMC	A-30	E-30	The intent is that all work regardless of the intended Executing Activity or level (O, I, or D) will have been brokered and accepted. Hence additional work will be treated as "late work".
41	MOA SUBMITTED	AIT Manager/outside activity	A-30	NA	
42	Conduct Planning Availability	Maintenance Team/ LMA (Subs Only)	A-30	NA	Should be prior to the WPER.
43	Cutoff for bidders questions.	PCO	NA	NA	A-30 for FFP/IDIQ.

NO.	MILESTONE	Responsible Activity	Scheduled CMAV *	Year-Long CM *	Remarks
44	Perform risk assessments and verify deliverables O-level, I-level, and D-level work items and AIT schedule requirements to LMA.	Maintenance Team	A-25	NA	This is to confirm that the LMA has all input for his development of the integrated availability schedule. Note that for FFP CMAV LMA will not be identified until A-15, verification with LMA will take place at WPER.
45	MSMO contractor "publish" package in NMD, if applicable.	MSMO Contractor	A-25	NA	MSMO Contracts only.
46	MSMO contractor turn over spec package.	MSMO Contractor	A-25	NA	MSMO Contracts only.
47	MSMO contractor submit final package cost proposal.	MSMO contractor	A-25	NA	MSMO Contracts only.
48	Complete ship checks and order all required material.	Executing Activities	A-25	NA	
49	Conduct Work Package Execution Review (WPER) - finalize funding.	Maintenance Team	A-21	NA	A-10 for FFP/IDIQ. LMA/executing activity presents fully planned execution schedule (could be a Gantt chart) to the full Maintenance Team.
50	Deliver Material (LLTM and Kitted Materials) to Executing Activity.	Planning Yards/PARM	A-20	NA	
51	Complete TAR.	RMC	A-20	NA	
52	Submit Bids.	Contractor	NA	NA	A-20 for FFP/IDIQ.
53	Definitize Work Packages.	Maintenance Team/RMC	A-18	E-7	
54	Award Contract.	RMC	NA	NA	A-15 for FFP/IDIQ.
55	Issue availability planning message prepared in accordance with Appendix F of this chapter.	ISIC (Subs Only)	A-14	NA	
56	Work Specs Developed.	Executing Activity	NA	E-14	
57	Develop strategy for FMA/Ship's Force calibration of gages, instruments and tools.	Maintenance Team/LMA	A-10	NA	
58	Issue availability planning response message prepared in accordance with Appendix I of this chapter.	Ship's Force (Subs Only)	A-7	NA	Send to ISIC and TYCOM
59	Commence First 100 Hours	Maintenance Team/LMA (Subs Only)	A-0	NA	

NO.	MILESTONE	Responsible Activity	Scheduled CMAV *	Year-Long CM *	Remarks
60	Conduct Arrival Conference.	LMA	A-0	NA	
61	Report ships transition to CMAV period.	ISIC (Subs Only)	A-0	NA	Send to ISIC and TYCOM
62	Conduct Progress Review.	LMA	Weekly	NA	
63	Commence Final 100 Hours	Maintenance Team/LMA (Subs Only)	C-4	NA	
64	Complete Availability.	LMA	C+0	30 Sep	
65	Conduct Departure and Assessment Conference.	Maintenance Team/LMA	C+0	NA	
66	Issue Departure and Assessment Report.	LMA	C+21	NA	

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APPENDIX I

AVAILABILITY PLANNING RESPONSE MESSAGE (SUBMARINES ONLY)

FM USS (SHIP NAME AND HULL NO.)//
TO COMSUBRON (SQUADRON NO.)//
TYCOM (COMSUBLANT/COMSUBPAC)//
INFO FMA (ACTIVITY)//
BT
(CLASSIFICATION)//N04790//
MSGID/GENADMIN/COMSUBRON// (AS APPROPRIATE)
SUBJ: (SUBS) AVAILABILITY PLANNING READINESS FOR USS (SHIP NAME AND HULL NO.)//
REF/ (AS APPROPRIATE)//
RMKS/1. SHIP CONCURS WITH REF A WITH THE FOLLOWING EXCEPTIONS: (NONE OR LIST EXCEPTIONS BELOW)

A. SCHEDULE REQUIREMENTS SUCH AS:
   1. REVIEW ALL ACTION ITEMS FROM AVAILABILITY PLANNING MESSAGE.
   2. REVIEW SCHEDULE OF KEY EVENTS.
   3. ABILITY TO CONDUCT 100HR TRANSITION PLANS.

B. SHIP MATERIAL PREPARATION
   1. REPORT STATUS OF PARTS FOR SHIP'S FORCE WORK AND DESIRES FOR ISIC/TYCOM ASSISTANCE IN PROCUREMENT.
   2. ENSURE ALL OUTSTANDING CASREPS, SUBS, ZOZZS, AND TDENTS ARE IDENTIFIED IN AVAILABILITY PLANNING MESSAGE.

C. SHIP'S FORCE INTEGRATED SCHEDULE:
   1. MISCELLANEOUS PROGRAMS (CAL, SMALL VALVE MAINTENANCE, ETC.).
   2. DRILLS AND TRAINERS THAT WILL AFFECT SHIP'S FORCE ABILITY TO SUPPORT PRODUCTION WORK.
   3. PRESERVATION ZONES.
   4. PLANNED MAINTENANCE (TO INCLUDE PMS, RPPMS, AND PMT/KMRCS).

D. CO'S REPORT OF READINESS OR CONCERNS:
   1. COMMANDING OFFICER REVIEW ABOVE ITEMS AND AVAILABILITY PLANNING MESSAGE AND REPORT READINESS AND EXCEPTIONS TO TRANSITION TO CMAV PERIOD.//

BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX J

MAJOR TRIAL AND INSPECTION MILESTONES FOR IDD AND PIRA AVAILABILITIES

EVENT	COGNIZANCE	APPROXIMATE SCHEDULE	CORRESPONDING APPENDIX
A. Periodic Monitoring Inspections	ISIC/TYCOM Representative	Start to completion	
B. Pre-Criticality Inspection (2 Days - Nuclear Powered Submarines Only)	ISIC (Only required when the reactor has been shutdown greater than 16 weeks)	Within 1 month of criticality	
C. Escort Recommendation (Message) or Waiver Request Message	TYCOM	Sea Trials - 28 days	Appendix B Para 4.9.9 for Waivers
D. NAVSEA Approval of Escort Waiver	NAVSEA	Sea Trials - 14 days	
E. Phase II Crew Certification/Material Inspection	ISIC/Crew Certification not required unless crew turnover greater than 15%. Material Inspection on a case by case basis	Prior to Fast Cruise	
F. Approve Sea Trials Agenda	ISIC	Prior to Fast Cruise (-7 to 14 days)	Guidelines in Appendix Q
G. Dock Trials (1 day or less)	CO of Ship	Sea Trials - 10 days	Guidelines in Appendix M
H. Audit REC, Departure from Specifications, URO MRCs (Formal Report Required)	ISIC	Sea Trials - 4 days	
I. Crew and Material Certification Message	ISIC	Sea Trials - 4 days	Appendix K
J. Supervising Authority SUBSAFE Certification Continuity Report	Supervising Authority	Sea Trials - 4 days	Reference (u), Paragraph 6.3.2.3.1
K. Readiness for Fast Cruise	CO of Ship	Sea Trials - 4 days	Appendix W
L. Grant Permission to Conduct Fast Cruise	ISIC	Sea Trials - 4 days	Appendix X

EVENT	COGNIZANCE	APPROXIMATE SCHEDULE	CORRESPONDING APPENDIX
M. Commence Fast Cruise	CO of Ship	Sea Trials - 3 days (1 to 2 days in duration)	Guidelines in Appendix N
N. Report Ship Readiness for Sea Trials	CO of Ship	Sea Trials - 1 day	Appendix Y
O. Message Update of Material Certification Status and Readiness for Sea Trials	ISIC	Sea Trials - 1 day	Appendix O
P. Authorization to Commence Sea Trials and Depth Authorization Message	TYCOM	Sea Trials - 1 day	Appendix P
Q. Commence Sea Trials	CO of Ship	0	Guidelines in Appendix Q
R. Daily Sea Trials Situation Report/Status Report	CO of Ship	At Least Daily During Sea Trials	Appendix F of Volume II, Part I, Chapter 3
S. Supervising Authority SUBSAFE Certification Continuity Report	Supervising Authority	Follow-On Sea Trials - 1 day	Reference (u), Paragraph 6.3.2.3.1
T. Report Ship Readiness for Follow-On Sea Trials	CO of Ship	Follow-On Sea Trials - 1 day	Appendix T
U. Update of Material Status prior to Follow-on Sea Trials.	ISIC	Follow-On Sea Trials - 1 day	Appendix U
V. TYCOM Authorization to Commence Follow-On Sea Trials and Depth Authorization	TYCOM	Follow-On Sea Trials - 1 day	Appendix V
W. Sea Trials Completion Message	CO of Ship to ISIC and TYCOM	+1 day After Sea Trials	Appendix L
X. URO Message	TYCOM	+1 day After Sea Trials	Appendix S

NOTE: UNLESS OTHERWISE INDICATED, SCHEDULE DATES ARE REFERENCED TO SEA TRIALS UNDERWAY DATE.

APPENDIX K

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING CREW CERTIFICATION AND MATERIAL CONDITION FOR FAST CRUISE AND SEA TRIALS FOR IDD OR PIRA AVAILABILITIES

FM COMSUB<RON/GRU NO.>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4/40//
INFO <SUPERVISING AUTHORITY>//<CODES>//
USS <SHIP NAME>//
COMSUBGRU<NO.>//N4//
BT
UNCLAS//N09094//
MSGID/GENADMIN/COMSUB<RON/GRU NO.>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> CREW AND MATERIAL CERTIFICATION//
REF/A/DOC/COMFLTFORCOM/<DATE>//
REF/B/DOC/NAVSEA/<DATE>//
REF/C/DOC/NAVSEA/<DATE>//
NARR/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL. REF B IS SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL, NAVSEA 0924-LP-062-0010. REF C IS NAVSEA URO MRC TECHNICAL MANUAL//
RMKS/1. CREW CERTIFICATION CONDUCTED AND SATISFACTORILY COMPLETED IAW REF A.
2. IAW REFS A AND B, COMSUB<RON/GRU NO.> CERTIFIES THE SUBSAFE CERTIFICATION BOUNDARY OF <SHIP NAME/HULL NO.> INSTALLED, REPAIRED AND/OR TESTED BY FORCES AFLOAT IS SATISFACTORY FOR SEA TRIALS TO TEST DEPTH. ALL SUBSAFE CONTROLLED WORK PACKAGES ARE CLOSED. CERTIFICATION REQUIREMENTS OF REF B HAVE BEEN SUSTAINED FOR THE REMAINDER OF THE SUBSAFE CERTIFICATION BOUNDARY. ALL OTHER CONTROLLED WORK PERFORMED BY SHIP'S FORCE HAS BEEN COMPLETED AND SATISFACTORILY RETESTED AND THE APPROPRIATE WORK PACKAGES CLOSED.
3. MATERIAL/SALVAGE CONDITION CERTIFIED READY FOR SEA UPON COMPLETION OF THE FOLLOWING CORRECTIVE ACTIONS:
A.
B.
4. THERE ARE NO OUTSTANDING RECS. THE FOLLOWING DEPARTURES FROM SPECIFICATION ARE CURRENTLY OUTSTANDING:

DEPARTURE NO.	TYPE	SYSTEM/COMPONENT	RESTRICTION (IF ANY)
A.			
B.			

5. ALL URO MRC AND MANDATORY TESTS/INSPECTIONS SPECIFIED IN REF C HAVE BEEN ACCOMPLISHED OR VERIFIED TO BE WITHIN THE REQUIRED PERIODICITY.
6. COMSUB<RON/GRU NO.> REPORTS READINESS OF USS <SHIP NAME/HULL NO.> FOR COMMENCEMENT OF FAST CRUISE. CO USS <SHIP NAME/HULL NO.> CONCURS.//
7. SUBJECT TO SATISFACTORY COMPLETION OF FAST CRUISE AND RESOLUTION OF MANDATORY DEFICIENCIES COMSUB<RON/GRU NO.> CONSIDERS USS <SHIP NAME/HULL NO.> MATERIAL CONDITION READINESS SATISFACTORY FOR COMMENCEMENT OF SEA TRIALS.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX L

SAMPLE SHIP MESSAGE TO ISIC AND TYCOM CONCERNING MATERIAL CERTIFICATION UPON COMPLETION OF SEA TRIALS FOR IDD OR PIRA AVAILABILITIES

FM USS <SHIP NAME>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
COMSUB<RON/GRU NO.>//
<SUPERVISING AUTHORITY>//<CODES>//
INFO CNO WASHINGTON DC//N77//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08O/07Q//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>//N43//
DIRSSP WASHINGTON DC//{FOR SSBN/SSGN}
COMSUBDEVRON FIVE SILVERDALE WA//N4//
COMSUBGRU<NO.>//N4//
BT
UNCLAS //N09094//
GENADMIN/COMSUB<RON/GRU NO.>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> SATISFACTORY COMPLETION OF SEA TRIALS//
REF/A/DOC/ COMFLTFORCOM/<DATE>//
NARR/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II.
RMKS/1. USS <SHIP NAME> REPORTS SATISFACTORY COMPLETION OF SEA TRIALS. ALL TESTING REQUIRED BY THE SEA TRIALS TEST AGENDA AND REF (A) HAVE BEEN COMPLETED. <OR REPORT ALL TESTING NOT COMPLETED PER NOTE 1>.
2. THERE WERE NO SUBSAFE DEFICIENCIES IDENTIFIED. <OR REPORT ALL SUBSAFE DEFICIENCIES>.
3. THE <SUPERVISING AUTHORITY> TEST DIRECTOR CONCURS WITH THIS REPORT.
BT

NOTE 1: LIST ALL RE-ENTRIES TO MATERIAL CERTIFICATION BOUNDARY AND ALL WORK ON SYSTEMS AFFECTING RECOVERABILITY, SALVAGE, WATERTIGHT INTEGRITY, OR OPERATION OF SHIP'S CONTROL SURFACES WITH CORRECTIVE ACTION SINCE RELEASE FOR FAST CRUISE MESSAGE.

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX M

DOCK TRIALS GUIDELINES FOR IDD OR PIRA AVAILABILITIES

1. Dock Trials. Ship's Force Dock Trials provide the opportunity to test and check out systems, components and portable equipment prior to the Fast Cruise training period simulating underway conditions. Although normally a period of one day is assigned for integrated Ship's Force Dock Trials, tests and evolutions performed in the one to two weeks prior to the Dock Trial date may be accepted by the CO as fulfilling the requirements of this paragraph. The purpose of Dock Trials is to afford the ship an opportunity to demonstrate that major systems and equipments are in fact ready to support Sea Trials. It is expected that individual equipments will have been satisfactorily tested prior to commencement of the integrated operational tests afforded by Ship's Force Dock Trials.

1.1 Supervising Authority. The industrial activity may desire to conduct machinery checkouts, or system checks prior to the Ship's Force Dock Trials in order to test the propulsion plant or other ship's systems. In order to support these evolutions, close liaison between the ship's CO and the industrial activity will be required. For these evolutions, completion of repairs or modifications to all ship's systems are not required except for those systems which directly support the proposed tests.

1.2 Scheduling of Tests. The scheduling of Ship's Force Dock Trials is flexible. Ship's Force Dock Trials may be scheduled by mutual agreement between the ship and the supervising authority but must take place prior to certification of crew/material readiness with adequate time allowed for collection of deficiencies discovered during the Ship's Force Dock Trials. Preparation of the agenda and schedule for the Dock Trials is the CO's responsibility.

1.3 Extent of Trials. Ship's Force Dock Trials are conducted by the Ship's Force and are normally unhampered by repair work. This applies to the entire ship not just the propulsion plant. The trials may be witnessed by the industrial activity.

1.3.1 Tests. The term test shall include, where applicable:

a. The review and use of a procedure for correct line-up, starting, operation and securing of systems or equipments.

b. Rigging, connecting and using all hoses, fittings and devices required for the test evolution.

c. Operation of systems in all modes, such as emergency, hand, override, cross-connected, normal, local, etc.

d. Checking all electrical and mechanical, local and remote indicators for proper readings.

e. Testing communications between normal control station and other locations involved in operating the system or performing the evolution.

f. Calibration and adjustment of equipments, systems and devices where required.

g. Inventory consumables, fittings, devices and portable test equipment to ensure that sufficient amounts are on board for proper operation throughout the trials.

1.3.2 Specific Test Areas. There are specific tests which relate to both systems and ship safety which must be conducted in preparation for Sea Trials.

a. The following are specific alongside tests which shall be conducted during Dock Trials:

(1) Check the sound powered phone system between all stations.

(2) Check the announcing system between all stations.

(3) Test collision alarm and diving alarm.

(4) Test general alarm.

(5) Test each light on BCP.

(6) Test whistle.

(7) Check emergency lights.

(8) Operate all hydraulic plants using each installed pump.

(9) Conduct a complete air charge using only ship's compressors.

(10) Conduct a normal battery charge using ship's motor generator on shore power.

(11) Conduct low pressure blow of all Main Ballast Tanks (MBT). Thereafter conduct dockside operation portion of URO 022 (as appropriate).

(12) Flood sanitary tanks and then blow/pump them.

(13) Operate each main vent in hand and power. Following operation, with valves shut, conduct a controlled removal of MBT vent covers, one at a time, to check MBT vents for leaks.

(14) Operate the outboard induction in hand and power.

(15) Operate the diesel engine exhaust valve in hand and power.

(16) Operate inboard induction valves.

(17) Raise, train and lower periscopes, snorkel, radar and antenna masts and fairings as applicable.

(18) Test operation of radio transmitters and receivers on all antennas.

(19) Operate all sonar and radar equipment at rated conditions.

(20) Take and plot LORAN/OMEGA/NAVSAT fixes using each antenna.

(21) Test operation of drain pump using each bilge suction.

(22) Test operation of trim system and pump by pumping to and from each tank and by pumping to and from sea (if applicable).

(23) Calculate and enter the diving trim compensation.

(24) Test operation of portable submersible pump from each installed outlet.

(25) Fire inboard slugs from torpedo room.

(26) Fire inboard slugs from weapons launch console.

(27) Test magazine flooding system.

(28) Operate each lube oil system including pumps, controllers, purifiers and indicators.

(29) Start the Navigation System and gyrocompasses; determine that they settle out and take an azimuth; check all repeaters.

(30) Check fresh water system, have water samples analyzed.

(31) Test the capstans.

(32) Test bow plane rigging (where applicable).

(33) Test bow/sail and stern plane tilting in hand, normal power and emergency. Test normal and emergency plane angle indicators.

(34) Test rudder in hand, normal and emergency power. Test normal and emergency rudder angle indicators.

(35) Check alignment of periscopes, TBTs and all bearing and range repeaters.

(36) Test the engine order telegraphs.

(37) Test Automatic Bus Transfer Devices.

(38) Operate each watertight door and hatch, each bulkhead flapper and each intercompartment air salvage valve.

(39) Check operation of escape hatch fittings.

(40) Operate signal ejectors by impulse and hand using dummy signal. Fire water slugs from all launchers, both locally and remotely.

(41) Turn on and check running lights for brightness and proper lenses (to be done at night).

(42) Check freon air conditioning system.

(43) Check underwater log.

(44) Check 400 Hz MG sets.

(45) Check out galley equipment.

(46) Check fathometer.

(47) Check bilge flooding alarms.

(48) Check dummy log.

(49) Check ship service air system.

(50) Check out vapor compressor distilling units.

(51) Check anchor windlass and brake operation.

(52) Check battery water system.

(53) Check out atmosphere monitoring equipment, both installed and portable.

(54) Operate oxygen generator, CO2 scrubbers, CO burners and emergency air breathing system.

(55) If possible, lower, train, operate and raise the SPM.

(56) Ensure that all required PMS to ship depth detectors is complete.

(57) Test diesel engine high vacuum cut-out. Take altimeter to engine room or diesel generator room for test.

(58) Check main propulsion.

(59) Ensure seven-day supply of oxygen onboard, test operate the Electrolytic Oxygen Generator(s) (EOG).

APPENDIX N

FAST CRUISE REQUIREMENTS FOR IDD OR PIRA AVAILABILITIES

1. Fast Cruise Requirements. Asterisk items are the minimum requirements for an IDD or PIRA availability:

a. All Ships:

* (1) Station the maneuvering watch and check each system and piece of equipment for proper operation. (For availability less than six months duration, system/equipment checks are not required.)

* (2) Station the normal underway watch (section watches).

(3) Simulate getting underway and return to port (day and night).

* (4) Walk through all major Sea Trial evolutions, including cycling of hull and back-up valves to be tested during the deep dive.

* (5) Exercise the reduced visibility detail.

* (6) Rig for Emergency Ventilate.

(7) Spot check storage and availability of spare parts and tools. Verify adequacy of stores and provisions.

* (8) Rig for dive and rig for surface.

* (9) Simulate diving and surfacing.

* (10) Rig for deep submergence.

(11) Rig for various quiet conditions.

(12) Drill at loss of power to various circuits including lighting, communications, 400 Hz power, etc.

(13) Battery charge - Normal or equalizer as required.

* (14) Conduct the following emergency drills:

* (a) Fire.

* (b) Collision.

* (c) Flooding.

* (d) Toxic Gas.

(e) Abandon Ship.

* (f) Man Overboard.

(g) Submarine Escape.

(h) Loss of AC Power.

(i) Emergency Ventilation.

(j) Loss of Air Conditioning.

(k) Loss of Lighting.

(l) Loss of Interior Communications.

(15) Exercise the crew at battle stations.

(16) Conduct communications and ECM drills.

* (17) Conduct an air charge to all air banks. (For availabilities less than six months duration, conduct an air charge.)

* (18) Bleed oxygen and ventilate ship. Ensure a seven day supply of oxygen is onboard and EOGs are fully operational. Ships without EOGs may provide a seven day supply of oxygen in O2 candle form and have oxygen banks inerted until after availability completion.

(19) Anchor.

(20) Operate atmosphere control equipment and take air samples.

* (21) Check out all interior communications circuits, including battle telephones.

(22) Simulate submerged patrol, performing all evolutions and operating equipment normally used.

* (23) Operate freshwater/seawater heat exchangers at sufficient load to verify proper operation (not fouled with marine growth).

(24) Nuclear powered submarines shall meet all requirements of reference (w), Appendix D, Part 3.

b. Additional requirements for SSBN/SSGNs. SSBN/SSGNs shall conduct exercises in casualties to missile tube breather valves which would result in:

(1) Flooding.

(2) Introducing toxic gases into the missile compartment from gas generators.

APPENDIX O

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING FINAL MATERIAL CERTIFICATION PRIOR TO SEA TRIALS FOR IDD OR PIRA AVAILABILITIES

FM COMSUB<RON/GRU NO.>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
INFO COMSUBDEVRON FIVE SILVERDALE WA//N4//
COMSUBGRU <NO.>//N4//
USS <SHIP NAME>//
<SUPERVISING AUTHORITY>//<CODES>//
BT
UNCLAS //N09094//
GENADMIN/COMSUB<RON/GRU NO.>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> MATERIAL CERTIFICATION/ READINESS FOR SEA TRIALS//
REF/A/DOC/ COMFLTFORCOM/<DATE>//
REF/B/RMG/COMSUB<RON/GRU NO.>/<DTG>//{APPENDIX K}
REF/C/RMG/USS<SHIP NAME>/<DTG>//{APPENDIX Y}
REF/D/DOC/NAVSEA /<DATE>//
NARR/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II. REF B IS COMSUB<RON/GRU NO.> REPORT OF CREW CERTIFICATION AND MATERIAL CONDITION FOR FAST CRUISE AND SEA TRIALS. REF C IS SHIP REPORT OF COMPLETION OF FAST CRUISE AND READINESS FOR SEA TRIALS. REF D IS NAVSEA 0924-LP-062-0010, SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL.
RMKS/1. IAW REFS A AND D, THIS MSG CERTIFIES THAT NO MANDATORY DEFICIENCIES FOR SEA TRIALS HAVE BEEN IDENTIFIED AS REPORTED IN REF B AND C. THERE HAVE BEEN NO RECS OPENED AND NO SUBSAFE DEPARTURES FROM SPECIFICATION PROCESSED SINCE THE START OF FAST CRUISE. <OR, REPORT ANY MANDATORY DEFICIENCIES DISCOVERED WITH CORRECTIVE ACTION, AND IF RECS AND/OR DEPARTURES FROM SPECIFICATIONS WERE PROCESSED SINCE THE START OF FAST CRUISE, REPORT ALL RECS OPENED SINCE THE START OF FAST CRUISE ARE CLOSED AND/OR ALL SUBSAFE DEPARTURES FROM SPECIFICATIONS PROCESSED SINCE THE START OF FAST CRUISE ARE RESOLVED.> (NOTE 1.)
2. THERE ARE NO SUBSAFE DEPARTURES FROM SPECIFICATIONS WITH CONDITIONS WHICH HAVE NOT BEEN SATISFIED. THE FOLLOWING ADDITIONAL DEPARTURES FROM SPECIFICATIONS WERE GENERATED SUBSEQUENT TO REF B. <If None, indicate NONE>

DEPARTURE NO.	TYPE	SYSTEM/COMPONENT	RESTRICTION (IF ANY)
A.			
B.			

3. REQUEST PERMISSION TO COMMENCE SEA TRIALS. CO <SHIP NAME/HULL NO.> CONCURS.//
BT

NOTE 1: LIST ALL RE-ENTRIES TO MATERIAL CERTIFICATION BOUNDARY AND ALL WORK ON SYSTEMS AFFECTING RECOVERABILITY, SALVAGE, WATERTIGHT INTEGRITY, OR OPERATION OF SHIP'S CONTROL SURFACES WITH CORRECTIVE ACTION SINCE RELEASE FOR FAST CRUISE MESSAGE.

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX P

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING SEA TRIALS DEPTH AUTHORIZATION FOR IDD OR PIRA AVAILABILITIES

FM COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//
TO USS <SHIP NAME>//
INFO CNO WASHINGTON DC//N87//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08O/07Q//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>//N43//
DIRSSP WASHINGTON DC//205// {For SSBN/SSGN only}
COMSUBGRU <NO.>//
COMSUBRON< NO.>//
<SUPERVISING AUTHORITY>//<CODES>//
BT
UNCLAS //N09094//
MSGID/GENADMIN/COMSUB<LANT/PAC>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> SEA TRIALS DEPTH AUTHORIZATION//
REF/A/DOC/<SUPERVISING AUTHORITY>/<DATE>//
REF/B/RMG/ COMSUB<RON/GRU NO.>/<DTG>//{APPENDIX Y}
REF/C/RMG/ USS <SHIP NAME>/<DTG>//{APPENDIX X}
NARR/ REF A IS <SUPERVISING AUTHORITY> SUBSAFE CERTIFICATION CONTINUITY REPORT FOR <SHIP NAME/HULL NO.>. REF B IS COMSUB<RON/GRU NO.> REPORT OF MATERIAL CONDITION OF SHIP NOT WORKED BY THE SHIPYARD. REF C IS SHIP REPORT OF SATISFACTORY COMPLETION OF FAST CRUISE
RMKS/1. REF A CERTIFIED THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS <SHIP NAME/HULL NO.> INSTALLED, REPAIRED AND/OR TESTED BY THE SHIPYARD IS SATISFACTORY FOR SEA TRIALS TO TEST DEPTH.
2. REF B CONFIRMS THAT THE CERTIFICATION OF THE REMAINDER OF ITEMS WITHIN THE SUBSAFE CERTIFICATION BOUNDARY OF USS <SHIP NAME/HULL NO.> HAS BEEN SUSTAINED. ACCORDINGLY, THE STATUS OF THE SUBSAFE CERTIFICATION BOUNDARY OF USS <SHIP NAME/HULL NO.> IS SATISFACTORY FOR SEA TRIALS TO TEST DEPTH.
3. REF B AND C REPORTED COMPLETION OF FAST CRUISE AND READINESS TO PROCEED ON SEA TRIALS.
4. USS <SHIP NAME/HULL NO.> IS AUTHORIZED TO DIVE UNDER DELIBERATE AND CONTROLLED CONDITIONS TO <SPECIFIED DEPTH>.

NOTE: IF AN UNSATISFACTORY CONDITION OR SEAWATER LEAKAGE IN EXCESS OF THE SPECIFICATION IS FOUND DURING THE CONDUCT OF THE CONTROLLED DIVE TO TEST DEPTH, AT THE DISCRETION OF THE COMMANDING OFFICER THE SHIP MAY CONTINUE TO TEST DEPTH UNLESS THE COMMANDING OFFICER DETERMINES IT APPROPRIATE TO ABORT THE DIVE.

5. THIS DEPTH AUTHORIZATION IS AUTOMATICALLY SUSPENDED UPON RE-ENTRY TO THE SUBSAFE CERTIFICATION BOUNDARY OR CASUALTY AFFECTING RECOVERABILITY, SALVAGE, WATERTIGHT INTEGRITY, OR OPERATION OF SHIP'S CONTROL SURFACES. THE SHIP SHALL NOT OPERATE AT A DEPTH GREATER THAN 200 FEET UNTIL RE-ENTRY IS CERTIFIED. TYCOM APPROVAL IS REQUIRED PRIOR TO COMMENCING A SUBSEQUENT DEEP DIVE TO CERTIFY WORK ACCOMPLISHED TO CORRECT SUBSAFE DEFICIENCIES DISCOVERED DURING THE SEA TRIAL UNLESS SPECIFICALLY ADDRESSED IN THE SEA TRIAL AGENDAS.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX Q

MINIMUM SEA TRIALS REQUIREMENTS FOR IDD OR PIRA AVAILABILITIES

1. Sea Trial Agenda. This Appendix delineates the minimum requirements incident to Sea Trials following an IDD or PIRA availability. Additional events listed in Appendix O of Part I, Chapter 3, of this volume. Minimum Sea Trials Requirements for Chief of Naval Operations Availabilities Greater Than Six Months Duration (Submarines only), may be included by the repair activity based on the scope of work accomplished and/or as desired by the CO.

2. Sea Trial Policy. The following policies apply to conduct of trials and tests associated with IDD or PIRA availabilities:

a. No test or trial event shall be conducted that requires crew intervention to avoid exceeding normal operating limits. Trial agendas will be based on the expectation that the ship will remain within normal operating limits of the SOE and at angles of less than 30 degrees.

b. Any run which will result in exceeding normal operating limits of the SOE or 30 degree angles but which is essential to provide adequate test data must be specifically approved by the TYCOM. The test/trial sponsor will obtain this permission.

c. A violation of the SOE limit or exceeding a 30 degree angle, not previously approved, should be reported by unit Situation Report. The TYCOM will resolve the situation.

d. Specific written approval by the TYCOM is not required to operate outside the upper limits of the SOE, i.e., shallow and fast, while conducting the following operations during Sea Trials or tests in accordance with an agenda approved by the ISIC, NAVSEA or higher authority:

(1) Conducting full power runs or cavitation curves.

(2) NAVSEA sponsored acoustic trials in accordance with Naval Surface Warfare Center, Carderock Division acoustic trial agenda.

e. In cases where troubleshooting is required, it must meet the following criteria or a formally approved change to the agenda is mandatory.

(1) The troubleshooting does not violate any policy listed in paragraphs 2.a through 2.e of this Appendix or any other requirement of the trial agenda.

(2) The troubleshooting will not result in the ship being in a certain condition before that condition is reached during the normal testing sequence. For example, troubleshooting requiring the ship to be deeper than 200 feet cannot be done until after the deep dive. Likewise, troubleshooting requiring large angles or turn rates cannot be done until after the completion of the steering and diving operational tests and the large angle tests.

f. Each person involved in Sea Trials should be allowed to obtain a minimum of six hours of continuous, uninterrupted sleep during any 24-hour period.

3. Testing Phase. The Sea Trials should be scheduled and phased to support actions en route to the test dive area, in the test dive area, prior to the deep dive, etc., subject to the amplifying notes.

a. The following tests and evolutions shall be carried out on the surface en route to the test dive area and prior to the initial tightness dive:

(1) Underway. Rig for dive.

(2) Ship's Force instruct Sea Trials riders on the proper use of Emergency Air Breathing System.

(3) At slow speed, conduct operational test of rudder in all modes (local and remote) in accordance with applicable class operating procedures.

(4) Navigation system check. Takes fixes by all means available and compare.

(5) Test underwater log(s) using the base course/reciprocal course method (i.e., inertial reference method) or other approved functional procedures to determine accuracy.

(6) Test accuracy of all bearing transmitters and indicators. Compare sonar, visual and radar bearings.

(7) Check operation of all radars. Demonstrate accuracy by conducting simultaneous radar and visual plot.

(8) Inspect stern tube packing gland/seals and circulating water flow.

(9) Test fathometer(s) and compare with charted soundings.

(10) Run ahead, at maximum allowable surface speed, long enough for temperatures to reach a stable value. After readings have stabilized, at maximum allowable surface speed, operate the rudder through full throw in each direction, in **all remote modes of operation.**

(11) Ahead, at maximum allowable surface speed, to back emergency.
For SSBN/SSGN 726 Class **only** -Answer ahead standard. Once ship speed has stabilized, perform back emergency for 5 minutes.

(12) Run astern up to a **back full bell.** Full power run astern to be consistent with the main engine limits of the applicable Steam and Electric Plant Manual. Operate rudder through full throw.
For SSBN/SSGN 726 Class **only** - Run astern up to a back full bell for 5 minutes, followed by 60 SRPM for 5 minutes. Operate the rudder through full throw (See Note 1).

(13) Check operation and accuracy of ship's gyro compass.

(14) Rendezvous with escort, if an escort is required. Conduct radio and sonar communications checks (See Note 2).

(15) **Rig out bow planes,** if applicable. Test bow/fairwater and stern planes in all modes.

(16) Flood variable tanks to computed compensation less a safety factor.

(17) Operate trim and drain pumps.

(18) Test variable ballast system for proper operation.

(19) Perform a low pressure, normal and EMBT blow for as long as necessary to verify system operability. A static blow shall not be used to test the EMBT blow system. For SSN 23 only: Perform an MBT 6 normal blow from the BCP for a minimum duration of 2 seconds to verify that air flows into MBT 6 as indicated by a reduction in air bank pressure.

(20) Check that initial EMBT Blow system actuating air pressure and air bank pressure is within +0 PSIG, -200 PSIG of nominal operating air pressure.

(21) Ensure all MBT blow systems are in a normal line up configuration.

(22) Additional requirements may be imposed at the discretion of the CO.

b. The following tests and evolutions shall be carried out immediately prior to or during the initial tightness dive:

(1) Obtain navigational fix and take sounding. Maximum depth of water is 400 feet as specified in reference (b).

(2) Rig ship for deep submergence. Line up propulsion plant for maximum reliability. All systems shall be in the maximum secure condition with unnecessary sea systems isolated (See Note 3).

(3) Station additional personnel throughout the ship to inspect for leaks.

(4) Transmit commencing initial tightness dive message. Submerge the ship per the Ship Systems Manual Operating Procedures. If desired to conduct periscope depth tests, the ship may be submerged to periscope depth.

(5) Check operation of ship control systems, including depth indication (See Note 4).

(6) When escort is required, communicate with escort on RAC/WQC at each depth increment or at 10-minute intervals, whichever is sooner. If communications are lost, return to depth at which communications can be established before continuing (See Note 2).

(7) All hands inspect for leaks and report them.

(8) Inspect the discharge of all automatic drains in each EMBT Blow quadrant for sea water leakage prior to the first dive when the ballast tanks are flooded (e.g., at periscope depth).

(9) At periscope depth, operate all masts checking optics and leakage. Observe speed and depth restrictions for masts without violation of the SOE (See Note 5). Event may be performed following initial dive, if sea state prevents operation at periscope depth.

(10) Test operation of trim and drain system **discharging** to sea.

(11) If not at 150 feet for SSN 688 Class submarines (155 feet for SSN 774 Class submarines), (160 feet for SSBN/SSGN 726 and SSN 21 Class submarines), proceed to 150 feet for SSN 688 Class submarines (155 feet for SSN 774 Class submarines), (160 feet for SSBN/SSGN 726 and SSN 21 Class submarines) and obtain SAT 1/3 trim in accordance with the Ship's Operating Manual. Take readings as required to make a check of ballasting.

(12) At 200 feet:

(a) Adjust trim (See Note 6).

(b) Inspect for leaks.

(c) Communicate with escort at each depth increment or at 10-minute intervals, whichever is sooner. If communications are lost, return to depth at which communications can be re-established before continuing (See Note 2).

(13) At 200 feet, in accordance with reference (x):

(a) Check accuracy of gauges and repeaters (See Note 4).

(b) Evaluate signal ejectors or launchers. Conduct operational test of each by hand and impulse methods, as applicable (See Note 7).

(c) Check shafting bearings and stern tubes for excessive heating, leakage and noise. Main shaft seals must be tested at each depth specified in reference (x) testing one seal for 20 minutes, and shifting to the other seal. Test the second seal for 20 minutes or until the boat is ready to go to the next depth, whichever comes first.

(d) Cycle rudder and planes through full throw at slow speed to check for binding.

NOTE: REQUIRED SYSTEMS ARE LISTED IN PARAGRAPH 4b OF REFERENCE (x). OBSERVE RESTRICTIONS ON OPERATION OF SYSTEMS LISTED IN PARAGRAPH 4d OF REFERENCE (x).

(e) Operate all Main and Auxiliary Sea Water hull and back-up valves and those other seawater system valves worked during the availability (using remote closures, as applicable, from flooding control stations) that are required to maintain propulsion and other functions vital to the ship's operation.

(14) Test the SPM (See Note 13 in Appendix O of Part I, Chapter 3 of this volume).

(15) Additional requirements may be imposed at the discretion of the CO.

c. The following tests and evolutions shall be carried out following the initial tightness dive and prior to the deep dive:

(1) Transmit initial tightness dive complete message.

(2) A minimum of six hours of **ISE submerged for crew training.**

(3) Charge air banks and battery as necessary. The ship may be submerged while charging air banks provided the depth of the ship does not exceed other guidelines in this instruction, or those of the flooding bill or ship's operating procedure.

(4) If escort is required, detach escort after initial tightness dive. Escort will then proceed to station for deep dive. Ensure that deep dive rendezvous time and location are clearly established before escort is released. The escort may be retained for additional testing during the transit as described in Part I, Chapter 3, Appendix P of this volume. Transit depths shall not exceed depth as described in Part I, Chapter 3, Appendix P of this volume.

(5) Additional requirements may be imposed at the discretion of the CO.

d. The following tests and evolutions shall be carried out immediately prior to or during the deep dive:

(1) Check that initial EMBT Blow system actuating air pressure and air bank pressure is within +0 PSIG, -200 PSIG of nominal operating air pressure.

(2) Verify MBT systems lined up for normal operation.

(3) Take sounding. Accurately fix ship's position within the specified dive area in accordance with reference (b). Transmit commencing deep dive message.

(4) Proceed to normal submergence depth and obtain a 1/3 speed trim. Use conservative angles and speed on initial dive.

(5) Trim ship to maintain neutral buoyancy (See Note 6).

(6) Rig ship for deep submergence. Line up propulsion plant for maximum reliability. All systems shall be in the maximum secure condition with unnecessary sea systems isolated (See Note 3).

(7) Station additional personnel throughout the ship to inspect for leaks.

(8) At 400 feet and then in increments of 100 feet descending to one-half the maximum operating depth and every 100 feet or other lesser specified increments thereafter down to the maximum authorized operating depth:

(a) Adjust trim (See Note 6).

(b) Inspect for leaks.

(c) Communicate with escort (if escort required) at each 100 foot depth increment or at 10-minute intervals, whichever is sooner. If communications are lost, return to a depth at which communications can be re-established before continuing (See Note 2).

(9) At depths listed for hull valve cycling in reference (x) including the maximum authorized operation depth:

(a) Check accuracy of gauges and repeaters (See Note 4).

(b) Evaluate signal ejectors or launchers. Conduct operational test of each by hand and impulse methods, as applicable (See Note 7).

(c) Check shafting bearings and stern tubes for excessive heating, leakage and noise. Main shaft seals must be tested at each depth specified in reference (x) testing one seal for 20 minutes, and shifting to the other seal. Test the second seal for 20 minutes or until the boat is ready to go to the next depth, whichever comes first.

(d) Cycle rudder and planes through full throw to check for binding. Cycling of rudder and planes through full throws should be limited to 90 % of test depth.

NOTE: REQUIRED SYSTEMS ARE LISTED IN PARAGRAPH 4b OF REFERENCE (x). OBSERVE RESTRICTIONS ON OPERATION OF SYSTEMS LISTED IN PARAGRAPH 4d OF REFERENCE (x).

(e) Operate all Main and Auxiliary Sea Water hull and back-up valves and those other seawater system valves worked during the availability (using remote closures, as applicable, from flooding control stations) that are required to maintain propulsion and other functions vital to the ship's operation at increments of depth specified in reference (x).

NOTE: TRASH DISPOSAL UNITS (TDU) WITH BALL VALVES WILL NOT BE OPERATED BELOW 200 FEET. TDUs WITH FLAPPER VALVES WILL NOT BE OPERATED BELOW 150 FEET.

(f) Operate trim and drain pumps, discharging to sea.

(g) Cycle main ballast tank vents to check for binding. Main ballast tank vents will be cycled hydraulically except at test depth where they will be cycled manually.

(10) Surface fully with EMBT blow in accordance with applicable URO MRC. Check air bank pressures before and after blow. For SSN 23 only: Perform an MBT 6 normal blow from the BCP until MBTs 6A and 6B are blown to residual water levels.

(11) Transmit completion of deep dive message.

(12) Additional requirements may be imposed at the discretion of the Commanding Officer.

e. The following tests and evolutions shall be carried out submerged following the deep dive:

(1) Full power run (See Notes 8, 9 and 10).

(2) Emergency stop (See Notes 9 and 10).

(3) Steering and diving operation at full speed (See Note 11).

(4) Steep angles - operate ship through several depth changes using large up and down angles. Check operation of ship machinery (See Note 9).

(5) Time raising each periscope and mast at maximum depth and speed for which they are designed. Check training feature where applicable.

(6) Run and observe air conditioning plants throughout trials noting deficiencies. Operate the Lithium Bromide air conditioning plant (if installed) to demonstrate ability to carry entire maximum existing ship's air conditioning load or 100 percent capacity.

(7) Additional requirements may be imposed at the discretion of the Commanding Officer.

4. Sea Trial Conclusion. At the conclusion of Sea Trials, and based on a review of Sea Trial deficiencies and TYCOM concurrence, the submarine may transit to a port other than the overhauling activity. During this transit the submarine shall not operate at depths greater than 400 feet (one-half test depth plus fifty feet for SSN 688 class), and shall not be released for unrestricted operations until all RECs are closed and any deficiencies identified during the controlled dive to test depth have been reported and reviewed by the TYCOM and specific TYCOM approval for URO is granted.

NOTES

1. For SSBN/SSGN 726 Class submarines **only** - This surface evolution, full power run astern, shall be conducted only if maintenance was accomplished on the reduction gears, the astern throttle(s) or the main shaft thrust bearing.

2. In the execution of any Sea Trial, whether escorted or not, submarine COs are reminded of their responsibility to communicate with escorts and/or shore authorities within the prescribed previously agreed upon time limits to avoid initiation of lost submarine procedures.

3. Reference (x) [C9094.2 (Series)] prescribes procedures for system operation during the deep dive.

4. Compare all depth and pressure gauges. Depth and pressure gauges should be checked as soon as each next specified depth is reached.

5. Any evolutions (e.g., mast testing, propeller cavitation data collection, etc.) required by the Sea Trial Agenda, which violate the ship's SOE, must be approved by the TYCOM prior to Sea Trials, in accordance with paragraph 2 of this Appendix.

6. Deep dive should be conducted using moderate speed and constantly adjusting trim at depths indicated in paragraphs 3.b.(12)(a) and 3.d.(8)(a) of this Appendix, to maintain neutral buoyancy. Moderate speed shall be defined as that range of speed that allows the ship to recover from a loss of stern plane control or flooding casualty or as otherwise directed by NAVSEA.

7. Integrity of launchers or signal ejectors shall be established by admitting sea pressure through equalizing lines or flooding connection and the muzzle valve/door operated before conducting operational tests. Shoot water slugs from specified launchers or signal ejectors at depths specified by reference (x). Shoot pyrotechnics on initial dive and at test depth on deep dive **only** if work was accomplished on the launchers or signal ejectors or if an escort vessel is required for the trial.

8. Run full power submerged for at least two hours. Operate at minimum non-cavitating depth, but not to exceed 400 feet, in accordance with reference (b); water depth is not limited for this event.

9. Note that the required sequence of events is initial dive, deep dive, full power run submerged, back emergency, then high speed maneuverability, and steep angle tests. Initial high speed ship control tests, steep angle tests and exercises at major casualties shall be conducted in water that does not exceed one and one-half times design test depth.

10. The submerged full power run with an ahead flank bell is to be terminated with a back emergency bell, consistent with current Main Propulsion Operating Limits (shaft torque is not a limiting factor in this test). The duration of the back emergency bell will be limited to 45 seconds, to be followed immediately by an appropriate ahead bell. The 45 second limit will:

    a. Standardize the crashback requirements throughout the submarine force.

    b. Provide a backing transient similar to that experienced in response to a stern plane jam.

    c. Be short enough that no ship will gather sternway.

    For SSBN/SSGN 726 Class submarines **only** - The submerged full power run with an ahead flank bell is to be terminated by reducing the bell to ahead standard until speed stabilizes. The ship is then to conduct a back emergency bell consistent with current Main Propulsion Operating Limits (shaft torque is not a limiting factor in this test). The duration of the back emergency bell will be limited to 45 seconds, to be followed by an appropriate ahead bell. The 45-second limit will avoid developing sternway.

11. At maximum safe speed, operate the rudder and planes through full throw in both directions, in all remote modes of operation.

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APPENDIX R

SUBMARINE SEA TRIAL SITUATION REPORT (SITREP)

FM USS <SHIP NAME>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
INFO CNO WASHINGTON DC//N77//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>N43//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08O//
DIRSSP WASHINGTON DC//205// {For SSBN/SSGN Only}
<SUBOPAUTH>// {IF OTHER THAN PARENT TYCOM}
COMSUBDEVRON FIVE SILVERDALE WA//N3//
COMSUBGRU <NO.>//N5//
COMSUB<RON/GRU NO.>//
<SUPERVISING AUTHORITY>//<CODES>//
(OTHER UNITS IN AREA IF APPLICABLE)//
BT
UNCLAS //N09094//
MSGID/GENADMIN/USS <SHIP NAME>//
SUBJ/(TYPE AVAILABILITY) SITREP (SEQUENTIAL NUMBER)//
REF/A/DOC/COMFLTFORCOM/<DATE>//
REF/B/DOC/AS APPLICABLE/<DATE>//
NARR/ REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II.
RMKS/1. CO'S SUMMARY, EVENTS 1-9 COMPLETED WITH THE FOLLOWING DEFICIENCIES NOTED:
A. SUBSAFE/URO DEFICIENCIES.
1) #1 SCOPE HULL GLAND LEAK 1 DPM AT 20% TD
2) TDU VENT, TD-104 LEAKS 3 DPM AT 65% TD.
3) STERN PLANES AUX ANGLE INDICATOR ON BCP DOES NOT ILLUMINATE, URO-16
B. NON-SUBSAFE/URO DEFICIENCIES.
1) SCULLERY DRAIN LEAKING AT FITTING F-18, 27 DPM
2) 3 FLOOR TILES IN CREWS MESS LIFTED AFFECTING SANITATION
3) CO HOT WATER SHOWER RECIRC PUMP FAILED

2. PREVIOUS DEFICIENCIES REPORTED AND STATUS.
(LIST ALL PREVIOUS DEFICIENCIES AND CURRENT STATUS-THE GOAL IS TO CAPTURE THE COMPLETE MATERIAL CONDITION IN EACH MESSAGE) STATUS = REPAIRED (R), CORRECTIVE ACTION REQUIRED (CAR), NOT APPLICABLE (NA)

EXAMPLE –

1) SCULLERY DRAIN LEAKING AT FITTING F-18, 27 DPM -R
2) 3 FLOOR TILES IN CREWS MESS LIFTED AFFECTING SANITATION - CAR
3) CO HOT WATER SHOWER RECIRC PUMP FAILED - CAR
4) #1 SCOPE HULL GLAND LEAK 1 DPM AT 20% TD - CAR
5) TDU VENT, TD-104 LEAKS 3 DPM AT 65% TD - CAR
6) STERN PLANES AUX ANGLE INDICATOR ON BCP DOES NOT ILLUMINATE, URO-16 - R
3. ADDITIONAL INFO.
1) DESCRIBE ANY ADDITIONAL INFO DESIRED OR LIST "NONE".
4. **TYCOM, NAVSHIPYD, AND NAVSEA REPS CONCUR-DO NOT CONCUR (AS APPROPRIATE).//**
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX S

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING URO FOR IDD OR PIRA AVAILABILITIES

FM COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//
TO USS <SHIP NAME>//
INFO CNO WASHINGTON DC//
COMNAVSEASYSCOM WASHINGTON DC//392/08O/07Q//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>//
DIRSSP WASHINGTON DC//{FOR SSBN/SSGN}
COMSUBGRU <NO.>//
COMSUB<RON/GRU NO.>//
<SUPERVISING AUTHORITY>//
BT
UNCLAS //N09094//
MSGID/GENADMIN/COMSUB<LANT/PAC>//
SUBJ/(SUBS) UNRESTRICTED OPERATION OF USS <SHIP NAME/HULL NO.>//
REF/A/RMG/ USS <SHIP NAME>/<DTG>//
REF/B/DOC/COMFLTFORCOMINST 4790.3//
REF/C/DOC/ NAVSEA 0924-LP-062-0010//
NARR/REF A IS USS <SHIP NAME> MSG CONCERNING COMPLETION OF SEA TRIALS. REF B IS THE JOINT FLEET MAINTENANCE MANUAL. REF C IS THE SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL.//
RMKS/1. REF A REPORTED THE SATISFACTORY COMPLETION OF SEA TRIALS WITH NO SUBSAFE DEFICIENCIES IDENTIFIED. (IF SPECIFIC SUBSAFE DEFICIENCIES WERE IDENTIFIED BUT WERE NOT DEEP DIVE RETEST FAILURES LIST SPECIFICS – DEEP DIVE TEST FAILURES WILL REQUIRE A FOLLOW-ON SEA TRIALS)
2. TYCOM AUTHORIZES, USS <SHIP NAME/HULL NO.> TO CONDUCT OPERATIONS TO <SPECIFIED> DEPTH, SUBJECT TO THE FOLLOWING RESTRICTIONS: <LIST RESTRICTIONS IF THEY EXIST OR STATE "NONE">.
3. CONTINUED CERTIFICATION FOR OPERATIONS TO TEST DEPTH IS SUBJECT TO COMPLIANCE WITH REF B AND REF C.
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX T

SAMPLE SHIP MESSAGE TO TYCOM CONCERNING READINESS FOR FOLLOW-ON SEA TRIALS FOR IDD OR PIRA AVAILABILITIES

FM USS <SHIP NAME>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
INFO COMSUBDEVRON FIVE SILVERDALE WA//N3//
COMSUBGRU <NO.>//N5//
COMSUB<RON/GRU NO.>//
<SUPERVISING AUTHORITY>//<CODES>//
BT
UNCLAS //N09094//
MSGID/GENADMIN//USS <SHIP'S NAME>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.>READINESS FOR <FOLLOW-ON (NOTE 1)>SEA TRIALS//
REF/A/DOC/<SUPERVISING AUTHORITY>/<DATE>//
REF/B/DOC/COMFLTFORCOM/<DATE>//
REF/ REF A IS <SUPERVISING AUTHORITY> SUBSAFE CERTIFICATION CONTINUITY REPORT FOR <SHIP NAME/HULL NO.>. REF B IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II.//
RMKS/1. REF A CERTIFIED THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS <SHIP NAME/HULL NO.> INSTALLED, REPAIRED AND/OR TESTED BY THE SHIPYARD IS SATISFACTORY FOR SEA TRIALS TO TEST DEPTH.
2. USS <SHIP NAME/HULL NO.> AND CREW REPORTED READY TO PROCEED IAW REF B, ON <FOLLOW-ON (NOTE 1)> SEA TRIALS WITH THE FOLLOWING EXCEPTIONS:
    A. REMOVAL OF SHORE SERVICE CONNECTIONS.
    B.
3. MATERIAL CONDITION SUPPORTS ADEQUATE CREW REST FOR UNDERWAY AT <TIME AND DATE>.
4. REQUEST PERMISSION TO COMMENCE <FOLLOW-ON (NOTE 1)> SEA TRIALS.//
BT

NOTE 1: UPCOMING TRIAL WHICH IS SUBJECT OF THIS CERTIFICATION (E.G., SECOND SEA TRIAL, ETC.).

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX U

SAMPLE ISIC MESSAGE TO TYCOM CONCERNING MATERIAL CERTIFICATION FOR FOLLOW-ON SEA TRIALS IN CASES WHERE A PREVIOUS SEA TRIAL WAS ABORTED OR CORRECTIVE ACTIONS FOR SEA TRIAL DEFICIENCIES REQUIRE AN ADDITIONAL DEEP DIVE FOR IDD OR PIRA AVAILABILITIES

FM COMSUB<RON/GRU NO.>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
INFO COMSUBDEVRON FIVE SILVERDALE WA//N4//
COMSUBGRU <NO.>//N4//
USS <SHIP NAME>//
<SUPERVISING AUTHORITY>//<CODES>//
BT
UNCLAS //N09094//
MSGID//GENADMIN/COMSUB<RON/GRU NO.>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.>MATERIAL CERTIFICATION/ READINESS FOR <FOLLOW-ON (NOTE 1)> SEA TRIALS//
REF/A/DOC/ COMFLTFORCOM/<DATE>//
REF/B/RMG/COMSUB<RON/GRU NO.>/<DTG>//{APPENDIX Y}
REF/C/DOC/NAVSEA /<DATE>//
REF/D/RMG/USS <SHIP NAME>/<DTG>//{APPENDIX T}
NARR/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II. REF B IS COMSUB<RON/GRU NO.> MSG TO TYCOM ON MATERIAL STATUS PRIOR TO INITIAL SEA TRIALS. REF C IS NAVSEA 0924-LP-062-0010, SUBMARINE SAFETY (SUBSAFE) REQUIREMENTS MANUAL. REF D IS USS <SHIP NAME/HULL NO.> REPORT OF READINESS FOR FOLLOW-ON SEA TRIALS.//
RMKS/1. IAW REF A AND C, THIS MSG CERTIFIES THAT NO MANDATORY DEFICIENCIES FOR <FOLLOW-ON (NOTE 1)> SEA TRIALS HAVE BEEN IDENTIFIED. THERE HAVE BEEN NO RECS OPENED AND NO FORCES AFLOAT SUBSAFE DEPARTURES FROM SPECIFICATION PROCESSED SINCE THE START OF THE INITIAL SEA TRIALS <OR, SUBSEQUENT TO REF B, REPORT ANY MANDATORY DEFICIENCIES DISCOVERED WITH CORRECTIVE ACTION, AND IF RECS AND/OR DEPARTURES FROM SPECIFICATIONS WERE PROCESSED SINCE THE START OF THE INITIAL SEA TRIALS, REPORT ALL RECS OPENED SINCE THE START OF INITIAL SEA TRIALS ARE CLOSED AND/OR ALL SUBSAFE DEPARTURES FROM SPECIFICATIONS PROCESSED SINCE THE START OF SEA TRIALS ARE RESOLVED (NOTE 2).>
2. THERE ARE NO SUBSAFE DEPARTURES FROM SPECIFICATIONS WITH CONDITIONS WHICH HAVE NOT BEEN SATISFIED. THE FOLLOWING DEPARTURES FROM SPECIFICATIONS ARE CURRENTLY OUTSTANDING:

DEPARTURE NO.	TYPE	SYSTEM/COMPONENT	RESTRICTION (IF ANY)
A.			
B.			

3. SHIP REPORTED READINESS FOR FOLLOW-ON SEA TRIALS IN REF D.//
BT

NOTE 1: UPCOMING TRIAL WHICH IS SUBJECT OF THIS CERTIFICATION (E.G., SECOND SEA TRIAL, ETC.).

NOTE 2 LIST ALL RE-ENTRIES TO MATERIAL CERTIFICATION BOUNDARY AND ALL WORK ON SYSTEMS AFFECTING RECOVERABILITY, SALVAGE, WATERTIGHT INTEGRITY, OR OPERATION OF SHIP'S CONTROL SURFACES WITH CORRECTIVE ACTION SINCE RELEASE FOR FAST CRUISE MESSAGE.

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX V

SAMPLE TYCOM MESSAGE TO SHIP CONCERNING FOLLOW-ON SEA TRIALS DEPTH AUTHORIZATION FOR IDD OR PIRA AVAILABILITIES

FM COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//
TO USS <SHIP NAME>//
INFO CNO WASHINGTON DC//N87//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08O/07Q//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>//N43//
DIRSSP WASHINGTON DC//{FOR SSBN/SSGN}
COMSUBGRU <NO.>//
COMSUB<RON/GRU NO.>//
<SUPERVISING AUTHORITY>//<CODES>//
BT
UNCLAS //N09094//
MSGID/GENADMIN/COMSUB<LANT/PAC>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> <FOLLOW-ON (NOTE 1)> SEA TRIALS DEPTH AUTHORIZATION//
REF/A/DOC/<SUPERVISING AUTHORITY>/<DATE>//
REF/B/RMG/ COMSUB<RON/GRU NO.>/<DTG>//{APPENDIX U}
REF/C/RMG/ USS <SHIP NAME>/<DTG>//{APPENDIX T}
NARR/ REF A IS <SUPERVISING AUTHORITY> SUBSAFE CERTIFICATION CONTINUITY REPORT FOR <SHIP NAME/HULL NO.>. REF B IS COMSUB<RON/GRU NO.> REPORT OF MATERIAL CONDITION OF SHIP NOT WORKED BY THE SHIPYARD. REF C IS SHIP REPORT OF READINESS FOR <FOLLOW-ON (NOTE 1)> SEA TRIALS
RMKS/1. REF A CERTIFIED THE SUBSAFE MATERIAL CONDITION OF THOSE PARTS OF USS <SHIP NAME/HULL NO.> INSTALLED, REPAIRED, AND/OR TESTED BY THE SHIPYARD IS SATISFACTORY FOR <FOLLOW-ON (NOTE 1)> SEA TRIALS TO TEST DEPTH.
2. REF B AND C CONFIRM THAT CREW IS READY FOR <FOLLOW-ON (NOTE 1)> SEA TRIALS AND REPORT THE CERTIFICATION OF THE REMAINDER OF ITEMS WITHIN SUBSAFE CERTIFICATION BOUNDARY OF USS <SHIP NAME/HULL NO.> HAS BEEN SUSTAINED. ACCORDINGLY, THE STATUS OF THE SUBSAFE CERTIFICATION BOUNDARY OF USS <SHIP NAME/HULL NO.> IS SATISFACTORY FOR <FOLLOW-ON (NOTE 1)> SEA TRIALS TO TEST DEPTH.
3. USS <SHIP NAME/HULL NO.> IS AUTHORIZED TO DIVE UNDER DELIBERATE AND CONTROLLED CONDITIONS TO <SPECIFIED> DEPTH IAW THE <FOLLOW-ON (NOTE 1)> SEA TRIALS AGENDA CONCURRED IN BY REF B AND APPROVED BY REF C.

NOTE: IF AN UNSATISFACTORY CONDITION OR SEAWATER LEAKAGE IN EXCESS OF THE SPECIFICATION IS FOUND DURING THE CONDUCT OF THE CONTROLLED DIVE TO TEST DEPTH, AT THE DISCRETION OF THE COMMANDING OFFICER THE SHIP MAY CONTINUE TO TEST DEPTH UNLESS THE COMMANDING OFFICER DETERMINES IT APPROPRIATE TO ABORT THE DIVE.

4. THIS DEPTH AUTHORIZATION IS AUTOMATICALLY SUSPENDED UPON RE-ENTRY TO THE SUBSAFE CERTIFICATION BOUNDARY OR CASUALTY AFFECTING RECOVERABILITY, SALVAGE, WATERTIGHT INTEGRITY, OR OPERATION OF SHIP'S CONTROL SURFACES. THE SHIP SHALL NOT OPERATE AT A DEPTH GREATER THAN 200 FEET UNTIL RE-ENTRY IS CERTIFIED. TYCOM APPROVAL IS REQUIRED PRIOR TO COMMENCING A SUBSEQUENT DEEP DIVE TO CERTIFY WORK ACCOMPLISHED TO CORRECT SUBSAFE DEFICIENCIES DISCOVERED DURING THE SEA TRIAL UNLESS SPECIFICALLY ADDRESSED IN THE SEA TRIAL AGENDAS.//
BT

NOTE 1: UPCOMING TRIALS WHICH ARE SUBJECT OF THIS CERTIFICATION (E.G., SECOND SEA TRIALS, ETC.).

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX W

SAMPLE SHIP MESSAGE TO ISIC CONCERNING READINESS FOR FAST CRUISE FOR IDD OR PIRA AVAILABILITIES

FM USS <SHIP NAME>//
TO COMSUB<RON/GRU NO.>//
INFO COMSUBDEVRON FIVE SILVERDALE WA//N3//
COMSUBGRU <NO.>//N5//
<SUPERVISING AUTHORITY>/<CODES>//
BT
UNCLAS //N09094//
MSGID/GENADMIN/USS <SHIP NAME>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> READINESS FOR FAST CRUISE//
REF/A/DOC/<SUPERVISING AUTHORITY>/<DATE>//
REF/B/RMG/COMSUB<RON/GRU NO.>/<DTG>//{APPENDIX K}
REF/C/DOC/COMFLTFORCOM/<DATE>//
NARR/ REF A IS <SUPERVISING AUTHORITY> SUBSAFE CERTIFICATION CONTINUITY REPORT. REF B IS COMSUB<RON/GRU NO.> REPORT OF CREW CERTIFICATION AND MATERIAL CONDITION FOR FAST CRUISE AND SEA TRIALS. REF C IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II.//
1. REFS A AND B REPORTED READINESS OF SHIP FOR FAST CRUISE AND SEA TRIALS. USS <SHIP NAME/HULL NO.> AND CREW ARE READY FOR SEA TRIALS IAW REF C WITH THE FOLLOWING EXCEPTIONS:
    A. COMPLETION OF FAST CRUISE.
    B. REMOVAL OF SHORE SERVICE CONNECTIONS.
2. REQUEST PERMISSION TO START FAST CRUISE.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX X

SAMPLE ISIC MESSAGE TO SHIP AUTHORIZING COMMENCEMENT OF FAST CRUISE FOR IDD OR PIRA AVAILABILITIES

FM COMSUB<RON/GRU NO.>//
TO USS <SHIP NAME>//
INFO CNO WASHINGTON DC//N77//
COM<LANT/PAC>FLT <NORFOLK VA/PEARL HARBOR HI>//N43//
COMNAVSEASYSCOM WASHINGTON DC//PMS 392/08O/07Q//
COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
DIRSSP WASHINGTON DC //205//{For SSBN/SSGN only}
<SUBOPAUTH>// {If other than parent TYCOM}
COMSUBDEVRON FIVE SILVERDALE WA//N3//
COMSUBGRU <NO.>//N5//
<SUPERVISING AUTHORITY>/<CODES>//
BT
UNCLAS //N09094//
MSGID/GENADMIN/USS <SHIP NAME>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.> READINESS FOR FAST CRUISE//
REF/A/DOC/<SUPERVISING AUTHORITY>/<DATE>//
REF/B/RMG/COMSUB<RON/GRU NO.>/<DTG>//{APPENDIX K}
REF/C/RMG/ USS <SHIP NAME>/<DTG>//{APPENDIX W}
REF/D/DOC/ COMFLTFORCOM/<DATE>//
NARR/ REF A IS <SUPERVISING AUTHORITY> SUBSAFE CERTIFICATION CONTINUITY REPORT. REF B IS COMSUB<RON/GRU NO.> REPORT OF CREW CERTIFICATION AND MATERIAL CONDITION FOR FAST CRUISE AND SEA TRIALS. REF C USS <SHIP NAME> IS REPORT OF READINESS FOR FAST CRUISE AND SEA TRIALS. REF D IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II.//
1. REF A REPORTED <SUPERVISING AUTHORITY> ASSIGNED WORK COMPLETE AND READINESS FOR FAST CRUISE AND SEA TRIALS.
2. REF B REPORTED REMAINING PORTIONS OF SUBSAFE BOUNDARY NOT WORKED BY <SUPERVISING AUTHORITY> MAINTAINED CERTIFIED AND READINESS FOR FAST CRUISE AND SEA TRIALS.
3. REF C REPORTED SHIP'S FORCE READINESS FOR FAST CRUISE AND SEA TRIALS AND REQUESTED PERMISSION TO COMMENCE FAST CRUISE.
4. IAW WITH REF D USS <SHIP NAME> IS AUTHORIZED TO COMMENCE FAST CRUISE. <SHIP NAME> IS DIRECTED TO REPORT COMPLETION OF FAST CRUISE AND ALL SUBSAFE DEFICIENCIES IDENTIFIED DURING FAST CRUISE TO COMSUB<RON/GRU NO.>, COMSUB<LANT/PAC> AND <SUPERVISING AUTHORITY>.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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APPENDIX Y

SAMPLE SHIP MESSAGE TO ISIC AND TYCOM CONCERNING READINESS FOR SEA TRIALS FOR IDD OR PIRA AVAILABILITIES

FM USS <SHIP NAME>//
TO COMSUB<LANT/PAC> <NORFOLK VA/PEARL HARBOR HI>//N4//
COMSUB<RON/GRU NO.>//
INFO COMSUBDEVRON FIVE SILVERDALE WA//N3//
COMSUBGRU <NO.>//N5//
<SUPERVISING AUTHORITY>//<CODES>//
BT
UNCLAS //N09094//
MSGID/GENADMIN//USS <SHIP'S NAME>//
SUBJ/(SUBS) USS <SHIP NAME/HULL NO.>READINESS FOR SEA TRIALS//
REF/A/DOC/ COMFLTFORCOM/<DATE>//
NARR/REF A IS COMFLTFORCOMINST 4790.3, JOINT FLEET MAINTENANCE MANUAL, VOLUME II//
RMKS/1. FAST CRUISE COMPLETED <TIME AND DATE>.
2. IAW REF A, USS <SHIP NAME/HULL NO.> AND CREW REPORTED READY TO PROCEED ON SEA TRIALS WITH THE FOLLOWING EXCEPTIONS:
    A. REMOVAL OF SHORE SERVICE CONNECTIONS.
    B.
3. MATERIAL CONDITION SUPPORTS ADEQUATE CREW REST FOR UNDERWAY AT <TIME AND DATE>.
4. REQUEST PERMISSION TO COMMENCE SEA TRIALS.//
BT

NOTE: ENSURE MESSAGES ARE IN ACCORDANCE WITH NTP-3 FORMAT AND CURRENT PLAD IS UTILIZED.

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VOLUME II

PART I

CHAPTER 5

DEEP SUBMERGENCE RESCUE VEHICLE TRIAL REQUIREMENTS

NOTE: CHAPTER DELETED DUE TO DSRVs BEING DECERTIFIED FOR USE.

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VOLUME II

PART II

CHAPTER 1

SHIP MAINTENANCE VALIDATION, SCREENING AND BROKERING

REFERENCES.

(a) OPNAVINST 4700.7 - Maintenance Policy for U.S. Naval Ships

LISTING OF APPENDICES.

A Availability Creation and Numbering

1.1 PURPOSE. This chapter provides procedures and guidance regarding ship maintenance work candidate validation, screening and brokering processes. These processes affect all Type Commanders (TYCOM), Regional Maintenance Center (RMC) Commanding Officers and ship Maintenance Teams.

1.2 MAINTENANCE.

1.2.1 Regional Maintenance Centers. The command with overall responsibility for efficient planning, brokering and execution of all ship maintenance and modernization for assigned ships is the local RMC. The RMC is a subordinate command to Naval Sea Systems Command (NAVSEA). The RMC shall report Additional Duty to the appropriate Lead TYCOMs. This reporting relationship ensures that the TYCOMs continue to effectively carry out their responsibilities relating to material readiness of their ships. The Regional Maintenance Center locations are identified in Volume VI, Chapter 35 of this manual. Contact information for the RMCs can be found in Appendix A of Volume VI, Chapter 2 of this manual.

1.2.2 Maintenance Team. Each ship shall have a formally structured Maintenance Team. The team, is led by the Ashore Ship's Maintenance Manager who works with the ship's Commanding Officer, and consists of representatives from the ship and the supporting shore maintenance infrastructure (as identified in Volume VI, Chapter 41 of this manual). The primary responsibility of the Maintenance Team is to execute the maintenance policies, directives and regional business rules of the Fleet Commander, Platform TYCOM and the RMC to ensure all maintenance is validated, screened, brokered and completed. While core team members are permanent, augmentation may be required during the ship's interdeployment period. Core team members may be assigned responsibilities for more than one ship.

a. The core Maintenance Team shall consist of the following members:

(1) Ship's Commanding Officer.

(a) Ensure Ship's Force identifies and properly documents material deficiencies.

(b) Ensures Ship's Force complies with the Fleet Commander and TYCOM maintenance and modernization policy, budgets and technical direction.

(c) Identifies maintenance priorities.

(2) Ashore Ship's Maintenance Manager (Port Engineer for surface ships).

(a) Team leader.

(b) Manages all maintenance, including assessments, requiring "off ship" assistance.

(c) Validates maintenance requirements and schedules for accomplishment.

(d) Acts as "Owner's Representative" supporting Fleet Commander/TYCOM policies and directives.

(3) Ship Material Maintenance Officer.

(a) Provides shipboard schedule inputs.

(b) Coordinates Maintenance Team activities with Ship's Force personnel.

(4) RMC Waterfront Operations Department Ship Superintendent.

(a) Manages RMC Production Department work for Continuous Maintenance Availability (CMAV) and Chief of Naval Operations (CNO) availabilities.

(b) Coordinates Maintenance Team activities with the RMC Production Department.

(c) Provides maintenance availability scheduling and status updates.

(d) Responsible for the integration, oversight and verification of all work accomplished by all activities (see responsibilities as Naval Supervisory Authority, Part I, Chapter 2 of this volume).

(5) RMC Project/Program Manager.

(a) Manages planning and execution of planned CNO/CMAV availabilities.

(b) Establishes and maintains planning and execution milestones.

(c) Coordinates Maintenance Team activities with the RMC Engineering Department.

(d) Coordinates Maintenance Team activities with the RMC contracting functions for contracted work.

(e) Prepares and tracks all funding documentation.

(6) Multi Ship/Multi Option Contractor Program Manager (if applicable). Manages authorized contractor/company work.

(7) Maintenance Support Team (MST) Officer In Charge (if applicable).

(a) Provides MST schedule inputs.

(b) Coordinates Maintenance Team activities with MST personnel.

b. Additional Maintenance Team members, such as technical representatives from within the RMC, may be fully dedicated, as needed, or have split assignments.

c. The TYCOM will prescribe the requirements for periodic meetings of the Maintenance Team.

d. When a crew swap occurs that rotates a different crew to a hull, the non-crew members of the Maintenance Team shall remain with the hull and provide continuity in planning and execution.

1.2.3 Class Maintenance Plan. The Class Maintenance Plan (CMP) database is an engineered set of Intermediate and Depot-level maintenance tasks, including the following: material condition assessment tasks (I-tasks), qualified repair and life renewal tasks (Q-tasks), availability routine tasks (R-tasks) and authorized Fleet and Program ship change tasks. Tasks are either scheduled or unscheduled.

a. Scheduled tasks are those tasks the cognizant technical authority (usually the designated In-Service Engineer) requires to be accomplished on a periodic basis. These tasks have been identified, using Reliability Centered Maintenance, to be both applicable and effective. The CMP system automatically pushes scheduled tasks for Maintenance Team screening and brokering based on last accomplished date and task periodicity. In general, scheduled tasks are pushed to the shore Current Ship's Maintenance Project (CSMP) six quarters before the deadline date, unless the periodicity is such that the task is due in less than 18 months. These tasks are mandatory, and must be completed by the due date or approved for deferral or cancellation by the Ship Design Manager (SDM) (see paragraph 1.4.5.e of this chapter).

b. Unscheduled tasks are pulled by the Maintenance Team based on evidence of need. This includes unscheduled assessment tasks, qualified repair tasks, approved ship changes with their associated support and service tasks and availability routine tasks. Additionally, if the need arises for a scheduled task to be accomplished before it has been pushed into the CSMP, the Maintenance Team has the ability to pull that scheduled task, and the last accomplished date will be appropriately updated.

1.3 WORK CANDIDATES.

1.3.1 Current Ship's Maintenance Project Composition. An accurate, up-to-date CSMP is essential for a well-maintained ship. The importance of documenting all discrepancies cannot be overemphasized because the CSMP is the basis for all funding. Only work that is documented in the CSMP will be authorized for accomplishment. The CSMP is maintained in two files, the organizational unit file and the shore file.

a. Shipboard File. This file contains information regarding all known material discrepancies that require corrective maintenance. These discrepancies are normally discovered either by Ship's Force personnel during routine operations and planned maintenance or by non-Ship's Force personnel during material assessment, training and assist visits. Non-Ship's Force personnel that discover a discrepancy shall provide a "maintenance ready" 2-Kilo (Naval Operations (OPNAV) 4790/2K) to the ship's Maintenance and Material Management (3-M) Coordinator. The 3-M Coordinator shall notify the Work Center Supervisor responsible for the planned maintenance on the equipment of the discrepancy. The Work Center Supervisor shall cause the discrepancy to be entered into the ship file. The ship's 3-M Coordinator will ensure proper screening of work candidates before non-Ship's Force personnel complete their business and leave the ship. The criticality of the discrepancy determines the maximum length of time allowed to document and upload the information regarding the discrepancy to the RMC responsible for managing the shore file. Exceptions to this policy are made within the considerations of bandwidth availability and Operational Security conditions.

(1) C2 Casualty Reports shall be documented and uploaded within 24 hours.

(2) C3/C4 Casualty Reports (Emergent repairs) shall be documented and uploaded within four hours.

b. Shore File. This file contains the material discrepancies uploaded from the shipboard file, other work identified by shore-based managers and tasks from the CMP. Tasks from the CMP include pushed scheduled tasks, pulled tasks, authorized program and Fleet modernization work and availability support routines. The Type Desk Officer and Port Engineer are responsible for pulling CMP tasks as required based on evidence of need, availability support routines and Fleet and Program alterations into availability work packages. Although only on the CSMP shore file, this work is visible to Ship's Force on the weekly Excel-version CSMP report sent electronically to the Executive Officer by the TYCOM.

1.3.2 Requirements. All work requiring an expenditure of man-hours, material or a combination of both requires a work candidate (OPNAV 4790/2K) to document the identified requirement. Pushed and pulled CMP tasks are already formatted as OPNAV 4790/2Ks when transferred to the CSMP shore file. The OPNAV 4790/2K requires certain information to be included by the identifying activity to support the maintenance request and may be authored by activities other than the affected ship. There are three levels of the validation process:

a. The ship (ship's maintenance officer or 3MC) shall do an initial validation of the work statement to determine if there is enough information for the RMC's designated representative (i.e., Port Engineer, Fleet Maintenance Activity Ship Superintendent, Project Manager, etc.) to understand the requirement.

b. The Port Engineer working with members of the Maintenance Team is responsible for requirement validation, and will determine whether there is real need (objective evidence) and, if so, will also verify the requirement's urgency.

c. Final validation is the responsibility of the Port Engineer. The Port Engineer ensures that the scope of the work is adequately defined and technically accurate before authorizing the work. This is the final product screened and brokered to a planning or execution activity. A properly validated work candidate will not be returned to the Port Engineer for further information.

1.3.3 Elements. A valid work candidate will provide the following key data elements at a minimum. The blocked numbers to the right of each item reference a OPNAV 4790/2K data block.

a. Configuration information automatically entered from the master configuration database (Configuration Data Manager's Database/Ship's Configuration and Logistics Support Information System) by the shipboard system:

(1)	Ship Unit Identification Code	[1]
(2)	Work Center Job Control Number	[2]
(3)	Allowance Parts List/Allowance Equipage List	[4]
(4)	Ship Name	[A]
(5)	Ship Hull Number	[B]
(6)	Equipment Noun Name	[5]
(7)	Equipment Identification Code	[14]
(8)	Location	[16]
(9)	Ship Work List Item Number	[56]
(10)	References	

b.	Job Sequence Number	[3]
c.	Equipment Status Code	[7]
d.	When Discovered Date	[17]
e.	Deferred Date	[26]
f.	Symptoms and Supporting Information	[35]

g.	First Contact Name	[38]
h.	Priority	[41]
i.	Type Availability - (Recommended Accomplishment Level)	[42]
j.	Required Delivery Date	[28]
k.	Recommended resolution	[35]
	(1) Master Job Catalog, if applicable	
	(2) Port Engineer's Notes	
	(3) Additional references	
l.	Maintenance Action Requested	[35]
	(1) Assessment	
	(2) Repair	
	(3) Modernization	
m.	Maintenance Figure of Merit	In CSMP Shore File
n.	Initial Estimate (man days & material)	In CSMP Shore file
o.	TYCOM Screening Code	[45]
p.	TYCOM Screening Remarks	In CSMP Shore File

1.3.4 Guidelines. After a work candidate is created and uplined by an assessment activity or provided and entered into the CSMP shore file by the CMP or other means, it will be reviewed by the Port Engineer with the Maintenance Team. The Port Engineer will use the guidelines below to validate each work statement.

a. Initial validation will be conducted on each new work candidate to ensure there is sufficient information to understand the requested maintenance action. The originator must populate configuration data elements from the master database by selecting the correct configuration item in a configuration-based system and complete data elements 1 through 7 listed in paragraph 1.3.3 of this chapter. If the ship is the originator then data element 8 must also be present. All work candidates created in an ad-hoc mode or with an incorrect configuration item (and therefore incorrect configuration data) will be returned to the originating activity for cancellation and recreation. Correction and/or inclusion of the remaining requested information may be done on the shore file by the Port Engineer, or the work candidate may be returned to the originator for revision.

b. If configuration data in the master data base is incorrect (e.g., Allowance Parts List/Allowance Equipage List, Hierarchical Structure Code (Ship Work List Item Number) references, location, etc.), the Port Engineer shall act to correct the data at its source. The Port Engineer may request additional logistic assistance from the Configuration Data Manager to determine and document the correct data.

c. When an initially validated work candidate is accepted as complete, the Port Engineer will then determine if there is enough objective evidence of need to validate the requirement. If not valid, the work candidate will be returned to the originator and cancelled.

d. CMP material assessments may be accomplished outside of a depot maintenance period to allow for proper planning and preparation to perform the work during the depot maintenance period. However, CMP maintenance should be scheduled and executed during depot maintenance periods.

e. If during validation, the Maintenance Team finds inaccurate configuration data or has questions concerning the necessity of a "Pushed" CMP work candidate, they will contact the appropriate maintenance planning activity prior to returning or cancelling the work candidate.

1.3.5 Validation. Validation is the process of reviewing an off-ship work statement to ensure that the correct configuration item (lowest repairable unit, equipment, system, etc.) is properly identified and that there is enough information to determine if the work candidate is required (objective evidence) and, if valid, contains enough information to:

a. Properly determine the correct resolution inclusive of the root cause.

b. Screen to the right maintenance period to support ship operations.

c. Broker to the right activity to perform the work at the most practicable level.

d. Pass to history.

The goal of the validation process is to provide a work candidate that is sufficiently defined, contains correct and complete information, provides an accurate diagnosis, and provides an applicable, effective, and feasible recommended resolution. A properly validated work candidate should provide the planning and executing activities with the ability to understand the requirement without expending additional manpower or time obtaining needed information. The Port Engineer along with the Maintenance Team validates all off-ship (Type Availability 1, 2 and 3) work candidates before screening them to the planning activity by review of 2-Kilo documentation, personal shipboard observation of conditions, and knowledge of the quality of work candidates written by selected work centers or through additional technical assistance. All validated work candidates should be ship-checked by the Port Engineer or designated representative when practicable. The purpose of this check is to determine the best maintenance action and add to Block 35 (data elements k. and l. in paragraph 1.3.3 of this chapter).

1.3.6 Verification. The Port Engineer may request additional assistance to determine and document the best corrective action. The recommended action will include all pertinent interferences, integration issues, verification of urgency and an initial estimate (data element n. in paragraph 1.3.3 of this chapter). The initial estimate for each job includes mandays, manday rate and material costs. When validated, the Port Engineer will assign a TYCOM Screening Code (data element o. in paragraph 1.3.3 of this chapter) to the work candidate. This shows the job as valid and ready for screening and brokering.

1.4 SCREENING/BROKERING.

1.4.1 Screening and Brokering Work Candidates. The Port Engineer reviews and screens work candidates continuously as they are documented. Work integration may entail screening multiple work candidates together when possible. Work screening also entails selecting the appropriate level of repair and the best opportunity in which to accomplish the work. The Port Engineer makes recommendations on the lowest level of executing activity with the capability and the capacity to accomplish the work during the required time frame, following the guidance of the RMC Business Rules in Volume VI, Chapter 31 of this manual.

a. Management of ship maintenance is best performed by individuals most familiar with the condition of the ship, budgetary considerations and available workforce. For Surface Force TYCOM ships, the Port Engineers coordinate the work of the waterfront Maintenance Teams. They directly support the RMC Commanding Officer, who prioritizes the day-to-day maintenance focus for ships keeping TYCOMs well informed. These team members accomplish the maintenance identification, planning and execution with supporting functions from other commands and activities.

b. Supporting the waterfront Maintenance Team are other activities which provide requested support to the Maintenance Team in assessing material condition, determining maintenance requirements, identifying and programming ship modernization and funding and contracting issues.

1.4.2 Screening/Brokering. Although accomplished simultaneously, screening and brokering are actually two distinct processes.

a. Screening. Determines and assigns the work candidate to the right time period and maintenance availability. Determination includes balancing operational schedule, material readiness requirements and cost concerns to maximize maintenance productivity (material readiness/related maintenance cost).

b. Brokering. Determines and assigns the right activity to perform the work based on business case analysis, material availability, experience, tool requirements, personnel requirements, special considerations (Environmental, Health and Safety) and capacity.

c. All OPNAV 4790/2Ks in the Master File should be screened and brokered to a maintenance availability within eight days after being uploaded from the Shipboard File.

1.4.3 Key Data.

a. The validated work candidate contains the following key data elements to aid in the screening and brokering process:

(1) Configuration Item (maintenance object) identification.

(2) Symptom (OPNAV 4790/2K - Block 35).

(3) Expected scope of preventive/corrective/alterative maintenance (OPNAV 4790/2K - Block 35).

(4) Required Completion Date (RCD).

(5) Level of Maintenance (TYCOM Code 1,2,3).

(6) Identification of a Master Spec Catalog item (pre-planning data).

(7) Priority (Figure of Merit).

b. Work candidates will be brokered to the lowest level of maintenance activity with the capability and capacity to accomplish the work during the required time frame. When practicable, Fleet Maintenance Activity capacity will be utilized first.

c. Available capacity will be judged after applying Figure of Merit and RCD.

d. The cause and effect relationship between screening and brokering must be exercised to maximize maintenance productivity. This may require negotiation with the ship and/or maintenance activity to adjust the RCD.

e. Other considerations for screening and brokering:

(1) Synergistic relationship between work candidates exist.

(2) Splitting responsibility.

(3) Third party access.

(4) Port loading.

(5) RMC Production Department training requirements.

1.4.4 Guidelines.

a. After validation, screening and brokering will be accomplished continuously. The Ship's Maintenance Manager will provide recommendations to the Port Engineer. The Port Engineer will use the guidelines below to screen and broker work candidates to the proper availability.

b. All work will be screened to an availability. Availabilities are created and numbered in accordance with the business rules in Appendix A of this chapter.

c. Work candidates shall be screened to the following type of availabilities: CNO, Continuous Maintenance (CM), emergent or unfunded. No other type of availability shall be used in the Surface Force.

(1) CNO Availability. The work candidate is best performed during the scheduled CNO availability. These work candidates include major Ship Alterations and repairs that require support services and coordination.

(2) Continuous Maintenance Availability. Based on ship availability, priority of the job, business case analysis, periodicity or other consideration, the maintenance should be performed during a scheduled CMAV or during a window of opportunity permitted by ship's schedule.

(3) Emergent Availability. Emergent work is performed at greater cost than work planned and completed in other availabilities. The criteria to be used to qualify work as emergent is provided in Volume VI, Chapter 31, Paragraph 31.3.3 of this manual.

(4) Unfunded Availability. This availability is reserved for work candidates, which should be shown as backlog or are of such low priority they are unlikely ever to be accomplished.

d. Brokering shall be as follows:

(1) Work candidates for technical assistance, assessment or inspection will be brokered to the RMC or another technical activity.

(2) Work candidates will be brokered to the lowest level of maintenance activity, filling Fleet Maintenance Activity capacity first, based on the following criteria:

(a) Material availability.

(b) Capability:

1 Experience.

2 Available Production Resource Tools.

3 Available qualified/certified personnel.

4 Ability to comply with Environmental, Health and Safety regulations.

(c) Work center capacity.

(d) Funding.

1.4.5 Additional Requirements for Scheduled Jobs Pushed by CMP. Since jobs pushed to the CSMP by the CMP are mandatory tasks directed by proper Technical Authority, further screening and brokering restrictions apply.

a. Certain fields on the work candidate cannot be changed, including job summary, problem description, recommended solution, deadline date and maintenance level.

b. The task must be accomplished by an off-ship maintenance activity, not by Ship's Force. Organizational-level requirements are scheduled by Planned Maintenance System (PMS), not by CMP.

c. The job cannot be cancelled or passed to history by the Maintenance Team, or customer completed without being screened to an availability.

d. Generally, the job should be screened to a defined maintenance period instead of to the year-long continuous maintenance availability. When operational, equipment condition requirement or other scheduling issues make this impractical, the year-long continuous maintenance availability may be used for non-depot jobs. However, jobs screened to this availability will be considered to be in Limbo after the jobs deadline date without consideration of the availability end date (see paragraph 1.4.5.h.(2) of this chapter).

e. The job may not be screened to an emergent maintenance period. Planned maintenance does not warrant the use of emergent maintenance money. This requirement does not preclude pulling a task from the CMP when needed and screening it to an emergent maintenance period.

f. If the job is screened to the unfunded availability or to an availability that begins more than 90 days after the job's deadline date, a "notification" is triggered by the CMP software to notify the appropriate Technical Authority and a Departure From Specification (DFS) shall be submitted. The Port Engineer's comments will be reviewed and the Technical Authority will either approve or disapprove the DFS. The Port Engineer shall then rescreen the job to an appropriate availability in accordance with the guidance provided in the DFS. This functionality is referred to as the "Notification Process".

(1) If the Port Engineer determines that the job should not be accomplished (as opposed to not accomplished until after the deadline date), the task should be screened to the unfunded availability and comments entered. Depending on whether the notification is administrative or technical, the job will be adjudicated in the following manner:

NOTE: THE SUBSTITUTED WORK CANDIDATE WILL BE SUBJECT TO THE SAME PUSHED TASK RESTRICTIONS DESCRIBED IN THIS SECTION.

(a) Administrative: If the intent of the task was completed since the Last Accomplished Date by a non-CMP work candidate, provide that Job Control Number in the comment field. If the Planning Activity Engineer agrees that the intent of the task was met by the non-CMP job, the Planning Activity Engineer will cancel the pushed job from the CSMP. If the intent of the task is covered by a non-CMP work candidate that is currently open and in planning or execution, the Planning Activity Engineer will substitute the pushed job with the non-CMP work candidate and cancel the pushed job from the CSMP. If the job cannot be accomplished because the component/system no longer exists on the ship, the Planning Activity Engineer will cancel the pushed job from the CSMP and update the configuration records. For all administrative notifications, if the Planning Activity Engineer does not agree with the Port Engineer's comments, the notification will be forwarded to the SDM for resolution.

(b) Technical: The Port Engineer can technically challenge pushed jobs using the Notification Process. Reasons for technically challenging a job include: non-modernization configuration change, permanent or temporary DFS exists, authorized modernization upgrade to equipment, if the Planning Activity or SDM disapproves the notification, the CMP software will send an email to the Port Engineer stating (as applicable) of task accomplished during a visit/certification/inspection, ship about to decommission and task is low risk, unable to execute task as written, challenge to scope or periodicity of task, etc. All technical challenges will be reviewed by the Planning Activity or SDM for resolution.

(2) If the Port Engineer determines that the job should be accomplished, but not by the due date, the task should be screened to the recommended availability and comments entered. Reasons for deferring a job past its due date include: a temporary DFS exists making the task unnecessary before the due date, lack of an appropriate maintenance availability by the due date, unable to set required assessment conditions because of a related casualty or other issue, lack of capability/capacity to accomplish the job by due date, etc. Deadline challenges shall be documented using a DFS and must be reviewed and approved by the Planning Activity or for approval and a DFS may be required.

g. A job not progressing towards execution or approval in the Notification Process is considered to be in "Limbo". The purpose of Limbo is to draw management attention to violations of NAVSEA Technical Authority so that mandatory tasks will be executed or exceptions approved. Port Engineers, RMCs and TYCOMs should resolve Limbo tasks promptly. Jobs should not be in Limbo because all pushed jobs can be challenged using a DFS and the Notification Process. Limbo categories are:

(1) Unscreened after 30 days. Per the Maintenance Continuous Improvement Team process, all 2-Kilos must be screened within 8 days of entry into the shore CSMP; however, CMP tasks not screened after 30 days of being pushed require extra attention to ensure execution or documentation via the CMP Notification Process.

(2) Open and overdue. Often, tasks are screened to an appropriate availability but are never executed. Sometimes, task deferrals are approved through the Notification Process but then are moved to a later availability without Planning Activity or SDM approval. Open and overdue jobs are particularly troublesome because they are now past the deadline date and do not have deferral approval from Technical Authority via a DFS and the CMP Notification Process. Specific types of open and overdue Limbo jobs include:

(a) Job is open, screened to a year-long CM availability and past its deadline date.

(b) Job is open, screened to an acceptable numbered availability (one that starts no later than 90 days after the deadline date or one approved in the Notification Process by the Planning Activity or SDM), but past both the job's deadline date and the availability end date plus 60 days.

(c) Job is open, screened to an availability that was overturned by SEA 21 and past its deadline date.

(d) Job is open, unscreened and past its deadline date.

(3) Overturned and not rescreened. When a task is challenged by the Port Engineer via DFS and the CMP Notification Process but that challenge is overturned by Technical Authority, the Port Engineer receives an email stating that the job must be rescreened to an appropriate availability for accomplishment. Jobs not rescreened to an appropriate availability within 30 days after the Port Engineer is made aware of the ruling are considered in Limbo.

h. Deferral notifications approved by the Planning Activity or SDM are approved for the availability to which the job was screened when the job triggered a notification. If a job is subsequently rescreened to a later availability, the approval is removed and the screening action must be acted on by the Planning Activity or SDM again. Otherwise, the job will go into Limbo.

1.5 ASSESSMENTS.

1.5.1 Maintenance Team.

a. All material condition assessments, including tasks for Combat Systems Command, Control, Communications and Computer Readiness Assessments, shall be derived from the CMP. Scheduled condition assessments have been validated by an approved Reliability Centered Maintenance analysis to be applicable and effective, and are pushed by the CMP system to the CSMP shore file for the Port Engineer's action, based on the ship's last accomplished date and task periodicity. Unscheduled material condition assessments are not, without further evidence of need, considered effective and are thereby not pushed into the CSMP shore file, but can be pulled from the CMP by the Port Engineer or his representative if there is evidence of need (such as degraded performance, errors, or other indication of problems). Scheduled tasks can also be pulled if circumstances warrant, and the Last Accomplished Date will be properly updated. The Port Engineer with help from the Maintenance Team shall review all 2-Kilos pushed from the CMP system just as for any other offship 2-Kilo, and broker to the appropriate assessing activity.

b. Only assessment tasks in the CMP or assessment procedures in the PMS database may be used for assessments. Information addressing assessment requirements found not to be included within the CMP or PMS databases, such as local practices, In-Service Engineering Activity unique items, RMC practices, etc., shall be forwarded using the Technical Feedback Report for review and approval as an acceptable addition to the CMP and PMS databases. If not approved, these practices shall not be used by any activity.

c. The Port Engineer will make the preliminary determination of the most appropriate source for all off-ship activity work for its assigned ships. Decisions made by the Port Engineer, with concurrence from the Maintenance Team, shall be in compliance with policies in this instruction, reference (a), and guidance provided by the cognizant RMC.

1.5.2 Type Commander. The TYCOM shall develop and execute a Memorandum of Agreement in accordance with Volume II, Part I, Chapter 3 of this manual with each supporting RMC to define reporting and administrative relationships between the TYCOM and the RMCs.

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APPENDIX A

AVAILABILITY CREATION AND NUMBERING

1. Specifying Availabilities. A uniform method of specifying availabilities is an essential part of availability management and data collection. No deviation from these protocols is permitted. **An availability is defined as a specified period of time during which maintenance is conducted. Only Type Desk Officers, Type Desk Program Managers, and Port Engineers are authorized to create availabilities. Availabilities shall include all work completed during a specific time period regardless of executing activity. With exception of the emergent availability, availabilities shall not overlap and work by every activity (depot, Intermediate Maintenance Activity (IMA), Alteration Installation Team, tech assist and Ship's Force) shall be entered into the same availability. Availability numbers are not to be used as a method of segregating the executing activity or the level of work performed.**

2. Availability Numbering. The availability number consists of the first four digits -- the availability category code and the availability serial number. The Funding Activity Code (FAC) is used to identify the source of funding for any job and is entered at the time of job screening and authorization. The availability numbering system shall consist of:

   a. A one-digit availability category code.

   b. A three-digit availability serial number.

   c. A two-digit funding activity code.

3. Availability Category Code: This code is the first character of the four-digit availability number. These codes are used by all TYCOMs and, therefore, not all codes are applicable to all ships. The stand alone "I" availability is no longer used by the Surface Force.

CODE	TITLE
A	ALONGSIDE SCHEDULED CONTINUOUS MAINTENANCE
B	DOCKING SELECTED RESTRICTED AVAILABILITY (DSRA)
C	SELECTED RESTRICTED AVAILABILITY (SRA)
D	COMPLEX OVERHAUL
E	EXTENDED INCREMENTAL SELECTED RESTRICTED AVAILABILITY
F	EXTENDED DOCKING SELECTED RESTRICTED AVAILABILITY (EDSRA)
G	EXTENDED SELECTED RESTRICTED AVAILABILITY (ESRA)
H	DOCKING INCREMENTAL SELECTED RESTRICTED AVAILABILITY (DISRA)
I	INTERMEDIATE MAINTENANCE AVAILABILITY
J	INCREMENTAL SELECTED RESTRICTED AVAILABILITY
K	INTERIM/EMERGENT DRY DOCK

L	DOCKING PHASED MAINTENANCE AVAILABILITY
M	PHASED PLANNED MAINTENANCE AVAILABILITY
N	INACTIVATION AVAILABILITY (INAC)
O	POST DELIVERY AVAILABILITY
P	CONTINUOUS AVAILABILITY (YEAR LONG CM)
Q	POST SHAKEDOWN AVAILABILITY
R	REGULAR OVERHAUL
S	SELF AVAILABILITY/SHIP TO SHOP AVAILABILITY
U	UNFUNDED
V	PLANNED INCREMENTAL AVAILABILITY (PIA)
W	DEPOT MODERNIZATION PERIOD
Z	VOYAGE REPAIRS (PER TITLE X)/STRIKE FORCE INTERMEDIATE MAINTENANCE ACTIVITY
1	DOCKING PLANNED INCREMENTAL AVAILABILITY (DPIA1)
2	DOCKING PLANNED INCREMENTAL AVAILABILITY (DPIA2)
3	DOCKING PLANNED INCREMENTAL AVAILABILITY (DPIA3)
4	PLANNED INCREMENTAL AVAILABILITY (PIA1)
5	PLANNED INCREMENTAL AVAILABILITY (PIA2)
6	PLANNED INCREMENTAL AVAILABILITY (PIA3)
7	REFUELING COMPLEX OVERHAUL (RCOH)
8	NOT USED

4. Availability Serial Number. The availability serial number is the same three character serial field currently used in RMAIS. This entry is made in the "serial" field of the RMAIS availability editor window. This entry is also used in Navy Enterprise Maintenance Automated Information System availability field. There are five authorized serial codes used to designate availabilities.

   a. Alongside Availability (XAZ). The XAZ availability is intended to be a planned CM availability, such as a CMAV, over a specified period of time determined by the ship's operational schedule. The TYCOM will schedule the availability during the normal fleet scheduling process. A nominal time frame for availability length is no less than two weeks and no more than six weeks. A ship is not to get underway during any period of the availability. There is no limit to the number of XAZ availabilities that may be scheduled during a year. The first character indicates FY at availability start. The last character indicates a specific XAZ availability during that FY. If the number of availabilities in a single FY results in the Z character being greater than 9, alphabetical characters will then be used beginning

with "A". Sequential serial number assignment is desired, but the occasion may arise when a significant schedule change allows for a new availability to be scheduled prior to an existing availability. In this unique case availability may be created using an out of sequence serial number. This eliminates the need to move jobs that are already screened in RMAIS, NMD and Navy Enterprise Maintenance Automated Information System. Availabilities may be scheduled in RMAIS for future years using notional time frames and the exact dates can be adjusted later once a more precise schedule is promulgated. All executing activities may be scheduled to work during this availability. If a job scheduled for completion is not started then it must be moved into another availability and the availability closed on the scheduled completion date. The fact that the job was not completed will be reported in the availability completion report.

b. CNO Scheduled Availability (XCZ). The XCZ availability is the scheduled CNO availability promulgated in the OPNAV 4700 Notice. These availabilities are normally conducted in a shipyard under the direct supervision of the Naval Supervisory Authority. All major modernization programs will be scheduled for CNO availabilities. Other executing activities may conduct work during these availabilities pursuant to the contractual limits imposed by the shipyard and the Naval Supervisory Authority. Notional CNO availabilities may be established for years beyond the scope of the OPNAV Notice to support long-term work item placement. The first character indicates FY at availability start. The last character indicates a specific XCZ availability during that FY. Software programs require that only one contract solicitation may be recorded against a given availability, therefore the situation may arise when two availabilities must be simultaneously executed. In this case the same type of availability will be used and the next sequential number assigned.

c. Year-long Continuous Maintenance Availability (XCM). The XCM availability is a year-long availability for the scheduling and completion of work items that are not accomplished during any other scheduled availability. A job is not to be kept in the XCM availability if it is accomplished in an XCZ or XAZ availability. The first character indicates the FY.

d. Year-long Emergent Work Availability (XEM). The XEM availability is for the completion of emergent work items as defined in Volume VI, Chapter 31 of this manual. Jobs screened to an XEM availability are paid for using emergent work funding. Items assigned to this availability will not be moved into any other availability and will remain in the XEM availability. Emergent work will not be conducted in a XCZ availability. Emergent work that is discovered during a CNO availability will be added to the availability and paid for using CM funding, for example, work required to support light off or sea trials. The first character indicates the FY.

e. Multi-year Unfunded (UNF) availability. The UNF availability is for those items for which there is no realistic expectation that they will be funded even in the out years but must be maintained for material history purposes. It is also for those jobs with a Maintenance Figure of Merit such that there is a low probability of accomplishment, but the job remains valid. These jobs will be screened to the UNF availability but will not be authorized in RMAIS.

5. Availability Category Code (Aircraft Carriers). The codes in this section are authorized for use on all Aircraft Carrier availabilities at Norfolk Naval Shipyard.

CODE	AVAILABILITY ID	EXAMPLE
S	SXX	S09 - SHIP SELF AVAILABILITY 2009 CHANGES YEARLY CALENDAR.

CODE	AVAILABILITY ID	EXAMPLE
P	NXX	N09 - ORIGINATING WORK CENTER FOR 2009 CHANGES YEARLY CALENDAR.
P	990	990 - JCN REQUIRES SCD TO BE SUBMITTED. STATIC AVAILABILITY CODE.
P	991	991 - SCD WRITTEN/SUBMITTED AWAITING APPROVAL. STATIC AVAILABILITY CODE.
P	992	992 - TYCOM HOLD FOR REVIEW/INVESTIGATION. STATIC AVAILABILITY CODE.
P	REJ	REJ - REJECTED BACK TO SHIP FOR SF ACTION. ACCOMPANIED WITH TYCOM REMARKS. STATIC AVAILABILITY CODE.
P	N43	N43 - SHIP ASSIGNED (SMM OFFICE) TA1, 2, 3. TA4 REQUESTING ACCOMPLISHMENT DURING CNO AVAILABILITY. STATIC AVAILABILITY CODE.
P	BDF	BDF - DEFERRED BASELINE JCN FOR REASSIGNMENT AT A LATER DATE. STATIC AVAILABILITY CODE.
U	UNF	UNF - UNFUNDED. STATIC AVAILABILITY CODE.
P	XSM	9SM - JCN ASSIGNED TO NNSY (OLD SIMA SHOP) FOR ACCOMPLISHMENT “OUTSIDE CNO AVAILABILITY”. CONTINUOUS MAINTENANCE RUNS FISCAL YEAR. FUNCTIONS THE SAME AS THE 9CM/0CM BUT ONLY PROCESSES TA2 FOR NNSY. ASSIGNED TO FMR SURFACE SHOP.
P	XRM	9RM - JCN ASSIGNED TO NNSY (OLD RRC) FOR ACCOMPLISHMENT “OUTSIDE CNO AVAILABILITY”. CONTINUOUS MAINTENANCE RUNS FISCAL YEAR. FUNCTIONS THE SAME AS THE 9CM/0CM BUT ONLY PROCESSES TA2 FOR NNSY. ASSIGNED TO FMS.
A	XSZ	9S1 - JCNs ASSIGNED TO NNSY (OLD SIMA SHOP) FOR ACCOMPLISHMENT BY FMR SURFACE SHOP TO “RUN CONCURRENT WITH CNO AVAILABILITY”.

CODE	AVAILABILITY ID	EXAMPLE
A	XRZ	9R1 - JCNs ASSIGNED TO NNSY (RRC) FOR ACCOMPLISHMENT BY FMS SHOP “RUN CONCURRENT WITH CNO AVAILABILITY”.

X, XX = YEAR Z = SEQUENTIAL NUMBER

6. Funding Activity Code. The FAC is a two-digit exportable field in RMAIS. A FAC must be entered for every non-TYCOM funded 2-Kilo prior to being screened and brokered. Any member of the maintenance team authorized to screen work may enter a FAC. The FAC table is NAVSEA controlled. The approved FACs are:

CODE	TITLE
AA	TYCOM CM NON-NUCLEAR
AB	TYCOM EM NON-NUCLEAR
AC	TYCOM DIVING SERVICES
AD	TYCOM FLEET ALTERATION (NON NUCLEAR)
AE	TYCOM FUNDED SEMAT (ETC) SHIP'S FORCE ASSISTANCE
AF	TYCOM NUCLEAR MAINTENANCE/REPAIRS
AG	TYCOM NUCLEAR ALTERATION
AH	TYCOM FUNDED CNO SCHEDULED AVAILABILITY MAINTENANCE
BA	NAVSEA NUCLEAR ALTERATION
BB	NAVSEA ORDNANCE ALTERATION (ORDALTS)
BC	NAVSEA NON-NUCLEAR PROGRAM ALTERATION
BD	NAVSEA - UNIQUE - NON-NUCLEAR (INCLUDES ALTERATION DEVELOPMENT, TECHNICAL SUPPORT)
BE	NAVSEA - UNIQUE - NUCLEAR AND/OR REFUELING
BF	NAVAL SHIPYARD MISSION FUNDED
BG	SRF MISSION FUNDED
CA	IMA FUNDED MAINTENANCE
CB	IMA FUNDED FLEET ALTERATION
DA	ADMINISTRATIVE SUPPORT NON-NUCLEAR (PRORATABLE) INCLUDING DSA FUNDED
DB	ADMINISTRATIVE SUPPORT SERVICES NUCLEAR (PRORATABLE)
EA	SHIP'S FORCE MAINTENANCE/REPAIRS
EB	SHIP'S FORCE - SELF HELP HABITABILITY
FA	TECHNICAL SUPPORT: SPAWAR SSC, RMC (MISSION FUNDED)

FB	TECHNICAL SUPPORT: SPAWAR (SEPARATE FUNDING ONLY)
GA	VRT-N, VRT-M, ALRE
HA	NAVAIR (CAFSU, NAWC, FAA, ASIR)
HB	NAEC LAKEHURST NJ
HC	NAWC CHINA LAKE
HD	NAWC PT MUGU
HE	NAWC PAX RIVER
HF	NAWCAD ST INIGOES MD
IA	NSWCCD/DAVID TAYLOR
IB	NSWCCD/SSES
IC	NSWCCD/PHD
ID	NSWC CRANE
IE	NSWC PANAMA CITY
IF	NSWC NEWPORT
IG	NSWC KEYPORT
IH	NSWC LOUISVILLE
JA	SPAWAR (ALTERATION INSTALLATION TEAM)
KA	ESU
OO	OTHER - EXPLAIN IN REMARKS
VV	VISITING SHIP SUPPORT (FOREIGN NAVY)

7. Example Cases: The FAC is designed to be applied from a user perspective. For example, if Naval Surface Warfare Center, Carderock Division (NSWCCD)/Ship System Engineering Station (SSES) plans to use an Alteration Installation Team to install an alteration and they are funded for the install, then the maintenance team would select the FAC for NSWCCD/SSES. The maintenance team is not expected to know if it was OPNAV or the TYCOM that funded SSES, this is beyond their level of knowledge and those agencies are expected to track their own funds. In this case a FAC of "IB" would be applied. The following table provides examples of how the various codes can be applied to common availabilities:

Availability Category	**Availability Serial**	**Fund Activity Code**
A, K, X, Z	XAZ	AA, AC, AD, AE, BB, BC, FA, FB, VV, OO **(Note: 1)**
B, C, H, J, K, L, M, N, R, T, W	XCZ	AA, AC, AD, AE, AH, BB, BC, BF, DA, FA, FB, OO **(Note: 2)**

Availability Category	Availability Serial	Fund Activity Code
P	XCM	AA, AC, AD, FA, FB, OO **(Note: 3)**
P	XEM	AB, BF, BG, VV, OO **(Note: 4)**
U	UNF	NONE

NOTES

Note 1: **The primary fund activity code is AA for the alongside availability as most work is TYCOM funded maintenance. Commander, Naval Surface Force Atlantic ships should not use codes CA or CB unless the IMA becomes a fleet funded activity as it is in the Pacific region. Pacific Fleet ships would use CA for IMA work performed during this availability. The voyage repair Availability Category should be used for scheduled voyage repairs using either the AA or AB activity code as appropriate, the XEM availability should not be used for voyage repairs.**

Note 2: **The primary fund activity code is AH and a common additional code is BC. In Atlantic Fleet any IMA work would use the AA code, Pacific Fleet ships would use CA for IMA work performed during this availability.**

Note 3: **Primary FAC is AA for TYCOM funded maintenance.**

Note 4: **Primary FAC is AB indicating ERATA expenditure. In some cases BF or BG may be used as dictated by each region.**

Examples:

a. A ship entering a scheduled CNO docking availability in FY07 will have an availability number consisting of a "B" for the Availability Category Code and the serial will use the XCZ format. The full availability number will be B7C1 as this will be the first CNO availability for this ship in FY07. The "B" is entered in its own field in RMAIS as described above using the availability drop down menu. The three digit serial is manually entered in the "serial" data field of the RMAIS window.

b. A ship entering an alongside three-week CM availability will use "A" as the Availability Category and the XAZ format for the serial. So the third alongside CM availability for FY06 will be an A6A3 availability. Again the first digit and the last three digits are entered in separate RMAIS entry fields. The FAC is applied on a job-by-job basis and is not tied to the availability number. In a single availability you can have several executing activities and multiple FACs across all the jobs screened to the availability. For example, Job EA04-1111 might be a pump repair screened to Supervisor of Shipbuilding and paid out of TYCOM CM funds so that job will have "AA" FAC assigned when it is screened to the A6A3 availability.

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VOLUME II

PART II

CHAPTER 2

SHIP WORK PACKAGE PREPARATION

REFERENCES.

(a) NAVSEA S0300-B2-MAN-010 - Supervisor of Shipbuilding Conversion and Repair Operations Manual
(b) COMNAVSURFOR NOTICE 4701 - Surface Ship Maintenance Validation, Screening and Brokering
(c) COMNAVSURFOR NOTICE 4702 - Surface Ship Work Package Preparation
(d) COMNAVSURFOR NOTICE 4703 - Surface Ship Maintenance Placement and Oversight Business Rules
(e) NAVSEAINST 4710.8 - Cost and Performance Reporting for CNO Scheduled Ship Maintenance Availabilities

LISTING OF APPENDICES.

A Prorate Items with Explanations
B Master Specification Catalog Maintenance Office Guidelines
C Surface Ship Prorate Process
D_1 Surface Ship Planning Process Milestones
D_2 Aircraft Carrier Maintenance and Modernization Planning Process Milestones
E Planning Priority Matrix
F Depot Planning Priority Schedule (MS/MO)
G_1 Process Flowchart Firm Fixed Price CNO Availability
G_2 Process Flowchart Firm Fixed Price CMAV or Emergency Availability
G_3 Process Flowchart Firm Fixed Price MS/MO CNO Availability
G_4 Process Flowchart Firm Fixed Price MS/MO CMAV Availability

2.1 PURPOSE. To establish ship maintenance work items and specification package preparation procedures, milestones and business rules. These rules apply to Regional Maintenance Centers (RMC), Surface Type Commanders (TYCOM) (Commander, Naval Surface Force Pacific; Commander, Naval Surface Force Atlantic), Systems Commanders (sponsoring Program Alterations) and other Alteration Installation Team (AIT) Sponsors.

2.1.1 Prorated Business Rules. This chapter also provides prorate business rules including:

a. Defining common prorates, those prorates to be assigned to specific alterations, and those TYCOM operational prorates (Appendix A).

b. Providing a simple consistent method to divide those prorates between Program Alterations, Fleet Alterations, maintenance and repair items.

c. Providing a coast specific “Prorate Factor” used in planning as part of the Cost Benefit Analysis of the Ship Change (SC) Document to estimate installation cost of the alteration. Paragraph 2.4.5.3 of this chapter lists the Prorate Factors.

2.1.2 Responsibilities.

a. The Life Cycle Manager/Ship Program Manager (SPM) is responsible for the planning, budgeting and execution of the approved Program Ship Modernization.

b. The TYCOM is responsible for the planning, budgeting and execution of the approved Fleet Ship Modernization, ship repair and ship maintenance.

c. The Ashore Ship's Maintenance Manager is responsible for the execution of each ship's Maintenance and Modernization Business Plan (MMBP) and the division of the prorate percentages between Fleet and Program based on the business rules herein.

2.2 SCOPE. The goal of the effort is to deliver effective maintenance and modernization while capturing efficiencies. The cost avoidance can then be put to use in accomplishing additional maintenance. This chapter introduces work package preparation improvements that leverage existing planning information and process capabilities to make final work package content decisions closer to the time work is actually scheduled to begin. This will significantly reduce the churn in the work package content and support timely delivery of all work desired for the Chief of Naval Operations (CNO) availability. This includes the depot level repair and modernization package, Ship's Force, Intermediate Maintenance Activity and AIT modernization work. Effective financial management of ship maintenance and modernization depends upon use of return cost data in planning for future installations. Upon completion of each availability, the participants must use the availability completion report return cost data to update Navy Data Environment modernization cost estimates and the next fiscal year business plan. Return costs for repair work will also be used to populate and validate costs estimates that are resident in the Master Specification catalog. A disciplined prorate distribution process, coupled with updates to the Navy Data Environment database and the business plan will help modernization financial planning and reduce cost surprises both before and during availability execution.

2.3 EXECUTING ACTIVITY PLANNING. Work Package Preparation process improvements include long-term contractual relationships and Multi-ship/Multi-option (MS/MO) contracts, with our executing activities and private ship repair yards. The Executing Activity (EA) is the public or private enterprise that is assigned or awarded the responsibility for accomplishing the actual production work to effect modernization and repairs to surface ships. For the most part, the EAs will perform the planning for accomplishment of the work that they will execute. All work, whether CNO availability, continuous maintenance or emergent work will have a Ship Specification Package (SSP) prepared in the Navy Maintenance Database (NMD) work planning and execution tool. The exception to EA planning is first of ship class ship alteration advance planning (drawing preparation and material ordering). This will be performed by the assigned planning yard. The EA will plan subsequent ship alteration installations provided they are not of such a complex nature that it is determined that these should be assigned to the planning yard. In most cases, as part of the planning effort, the EA will prepare the actual work specification (accomplished today in the NMD for depot level or in the Navy Enterprise Maintenance Automated Information System (NEMAIS) for I-level). The exceptions to the EA work item preparation is that the government may elect to accomplish work item development to provide an avenue to train government personnel in the critical skill sets used during the work item development process and/or to provide surge capabilities for the EA during peak work loading.

2.4 MASTER SPECIFICATION CATALOG.

2.4.1 Work Package Preparation. The Work Package Preparation process will leverage the large library of planning documents that exist today and are currently stored in Master Specification Catalogs (MSC). The MSCs provide a ready resource of technically correct and current work items that are universally accessible for use. The vast majority of these documents can be reused for planning future repair actions. The primary purpose of the MSC is to reduce maintenance costs by:

a. Reducing planning efforts.

b. Identifying and promoting best practices.

c. Effectively managing lessons learned.

d. Minimizing delays associated with maintenance planning.

e. Providing a cost estimate for the work item.

2.4.2 Use of the Master Specification Catalog. Use of the MSC by Maintenance Teams and Planners at maintenance activities is mandatory. Processes are established to allow all users to recommend content and provide feedback regarding the quality of specifications and templates. The Depot level MSC can be accessed through the NMD application. The Depot level catalog consists of master specifications, specifications used directly without any modification, and templates that can be used with minor modifications. NMD has been modified to capture the contractors' planning estimates and actual return costs. This allows standard costs to be developed for the specifications residing in MSC. The D-level MSC is maintained by the Master Specification Catalog Maintenance Office (MSCMO) at Supervisor of Shipbuilding Conversion and Repair, Bath, Maine (SUPSHIP Bath), who is assigned to standardize all templates to the maximum extent possible to ensure the specifications that reside there are technically correct and reflect the most current guidance. Appendix B provides the general guidelines for template preparation, processing and maintenance. The MSCMO will incorporate the directives of Naval Sea Systems Command (NAVSEA) Standard Specification for Ship Repair and Alteration Committee, and Chapter 4, Appendix 4-E of reference (a). Under certain circumstances, these guidelines may expand upon or differ from Appendix 4-E of reference (a). The intent is to standardize templates for all ship classes at each geographic location. The MSCMO relies on the expertise of the author for technical content of templates, although when processing a template, the MSCMO will question areas of omission and scrutinize non-conformance to Appendix 4-E of reference (a). SUPSHIP Bath also acts as the clearinghouse for the nomination/acceptance of additional specifications to the MSC.

2.4.3 Central Planning Activities. Central management is used to ensure quality and consistency of the catalog content and a Central Planning Activity (CPA) is assigned for each branch to carry out central management responsibilities. For the NMD branch, the CPA is the MSC Maintenance Office and is functionally part of SUPSHIP Bath. For the NEMAIS branch, the CPA is the Southwest Regional Maintenance Center. The CPA responsibilities include:

a. Ensuring MSC content adheres to a standard format.

b. Enforcing technical authority compliance for MSC content.

c. Ensuring reference lists cited by MSC content are current.

d. Ensuring that documents stored in the MSC are current and technically correct.

e. Managing the review process for proposed MSC documents.

f. Managing the MSC document change process.

g. Addition of new content to the MSC.

h. Deletion of content from the MSC.

i. Analysis of feedback and metrics; monitor and maintain MSC content quality.

j. Monitoring MSC business rule compliance.

k. Providing decision quality data to oversight commands and committees.

l. Provide first level support for questions related to MSC use and/or content.

m. Screening requests for access to the MSC prior to submittal to the catalog user and Information Technology management offices.

Each CPA has established detailed processes to accomplish the above responsibilities. These processes are contained in CPA process/instruction manuals.

2.4.4 General Process. The general process for using the MSC is common to both systems and is discussed in the following paragraphs.

a. The ship identifies a problem and requests a maintenance action via the Office of the Chief of Naval Operations 2-Kilo Maintenance and Material Management Maintenance Action Form (OPNAV 4790/2K) using the ship's Maintenance Data System.

b. The request is transferred to the fleet brokering system - Regional Maintenance Automated Information System.

c. The Maintenance Team screens the request, determines maintenance level, and enters the appropriate branch of the MSC to determine if there is a work item that accomplishes the scope of work required by the work request.

d. If there is a work item, the OPNAV 4790/2K is annotated with the work item identification information prior to brokering the OPNAV 4790/2K.

e. The OPNAV 4790/2K is brokered to a maintenance activity.

f. The maintenance activity receives the work request and checks for MSC information. If there is MSC information that identifies a master specification, or if the maintenance activity identifies an appropriate master specification, the maintenance activity uses the specified pre-planned MSC specification and adds the new specification to the work package without additional planning review.

g. If there is MSC information that identifies a template, or if the maintenance activity identifies an appropriate template, the maintenance activity uses the specified pre-planned MSC template, makes the required changes, performs the normal planning reviews, and then adds the resulting work item to the work package.

h. If there is no catalog identification information, the maintenance activity verifies that there is no appropriate master or template. After verification, the activity plans the work using the established planning and planning review processes. The maintenance activity also forwards the new work item to the MSC Maintenance Office and local standards personnel as a proposed template.

i. The work in the work package is released at the appropriate time and sent through established work integration and/or contracting processes.

While details and terminology will vary from system to system, the basic workflow and responsibilities are common to both systems.

2.4.5 Master Specification Catalog Business Rules.

2.4.5.1 Common Business Rules. There are seven business rules that are common to both branches of the MSC. These business rules form the fundamental base for the catalog. Consequently, CPA processes, as well as programming of the MSC software systems, are designed to support these business rules. Additionally, enforcement of the rules is required to attain MSC goals. Metrics and review processes have been established to support compliance monitoring and reporting. The following business rules apply to both branches of the MSC.

NOTE: MASTER WORK ITEMS ARE NON-DEVIATIONAL.

a. Master work items shall be used whenever they fulfill the requirements of a specific maintenance task.

b. Master templates shall be the preferred alternative when an appropriate master work item does not exist.

c. Master work items will be used without change.

d. Master work items and templates shall be centrally filed and maintained by a CPA. Only the CPA will be allowed to store, modify, delete or change the status of a master specification or master template stored in the central library.

e. MSC task lists will adhere to a specific format. The format is defined in:

(1) Appendix 4E of reference (a) for D-level items.

(2) Enclosure (1) of the I-level MSC process manual for I-level specifications and templates.

f. Master work items are reviewed prior to approval for use as a master specification. No additional planning review is required prior to use of a master specification to accomplish a maintenance task.

g. Although master work items do not require planning review, they are subject to established release, scheduling and integration planning processes.

2.4.5.2 Prorate Distribution Process. The prorate distribution process map (Appendix C) summarizes the steps in arriving at an equitable distribution of prorate costs. The prorate distribution process follows the milestones below:

a. April prior to execution fiscal year:

(1) RMC/TYCOM/Program Executive Officer (PEO) SHIPS issues the Maintenance and Modernization Business Plan Guidance. This is the baseline for prorate distribution.

(2) The TYCOM input to the MMBP will provide total dollars budgeted for the Fleet Modernization, Maintenance and Repair scheduled for each availability.

(3) The Program Modernization input to the MMBP is the Extended Planning Hull Maintenance Plan 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, and adds locally procured material costs to provide total "installation dollars" for Program Modernization.

NOTE: THE TOTAL DOLLARS USED TO DETERMINE THE PRORATE PERCENTAGES DO NOT INCLUDE SERVICES, GROWTH OR AWARD FEES.

(4) The proportion of TYCOM dollars and Program dollars relative to the total dollars will provide the percentage of prorate costs assigned to TYCOM and Program respectively.

b. In accordance with Maintenance and Modernization Process milestones as shown in Appendices D_1 and D_2:

(1) At A-360 TYCOM/PEO SHIPS issues the Letters of Authorization for all modernization.

(2) At A-240 the work package that began definition at A-360 is further refined with a 50% lock on repair items at A-240. The Project Manager provides a list of expected prorated items, with work item numbers assigned, using Appendix A for guidance, for all Program and Fleet Letter of Authorization authorized modernization and TYCOM repair items.

(3) At A-120 all SCs listed in the Letter of Authorization, except ST1 and ST2 SCs, are mature, impact approved or are removed from the Letter of Authorization (except for ST1 and ST2 SCs, Programmed but not Authorized SCs will be removed at this time). This locks the prorate distribution percentages. This milestone obligates the cost of prorates based on the locked Letters of Authorization and MMBP budget of the repair and maintenance package.

(4) After A-120 if one of the participants elects to remove maintenance, repair or modernization work from the availability work package, that participant is still responsible for payment of the actual prorate costs incurred, as of the date of the withdrawal, on execution planning for the removed work. In the event a Program SC owner declines to comply with paying the prorate charges, payment of the delinquent charges will be a prerequisite for adding the SC to the Letter of Authorization for the next availability for which the SC is programmed.

(5) 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.

(6) At A-75 a 100% lock is placed on all repair items. Funding is requested from the participating activities. The Naval Supervisory Authority (NSA) must receive funding no later than A-45 to support definitization.

(7) At A-35 the modernization, maintenance and repair package is definitized.

c. If the availability is extended, the additional prorate requirements are paid for by the party(ies) causing the extension.

d. Once the originally planned growth pool is expended, large increases due to growth (exceeding 2% of the total work package costs) will result in reallocation of prorates.

2.4.5.3 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 are to be applied to total estimated ship repair cost to forecast the portion of total cost for "Prorate" effort. These factors are based on data from selected Departure Reports for ship repairs completed in 2003 through 2005 and are subject to periodic updates.

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

2.5 MILESTONES. Package preparation milestones have been developed that support the continuous maintenance philosophy. These milestones are designed to allow a more continuous flow of work to create a work package. Rather than requiring all work to be "locked" at A-240, the milestones now require that only 50% of the work, measured by 50% of the budgeted funds for the availability being committed, be "locked" at A-240. It is expected that the majority of this work will be the modernization work, mandatory shipyard routines (e.g., boiler inspections, docking requirements, support services) and major industrial work that is generally known well before A-240. Every effort should be made to include unscheduled and unaccomplished mandatory Class Maintenance Plan work items in the ship's Baseline Availability Work Package (BAWP) in the work package. Once work is placed in the package, and funding for that work is committed, the EA is authorized to plan that work, order material and expend other funds as necessary to execute the work. It should be the rare exception that work is ever removed from a work package. TYCOM will obtain technical adjudication for any BAWP items prior to the removal of any BAWP item from the work package. It is extremely important that the right work at the right time is placed in the work package. The Maintenance Figure Of Merit is a numerical expression indicating the criticality of a job and provides a sequentially ranked Current Ship's Maintenance Project in order of priority and provides a tool for the Maintenance Team to help make the right choices.

2.5.1 Committed Work at A-120. The milestones require that 80% of the depot level work package be committed at A-120, and 100% of the Ship's Force and I-level work that is planned to be executed during the availability concurrently with the depot level work be identified. This provides a period of time during which this work can be evaluated and placed in the depot level package if necessary. Additionally, all AIT support requirements must be identified no later than A-120. AIT installations not being performed by the prime contractor will have their contracts awarded no later than A-150.

2.5.2 Committed Work at A-75. At A-75, 100% of the depot level package must be identified, with the activity accomplishing the planning to complete planning by A-60. The EA will then have 30 days to produce an integrated work schedule that will be reviewed at a Work Package Execution Review at A-30. By delaying the final commitment of the last 20% of the depot level work package until A-75 there should no longer be any reason to front load "insurance" work. The new entitled work package preparation process will better reflect the most current priority of maintenance that needs to be performed on the ship. The milestones described above are designed for use by those ships supported with MS/MO contracts. Appendix D_1 describes milestones to be used with Firm Fixed Price (FFP) contracts. Where MS/MO contracts are not in effect and no existing Indefinite Delivery, Indefinite Quantity (IDIQ) contracts cover the work contemplated, work packages for Continuous Maintenance Availabilities (CMAV) must be submitted to meet local contracting milestones.

2.5.3 Flow Metric. In order to track the progress of creation of the work package, a work package flow metric has been created. This metric will provide the maintenance team a tool to manage their work package preparation progress. It also provides the RMC Commander and the maintenance teams a leading indicator of the manner in which the ship's Maintenance and Modernization Business Plan is being executed.

2.6 CONTINUOUS MAINTENANCE AVAILABILITIES. CMAVs are intended to provide the maintenance team with the flexibility required to do the right maintenance at the right time for the right price. An additional intent of CMAVs is to provide the agility required to support the fleet response plan.

2.6.1 Continuous Maintenance Availability Types. CMAVs are established as the only type of availability that will be accomplished on surface ships outside of CNO availabilities for non-emergent maintenance. Fleet Maintenance Activity Availabilities, Restricted Availabilities, Technical Availabilities are no longer authorized to describe ship maintenance availabilities. There are two basic types of CMAVs, scheduled (XAZ) and unscheduled (XCM). CMAV schedules will be reviewed at each Planning Board for Maintenance and will be adjusted as ship's operational schedules dictate. Schedule adjustment should be requested by the ship via naval message to the Immediate Superior In Command (ISIC), information to the applicable RMC.

2.6.2 Continuous Maintenance Availability Business Rules. The following CMAV business rules have been established to provide guidance for developing work items associated with scheduled and unscheduled repair and modernization availabilities, managing assigned work brokered to both CNO and CMAV availabilities for FFP and MS/MO contracts, and establishing priorities for the executing activity to accomplish planning and execution of Work Candidates into work items. This enables the Vision of Entitlement to be realized. The Vision of Entitlement requires a somewhat continuous flow of the planned work items to allow for a continual estimating, work item review and cost definitization process.

2.6.2.1 Applicability. This process is applicable to all personnel involved with writing work items for repair and modernization contracts using work items developed/maintained in NMD in accordance with all COMNAVSURFOR 4700 NOTICES and this manual. The start and stop points of the process are when a Work Candidate is brokered from Regional Maintenance Automated Information System (RMAIS) into an availability in NMD and the production period of the maintenance availability is completed.

2.6.2.2 Ship Specification Package. The Project Manager on behalf of the Maintenance Team shall:

a. Establish a SSP within NMD Planning for scheduled and unscheduled CMAVs ((XAZ), (XCM) and (XEM)) and set up the availability in NMD to receive Automatic Work Requests (AWR) from (RMAIS) electronically in accordance with references (b) through (d) and this manual.

b. For each Work Candidate that is brokered to the availability in NMD, ensure that the planning date, the "Deadline Date" and the "Availability Number" (in which an availability period can be entered) listed on the Work Candidate is correct, and also include a preliminary man-hour and material cost estimate. Work must be planned and estimated (man hours and material cost) with Long Lead Time Material (LLTM) identified prior to being routed into any NMD execution availability. This planning estimate is necessary to more accurately predict, for a CNO availability, what percent of the package (in dollars), has been authorized at the 50%, 80% and 100% milestones, and for a CMAV (XAZ) and (XCM)

availability, will allow us to know if we have adequate funding available in the budget. A minimum of **fourteen calendar days** should be allowed for planning unscheduled (XCM) availabilities before routing a job to an NMD execution availability.

2.6.2.3 Planning. With the creation of an SSP in NMD, the actual Planning start and stop dates for the execution of the work within that SSP will be established. The one exception to this will be the year long CMAV, Scheduled/Unscheduled CMAV (XAZ) and (XCM) (XEM) availabilities.

a. All valid maintenance items will have a specification prepared in the NMD Planning module in accordance with references (b) through (d) and this manual as applicable. All new work will also be written in the planning module of NMD.

b. When a valid maintenance item is ready for brokering, review of the currently scheduled SSP availabilities in NMD Planning will then determine to which SSP the item should be added. All SSPs existing within NMD Planning will have a date established when that package should be "locked" per the advance planning milestones contained in Appendix D_1 of this chapter. No valid work items can be added to an existing SSP if the current date is past the "lock" milestone date without providing a written detailed description of the rationale used to add it in the "Work Item" comments field.

c. The priorities for the Planning Activity are then established by the next scheduled availability milestone that is coming due in accordance with Appendix E and F. This could be a CNO, the next scheduled CMAV (XAZ) or year long XCM availability. Process flowcharts appear in Appendices G_1 through G_4 of this chapter. The year long XCM SSP availability will be a work load leveling mechanism for the planning activity and the goal would be to have these items brokered, planned, material ordered, funded, scheduled and ready to start work within 14 calendar days prior to start. The valid maintenance items in the XCM SSP availability will become candidates for scheduled CMAVs and unscheduled XCM execution availabilities (windows of opportunity) that are identified on short notice. These planned work items for MS/MO contracts will be routed to NMD execution availabilities that branch off of this year long NMD XCM planning availability. Re-broker those remaining AWRs at the end of the fiscal year, into the next fiscal year long XCM and scheduled CMAV (XAZ) SSP availability. Refer to Appendices G_1 through G_4. Refer to Appendix E to assist in determining priority of planning work.

d. If the urgency to accomplish any emergency maintenance repairs does not allow for development of a work item prior to the start of work and a work item does not exist in the MSC, then a work item will be prepared after completion of work to document it within NMD. Route these emergent Work Candidates to the applicable SSP planning availability, which can then be forwarded to the NMD execution availabilities where the emergency maintenance work was executed.

e. The Project Manager will check NMD daily for AWRs received in NMD SSP planning availability, review and validate each AWR to determine scope of work. If the information contained in the AWR is insufficient to write a work item, the Project Manager shall coordinate and manage any required shipchecks.

f. The RMC will determine who should plan a given availability (other than CNO) based on manpower available either at the MS/MO contractor or the Government. (Check Contract Line Item Number verbiage for actual contract requirements.)

2.6.2.4 Planners and Estimators.

a. Determine if the information contained in the AWR is adequate enough to write a work item. If yes, continue development. If no, check the inadequate box and note reasons for inadequacy, then continue.

b. Review for MSC Templates as follows:

(1) Identify appropriate Ship Work List Item Number that applies for AWR to be planned under.

(2) Check/search for an appropriate Master Specification Template such as a Class Standard Work Template, Standard Work Template or Local Work Template that addresses the scope of work identified in AWR.

(a) If no applicable template is found, check/search for a previously written work item that is applicable and addresses the scope of work identified in AWR.

(b) If no previously written work item is found that is applicable, check/search for a “basic” work item template/format.

c. Select appropriate Master Specification Template, previously written work item or "basic" work item template/format and initiate planning the work item in accordance with mandatory requirements of references (b), (c) and (d).

d. Identify and validate all references, including Liaison Action Requests/Reverse Liaison Action Requests required to complete the work item.

e. Identify test requirements needed to complete work item. If test procedures are required, obtain from execution site design group, planning yard contractor or In-Service Engineering Activity.

f. Identify security and certification requirements. Develop technical requirements and Planning Estimate.

g. Identify repair material required to include long lead-time items and submit to material specialist for procurement.

h. Determine if there is Hazardous Material involved with the work item.

i. Review the completed work item for candidacy as a new or revised template for inclusion into the MSC. If a candidate, submit the new or revised template to the local NSA Standards Person for review and subsequent routing to the MSCMO for processing and inclusion into the catalog.

j. Route completed work item in its preliminary state to the Program Manager queue in NMD to be included in a final review work package compiled in NMD.

2.6.2.5 Maintenance Team Program Manager.

a. Route review work package of work items to Pre-lim Spec review web site. Web Site Address: https://www.spear.navy.mil/onlineSpecReview.aspx.

b. Review and respond to comments on pre-lim work item review web site.

c. Route and approve work items to "APPROVED" work item review web site.

d. Process entire work package and issue.

2.6.2.6 Advanced Planning Manager. Publish CNO MS/MO Package in NMD at A-60 and the CMAV MS/MO at A-25. This is an important milestone/metric captured within NMD.

2.6.2.7 Scheduled Availabilities.

a. Scheduled XAZ availabilities are normally 2 to 6 weeks in duration and are nominally scheduled once per non-deployed quarter during a period when the ship will be in port at least three continuous weeks. Scheduled XAZ dates should not include the one-week minimum between the end of any availability and the ship's next underway date. No production work should be scheduled during this period. The ship, via the ISIC, will schedule XAZ availabilities. RMC requirements will be addressed to the ship via the maintenance team. Adjustments to XAZ availability start dates are inevitable; however, the start dates may not move "forward" if package preparation and work package "lock" milestone dates would be violated by the new start date. In this case, the applicable XAZ CMAV availability must be rescheduled to support the entitled process milestone dates. In general, CMAVs will be scheduled to start on the first weekday after arriving in port and will be scheduled to complete one week prior to the scheduled underway day. The minimum length of a ship's uninterrupted period will be 3 weeks if an XAZ availability is to be scheduled, with the XAZ availability preferably being a minimum length of two weeks. Any XAZ availability that is scheduled without adhering to these minimums should be avoided and work required during that timeframe will be conducted as XCM. Ships and ISICs shall ensure that other in port requirements (training, inspections, etc.) are not scheduled concurrent with an XAZ availability if these requirements will impede scheduled production.

b. CMAVs will not normally start on weekends or holidays when support for tag-outs and availability start up is limited, and will not be the same day the ship arrives in port. As a result of requiring the XAZ availability to complete one week prior to getting underway, a reduction in premiums is expected by eliminating the last minute rush to complete work to support the scheduled underway. Maintenance teams must ensure that work scheduled for an XAZ availability can realistically be accomplished in the production window. When operational schedule changes occur early enough to allow the scheduling of an additional XAZ availability without violating the milestones discussed in paragraph 2.4.5.2 of this chapter, a new XAZ availability should be scheduled when possible rather than executing maintenance in the unscheduled XCM availability. Additionally, the length of an existing XAZ availability may be increased to accommodate changes in operational schedules provided none of the scheduling rules are violated.

NOTE: XCM AVAILABILITIES ARE NOT TO BE USED AS HOLDING QUEUES FOR MAINTENANCE ITEMS.

2.6.2.8 Unscheduled Availabilities.

a. The unscheduled XCM availability is a single yearlong availability, for the period of 01 October through 30 September, scheduled for each ship every fiscal year. This yearlong availability is used to accomplish maintenance when a ship is not in a scheduled XCM availability or CNO availability. Since the XCM CMAV Windows Of Opportunity (WOO) are potentially short notice, a reduced set of D level milestones is established. Read in three columns as follows:

TASK	RESPONSIBLE ACTIVITY	MILESTONE
WORK SPECS DEVELOPED	RMC OR MSR	WOO-14
WORK PACKAGE DEFINITIZED	RMC OR MSR	WOO-7

b. No length requirement exists for an XCM availability. These are accomplished as WOOs become available. If a work item is determined to require more than one WOO to accomplish in its entirety, then it may be executed during multiple WOOs provided that it can be broken into several shorter period requirements.

2.6.3 Continuous Maintenance Availability Applicability. The CMAV business rules apply to all XAZ availabilities and XCM. Since the potential exists for CMAVs to become increasingly more complex, an NSA will be assigned for every CMAV. The NSA will typically be the applicable RMC, or naval shipyard (if applicable).

2.6.4 Work Included in Continuous Maintenance Availabilities. All levels of work (organizational, intermediate and depot) shall be included in a single CMAV for a specific availability period regardless of the executor (Ship's Force, RMC production personnel or contractor). The intent is to integrate all types of work into a single production schedule for a specific CMAV. Separate intermediate and depot availabilities will not be established for the same period of time, except internally to the RMC production department as required to facilitate the use of I-level management systems. Dependent upon complexity of the scheduled maintenance and/or modernization and the number of maintenance activities involved, the Ashore Ship's Maintenance Manager may include a work item for production scheduling and integration in the work package or bid specifications. If this work item is not used, then the Ashore Ship's Maintenance Manager will perform this function.

2.6.5 Concurrent Continuous Maintenance Availabilities. It is incumbent upon the Ashore Ship's Maintenance Manager to ensure that two non-emergent availabilities are not in progress at the same time. Additionally, CMAVs are not to be scheduled concurrently with CNO availabilities. As required, XCM work items meeting the requirements of paragraph 2.4.5.2 of this chapter that are being accomplished in WOOs may overlap with XAZ and CNO availabilities.

2.6.6 Ship Movement During a Continuous Maintenance Availability. In order to maintain focus on the maintenance work package and minimize premium costs, no ship shall get underway during a CMAV other than to support the maintenance availability or to complete sea trials. Maintenance that prevents a ship from being ready for sea within 96 hours will normally only be screened to XAZ availabilities. Ships will notify their ISIC of any production item that will prevent the ship from getting underway within 96 hours. If this work is being conducted within a scheduled XAZ availability, a waiver is not required. It is imperative that the ISIC take a proactive role in ensuring that the integrity of the scheduling process be maintained as it relates to CMAVs. CMAVs must be incorporated into the ship's operational schedule and must remain as a priority for completion.

2.6.7 Continuous Maintenance Availability Metrics. In order for accurate metrics to be obtained, it is imperative that all CMAVs be planned and executed utilizing the NMD (D level) and the NEMAIS (I-level). For those sites that do not presently have NEMAIS installed, use of local I-level management system is authorized and expected. The following placement and oversight metrics will be collected to measure the effectiveness of the CMAV process. This is not a complete listing of all CMAV metrics. For a complete listing, refer to Volume VI, Chapter 36 of this manual.

a. Award on time delivery (XAZ only). Scheduled CMAV "on time award" is defined as the percentage of time contract award is made on time or early.

b. Completion on time delivery (XAZ only). The CMAV completion on time delivery metric calculates the percentage of occasions when a CMAV availability is completed on or before the CMAV end date as recorded in NMD.

c. Availability churn (XAZ only). The CMAV availability churn percentage is a monthly capture of the dollar value of work items changed, deleted or added in a CMAV work package from contract award until availability completion versus the dollar value of the work package at award for all CMAV availabilities that ended in the current measurement month and the previous two months. This metric is collected by availability and reported in the month the availability completes.

d. Growth and New Work Premiums. The Growth and New Work Premiums metric is a measure of late work premiums paid as a percent of growth and new work monthly. It does not include authorized work included at the start of the availability as growth reserves for specific work items or execution of pre-priced option items if executed within the scope and schedule as pre-priced. This metric is collected weekly with each change to the original contract award (FFP) or definitization (MS/MO) work package transaction being reported one time in the data call for the week in which it was settled for scheduled CMAVs.

2.6.8 Continuous Maintenance Availability Late Work Premium (XAZ only). The CMAV late work premium metric is a measure of the total dollar value of late work premiums paid for CMAV availabilities completed in the current month divided by the sum of the execution contract award (FFP) or definitization (MS/MO) and the settled cost of all Request for Contract Changes for that availability.

2.6.9 Continuous Maintenance Planning. Continuous maintenance is the process of scheduling and accomplishing work outside of CNO availabilities. MS/MO contracts create a long-term relationship with the EA that accomplishes the continuous maintenance to maintain the ship at an acceptable readiness level. The Ashore Ship's Maintenance Manager will use every scheduled in-port period as an opportunity to accomplish continuous maintenance. Funding for continuous maintenance is included in the ship's Maintenance and Modernization Business Plan. In order to prevent premiums from being accrued, a minimum of 30 days will be allotted between the time depot level work is brokered to the EA and the time work is scheduled to start. A minimum of 40 days will be allotted for work brokered to I-level activities. This will provide for adequate time to plan the work and acquire the necessary material in an efficient manner. This will allow a Work Package Execution Review to take place at A-20 and for all work to be definitized at A-10. If these minimum thresholds cannot be complied with the work should be postponed until the next continuous maintenance opportunity. The Ashore Ship's Maintenance Manager may run a business case analysis if there are other factors that might justify the addition of work inside these preferred windows.

2.7 ADVANCE PLANNING STATUS MESSAGES. The Advance Planning Status Messages required by reference (e) should continue to be issued by the activity responsible for planning the ship's CNO availability. Messages should commence at A-360. These messages play a vital role in keeping all concerned parties informed of the status of the planning effort. The messages document the successful accomplishment or failure to achieve milestones and produce deliverables. The Work Package Execution Review meeting, held to review the integrated work production schedule that has been prepared by the EA, takes place at A-30 for CNO availabilities and at A-20 for Continuous Maintenance Availabilities (CMAV). This is the final opportunity to resolve any work interface or production support issues between the different activities before actual production work begins.

2.8 MAINTENANCE TEAMS EXECUTING MAINTENANCE WITH FIRM FIXED PRICE CONTRACTS. MS/MO contracts are not in place for all surface ships in the Navy's inventory. Some classes of ships will not receive MS/MO contracts as they will be decommissioning soon, others have such a small number in their class that it is not worthwhile to do this. Ships that fall in this category will continue to have their work planned via the existing Ship Availability Planning and Engineering Center (SHAPEC) process and have their work contracted using FFP contracts. A modified planning milestone table for FFP contracts is included in Appendix D_1.

APPENDIX A

PRORATE ITEMS WITH EXPLANATIONS

A. The following items may be shared by all parties participating in the availability. The share will be based upon installation manhours. The manhours will be the sum of Prime (MS/MO), Prime Subcontractor and AIT manhours for each maintenance or modernization work item. These are then subtotaled to arrive at the equitable distribution weight for each participating organization. If the total manhours for an AIT work item is less than 2% of the total work package, then the AIT will not be assigned a share of the prorates. Each prorated item below is followed by a brief description.

1. Production Planning (813-10-XXX): The MS/MO 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 manhour and material planning for the MS/MO contractor as well as the repair and Participating Managers (PARM). AITs will not be included in the share of prorates for this item.

2. 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.

3. 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.

4. Integrated Test Plan (894-90-XXX): The Integrated Test Plan is closely associated with the Production Plan. The Integrated Test Plan 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.

5. Program Management (897-00-XXX): Every MS/MO contractor has a small staff which manages the overall availability. These include the availability manager and principle assistants. Every participant benefits from this team.

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

1. 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.

2. Waterfront Liaison Engineering Services (838-10-XXX): Waterfront Liaison Engineering Services are typically required when the Ship Installation Drawings (SID) for a modernization installation have an error or there are interferences not accounted for in the SIDs. It is also possible to need Waterfront Liaison Engineering Services 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.

3. 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.

4. Technical Support (861-00-XXX): This is technical support such as Original Equipment Manufacturer on-site assistance provided for individual work items. In all cases the support is charged to the individual work item.

5. 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.

6. 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 manhours.

7. 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.

8. 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 TYCOM. In other cases, cuts must be made for a specific repair or modernization work item and they will be charged accordingly.

9. 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.

10. Crane Services (865-20-XXX): The crane services requirement will be estimated and assigned to individual work items that require the service.

11. Rigging Services (865-30-XXX): This is for rigging for the cranes and is assigned to individual work items.

12. Material Handling (865-20-XXX): This charge is for the "yellow gear" forklifts that support material handling on the pier, dock or main deck of the ship. The cost is assigned to individual work items that require the service.

13. Fire Watch Services (865-70-XXX): The fire watch personnel are estimated and assigned to individual work items.

14. Quality Assurance Support (866-20-XXX): In keeping with ISO 9000, each MS/MO contractor maintains its own Quality Assurance. The cost of Quality Assurance will be assigned to individual work items.

15. Production Supervision (897-00-XXX): Every MS/MO 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.

C. The TYCOM will pay for the following items:

1. 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 obstacles which are designed to stop unauthorized boats from approaching the ship.

2. Compartment Closeout Schedule (813-00-XXX): The Compartment Closeout Schedule is developed in conjunction with the Production Plan. The Compartment Closeout Schedule 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 MS/MO and Navy (civilian and/or military) personnel who sign the closeout form.

3. Weight and Moment Change Data (843-10-XXX): Every significant availability requires compilation of weight and moment 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 weight and moment costs to individual jobs.

4. Ship's Force Parking (863-70-XXX): This is a TYCOM item.

5. RMC Office Space (863-70-XXX): When the TYCOMs assumed responsibility for the repair RMCs, the cost of personnel and spaces became a TYCOM responsibility.

6. 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/TYCOM.

7. Light Off Assessment (868-30-XXX): This is a TYCOM item.

8. Dock Trial/Fast Cruise (868-40-XXX) and Sea Trials (868-50-XXX): This is a TYCOM item.

9. Work Authorization Forms (897-00-XXX): The Work Authorization Form 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 and manpower profiles.

10. Temporary Staging for Ship's Force Use (991-12-XXX): This is a TYCOM item.

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APPENDIX B

MASTER SPECIFICATION CATALOG MAINTENANCE OFFICE GUIDELINES

1. Scope. This procedure is applicable to all personnel involved in processing and submitting new proposed templates, including updated proposals of existing templates, in the Navy Maintenance Database (NMD) for processing by the MSCMO.

2. Procedure.

2.1 Template.

a. Select template candidate.

b. Check for an existing template in the following order:

(1) Class Standard Work Template.

(2) Standard Work Template.

(3) Local Work Template.

(4) Past Availability.

c. Initiator of the proposed new template candidate must first review existing templates within the MSC to ensure a duplicate is not being created. If there is no duplicate, initiator can proceed with proposal.

d. Ensure item number conforms to Chapter 4, Appendix 4-E, Section VII, C of reference (a) (e.g., correct Expanded Ship Work Breakdown Structure and contains 8 digits). If non-conforming, correct proposed template.

e. Template Paragraph 1 "Scope", ensure the following:

(1) Paragraph 1.1 Title: Conforms to Chapter 4, Appendix 4-E, Section VII, B.2.a of reference (a).

(2) Paragraph 1.2 Location of Work: Conforms to Chapter 4, Appendix 4-E, Section VII, B.2.b of reference (a).

(3) Paragraph 1.3 Identification: Conforms to Chapter 4, Appendix 4-E, Section VII, B.2.c of reference (a).

(4) Paragraph 1.4 Security Classification of Equipment, Components, Spaces and Documents: When required to identify classified spaces, equipment or documents, conforms to Chapter 4, Appendix 4-E, Section VII, B.2.d of reference (a).

All Titles that currently contain ANY PHRASE in parentheses that is not a Navy Standard acronym/abbreviation or part of a Planning Yard drawing title shall be removed. Example: (OPTION ITEM, DRYDOCK).

f. Ensure the following:

(1) Template Paragraph 2 “References” conforms to Chapter 4, Appendix 4-E, Section VII, B.3 of reference (a).

Reference is appropriate and correct for work being done. References shall be in one of the following formats:

602-6663754PL Rev *, (Title)
602-6663754 Rev *, (Title)
525146-1 Rev B, (Title) (No Group listed/Manufacturer's Drawing)

(2) For FFG-7 Class, any of the above or as follows:

528-****501 Rev *, (Title)
528-****501PL Rev *, (Title)

(3) Reference type is correctly identified and in accordance with Instructions for Entering Reference Types table located in the help section of NMD.

(4) Any liens (Liaison Action Requests/Reverse Liaison Action Requests) against a drawing shall be deleted from the proposed template.

(5) The order in which the references are listed is in the same order as they appear in the body of the proposed template.

g. Ensure Template Paragraph 3 “Requirements” conforms to Chapter 4, Appendix 4-E, Section VII, B.4 of reference (a). Verify the following:

(1) NAVSEA Standard Items are called out as required.

(2) Category I NAVSEA Standard Item requirements are not invoked.

(3) Current Appendix 4-E of reference (a) Standard Phraseology is used.

(4) Required reports are called out and flagged in NMD. Required flag identifies the purpose of the report such as Inspection Results. The first letter of each word shall be upper case.

(5) Inspections, Tests, and Government Notifications conform to Chapter 4, Appendix 4-E, Section VII, B.4.j of reference (a).

(6) Planner's Notes are used to call out information that needs to be inserted or addressed.

(7) Verify that parts listed as repair parts have the correct information.

(8) Cleaning and pumping requirements of Standard Work Template 992-31 are not invoked.

(9) Fluid capacities for tanks with designated tank numbers are not listed in the proposed template.

(10)

(a) A lead paragraph shall include phraseology that begins with a verb, and refer to paragraphs 1.2 and 1.3 within the sentence structure where applicable (e.g., 3.1 Remove existing and install new the equipment listed in 1.3 and located in 1.2).

(b) Or refer to a previous lead paragraph that referred to paragraphs 1.2 and 1.3 within the template (e.g., 3.2 Remove each watertight closure listed in 1.3 and located in 1.2., 3.4. Install each watertight closure removed in 3.2).

(11) The following format shall be used when entering Contractor Furnished Material:

(a) Each entry shall be inserted to line up to header standard phrase B-30 to justify left.

(b) No space between material line entries as follows:

TOTAL QUANTITY REQUIRED	NAME OF PART	PIECE NO.	REF. NO.	FIGURE DRAWING NO.	PART NO.
One EA	Seal	2	2.2	7-6	12345
Two EA	Worm Gear	4	2.2	7-6	6789

(12) Where Table, Line(s), and Column(s) of 009-32 are specified within a template, the template shall be updated and filled in using the appropriate Table, Line(s), and Column(s). If non-conforming or incorrect, correct proposed template.

h. Ensure Template Paragraph 4 “Notes” conforms to Chapter 4, Appendix 4-E, Section VII, B.5 of reference (a). If non-conforming, correct proposed template.

i. Ensure Template Paragraph 5 “Government Furnished Material (GFM)” conforms to Chapter 4, Appendix 4-E, Section VII, B.6 of reference (a). If Government Furnished Material is listed in paragraphs 5.1 - 5.3 insure Government Furnished Material information is correct.

j. Ensure Attachments are correct and open properly in NMD. If errors are found, correct errors.

k. Review template for conformance to Sections E, F, and G of Chapter 4, Appendix 4-E, Section VII of reference (a). If non-conforming, correct proposed template.

l. Ensure proposed template estimate is completely filled out, estimated as a minimum to the lead paragraph level, and accurate. Templates that are silent in paragraph 1.3 (where the equipment has no identification or specific quantity listed) do not have a true and accurate estimate on file reflecting the actual work within the template. Insert a Planner's Note in the template to reflect a unit of (One EA) for estimating purposes.

m. Is the proposed template complete and in conformance with Chapter 4, Appendix 4-E of reference (a) and the MSCMO Guidelines? If yes, submit proposed template.

2.2 Submission of Change.

a. Recommended changes to the MSCMO Guidelines shall be submitted to the MSCMO for consideration. Approved changes to the Guidelines will be forwarded by the MSCMO to the Joint Fleet Maintenance Manual Program Manager for inclusion in the next scheduled Joint Fleet Maintenance Manual release, utilizing the Joint Fleet Maintenance Manual Change Request Form.

b. Recommended changes, to Chapter 4, Appendix 4-E, of reference (a) shall be submitted to the SSRAC, for consideration of adding to reference (a), through the SSRAC proposed change process.

c. Recommended Enhancements to the NMD program shall be submitted to the Automated Information Service Center through the Configuration Control Board process.

2.3. Internal Review (Planner to Supervisor). Initiating activity shall perform an internal review of proposal to ensure template candidate is appropriate and conforms to Chapter 4, Appendix 4-E, of reference (a) and meets the MSCMO Guidelines. Upon completion of review, template candidate is routed to the Regional RMC/NSA Standards Coordinator.

NOTE: CONTRACTOR GENERATED PROPOSALS MUST BE ROUTED FROM THE CONTRACTOR'S LOCAL STANDARDS COORDINATOR TO THE REGIONAL RMC/NSA STANDARDS COORDINATOR IN THEIR GEOGRAPHIC AREA.

2.4 Command Review. The Regional RMC/NSA shall review proposal to ensure proposed template candidate is appropriate and conforms to Chapter 4, Appendix 4-E, of reference (a) and the MSCMO Guidelines. Upon completion of review, proposed template candidate is:

a. Routed to the MSCMO for review; or

b. Prior to routing to the MSCMO for review, the RMC/NSA for that class of ship shall review proposed Class Standard Work Template candidate. This shall be initiated by an e-mail notification from the submitting Regional RMC/NSA MSC Standards Coordinator to the cognizant class RMC/NSA MSC Standards Coordinator. The e-mail notification shall include the file number of the new proposal. The cognizant class RMC/NSA MSC Standards Coordinator receiving the notification shall review proposed template for technical accuracy, current applicable phraseology, conformance to Chapter 4, Appendix 4-E, of reference (a) and the MSCMO Guidelines, estimate information, and submit a response to the submitting Regional RMC/NSA Standards Coordinator via e-mail within 10 days of receipt of notification. Responses shall be provided for all templates submitted for review.

2.5 Master Specification Catalog Maintenance Office.

a. The MSCMO shall review proposal to ensure template conforms to Chapter 4, Appendix 4-E, of reference (a) and the MSCMO Guidelines. If there are no issues, MSCMO activates new template. If there are significant issues with proposal, MSCMO initiates dialog with local standards person or originator of proposal to resolve issues. Once issues are resolved, MSCMO activates new template.

b. The MSCMO will return a template if there is no estimate or if the proposed template is a duplicate of an existing template.

c. Processing Changes to Existing Template. The MSCMO is responsible for maintaining templates (Class Standard Work Templates and Standard Work Templates) up to date. When a user finds an active MSC template that needs to be updated (as a result of changes through Lessons Learned, error, outdated requirements, etc.), a proposed change shall be initiated in accordance with these Guidelines and processed for review in accordance with paragraph 2.4 of this appendix.

3. Naval Supervisory Authorities and Class Assignment Responsibilities.

a. Norfolk Ship Support Activity (NSSA):
AGF-3, AOE, ARS-50, LCC-19 & DD-963

b. Norfolk Naval Shipyard (NNSY):
LHA & LHD

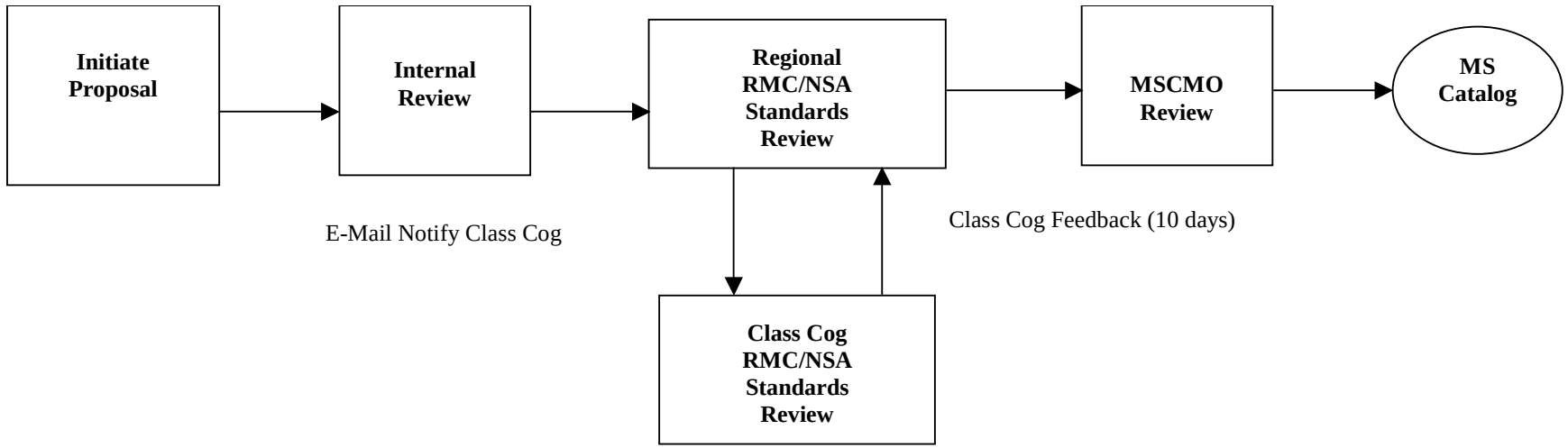
c. Southwest Regional Maintenance Center:
LPD-4, LSD-41, LSD-49, MCM & MHC

d. Southeast Regional Maintenance Center (SERMC):
FFG-7

e. SUPSHIP Gulf Coast (SSGC):
CG-47

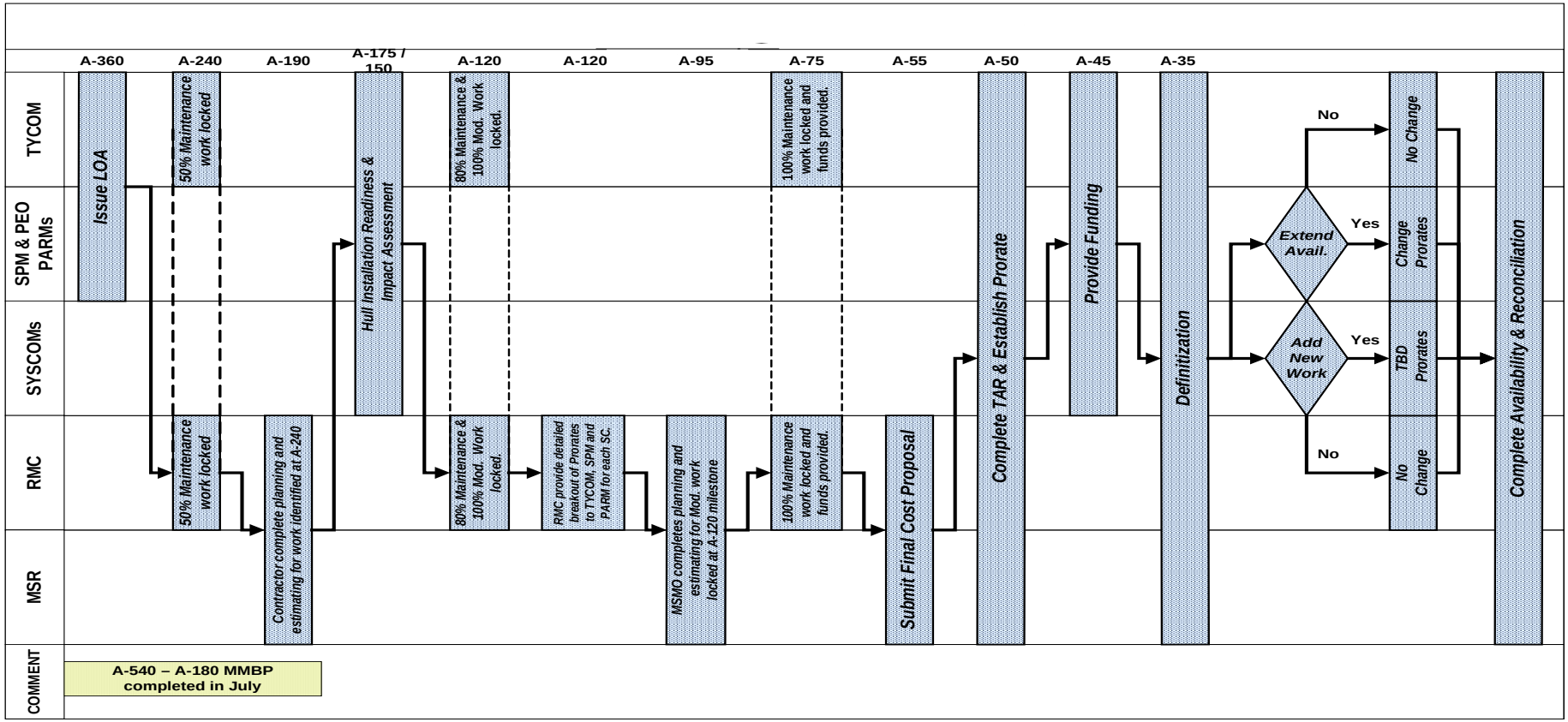
f. SUPSHIP Bath (SBAT):
DDG-51, MSCMO

Processing Templates in Navy Maintenance Database
(Proposed New Template or Proposed Change to Existing Template)



APPENDIX C

SURFACE SHIP PRORATE PROCESS



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APPENDIX D_1

SURFACE SHIP PLANNING PROCESS MILESTONES

EVENT #	Task/Milestone	Responsible Activity	Modernization Critical	CNO MSMO (entitled)	CNO MSMO <$20M (optional)	CNO MSMO >$20M (optional)	CNO FFP	CMAV MSMO (entitled)	CMAV MSMO (optional)	CMAV FFP/IDIQ	Comments/Remedial Action
1	Establish CNO/CM Availability Schedule	TYCOM		A-720	A-720	A-720	A-720				FRP Baselines are developed on a 3 year cycle. ID CNO avails IAW with that cycle.
2	Fund Modernization Procurement & Installation - Decision Point 3	OPNAV/ FLEET		Varies	Varies	Varies	Varies				Depends on development and procurement timeline requirements.
3	Issue Execution Planning Hull Modernization Plan (EHMP)	SPM		Varies	Varies	Varies	Varies				EHMP issued in March each year to support MMBP development.
4	Issue 2-year rolling Advance Planning Hull Modernization Plan (AHMP)	SPM/		Varies	Varies	Varies	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	A-660	A-660	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	A-600	A-600	A-600				
7	Initiate procurement of HCMP LLTM	PARM/SPM		A-600	A-600	A-600	A-600				
8	PY Submit Funding Request for work assigned	Planning Yard		A-480	A-480	A-480	A-480				
9	Ship Change (SC) Design/Planning Funds provided	NAVSEA/ TYCOM		A-420	A-420	A-420	A-420				SPAWAR generally funds in FY prior to execution year.
10	Interface Control Drawing (ICD) delivered to alteration developer/PY	PARM		A-420	A-420	A-420	A-420				
11	Identify drawing development assignments, including Class Drawings	PARMS/ TYCOM/ NAVSEA		A-390	A-390	A-390	A-390	A-390	A-390	A-390	Send to RMC and Planning Yard.

APPENDIX D_1

SURFACE SHIP PLANNING PROCESS MILESTONES (Con't)

EVENT #	Task/Milestone	Responsible Activity	Modernization Critical	CNO MSMO (entitled)	CNO MSMO <$20M (optional)	CNO MSMO >$20M (optional)	CNO FFP	CMAV MSMO (entitled)	CMAV MSMO (optional)	CMAV FFP/IDIQ	Comments/Remedial Action
12	**Issue Initial Letter Of Authorization (including AITs)**	**SPM/TYCOM**	**A-360**	**A-360**	**A-360**	**A-360**	**A-360**				
13	**Establish Availability in NMD**	**Maintenance Team**		**A-360**	**A-360**	**A-360**	**A-360**	**A-360**	**A-360**	**A-360**	**Select the appropriate set of milestones based on the size of the MMBP: CNO MSMO "Entitled", CNO <$20M, CNO >$20, or CMAV MSMO (optional). Enter the selected set of milestones as "Revised" Milestones in NMD.**
14	**Request Availability Funding for planning repair work**	**NSA**		**A-345**	**A-345**	**A-345**	**A-345**	**A-345**	**A-345**	**A-345**	**This provides funds for early executor planning.**
15	**Task/Fund SID Development**	**SPM/NSA/ AIT/TYCOM/ RMC Manager**	**A-330**	**A-330**	**A-330**	**A-330**	**A-330**	**A-330**	**A-330**	**A-330**	
16	**Shipchecks completed**	**Planning Yard**		**A-270**	**A-270**	**A-270**	**A-270**	**A-270**	**A-270**	**A-270**	**No FRP considerations relate to this date.**
17	**Screen CMP/TYCOM routines**	**TYCOM PC**		**A-270**	**A-270**	**A-270**	**A-270**	**A-270**	**A-270**	**A-270**	**Push CMP work items to CSMP NLT A-270.**
18	**Provide incremental funds for ordering LLTM for both repair and alt/mod work to meet req'd dates**	**SYSCOM/ TYCOM**		**A-270**	**A-270**	**A-270**	**A-270**	**A-270**	**A-270**	**A-270**	
19	**50% of D-level maintenance work package 2K's locked based on $**	**Maintenance Team**		**A-240**	**A-240**	**A-240**	**A-240**	**NA**	**NA**	**NA**	**Intent is that the planning activity continually develops specs in the most cost effective manner and not batch this work in front of the next pkg development milestone.**
20	**MSMO contractor complete planning and estimating of work assigned as required by the above A-240 milestone**	**MSMO Contractor**		**A-190**	**A-190**	**A-190**					**Intent is to have a continuous flow of planning quality estimates to eliminate churn in the work package.**

APPENDIX D_1

SURFACE SHIP PLANNING PROCESS MILESTONES (Con't)

EVENT #	Task/Milestone	Responsible Activity	Modernization Critical	CNO MSMO (entitled)	CNO MSMO <$20M (optional)	CNO MSMO >$20M (optional)	CNO FFP	CMAV MSMO (entitled)	CMAV MSMO (optional)	CMAV FFP/IDIQ	Comments/Remedial Action
21	Issue/Deliver SIDs to NSA for KTRs and AITs	Planning Yard	A-180	A-180	A-180	A-180	A-240	A-180	A-180	A-180	This is a change from A-4. Including all SIDs for AITs. For FFP contracts, this milestone should occur at A-8 when possible and NLT A-180.
22	Late add impact assessment	PARM		A-180	A-180	A-180	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.
23	Interopera-bility impact assessment	PARM		A-180	A-180	A-180	A-180				Any SFI CAT 1 or 2 change to scheduling in NDE-NM inside A-180 that has not been previously baselined at an NCMC requires the sponsoring activity to submit an eCCB risk form in NDE-AMPS.
24	Request Availability Funding for both repair & modernization work	NSA/RMC		A-180	A-180	A-180	A-180	A-180	A-180	A-180	
25	All Modernization Risk Assessments (including waivers) submitted	PARM/SPM/ TYCOM		A-175	A-175	A-175	A-175	A-175	A-175	A-175	
26	All Modernization Risk Assessments (including waivers) approved	TYCOM		A-150	A-150	A-150	A-150	A-150	A-150	A-150	
27	Identification of AIT Support/Sche dule/Impact requirements	AIT Manager	A-135	A-135	A-135	A-135	A-180	A-135	A-135	A-168	Need to develop a complete requirements list. Needs to be integrated with repair reqmt's by the KTR and presented at the WPER.
28	80% of D-level maintenance work package 2K's locked based on $	Maintenance Team		A-120	A-151	A-155	A-210	NA	NA	NA	Intent is that the planning activity continually develops specs in the most cost effective manner and not batch this work in front of the next pkg development milestone.

APPENDIX D_1

SURFACE SHIP PLANNING PROCESS MILESTONES (Con't)

EVENT #	Task/Milestone	Responsible Activity	Modernization Critical	CNO MSMO (entitled)	CNO MSMO <$20M (optional)	CNO MSMO >$20M (optional)	CNO FFP	CMAV MSMO (entitled)	CMAV MSMO (optional)	CMAV FFP/IDIQ	Comments/Remedial Action
29	Cert Plan(s) (e.g., ILS, software etc.) approved. Final date for modernization Ship Change (SC) approval except for Sustainment Type 1 (ST1) and Sustainment Type 2 (ST2) SCs. Letter of Authorization locked with exception of ST1 and ST2 SCs	SPM/PAR M/PM	A-120	A-120	A-120	A-120	A-120	A-120	A-120	A-120	SPM approves Hull Certification. All unresolved PNA modernization SCs, except ST1 and ST2 SCs, are removed from the authorization letter at this date. ST1 and ST2 SCs can be added to the Letter of Authorization until A-75. Please note: There is an Interim Policy covering the Fleet Commander's C5I MP policy for approving the Weapon System Baseline Certification at A-30 (CFFC MSG 032037Z MAY 2004).
30	100% of O level maintenance work package locked	Ship's Force		A-120	A-120	A-120	A-120	A-30	A-30	A-30	Intent is to provide work to be accomplished so that an integrated execution sked can be developed for the WPER.
31	Conduct Work Package Integration Conference WPIC			A-120	A-120	A-120					Provides a forum for early identification of work requirements that require integration to avoid conflicts in execution with other work.
32	*MSMO contractor complete planning and estimating of work assigned as required by the above 80% 2K Lock milestone	MSMO Contractor		A-95	A-126	A-130					Intent is to have a continuous flow of planning quality estimates to eliminate churn in the work package. *MSMO contractor planning and estimating must be complete by A-95 for all Modernization work items defined in the A-120 Letter of Authorization Lock.
33	Award AIT contracts for work not being done by prime KTR	AIT Sponsor		A-90	A-90	A-90	A-90	A-90	A-90	A-90	

APPENDIX D_1

SURFACE SHIP PLANNING PROCESS MILESTONES (Con't)

EVENT #	Task/Milestone	Responsible Activity	Modernization Critical	CNO MSMO (entitled)	CNO MSMO <$20M (optional)	CNO MSMO >$20M (optional)	CNO FFP	CMAV MSMO (entitled)	CMAV MSMO (optional)	CMAV FFP/IDIQ	Comments/Remedial Action
34	I-level work package fully brokered	Maint Team/Ship's Force		A-90	A-90	A-90	A-90	A-40	A-40	A-40	Intent is to fully broker all known work to I-level by this date.
35	I-level work package fully accepted	RMC		A-75	A-75	A-75	A-75	A-33	A-33	A-33	Intent is for I-level to accept or reject all work brokered to it up to this point in time, work entering later in the process will be subject to normal Business Case Analysis.
36	100% of D-level maintenance work package 2K's locked based on $	Maintenance Team		A-75	A-92	A-99	A-170	A-30	A-44	A-60	
37	Final date for ST1 and ST2 SCs approval or deferral from the Letter of Authorization	SPM/PARM/ PM		A-75	A-75	A-75	A-75				All unresolved PNA S11 and S12 SCs are removed from the Letter of Authorization 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.
38	Solicit Bids	RMC		N/A	N/A	N/A	A-120	N/A	N/A	A-50	If CMAV is to be performed under an IDIQ contract and is over $500k we may need to add 30 days for solicitation IAW Fair Value purchasing policy. This would reset the CMAV solicit bid milestone to A - 70.
39	100% of D-level maintenance work package 2K's planned, estimated	Planning Activity		A-60	A-85	A-92	A-155	A-25	A-37	A-60	Maintenance Team/PMR notify PARM of KTR estimated execution cost and validate Maintenance/Modernization pro-rate split.
40	Submit I-level work package and schedule to KTR for integration	RMC		A-60	A-85	A-92	A-60	A-30	A-30	A-15	
41	Perform risk assessments and verify deliverables to KTR (O,I,D work items and AIT sked reqmts)	Maintenance Team		A-60	A-85	A-92	NLT	A-25	A-25	A-25	This is to confirm that the KTR has all input for his development of the integrated avail sked. Note that for FFP CMAV KTR will not be identified until A-15, verification with KTR will take place at WPER.

APPENDIX D_1

SURFACE SHIP PLANNING PROCESS MILESTONES (Con't)

EVENT #	Task/Milestone	Responsible Activity	Modernization Critical	CNO MSMO (entitled)	CNO MSMO <$20M (optional)	CNO MSMO >$20M (optional)	CNO FFP	CMAV MSMO (entitled)	CMAV MSMO (optional)	CMAV FFP/IDIQ	Comments/Remedial Action
42	SHAPEC Package turnover	SHAPEC		N/A	N/A	N/A	A-135	N/A	N/A	N/A	
43	MSMO contractor "publish" pkg in NMD	MSMO Contractor		A-60	A-85	A-92	N/A	A-25	A-37	N/A	
44	Cutoff for bidders questions	PCO		N/A	N/A	N/A	A-100	N/A	N/A	A-30	
45	Submit Bids	Contractor		N/A	N/A	N/A	A-90	N/A	N/A	A-20	
46	Award Contract	RMC		N/A	N/A	N/A	A-60	N/A	N/A	A-15	
47	MSMO contractor submit final package cost proposal	MSMO contractor		A-55	A-71	A-78	N/A	A-25	A-31	N/A	
48	Complete TAR/ Establish Pro-rate based on final cost proposal	RMC		A-50	A-58	A-65	N/A	A-20	A-31		Final funding requirements update with estimate of pro-rates.
49	Provide Availability Funding for Modernization to the RMC	SYSCOMS/ PEO/ TYCOM	A-45	A-45	A-57	A-64	A-75	A-45	A-31	A-45	Includes funding for AIT's support services and prorate costs.
50	Definitize Work Packages	RMC		A-35	A-35	A-35	N/A	A-18	A-18	N/A	
51	Deliver Material (LLTM and Kitted Materials) to Executing Activity	Planning Yards/PARM		A-30	A-30	A-30	A-30	A-20	A-20	A-15	
52	Conduct Work Package Execution Review (WPER) - finalize funding	Maintenance Team		A-30	A-30	A-30	A-30	A-21	A-21	A-10	KTR presents fully planned execution sked (could be a Gantt chart) to the full MT.

APPENDIX D_1

SURFACE SHIP PLANNING PROCESS MILESTONES (Con't)

EVENT #	Task/Milestone	Responsible Activity	Modernization Critical	CNO MSMO (entitled)	CNO MSMO <$20M (optional)	CNO MSMO >$20M (optional)	CNO FFP	CMAV MSMO (entitled)	CMAV MSMO (optional)	CMAV FFP/IDIQ	Comments/Remedial Action
53	Start of Availability	Maintenance Team		A-0	A-0	A-0	A-0	A-0	A-0	A-0	
54	Provide Maintenance and Modernization Business Plan (MMBP) budget guidance to RMC	TYCOM		Feb of Prior FY	Feb of Prior FY	Feb of Prior FY	Feb of Prior FY	Feb of Prior FY	Feb of Prior FY	Feb of Prior FY	
55	Negotiate MMBPs with TYCOM	RMC/SPM		Mar of Prior FY	Mar of Prior FY	Mar of Prior FY	Mar of Prior FY	Mar of Prior FY	Mar of Prior FY	Mar of Prior FY	Start in March complete by June.

APPENDIX D_2

AIRCRAFT CARRIER MAINTENANCE AND MODERNIZATION PLANNING PROCESS MILESTONES

AIRCRAFT CARRIER MAINTENANCE AND MODERNIZATION PLANNING PROCESS MILESTONES								
Event #	**Task/Milestone**	**Responsible Activity**	**CFT 4 and CFT 2 Entitled Process (in days)**					**RCOH**
			CFT 4 Critical	**CNO MSMO**	**CNO FFP**	**CMAV MSMO**	**CMAV FFT/ IDIQ**	
CARRIER MODERNIZATION MILESTONES								
1	Issue Advance Planning Letter (APL)	SPM		A-720	A-720			N/A
2	Initial Drawing Shipcheck (approximate)	PY		A-600	A-600			A-1080
3	Initiate Procurement of LLTM	NSA/ PARM		A-600	A-600			A-1080
4	Issue Baseline AWP	CPA		A-510	A-510	C+90	C+90	A-1440
5	Populate Baseline Modernization Readiness Assessment (MRA)	CPA		A-510	A-510	C+90	C+90	A-1440
6	Baseline AWP Review	SPM		A-510	A-510			A-1290
7	ICD Delivered to SC developer/PY	PARM		A-420	A-420			A-780 to A-420
8	Issue SC Letter of Authorization	SPM		A-360	A-360			N/A
9	Begin Monthly Issuance of MRA (no later than)	CPA		A-360	A-360			A-540
10	Complete SIDs for NSA SCs	PY		A-300	A-300	I-180	I-180	TBD
11	Complete/Deliver SIDs for AIT SCs to NSA/PY	AIT		A-240	A-240			TBD
12	Issue Letter of Authorization Change 1	SPM		A-180	A-180			N/A
13	Complete/Approve SIDs for AIT SCs	PY		A-180	A-180	I-180	I-180	I-120
14	Conduct Modernization Readiness Assessment #1 (MRA1)	NSA/CPA		A-150	A-150			A-240
15	Initial Platform Certification Decision (IPCD) for C5I installations	SEA 06		A-150	A-150			
16	Submit ILS Certification to CALICo	PARM		A-150	A-150	I-150	I-150	TBD
17	Complete ILS Certification/Issue ILS Cert Message	SPM		A-120	A-120	I-120	I-120	TBD
18	Issue Letter of Authorization Change 2	SPM		A-120	A-120			N/A
19	All Modernization Risk Assessment submitted to TYCOM	PARM		A-120	A-120	I-120	I-120	N/A
20	Provide POA&M to NSA/TYCOM	AIT		A-135	A-135	A-135	A-135	A-135

APPENDIX D_2

AIRCRAFT CARRIER MAINTENANCE AND MODERNIZATION PLANNING PROCESS MILESTONES (Con't)

AIRCRAFT CARRIER MAINTENANCE AND MODERNIZATION PLANNING PROCESS MILESTONES								
Event #	**Task/Milestone**	**Responsible Activity**	**CFT 4 and CFT 2 Entitled Process (in days)**					**RCOH**
			CFT 4 Critical	**CNO MSMO**	**CNO FFP**	**CMAV MSMO**	**CMAV FFT/ IDIQ**	
21	Conduct Modernization Readiness Assessment #2 (MRA2)	TYCOM/ CPA		A-60	A-60			N/A
22	If SC is added to the MP after this date, submit LATE ADD REQUESTS to TYCOM	PARM		A-60	A-60			N/A
23	Issue Risk Assessment Message (results of MRA2)	TYCOM		A-45	A-45			N/A
24	Ensure COP data is compiled and prepared	PARM		I-60	I-60	I-60	I-60	I-60

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APPENDIX E

PLANNING PRIORITY MATRIX

The priority for work item planning completion is set by the required due date for the work accomplishment. This date is established by the Maintenance Team, based on the availability start date minus the required contracting time. The tables below provide guidelines for FFP and MS/MO contract vehicles.

DEPOT PLANNING PRIORITY SCHEDULE (FFP)

PRI	TYPE WORK	SPEC EST DUE DATE	PRIORITY SET BY	PLNG SYS	AWARD INTERVAL	COMMENTS/REMARKS
1	EM	"ASAP"	MT-BASED ON EM SKED	NMd	N/A	▪ CAN USE IDIQ IF AVAIL ▪ INCLUDES EM DOCKING (SUSTAIN IDIQ) ▪ OT USE AS NEEDED
2	CM	1-3 DAYS BASED ON SKED	MT-BASED ON CM SKED	NMd	N/A	▪ CAN USE IDIQ IF AVAIL ▪ SMALL PKGS 5-10 SPECS FOR CM SKED AVAILS (10-21 DAYS)
3	CNO	PER ADV PLNG SKED	PLNG-LAST SPEC DUE DATE	NMd	A-60	▪ INCLUDES FFG SHAPEC AVAILS ▪ PLNG START A-360 ▪ BID SPEC REVIEW (BSR) REQUIRED
4	IDIQ UPDATE AND NEW CONTRACTS	PER ADV PLNG SKED	PLNG-LAST SPEC DUE DATE	NMd	A-60	▪ PLNG START A-360 BASED ON CONTRACT EXPIRATION/NEW START ▪ SEE IDIQ LIST FOR CONTRACT EXP DATES ▪ BID SPEC REVIEW (BSR) REQUIRED
5	SERVICE CRAFT	PER ADV PLNG SKED	PLNG-LAST SPEC DUE DATE	NMd	A-60	▪ PLNG START A-360 TO 300 IF POSSIBLE ▪ USUALLY COASTWIDE SOL ▪ BID SPEC REVIEW (BSR) REQUIRED
6	OTHER (TRF, SUSTAIN, DECOM, ETC)	PER ADV PLNG SKED	PLNG-LAST SPEC DUE DATE	NMd	A-60	▪ PLNG START A-360 TO 300 IF POSSIBLE ▪ BID SPEC REVIEW (BSR) REQUIRED

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APPENDIX F

DEPOT PLANNING PRIORITY SCHEDULE (MS/MO)

PRI	TYPE WORK	SPEC EST DUE DATE	PRIORITY SET BY	PLNG SYS	AWARD INTERVAL	COMMENTS/REMARKS
1	EM	"ASAP"	MT-BASED ON EM SKED	NMd	N/A	▪ INCLUDES EM DOCKING ▪ OT USE AS NEEDED
2	CM (SCHEDULED)	A-24	MT-BASED ON CM SKED	NMd	N/A	▪ APPLICABLE TO ALL QTRLY CMAVS ▪ SMALL PKGS 5-10 SPECS FOR CM SKED AVAILS (10-21 DAYS)
3	CM (UNSCHEDULED)	A-14 days prior to start	MT-BASED ON CM SKED	NMd	N/A	▪ APPLICABLE TO IN-PORT PERIODS WHEN SHIP IS AVAIL TO PERFORM REPAIRS ▪ CONTRACTOR NEEDS ADEQUATE NOTICE TO PERFORM PRODUCTION SCHEDULING & PLANNING
4	CNO	A-60	PLNG-LAST SPEC DUE DATE	NMd	N/A	▪ INCLUDES ALL CNO AVAILS ▪ PLNG START A-360

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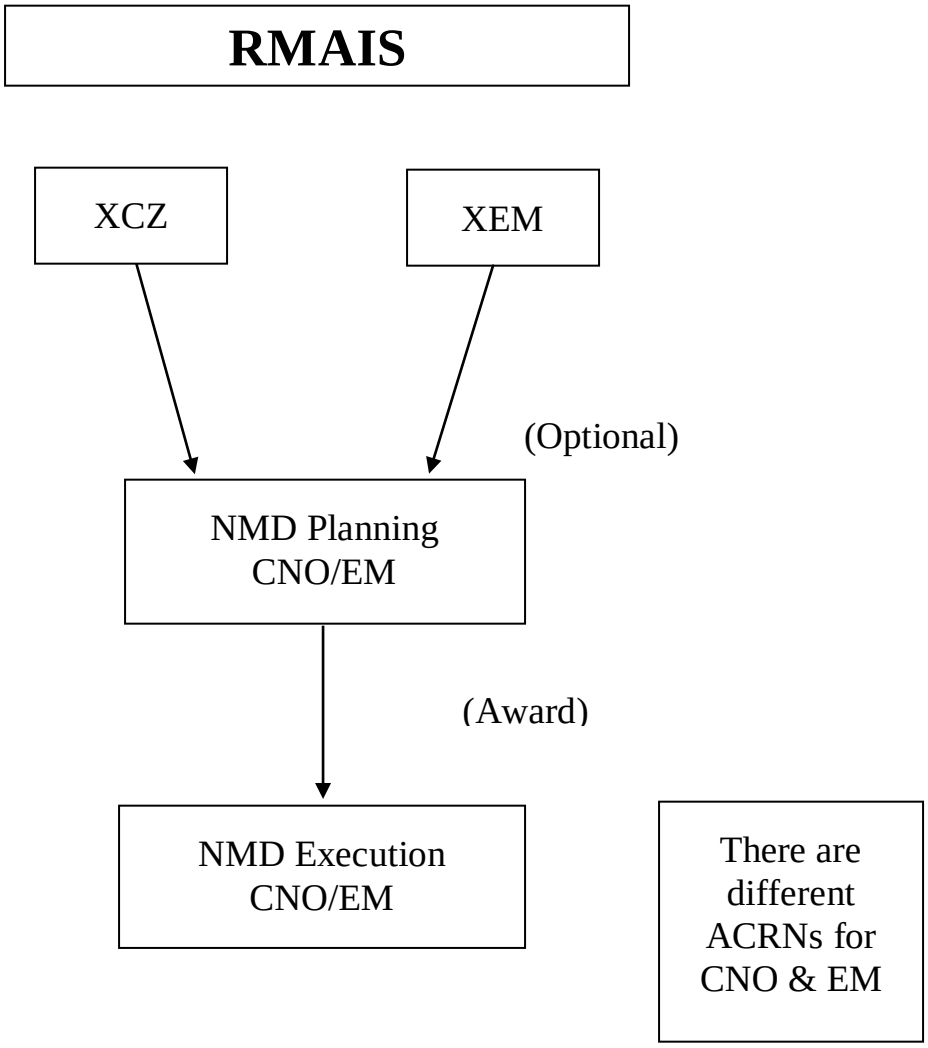
APPENDIX G_1

PROCESS FLOWCHART

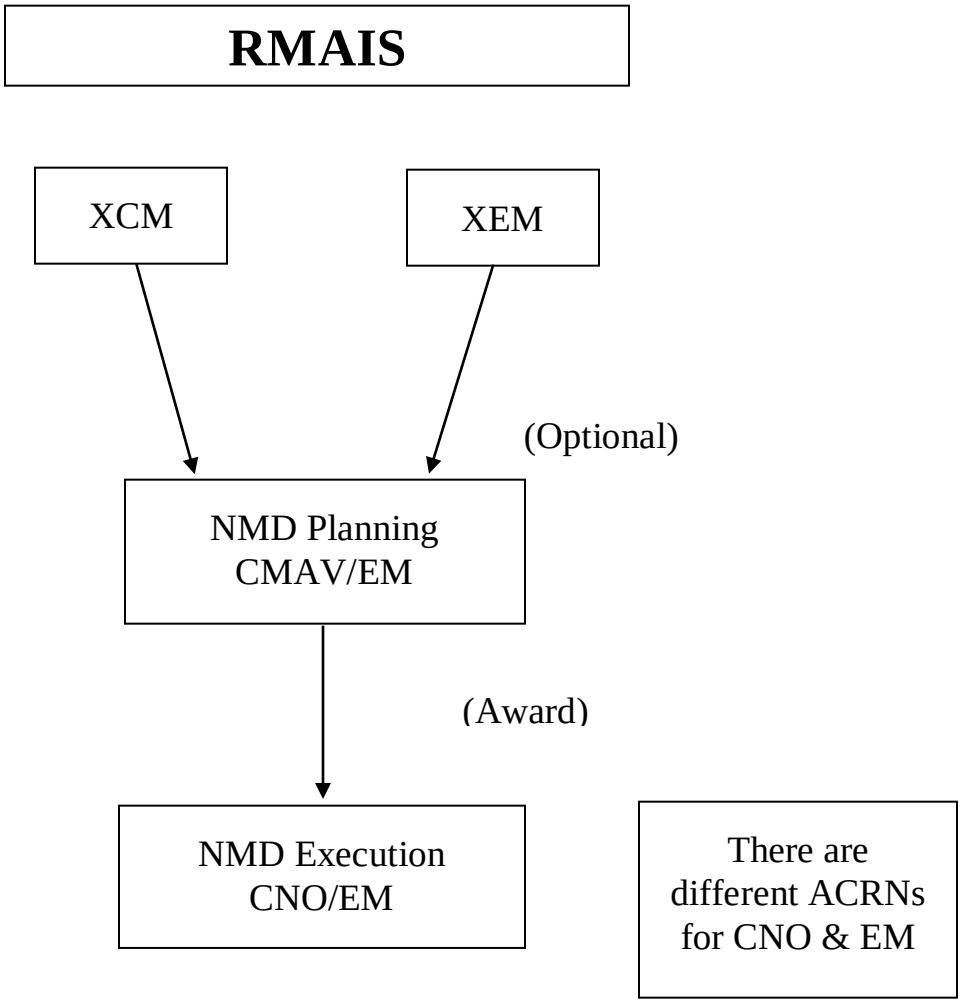
FIRM FIXED PRICE CNO AVAILABILITY



APPENDIX G_2

PROCESS FLOWCHART

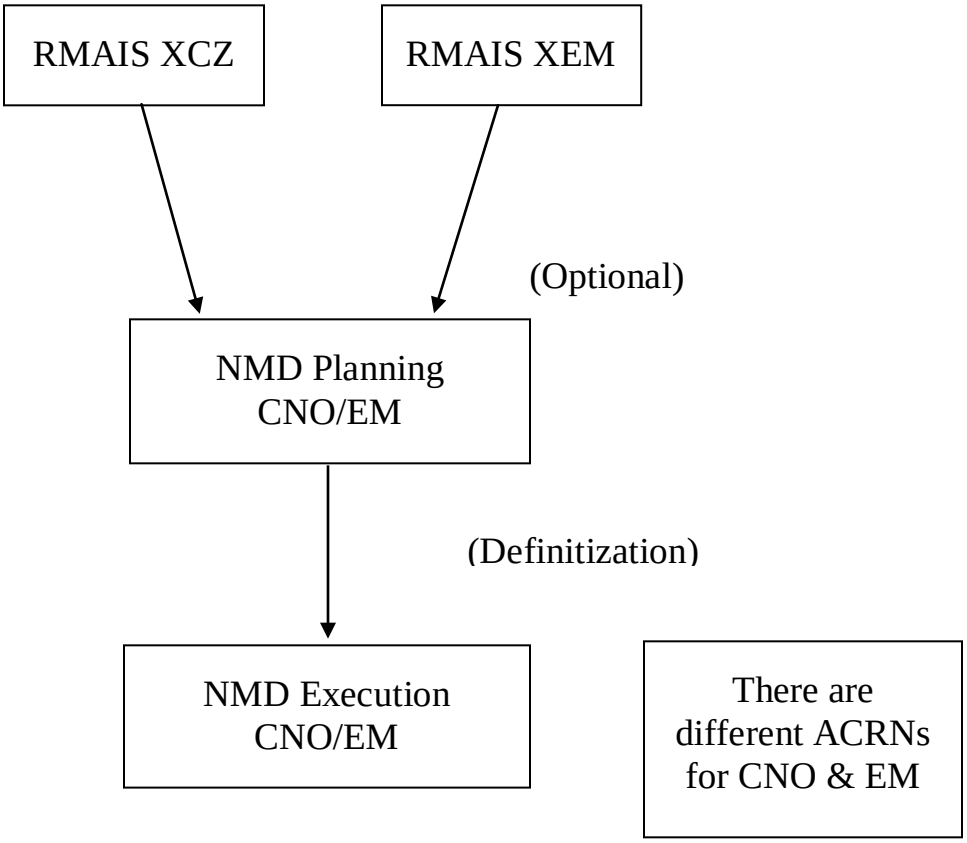
FIRM FIXED PRICE CMAV OR EMERGENCY AVAILABILITY



APPENDIX G_3

PROCESS FLOWCHART

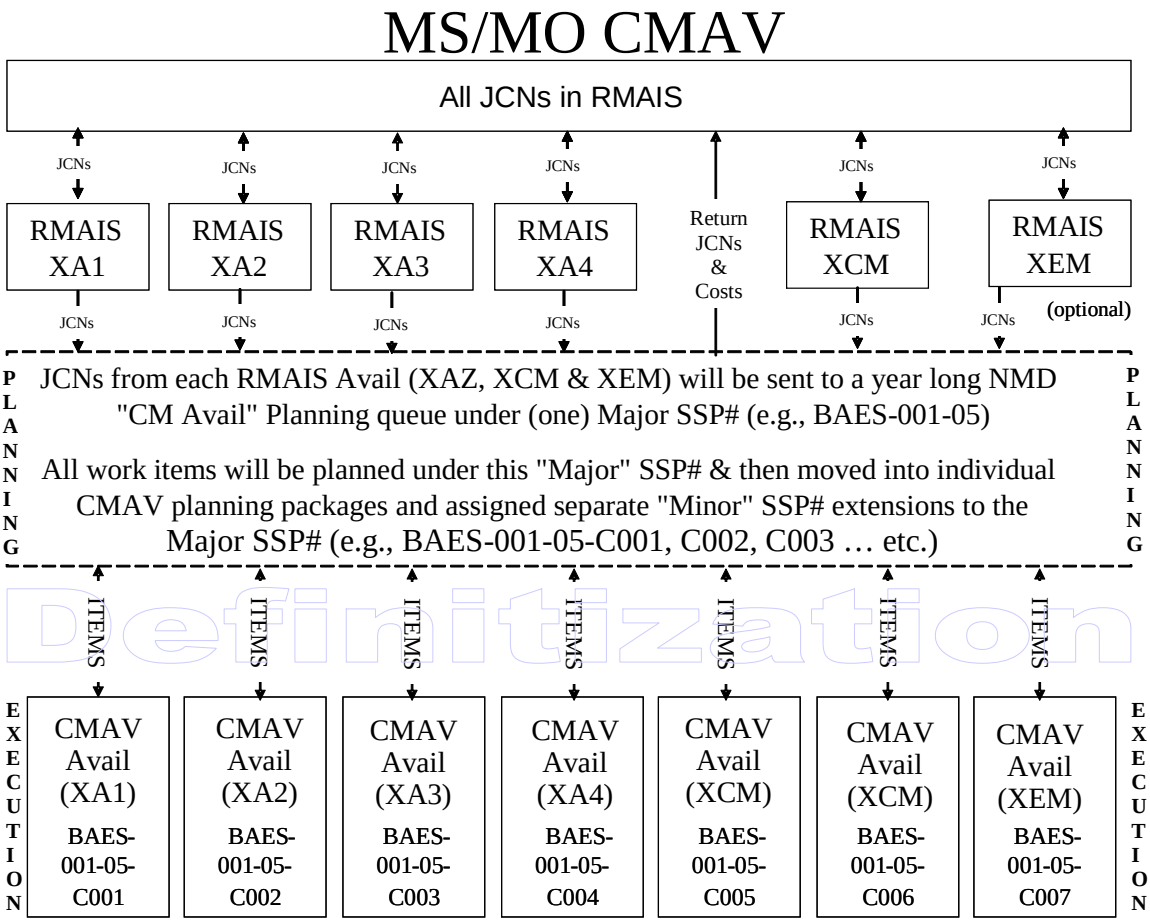
FIRM FIXED PRICE MS/MO CNO AVAILABILITY



APPENDIX G_4

PROCESS FLOWCHART

FIRM FIXED PRICE MS/MO CMAV AVAILABILITY



VOLUME II

PART II

CHAPTER 3

SURFACE SHIP MAINTENANCE WORK CLOSEOUT

REFERENCES.

(a) NAVSEA SI 009-99 - Private Shipyard Contractual Item to Provide Departure Reports
(b) NAVSEAINST 4790.8 series - Ship's Maintenance and Material Management (3-M) Manual
(c) NAVSEAINST 4790.14 series - Ship Departure and Alteration Completion Reports

3.1 PURPOSE. This chapter provides procedures and guidance regarding surface ship maintenance and modernization work candidate closeout. These rules apply to Maintenance Activities (MA), Maintenance Teams (MT), Regional Maintenance Centers, Fleet Maintenance Activities (FMA), Naval Shipyards, Systems Commanders sponsoring Program Alterations and other Alteration Installation Team sponsors.

3.2 SCOPE. One of the major SHIPMAIN efforts is to close completed work candidates (Naval Sea Systems Command (NAVSEA) 4790/2K, referred to as 3-M Maintenance Action Forms (2-kilo) in this instruction) promptly and record completion information in Ship's Maintenance and Material Management (3-M) History. This chapter covers the process and responsibilities for closing all 2-kilos that were screened and brokered to an activity other than Ship's Force.

3.3 BACKGROUND. Prior to the work closeout changes directed by SHIPMAIN, 2-kilos executed in shipyards (public and private) often did not get closed until long after the work was completed, and then often by someone unfamiliar with the actual work accomplished. Additionally, even though shipyards provide completion data in the form of departure reports following an availability, that information was either not captured in Ship's 3-M History or captured manually. This means that useful data was not seamlessly making its way into the Navy's maintenance data warehouse. Since this data is used to determine troubled systems, identify trends in system health, identify causes and solutions to expensive growth work, update cost estimates in the Master Specification Catalogs, update return costs in the Open Architecture Retrieval System database, program for future maintenance budgets, identify the most cost-efficient periodicity for scheduled assessments, and identify candidates for alterations or assessments, it is critical that it be captured and made readily available to all users. This chapter provides the required means to report accurate completion data for capture in Ship's 3-M History.

3.4 WORK CLOSEOUT PROCEDURES.

3.4.1 Depot Maintenance Activity Responsibilities.

3.4.1.1 Private Shipyards Using the Navy Maintenance Database. Comply with reference (a) for submission of cost and completion information directly in Navy Maintenance Database (NMD) for each work specification and Request for Contract Change (RCC). No other ship departure reports should be created or distributed because stakeholders can print standardized departure reports that contain the required data directly from NMD. Submission of cost and completion information is required within 30 days after the completion of an availability (including Continuous Maintenance Availability), or within 30 days after completion of the work for emergent maintenance or unscheduled continuous maintenance. This data can be entered either directly in NMD Planning or through a computer-to-computer connection to NMD.

a. If the work item is an Class Maintenance Plan (CMP) scheduled maintenance task or assessment, include the As Found Condition as part of the Final Action code (see paragraph B-2.5.2 of Appendix B to reference (b) for code definitions). Scheduled CMP tasks contain the following phrase in the Block 35 Remarks/Description field of the 2-kilo: PROVIDE "AS-FOUND MATERIAL CONDITION" CODE IN THE SECOND POSITION OF THE "FINAL ACTION TAKEN" FIELD (2-KILO, BLOCK 64) IAW NAVSEAINST 4790.8B.

b. For Firm-Fixed-Price contracts, the completion costs are, by definition, the award costs for original work and the Regional Maintenance Center-approved RCC costs for growth work. As such, cost information for Firm-Fixed-Price contracts is entered by the contracting officer and is not editable by the MA. However, completion information (Final Action and Completion Date) must still be entered in NMD just as it is for Cost-Plus or Multi-Ship/Multi-Option contracts.

c. Once the MA enters the required information and the MT closes the availability, NMD automatically prorates completion costs from the work specification to the 2-kilos that make up the specification based on the proportion of the most recent planning estimates. The MA can override the default proportions for a specification if it believes the proportions will not properly prorate the costs. NMD also submits a "growth 2-kilo" for each completed RCC. A growth 2-kilo is used strictly for documentation purposes, getting its information from the "parent" 2-kilo and cost/completion data from the RCC. It requires no additional actions by, and should be transparent to, the MA or MT.

3.4.1.2 Naval Shipyards Using Advanced Industrial Management. Comply with reference (c) for submitting Ship Departure Reports. Advanced Industrial Management currently does not support transmitting cost and completion information to Regional Maintenance Automated Information System (RMAIS). Until changes can be made to Advanced Industrial Management to support automated reporting, Naval Shipyards should continue to follow local instructions for Advanced Industrial Management operations. NAVSEA will ensure cost information at the 2-kilo level from Ship Departure Reports is entered into the Ship's 3-M History records.

3.4.1.3 Depot Maintenance Activities Not Using Navy Maintenance Database or Advanced Industrial Management. The MA is responsible for providing to the MT, within thirty days after completion of the work, the man-days, labor costs, material cost, total cost, date completed, and the Final Action code (see paragraph B-2.5.2 of Appendix B to reference (b) for code definitions) for each 2-kilo. Additionally, if the 2-kilo was a scheduled task generated by the CMP, the MA must report the As Found Condition (the second character in the Final Action code). Scheduled CMP tasks contain a statement in the Remarks/Description field of the 2-kilo stating that the As Found Condition is required.

3.4.2 Fleet Maintenance Activity Responsibilities.

3.4.2.1 Fleet Maintenance Activities Using the Navy Enterprise Maintenance Automated Information System. Navy Enterprise Maintenance Automated Information System (NEMAIS) properly transmits cost and completion information to RMAIS. FMAs should continue to follow local instructions for NEMAIS operations.

3.4.2.2 Fleet Maintenance Activities Using Logistics Data System or the Compass Maintenance Management Software. Logistics Data System and Compass Maintenance Management Software transmit a portion of the required cost and completion information to RMAIS. The information that is transmitted can be used to calculate the missing information with a reasonable level of accuracy. Naval Sea Logistics Center has implemented a procedure in Ship's 3-M History to calculate and fill in the missing information. FMAs should continue to follow local instructions for Logistics Data System or Compass Maintenance Management Software operations.

3.4.2.3 Fleet Maintenance Activities Not Using Navy Enterprise Maintenance Automated Information System, Logistics Data System or Compass Maintenance Management Software. The FMA is responsible for providing to the MT, within thirty days after completion of the work, the man-days, labor costs, material cost, total cost, date completed, and the Final Action code (see paragraph B-2.5.2 of Appendix B to reference (b) for code definitions) for each 2-kilo. Additionally, if the 2-kilo was a scheduled task generated by the CMP, the FMA must report the As Found Condition (the second character in the Final Action code). Scheduled CMP tasks contain a statement in the Remarks/Description field of the 2-kilo stating that the As Found Condition is required.

3.4.3 Ship's Force Responsibilities.

a. Regardless of which MA performs the work, Ship's Force is responsible for providing validation to the MT that the work is acceptable. This acceptance does not necessarily have to be in writing. Validation can be provided at periodic shipyard status report meetings, Planning Board for Maintenance or any other forum as directed by the MT. In general, any 2-kilo that was worked during an availability (not including work deferred from that availability or otherwise cancelled) must be closed following the availability. If the work is not acceptable by the end of the availability, a new 2-kilo, referencing the original 2-kilo in the narrative text, should be created to document the remaining deficiencies. This new 2-kilo will then be screened and brokered to the appropriate MA for a future availability.

b. If a 2-kilo was created using a shipboard system (Organizational Maintenance Management System - Next Generation (OMMS-NG) or Ship's Non-Tactical Automated Data Processing System (SNAP)), it should be closed in that same system after the work is completed and considered acceptable. If any work is not considered acceptable by the end of the availability, those 2-kilos should still be closed and new 2-kilos written in accordance with paragraph 3.4.3.a. of this chapter. When closing 2-kilos in OMMS-NG or SNAP, Ship's Force must record any man-hours they expended in the execution of the work.

c. If a 2-kilo was created in RMAIS, it may not appear on the ship's Current Ship's Maintenance Project. These 2-kilos will be closed by the MT on behalf of the ship. Any Ship's Force man-hours expended in the execution of the work must be reported to the MT for documentation in RMAIS.

3.4.4 Maintenance Team Responsibilities.

a. The MT is administratively responsible for all work screened and brokered to an activity other than Ship's Force.

b. For the closeout process to work correctly, RMAIS must use a closeout method of "Both", meaning both a "Customer Completion" and a "Maintenance Activity Completion" are required. RMAIS must not be set, nor should users be allowed to overwrite it, to "Customer Completion Only" or "Maintenance Activity Completion Only."

c. The MT shall close in RMAIS all open 2-kilos from an availability within one week following MA entry in NMD, FMA submission of a 2-kilo completion in NEMAIS or submission of cost and completion information for all other systems.

d. The MT must obtain Ship's Force validation that the work was acceptable before closing the 2-kilo in RMAIS. This acceptance does not necessarily have to be in writing. Validation can be obtained at periodic shipyard status report meetings, Planning Board for Maintenance or by other methods. If work is not accepted by the end of the availability, the 2-kilo should be closed at the same time as other executed work, and a new 2-kilo shall be created, referencing the original 2-kilo in the narrative text.

3.4.4.1 Work Executed by Private Shipyards Using the Navy Maintenance Database. The following steps shall be followed by the MT to properly closeout the work.

a. Upon notification that the MA entered cost and completion information data in NMD, enter Government Furnished Material costs for each specification and RCC in NMD Planning and set the Actual Cost Tab to "Complete".

b. Change the Avail Status to "Closed" and enter the Closed Date in NMD Execution.

c. Obtain validation that the work was accepted by Ship's Force.

d. Close any 2-kilos not closed by the ship (i.e., 2-kilos not created by OMMS-NG or SNAP) in RMAIS by completing a "Customer Completion". They can be closed individually, or group selected and closed. If Ship's Force expended any man-hours in the execution of the work, the amount must be reported for each job.

3.4.4.2 Work Executed by Fleet Maintenance Activities Using Navy Enterprise Maintenance Automated Information System, Logistics Data System or Compass Maintenance Management Software. Upon notification that the FMA closed 2-kilos in their respective system, the MT shall close any 2-kilos not closed by the ship (i.e., 2-kilos not created by OMMS-NG or SNAP) in RMAIS by completing a "Customer Completion". They can be closed individually, or group selected and closed. If Ship's Force expended any man-hours in the execution of the work, the amount must be reported for each job.

3.4.4.3 Work Executed by Naval Shipyards Using Advanced Industrial Management or by a Maintenance Activity Not Using Navy Maintenance Database, Navy Enterprise Maintenance Automated Information System, Logistics Data System or Compass Maintenance Management Software. The following steps shall be followed by the MT to properly closeout the work.

a. Upon receipt of cost and completion information from the MA, enter this information in RMAIS and complete a "Maintenance Activity Completion".

b. Obtain validation that the work was accepted by Ship's Force.

c. Close any 2-kilos not closed by the ship (i.e., 2-kilos not created by OMMS-NG or SNAP) in RMAIS by completing a "Customer Completion". They can be closed individually, or group selected and closed. If Ship's Force expended any man-hours in the execution of the work, the amount must be reported for each job.

VOLUME II

PART III

FOREWORD

MISSION FUNDED FLEET MAINENANCE ACTIVITIES

1.1 PURPOSE. Volume II, Part III of this manual provides procedures and guidance which reasonably ensure that accounting for work performed on or for a specific Navy ship's hull, ship class, or reimbursable customer's final product or service applies uniform costing policies and procedures for Fleet Maintenance Activities (FMA). Application of uniform costing practices and procedures is necessary to ensure comparability among FMAs costing procedures, reliability in development of activities' budget requirements and the proper funding of these requirements. The coordination of costing, budgeting and funding requirements will help ensure the maximum benefit from the consumption of resources by the FMAs.

1.2 SCOPE.

1.2.1 Applicability. The guidance contained in Part III of this volume is directive in nature and applicable to each FMA performing work on specific ship's hull, ship class, or reimbursable customer's final product or service and to outside organizations (contractors) performing maintenance work on specific ship's hull, ship class, or reimbursable customer's final product or service. This volume does not currently apply to organic depot maintenance organizations (naval shipyards) when a maintenance availability is conducted by organic assets of the depot facility or the reimbursable customer's order specifies the use of other specifications. It does apply to all contract maintenance work.

1.2.2 Authority. Part III of this volume is directive in nature and may be cited as authority for action as the need dictates. Where higher authority imposes more stringent requirements or conflicts exist, such requirements shall have precedence. Where conflicts exist with previously issued Commander, Fleet Forces Command, Commander, Naval Reserve Force, Type Commander (TYCOM) letters, transmittals and instructions, this manual shall take precedence. When such conflicts are identified, they should be reported immediately to the Fleet and TYCOMs for resolution.

1.3 ORGANIZATION.

1.3.1 Basic Principles for Costing Maintenance. In order for maintenance costs records to be accurate, reliable and uniform, several principles must be adhered to:

a. The individual worker must have a process that guides him or her in accurately charging performance of maintenance. (See Part III, Chapter 3 of this volume.)

b. The supervisors (shop supervisors, Leading Petty Officers, etc.) and individual worker must be trained so that work can be charged correctly and in a timely manner. This training will provide the craftsman with the basic principle related to identifying direct versus indirect charges. (See Part III, Chapter 3 of this volume.)

c. The maintenance charges recorded by the individual worker must have proper oversight and supervisory direction to assure management of the accuracy and completeness of the information. (See Part III, Chapter 5 of this volume.)

d. The worker must be provided the correct charge number prior to commencing work. In the case where an individual worker utilizes multiple charge numbers, the supervisors are critical to ensure the proper charge number is used. (See Part III, Chapter 3 of this volume.)

e. In order for all levels of management to have confidence that costs are accurate and complete, an appropriate level of independent testing/audit must be performed. The specific metrics and an assessment check list is provided. (See Part III, Chapter 5 of this volume.)

1.3.2 Special Requirements Associated with Maintenance Costing. In the course of accumulating maintenance costs, special actions may be required to achieve certain goals. Other actions not directly related to accumulating maintenance costs are required to assure accuracy and completeness of cost information. Other chapters in this volume discuss these:

a. Resources (Organization). (See Part III, Chapter 3 of this volume.)

b. Audits and assessments. (See Part III, Chapter 5 of this volume.)

c. Retention of records. (See Part III, Chapter 4 of this volume.)

1.4 BENEFITS OF CAPTURING COSTS. In periods of increased competition for limited available funding, it is imperative that budget submissions and other requests for these limited funds be thoroughly justified. One of the more effective means of justifying funding requests is through the demonstration of the benefits and results achieved with previous successful funding efforts. As part of this justification, it is essential that these benefits and outcomes be tied to a specific result, that is in terms of maintenance to specific ship hulls, ship class or customer orders. Direct costs are those expenditures which result in a specific definable benefit to a specific Navy ship's hull, ship class, or reimbursable customer's final product or service. In contrast, indirect cost, while essential at some level, cannot be defined as benefiting a specific outcome. Obviously, it is not reasonable to have zero indirect cost but it is vital that cost that can be identified as benefiting a specific outcome be so identified. Programs that have the minimum indirect cost or overhead are generally looked upon as being more efficient and thus it is far easier to justify resources for efficient programs to support vital maintenance requirements than programs with high overhead.

VOLUME II

PART III

CHAPTER 1

UNIFORM COSTING POLICIES AND PROCEDURES FOR FLEET MAINTENANCE ACTIVITIES

REFERENCES.

(a) DoD Financial Management Regulation 7000.14-R - Volume 4, Chapter 21
(b) DoD Financial Management Regulation 7000.14-R - Volume 4, Chapter 20

1.1 PURPOSE. To provide procedures and guidance necessary to accurately allocate cost for work performed on or for Navy ships, ship classes or customer projects by Fleet Maintenance Activities (FMA). Uniformly applying these costing practices and procedures will ensure comparability among FMAs costing procedures, reliability in development of activities' budget requirements and the highest probability of successfully funding these requirements. The requirements contained in Part III of this volume are directive in nature and mandatory for all FMAs.

1.2 UNIFORM COSTING POLICIES AND PROCEDURES. The following principles and guidelines were applied in establishing these uniform costing policies and procedures:

1.2.1 Function. Each function will be identified as being either a mission overhead (indirect) or a direct cost. Direct costs may be funded by either direct mission funds or by a reimbursable customer as appropriate. Overhead costs will be funded with direct mission funds.

1.2.2 Classification. Reclassification from overhead to direct or from direct to overhead must be fully justified and based on generally accepted accounting principles. Commander, Fleet Forces Command authorization is required prior to any reclassification.

1.2.3 Uniformity. The rules contained herein are mandatory, therefore, if all FMAs consistently apply these rules, a significant level of uniformity in their financial operations will be achieved. Where ambiguity exists with this guidance, the activity should immediately report the ambiguity to the Commander, Fleet Forces Command for clarifying guidance.

1.2.4 Control. Focus will be on controlling total cost and not the classification of costs. Controlling total cost of maintenance will help ensure the greatest return from the expenditure of the limited funding provided. Adherence to these requirements in this volume by the FMAs should eliminate the issues related to classification of cost, direct versus indirect.

1.2.5 Proration. Accurate costs are desired within reasonable economic considerations. Proration techniques are allowed under strict control when absolutely necessary due to the magnitude of the cost. Proration will be employed only when it is either not possible to accurately classify the cost or too expensive to classify the cost (cost versus benefit).

1.2.6 Unique or New Requirements. Unique customer requirements that result in procedures, methods, etc., which have no foreseeable use for the same or another customers' work, will be charged, in their entirety, to the requesting customer.

1.2.7 Performance. The decision to charge cost incurred to direct or indirect will be completely dependent on the function/operation being performed and not the employee's title.

1.2.8 Direct Cost Basic Definition. Reference (a) defines a production operation as a direct cost center. Direct costs, whether funded with direct mission funds or customer reimbursable funds, are defined as those items that can be identified to a specific ship's hull, ship class, end product or a customer order. Reference (a) also identifies direct costs as including labor of identifiable individual employees, material required for the job, travel and contracts or services required to complete the end product. Costs may be charged direct when the following criteria are met:

a. Readily identifiable with the benefiting ship's hull, ship class, end product or customer order.

b. The effort expended is conducive to uniform costing to a specific ship's hull, ship class, end product or a customer order.

c. Readily definable and appraisable for planning, estimating and authorization of effort to be expended to a specific ship's hull, ship class, end product or a customer order.

d. An individual employee's hours must be identifiable and measurable to a specific job. You may not prorate labor hours at the end of a shift between direct and overhead or between direct Job Order Numbers. Cost proration within direct is permitted when absolutely necessary to accurately charge costs to the benefiting customers. Proration should be a rare occurrence.

e. Direct labor may include:

(1) Craft and trade skill labor, production support such as crane operators and material handlers, planners and schedulers, project management team members, waterfront maintenance teams and class teams (including clerical support), Engineering Services (including Chief Test Engineers, Assistant Chief Test Engineers, Shift Test Engineers, Shift Refueling Engineers, and Chief Refueling Engineers), Technical Support which includes inspections, certifications, assessments, distance support and on site technical assistance.

(2) Direct labor may also include project-related contract and fund administration, including but not limited to: contract managers, contracting officer's representatives, price/cost analysts, cost monitors, and quality assurance specialists.

f. Where direct charging is indicated but the cost of the effort (including clerical) required for such charging makes it impractical or burdensome (cost versus benefit) and the direct charge is not material to the total cost of the project, the effort should be charged to overhead.

1.2.9 Mission Overhead Costs Basic Definition. Reference (b) states that overhead costs are those costs which pertain to departments supporting production departments. Overhead costs are defined as costs incurred at a FMA that CANNOT be directly identified and charged to a specific ship's hull, ship class, or end product, or customer order, but are necessary for the operation of the FMA.

VOLUME II

PART III

CHAPTER 2

DETAILED COSTING GUIDANCE FOR FLEET MAINTENANCE ACTIVITIES

REFERENCES.

(a) NAVSEA 389-0288 - Radiological Controls
(b) Public Law 109-61 - Emergency Preparedness and Response
(c) Title 10 U.S. Code - Armed Forces
(d) NAVSHIPS 0948-045-7010 - Material Identification and Control (MIC) for Piping Systems
(e) NAVSHIPS 0900-070-6010 - Material Control Standard
(f) NAVSEA 0900-LP-083-0010 - Naval Shipyard Quality Program Manual
(g) OPNAVINST 11010.20 - Facilities Project Instruction Manual
(h) DoD Directive 7220.1 - Regulations Governing the Use of Project Orders

2.1 PURPOSE. The purpose of this chapter is to provide detailed guidance regarding direct versus overhead (indirect) cost charges. While this chapter attempts to address all foreseeable categories of costs, it is recognized that an unforeseen cost category will likely materialize. In that case, please notify the Commander, Fleet Forces Command so that the situation may be addressed.

2.2 TYPES OF COSTS.

2.2.1 Accommodation Storage and Handling. Accommodation storage and handling represents the cost of handling and storing ship's equipment and stores taken off the ship when it is in the Fleet Maintenance Activity (FMA) for a conversion, alteration or repair.

a. Overhead.

(1) Accommodation storage and handling, principally warehouse operations, which cannot be specifically identified and conveniently charged on a direct labor basis, shall be charged to the overhead of the performing cost center.

(2) Warehouse operations related to accommodation storage provided by Supply Department personnel, which cannot be specifically identified and charged directly to a job order, shall be charged to overhead.

b. Direct Cost. The handling of a ship's equipment and stores and the subsequent accommodation storage, while the ship is undergoing conversion, alteration or repair, which can be identified with the ship involved, shall be charged direct or to a service type productive job order. When production schedules dictate the presence of a safety monitor during hazardous operations, such as loading/off-loading of military explosives from ships, the safety monitor will be costed direct. Also, includes Q-Cosal actions. Warehouse operations related to accommodation storage for a specific ship's hull, ship class, end product or customer order shall be charged to direct for the specific Job Order Number assigned the maintenance effort.

2.2.2 Administrative Assistance to Managers and Supervisors. Employees are assigned to assist managers and supervisors with administrative duties, paperwork, messenger services, correspondence, scheduling, etc. The duties consist of a number of operations, none of which are normally directly connected with a productive job order. This permits the supervisors to function more actively in a supervisory capacity.

a. Overhead. Employees assigned as assistants to managers and supervisors shall be considered as overhead personnel and shall be charged to the expense of the parent shop or code.

b. Direct Cost. When an administrative assistant is performing duties as part of project management or specific to a direct-funded job, such administrative assistance shall be charged direct to the job.

2.2.3 Administrative Services for Tenants.

a. Overhead. None.

b. Direct Cost. Administrative services for tenants should be charged direct. Administrative services rendered tenant activities, which can be identified, in sufficient increments of time shall be charged on a direct labor basis.

2.2.4 Allowance List Outfit Material Items - Outfit Supply Activity Furnished Material.

a. Overhead. None.

b. Direct Cost. All labor expended in obtaining, receiving, packing, stowing and delivery of Outfit Material items shall be directly charged to Naval Supply funds.

2.2.5 Issue and Return of Anti-Contamination Clothing.

a. Overhead. None.

b. Direct Cost. When the cost of issue and return of anti-contamination clothing is identifiable to a specific Navy ship's hull, ship class, or reimbursable customer's final product or service it shall be charged to that effort. All other costs associated with issue and return of anti-contamination clothing shall be charged to a service type job order for prorating to nuclear work customers. The percentages for the prorating are to be determined by the Planning Department.

2.2.6 Funding Support of Board of Inspection and Survey. In accordance with Chapter 20 of the U.S. Navy Regulations, the Board of Inspection and Survey (INSURV) is required to conduct acceptance trials, material inspections, surveys and such other inspections and trials of naval vessels. The regulations also provide that representatives from the systems commands and other naval activities shall assist the INSURV on request. It is recognized that qualified maintenance personnel may be utilized to meet INSURV requirements, therefore, the responsibility for financing these services is established so that INSURV requests will receive prompt and effective response.

a. Overhead. None.

b. Direct Cost. The cost of personnel (salaries and overtime) and travel/per diem required by the INSURV to assist in the conduct of trials and material inspections shall be charged to customer funds.

2.2.7 Calibration of Instruments. All instruments, i.e., electrical, electronic and mechanical standards and non-standard instruments are included.

a. Overhead. The cost of calibration for activity-owned mechanical and electrical/electronic test equipment and calibration standards shall be charged to overhead. Exceptions are as described below.

b. Direct Cost.

(1) The cost of calibration of non-indigenous instruments to Fleet Maintenance Activity (FMA) electrical/electronic and mechanical standards, both local and reference, are to be charged to funds provided by the customer.

(2) All calibration of fleet-held electrical/ electronic instrumentation and standards are to be charged to funds provided by the customer.

(3) The cost of special calibration performed on test equipment dedicated to specific programs and utilized for those programs will be funded by the appropriate customer.

2.2.8 Clerical and Office Automation Staff.

a. Overhead. Clerical and Office Automation staff shall be charged overhead, except as provided in paragraph 2.2.8 b. below.

b. Direct Cost. When the clerical and Office Automation staff services are a significant ingredient to the end product or project and can be identified as directly supporting a project, these charges may be charged to the project.

2.2.9 Administration and Review of Contractor Work.

a. Overhead. All design administrative services supporting contractor work, which are undertaken in conjunction with and in support of other productive services within the activity, shall be charged to overhead.

b. Direct Cost. Administrative and technical services supporting contractor work, not in support of other or additional productive effort of the activity, shall be charged to a job order under the applicable customer order. Technical services supporting contractor work and the checking of plans returned by contractors, which is undertaken in conjunction with and in support of other productive services within the activity, shall be charged direct. If the administrative and technical services are in direct support of a specific ship's hull, ship class, end product or customer order, the services shall be charged to direct cost.

2.2.10 Crane Operators.

a. Overhead. Inside crane operators' time shall be charged to overhead, when not dedicated to a single direct project.

b. Direct Cost.

(1) Waterfront crane operators' and crane walkers' time shall be charged as identified to service-type job orders, or to specific job orders when feasible. Crane operators used in the prefabrication of major ship structures, regardless of location, will be charged to the customer.

(2) Crane services necessary for loading and unloading material or parts which, though not directly involved in productive work, have to be removed to permit the performance of productive work on a ship incident to an availability are chargeable to the customer order as a service type productive job order.

(3) In the case where the FMA has a contract for the provision of crane services and the specific cost for crane services can be identified to a specific Navy ship's hull, ship class, or reimbursable customer's final product or service, those costs will be charged as direct. In the event that information is not available, the cost of the contract will be charged as an indirect cost.

2.2.11 Special Test and Certification of Cranes.

a. Overhead. Regular test of cranes performed in accordance with Naval Facilities Engineering Command directives shall be charged to overhead.

b. Direct Cost.

(1) The cost of testing cranes performed at a customer's direction that are outside the time frames or with more stringent requirements than those specified by Naval Facilities Engineering Command directives shall be charged to the customer establishing the requirement. When the more stringent requirement is applicable to a specific type of work or a specific task and more than one customer benefits, the cost will be charged to a service job order and prorated to the benefiting customers on the basis to be determined by the Planning Department.

(2) The cost to perform a technical assistance visit to a ship to troubleshoot or perform required test on a ship's crane is a direct charge.

2.2.12 Continuous Process Improvement.

a. Overhead. Assigned as a Team Member to a process improvement event that is not directly associated with a specific Navy ship's hull, ship class or reimbursable customer's final product or service.

b. Direct. Assigned as a Team Member to process improvement event that is directly associated with a specific Navy ship's hull, ship class or reimbursable customer's final product or service.

2.2.13 Data Processing Resources. Includes cost of administrating, programming, operating, rental and maintenance of FMA Automatic Data Processing Equipment, supplies and operating Automatic Data Processing Equipment in direct support of activity's Management Information System (MIS) applications and local applications, as well as claimant approved pilot installations.

a. Overhead. The following categories of Data Processing Resources are considered overhead and properly chargeable to the Data Processing Office or Information Technology Department:

(1) All costs identified for operating the various standard activity MIS applications.

(2) All costs identified to the development and maintenance of the activity MIS applications as assigned by their major claimant.

(3) All costs identified to the programming, testing and debugging of activity MIS improvement Automatic Data Processing (ADP) programs, except hardware, of local programs or the testing of corporate programs commencing at the point at which Central Design Agent provides the package to the activity.

(4) All labor costs identified to the implementation of the various activity MIS improvement program applications, (e.g., provide material, support, material requirements, etc.).

(5) Rental and maintenance cost including terminal and required ancillary equipment such as uninterrupted power supply.

(6) Augmentation to the standard activity MIS computer equipment configuration in support of activity MIS.

b. Direct Cost.

(1) Direct costs are recoverable via direct labor charges and through reimbursement rates when supported by an acceptable method of accounting which clearly identified the time used on various equipments for each job identifiable to a specific ship's hull, ship class, end product or customer order.

(2) Systems analysis and programming services as well as equipment rental and ADP material costs when provided for ADP applications which are either the end product or provided in support of activity customers. These provisions are not to be interpreted as authorization to charge activity customers for standard activity MIS reports.

(3) All costs where a clearly identifiable industrial customer is the principal beneficiary of the ADP resource, e.g., analysis, programming and associated material identified to the propeller profiler, rental of terminals, timesharing costs used for engineering/scientific calculations.

2.2.14 Decontamination of Equipment and Tools.

a. Overhead. None.

b. Direct Cost. The cost of decontamination of equipment or tools identified to a specific Navy ship's hull, ship class, or reimbursable customer's final product or service shall be charged to that effort. All other costs associated with decontamination of equipment or tools shall be charged to a service type job order for prorating to nuclear work customers.

NOTE: DELAY TIME SHOULD NOT BE CONFUSED WITH LOST TIME. LOST TIME OCCURS DUE TO EVENTS THAT ARE SIGNIFICANT OR CATASTROPHIC IN NATURE. LOST TIME IS TIME IN A WORK STATUS PRIOR TO RELEASE CHARGEABLE TO ADMINISTRATIVE LEAVE. FOR SPECIFICS, REFER TO LOST TIME.

2.2.15 Delay Time.

a. Overhead. None.

b. Direct Cost. Delay time occurs during the performance of productive work due to inherent causes which prevent the work from being accomplished in the most efficient manner. Delay time is charged directly to the actual work being performed when the delay occurs. Delay time may be a result of internal or external causes.

Examples (1) through (7) are causes of delay time internal to the activity and therefore within the activity's responsibility. Examples (8) through (10) are causes of delay time external to the performing activity.

(1) Material. Time spent by mechanics waiting for material that should be available or time spent by them in procuring material beyond the designated point of delivery.

(2) Tools and/or Equipment. Time spent in getting or waiting for tools and/or equipment the use of which should have been anticipated and brought to the job or their delivery scheduled.

(3) Plans and Instruction. Time spent in waiting for plans and instructions or getting plans from a location beyond the designated point of delivery.

(4) Waiting for Assist Trade. When an assist has been requested and the mechanic is unable to continue working.

(5) Waiting for Supervisor.

(6) Trade Interference. Held up by another trade which is not an assist to the trade held up.

(7) Minor Power Failures. Time spent due to minor power failures caused by faulty temporary utility connections.

(8) Waiting for ship to conduct required steps (Tag Out).

(9) Held up by the ship while conducting a drill or security alert.

(10) Held up during fueling or ammo handling.

2.2.16 Dive Lockers.

a. Overhead. Diving services performed within the shop are for planning/administrative management, diving equipment maintenance, diver's life support systems maintenance, training, inspections/quality assurance, boat maintenance/cleanliness and cofferdam inventory control and are charged to overhead.

b. Direct. Diving services performed outside shop areas are for underwater ships husbandry, dry-docking support of a particular ship and emergency salvage support. These are charged as direct costs to the appropriate productive job orders.

2.2.17 Dosimetry Issuing and Processing. Dosimetry processing is defined in Article 233 of reference (a).

a. Overhead. None.

b. Direct Cost. The cost of issuing and processing dosimetry used to monitor personnel radiation exposure shall be charged to the benefiting customer.

2.2.18 Drills - Conducting and Participation. The time and costs for employees vacating the work site during mock and/or actual drill and employees assisting in the drill, i.e., street and building wardens/monitors. It does not include the time and costs of employees whose job is primarily associated with security and prevention such as fire, security and police personnel. These people will charge their normal cost class or function as well as the personnel who are conducting, supervising or administering the drill. Drills include radiological control, communication, disaster preparedness, perimeter security and fire (nuclear and non-nuclear).

a. Overhead. All labor associated with conducting and participating in drills is considered overhead. Employees should be provided specifics to properly account for this time.

b. Direct Cost. None.

2.2.19 Dry Dock Blocks and Dock Caps. Dry dock blocks are fabricated, reusable composite concrete and wooden timber structures. Dry dock caps are wooden structures which are appended to the dry dock block.

a. Overhead. Fabrication or purchase of reusable dry dock blocks or caps.

b. Direct Cost. Fabrication or purchase of dock wood caps, shapes, wedges, ties and shims to support a specific hull's requirement is charged to customer funds.

2.2.20 Dry Dock Operation.

a. Overhead. Cost associated with the overall effectiveness of the Dry Dock Operation and not specifically identified to a customer.

b. Direct Cost. Labor of operators during docking and undocking and while the vessel is in dock, including the costs of cleaning dry docks and caissons, shall be charged on a direct labor basis against the productive job orders (multiple dockings shall be prorated to the respective productive job orders).

2.2.21 Preparation of Engineering Procedures for Specific Authorized Work. Preparation of engineering procedures, such as Nuclear Power Engineering Authorizations, for specifically authorized work shall be charged as follows:

a. Overhead. The development of engineering procedures for specific authorized work that can be used for other customers.

b. Direct Cost. The development of engineering procedures for specific authorized customer work is chargeable to the customer authorizing the work.

2.2.22 Equipment Maintenance. The cost of maintenance discussed below includes maintenance of equipment, machine tools, machinery, plant equipment and office furniture. Government Furnished Equipment provided to the activity for use will be maintained in a similar preventive maintenance program.

a. Overhead.

(1) The cost of labor and material incident to preventive maintenance inspection, lubrication and minor adjustments, repair, overhaul and subsequent performance testing of all equipments and their attachments.

(2) In the event routine maintenance and inspection indicate the necessity of major overhaul or repair, the maintenance cost will be charged to overhead.

b. Direct Cost. When the maintenance of equipment is the service being requested by a customer, it will be charged direct. When repairs are due to customer negligence, the customer is responsible. Government Furnished Equipment certification and return of equipment to certification standards will be charged direct. For example: Processing of Hazardous Waste, Oil Waste.

Equipment used in support of a project should be placed in a Ready for Use Condition for the next customer. The customer (last user) is to provide a post-use job order for equipment refurbishment, replacement of worn out, damaged and lost equipment. Customer should also be charged for the labor for sorting and establishing equipment after use.

NOTE: OPERATOR'S COST REQUIRED BY THE EQUIPMENT RENTAL AGENCY TO ACCOMPANY RENTAL EQUIPMENT SHOULD BE CHARGED TO THE SAME JOB/EXPENSE ORDER THAT AN ACTIVITY OPERATOR WOULD BE CHARGED.

2.2.23 Equipment Rental. A lease contract is considered an operating cost of the activity. However, if such a lease is for property or equipment, which may be offered for sale at a certain point in time, the activity may exercise an option to purchase. When this option is exercised, the cost to purchase may be changed from an operating cost to an investment cost. If the cost to acquire title at the time the option is exercised is $250,000 or more and the item has a remaining useful life of more than 2 years, it is considered a purchased fixed asset, financed using Other Procurement Navy funds. Conversely, if at the time of conversion, the cost to acquire title is less than $250,000 or the item has a remaining useful life of less than 2 years, such financing will be expensed. Regardless of the amount of credit given toward purchase, rental costs will remain an operating cost as initially charged and costs to purchase will be recorded as a capital investment. It is the responsibility of the maintenance activity to have on hand general purpose equipment to perform the required work.

a. Overhead. Rental costs of equipment procured because there is insufficient equipment available to meet FMA workload requirements are charged to the overhead of the cost center with functional custody.

b. Direct Cost. Rental costs of equipment rented to meet a specific customer's unique requirement or to fulfill a specific unique work requirement for a customer are charged as direct costs. The direct charging of equipment rental costs to a specific customer order is limited to the particular customer's requirements. Direct charging of rental costs required to supplement inoperative activity equipment is not authorized.

2.2.24 Disposal of Excess Plant Property.

a. Overhead. The cost of removing, preparing and transporting of excess Class 3 or 4 plant property to be disposed of, which is incurred prior to acceptance of accountability by the property disposal officer, shall be charged to overhead.

b. Direct Cost. The cost of preparation for shipment, packing, loading, shipping and transporting incident to reference (b) donations of excess plant property shall be charged to the applicant for such donation. After the property disposal officer accepts accountability for excess Class 3 or 4 plant property to be disposed of, costs incurred are properly chargeable to disposal funds.

NOTE: PARAGRAPH 2.2.25 APPLIES TO NON-GENERAL SERVICES ADMINISTRATION VEHICLES ONLY. FUEL FOR GENERAL SERVICES ADMINISTRATION VEHICLES IS INCLUDED IN THE LEASE COST. GENERAL SERVICES ADMINISTRATION VEHICLES DO NOT USE THE ON-BASE FUEL STATION. FUEL FOR VEHICLES TO SUPPORT SPECIFIC CUSTOMERS (OTHER COMMANDS, PROJECTS) IS A COST REIMBURSABLE DIRECT CHARGE.

2.2.25 Fuel.

a. Overhead. Fuel such as petroleum products consumed in the generation of power or motor gas, for operating vehicles, weight handling, service craft and other such equipment.

b. Direct. Fuel shall be charged direct if special delivery arrangements were set up for a particular Ship project where deliveries were made exclusively.

2.2.26 Guarantee Work. Work performed by a maintenance activity shall be guaranteed, i.e., deficiencies attributable to actions of the activity shall be corrected at activity expense. The guarantee applies to work performed and materials procured by the activity, and to Government Furnished Materials and/or equipment only to the extent that the failure and/or deficiency directly results from the activity's acts or failure to act (in area of local responsibility).

a. Overhead. None.

b. Direct. When maintenance (Chief of Naval Operations, Continuous Maintenance, Emergent Availability, etc.) is complete the warranty period starts. The Maintenance Team will be notified and take appropriate action.

2.2.27 Incentive Awards Program for Civilian and Military Personnel Assigned to the Activity.

a. Overhead. All supervisor's efforts and administrative services supporting the incentive awards programs within an individual productive or general expense cost center shall be charged to overhead.

(1) Administration. Each activity should provide internal guidance on specific accounting structures for tracking of award programs.

(2) Cash Awards. All cash awards are to be charged at the discretion of each activity.

(3) Cash Incentive Awards for Military Personnel. These are limited to awards for scientific achievement, inventions and beneficial suggestions. No cash incentive can be given to a military person for performance based on reference (c).

(4) Civilian and Military Non-monetary Awards. These awards are to be modest in cost (up to $100.00 maximum), have no significant utilitarian value (e.g., medal, certificate, plaque, citation, badge, tie-tack, coffee mug, belt buckle or other similar item that carries an honorary award connotation).

b. Direct. Awards paid on behalf of another activity.

2.2.28 Inspection, Including Non-Destructive Testing.

a. Definitions.

(1) Level I is the highest level of inspection and applies to inspections performed on material identified to Level I in accordance with reference (d) or (e).

(2) Non-level I inspection is all other inspections identified in references (d) and (e).

(3) Non-level inspection is authorized for specific material in accordance with reference (f).

b. Policy.

(1) All direct costs incurred in Level I inspections, non-level inspections and controlled industrial material inspections shall be charged to the job and customer order. Overhead type functions (e.g., material handlers, clerks, supervisors, etc.), may be charged direct if dedicated to Level I inspections and the criteria for direct labor are met.

(2) Level II and III inspections may be charged direct if the criteria for costing direct labor in this manual are met.

(3) Non-level inspection costs will be charged the same as Level I.

2.2.29 Inspection Services. The general principle involved is that the customer is entitled to have the completed work given a normal inspection for proper accomplishment. If the cost of inspection is part of a package, then no additional costs should be incurred by the customer.

When an activity is providing quality assurance and oversight of contractor work as its mission, the quality assurance and oversight effort will be charged to the appropriate funds to support the specific customer.

a. Overhead. The cost of developing procedures for conducting inspections or other quality control actions or the maintenance of records of such, is an overhead function of the performing cost center except when development of procedures is one time and will not be used for other customers, such work shall be charged direct.

b. Direct Cost.

(1) The cost of inspection or test of productive work and the associated or related engineering or technician costs shall be charged direct when the criteria for direct costs in Volume II, Part III is met.

(2) The time of Inspector Foreman, when engaged in the aforementioned inspection duties shall be charged as direct labor.

(3) Inspection services performed to determine the productive work to be accomplished shall be charged direct, i.e., services rendered by engineers, inspectors, laboratory technicians and others performing inspection tests, Sea Trials and Dock Trials are also charged direct. Inspection work specifically requested by the customers is considered as a direct cost.

2.2.30 Installation of Equipment.

a. Overhead. The cost of installation of activity equipment is charged to overhead. Exceptions are noted under Direct Cost. The cost of installation of customer equipment is direct.

b. Direct Cost.

(1) The cost of installation of capital investment equipment (the purchase cost is $250,000 or more with useful life of at least two years) is charged to the Other Procurement, Navy (OPN) funds purchasing the equipment if the installation is part of the contract (turn key). In-house labor for installation would be overhead funded; material to support installation of equipment would be OPN funded.

(2) The cost of installation of built-in equipment associated with a military construction project is Military Construction funded; considered to be part of the bid (elevators, paint booths, etc.).

(3) The cost of installation of collateral equipment (Class III & IV) associated with military construction projects is charged to in-house overhead labor for installation unless the purchase cost of the equipment exceeds $250,000, the guidance provided above in paragraph 2.2.30 a. applies.

2.2.31 Janitorial Services and Work Area Clean-Up.

a. Overhead.

(1) General clean-up details in shop's high security areas not accessed by contractor employees are charged to that shop or shop group.

(2) Clean up of approved eating areas shall be charged to the shop or shop group that uses it.

b. Direct. Productive personnel, when required to clean up their own immediate work areas and/or equipment incident to work on a productive job order, shall be charged direct to the productive job.

2.2.32 Laundry Service.

a. Overhead. Laundry service for military uniforms related to specific tasks such as color guard, linens for watch standers and shop rags.

b. Direct Cost. Laundry service, which is provided by outside sources and is in support of customers/multiple ships, shall be prorated and charged to all benefiting customers.

2.2.33 Lean.

a. Overhead. This includes the permanently assigned staff, as well as those loaned from other shops/departments. If they are located in the Lean Office, they charge to the Lean Office job order. Employees attending Lean events, but not assigned to the Lean Office, will charge to their shop/department's overhead job orders, except as noted below.

b. Direct. Employees working on a Lean event that are for a specific customer will charge to the project's job order.

2.2.34 Lost and Damaged Tools.

a. Overhead. All tools that are lost, damaged or require refurbishment after use over a period of time by activity employees.

b. Direct. Any tool in a Tool Kit that is damaged, needs refurbishment, or is wasted for a reason after being used to accomplish work on a project will be direct charged to the project.

NOTE: LOST TIME SHOULD NOT BE CONFUSED WITH DELAY TIME. DELAY TIME IS CHARGED TO A DIRECT JOB ORDER NUMBER ASSOCIATED WITH A SPECIFIC NAVY SHIP'S HULL, SHIP CLASS, OR REIMBURSABLE CUSTOMER'S FINAL PRODUCT OR

SERVICE, OCCURS DURING THE PERFORMANCE OF PRODUCTIVE WORK DUE TO INHERENT CAUSES WHICH PREVENT THE WORK FROM BEING ACCOMPLISHED IN THE MOST EFFICIENT MANNER. (SEE DELAY TIME IN THIS CHAPTER.)

2.2.35 Lost Time.

a. Overhead. Employees assigned to productive work and prevented from performing such work because of events, primarily unavoidable, but always of a significant or catastrophic nature. This would include but is not limited to, major power plant failures, fire or severe weather conditions that cause most, if not all, productive work to cease. Lost time is charged while the employees are in a working status. If the employees are released from duty, administrative leave would apply.

b. Direct Costs. None.

2.2.36 Upkeep of Maintenance Equipment.

a. Overhead. Upkeep costs of equipment used in the maintenance of grounds, streets, roads and walks, including the upkeep of equipment used in the collection of trash and garbage material.

b. Direct. When maintenance represents the specific service requested by the customer, it will be charged direct.

2.2.37 Maintenance of Nuclear Equipment.

a. Overhead. The costs of maintenance of those equipments used exclusively in the area of nuclear work.

b. Direct. Equipment used in support of a project should be placed in a Ready for Use Condition for the next customer. The customer (last user) is to provide a post-use job order for equipment refurbishment, replacement of worn out, damaged and lost equipment. Customer should also be charged for the labor for sorting and establishing equipment after use.

2.2.38 Management and Industrial Engineering Studies.

a. Overhead.

(1) Routine management engineering studies undertaken for activity departments.

(2) Special one-time studies requiring more than 40 man-hours on the part of Most Efficient Organization and initiated upon the request of the Type I Supply Department.

b. Direct Cost. A special one-time study for another activity shall be charged directly to funds provided by requesting activity.

2.2.39 Material Handling and Expediting.

a. Overhead. Those costs related to general material handling, i.e., those persons not directly supporting a specific project, that are responsible for checking, processing, moving and distributing material, shall be charged to the overhead expense of the performing shop. This includes shipping clerks, material runners, expediters, handlers and equipment operators. The general operators of material stations/centers that support multiple projects are charged to overhead.

b. Direct Cost.

(1) The time of mechanics and helpers devoted to material handling functions shall be charged direct when this work is directly related to the productive work which the employees are assigned.

(2) Personnel involved in material expediting and material issue or staging may be charged direct if their time is dedicated to a specific Navy ship's hull, ship class or reimbursable customer's final product or service when it is clearly identifiable to that project. This would include all personnel involved in the operation of a material cage/station that is dedicated to a single project or, individual personnel that are operating out of a multi-project support cage/station, but whose specific individual efforts are dedicated to a single project, e.g., material kitting for a specific availability. Such personnel inside a production shop do not normally meet the criteria for direct charging.

(3) At times the activity may be required to receive, store and issue material owned outside the Navy Supply System and the Navy Working Capital Fund, in the categories of Government Furnished Material and NAVSEA or fleet-owned items. All labor and material costs incurred by the FMA in connection with such storage and handling are properly chargeable to funds provided by the owner of the material.

(4) Material Inventory Managers or Specialists dedicated to a single project.

2.2.40 Fitness for Duty Medical Examination.

a. Overhead. When an agency obtains a fitness for duty medical examination (in connection with a separation for medical unfitness) whether by a federal medical officer or an employee-designated physician, there must be no cost to the employee or the Office of Personnel Management. The Comptroller General has ruled that agencies have authority to pay for such medical examinations, which are made by employee-designated physicians under the above conditions.

b. Direct Cost. Medical examinations required by a specific customer prior to work performance.

2.2.41 Metal Stock Cutting (Bar, Pipe, Plate, Cable, etc.).

a. Overhead. The function of cutting metal is charged against overhead when the purpose of the cutting is in support of an overhead job because the benefiting customer of the end product is not readily identifiable.

b. Direct Cost. When the benefiting customer of the end product is readily identifiable, the function of cutting metal is charged against the appropriate direct project.

2.2.42 Acquisition of Minor Property.

a. Overhead. The acquisition of all minor property. The limit for minor property has been raised to $250,000.

(1) Items of equipment with a purchase cost less than $250,000.

(2) Items of equipment with a purchase cost of $250,000 or more but with a useful life of less than two years.

b. Direct. None.

2.2.43 Miscellaneous Expenses of the Production Resources Department Shops.

a. Overhead. Provides for the accumulation of miscellaneous costs and labor, identifiable with the productive cost centers of the Production Resources Department. Work performed by cost centers outside the Production Resources Department will not be charged to this cost center. This center is primarily established to cover such items as maintaining common use grounds and shipways, printing for shops and maintenance of shop equipment benefiting more than one cost center or more than one common services group cost center. It is the intent of Commander, Fleet Forces Command that this cost center be highly restrictive and charged only with those productive expense costs that cannot be identified to a productive shop or common services group cost center. Various Cost Classes will be utilized to meet the correct costing requirements.

b. Direct Cost. None.

2.2.44 Mock-Up Work. Mock-ups include those full size replicas which are used to facilitate production efforts by saving time or reducing material costs. Included in the cost of mock-ups are the labor, material and other direct costs associated with producing replicas, as the interior of a submarine replica of materials or parts to be test welded, etc.

Mock-ups do not include construction of facilities required for test purposes when such construction requires various levels of approval and special funding as specified in reference (g).

Mock-ups that qualify as plant equipment must follow the rules concerning the acquisition of plant property.

a. Overhead. The cost of mock-up to reconstruct a specific problem condition such as a mock-up to reinstruct personnel involved in deficient work aboard ship.

b. Direct Cost.

(1) The cost of mock-ups is chargeable to customer funds under the following conditions:

(a) It is specifically authorized as chargeable to the initial ship of a class; or

(b) Is required for accomplishment of a specific job.

(2) If the mock-up will be used for more than one customer or ship, the cost of the mock-up may be distributed to the benefiting customers.

2.2.45 Pilot and Tug Service.

a. Overhead. The cost of all pilot and tug services (naval and commercial) are the cost of the movement or rearrangement of various types of floating equipment such as sludge barges, wheelerizing equipment, floating cranes, etc., used in connection with FMA support, but not directly related to the immediate productive efforts, will be charged to overhead except as provided herein.

b. Direct Cost. The cost of the pilot and tug services shall be charged to customer funds, based on a unit rate which includes the costs of maintenance and operation of the naval craft and the rental costs of commercial tugs.

(1) For ships (U.S. Navy and Financial Management Supervisor cases) with an assigned Naval FMA availability - the cost of tug and pilot services in connection with the overhaul.

(2) For ships without a Naval FMA industrial availability, such as loading/unloading equipment/supplies onto a commercial ship.

(3) For ships under construction at the Naval FMA.

(4) For assist services provided to activities which have the responsibility for providing pilot and tug services.

(5) The costs for movement of the various types of floating equipment discussed in paragraph a. above will be charged to customer's funds when such movements are directly related to immediate productive efforts.

2.2.46 Planning and Estimating Services.

a. Overhead.

(1) Planning and Estimating support personnel.

(2) Estimators who provide basic ("boilerplate") estimates used for several customers, e.g., Baseline Cost Estimating Standards Program.

(3) Production Resources Department estimators other than identifiable to direct labor.

(4) All planning and estimating services in support of estimating potential work that is not subsequently assigned to the activity.

b. Direct Cost.

(1) All planning and estimating services performed for assigned work shall be charged to sponsor funds.

(2) Cost of scoping and estimating work assigned to the FMA which is subsequently eliminated at work definition conference or thereafter because of a shortage of funds, rescheduled for ships force, deferred or cancelled because of non-availability of material or funds.

(3) Services performed for the Inactive Ship Maintenance Facility in preparing and updating estimates for ship activation during mobilization are chargeable to Inactive Ship Program Funds.

(4) Cancellation of work. Paragraph VIII Cl0 of reference (h) shall apply to any reimbursable order. "Costs incurred in the termination of project orders shall be reimbursable to the performing establishment when such orders are terminated by the ordering component, to the extent such costs do not exceed the amount of the fixed price, or the current ceiling amount in the case of cost reimbursement project orders. In determining termination costs for reimbursement purposes, the performing establishment shall be guided by the principles stated in this directive. When military departments cannot agree on the costs of terminations, the case will be referred to the Assistant Secretary of Defense (Comptroller) for settlement".

(5) Preparation of data in support of work to be accomplished by Ship's Force during overhaul.

(6) The effort utilized in collating the authorized work into a Ship Alteration and Repair Package, including printing and mailing.

2.2.47 Acquisition of Plant Property Equipment.

a. Overhead.

(1) The purchase cost of an equipment type item costing less than $250,000 (i.e., minor property) will be expensed to overhead.

(2) Acquisition of OPN equipment with a purchase cost of over $250,000 and a useful life of more than two years will be purchased using OPN funds, including transportation, installation, training, discounts, etc.

b. Direct Costs. Procurement, transportation and installation of equipment specifically authorized to be acquired by a reimbursable order for use in fulfilling the requirements thereof may be financed by the customer. Equipment acquired specifically for a customer in this manner is the property of the customer and will be disposed of in accordance with the customer's instruction.

2.2.48 Pollutant Clean-Up. Naval activities are called upon to remove and dispose of contaminated waste from a variety of sources, e.g., ships under an availability, ships without an availability, general pollution clean-up and ships under the jurisdiction of the FMA. Examples are oil, chemical spills, etc. If the pollution resulted in a fine from the Environmental Protection Agency or other agency, the cost of the fine would be charged in the same way the clean-up is charged. If the clean-up were charged as a direct expenditure the corresponding fine would be charged as a direct expenditure.

a. Overhead. When the pollution is caused by activity effort, no matter where it occurs, the cost of pollution clean-up is chargeable to overhead. Also, the disposal costs of pollutants will be charged to overhead.

b. Direct Costs. The cost of clean-up and disposing of pollutants will be charged direct under the following circumstances:

(1) When the pollution is caused by the action of Ship's Force personnel, the cost of clean-up will be funded by the ship.

(2) When the cause of the pollution is not the activity, and the activity is required to perform clean-up in a non-activity designated area of responsibility, the activity responsible for the area will be required to provide the funds.

(3) Disposal cost resulting from pollution clean-up that is chargeable to ship or station is chargeable to the same ship or station as the pollution clean-up.

2.2.49 Pre-Expended Bins.

a. Overhead. The cost of stocking and replenishing pre-expended bins of items with a unit cost of $50.00 or less. Items of unit cost in excess of $50.00 may be authorized by the Activity Commander.

b. Direct Costs. None.

2.2.50 Printing, Reproduction and Duplication.

a. Overhead. Charges of all purchased printing, reproduction and duplicating when not chargeable to a project.

b. Direct. Charges that can be readily identifiable to a project; for example, copies of project drawings.

2.2.51 Programming Effort for Numerically-Controlled Machines.

a. Overhead. The cost of programming effort for numerically-controlled machines is usually charged to overhead, since they are used by more than one sponsor.

b. Direct Costs. The cost of programming effort is chargeable to customer funds when the programs are planned for use by a specific program or project.

2.2.52 Purchase of Gas, Liquid or Solid.

a. Overhead. The cost of natural gas consumed in the generation of power.

b. Direct. The cost of gas, (argon, nitrogen, etc.) which represents the level of service required for a customer is charged direct.

2.2.53 Radiological Control Engineering.

a. Overhead. Costs associated with the FMA, whose objective is to ensure the continual over-all effectiveness of the Radiological Engineering effort and not specifically identified to a particular availability, are charged to overhead. For example:

(1) Preparation and maintenance of local FMA procedures which are formulated to implement directives from higher authority.

(2) Evaluation of FMA Functional Area and Radiological Trend Analysis.

(3) Training or travel related thereto.

(4) Review and evaluation of applicable improvement suggestions.

(5) Production support-type work where it is difficult to charge direct.

b. Direct Cost. Radiological Engineering activities, whose associated costs are clearly identified to a specific availability or would not have been incurred were it not for the presence of that availability, is direct. This activity consists of providing engineering and technical services in direct support of maintaining the radiological control effort of a specified availability. For example:

(1) Review and concurrence of work instructions, such as Nuclear Power Authorizations or Production Engineering Memos, to verify compliance with applicable Radiological regulations or requirements.

(2) Initiation and preparation of Nuclear Power Engineering Authorizations.

(3) Preparation and issue of local Radiological agreements between activity arriving ships.

(4) Planning and scoping the Radiological Engineering effort for a particular availability. This includes the allocation of resources required to perform this effort, and the identification and analysis of those areas which are unique to this availability and require special emphasis.

(5) Direct technical support of the daily in-progress Radiological effort on an availability.

(6) The design and modification of radiological containments that are to be used only on a specific availability.

2.2.54 Radiological Waste Processing.

a. Overhead. Costs associated with activity, whose objective is to ensure the continual over-all effectiveness of the Radiological Waste Processing effort and not specifically identified to a particular availability, is charged to overhead. For example:

(1) Preparation and maintenance of local activity procedures which are formulated to implement directives from higher authority.

(2) Review and evaluation of applicable improvement suggestions. Production support-type work where it is difficult to charge direct.

b. Direct Cost. The cost of processing should be charged to a Mission Funded Process Shop.

2.2.55 Refueling Equipment. Assembly and certification for use and decontamination, disassembly and preparation for storage (nuclear) of refueling equipment are charged:

a. Overhead. Cost of preventative and storage maintenance on the equipment while in storage.

b. Direct Costs. The cost of assembly and certification for use and the decontamination, disassembly and preparation for storage after use shall be charged to the refueling customer orders.

2.2.56 Ripout Material. Ripout of equipment component, etc., is defined as the removal action for accessibility, interference, Ship Alteration or other repair work. It is performed during a specific key operation of the ship's availability.

a. Overhead. None.

b. Direct Cost. Costs incurred during ripout operation aboard ship will be charged to the customer job order.

2.2.57 Satellite Steam Boiler. High pressure steam generated from auxiliary steam boilers used for Quality Assurance (QA) test evaluation. High pressure steam may be generated from steam barges, portable boilers, Mobile Utility Support Equipment or satellite steam boilers. High pressure steam is used in the testing phase of the ship's operating system. The steam is not utility steam to provide heat for the ship.

a. Overhead. The repair and maintenance of the auxiliary steam generating facility is charged to the overhead.

b. Direct Cost. Costs associated with the operations (and set-up for operation) of the auxiliary steam generating equipment/facility, including fuel and chemicals.

2.2.58 Security Furnished by the Fleet Maintenance Activity.

a. Overhead. Providing security for the general safety of property including routine services for customers.

b. Direct Cost. When required by the customer or his agent, the cost of providing special security may be charged to ship project funds. For example, the cost of civilian personnel performing shipkeeper duties, which is usually performed by ship's crews when available, is to be charged to a service job order under the Type Commander's funds. The cost of marines for refueling security, including their travel, per diem, etc., is also direct chargeable to the project they are supporting.

2.2.59 Service Craft and Floating Equipment (Other Than Nuclear).

a. Overhead. The costs of maintenance of service craft, floating dry docks, camels, dredges, work barges, floating cranes and other floating equipment and costs of miscellaneous overhead functions performed for such craft.

b. Direct. Only for customer owned items (i.e., Fleet Forces Command barges).

NOTE: ACTIVITIES WILL CHARGE OPERATING TARGET FUNDS FOR COST OF TOOLS BORROWED BY SHIP'S FORCE AND NOT RETURNED PRIOR TO COMPLETION OF THE SHIP'S AVAILABILITY. IF OPERATING TARGET FUNDS ARE NOT AVAILABLE (E.G., MANAGEMENT ACTION PLAN SHIPWORK), ACTIVITIES SHOULD OBTAIN FUNDS FROM THE CUSTOMER FINANCING THE MAJOR SHIP CUSTOMER ORDER.

2.2.60 Services in Support of Centralized Tools and Equipment.

a. Overhead.

(1) The cost of labor and material incident to preventive maintenance inspection and normal corrective maintenance including: lubrication, minor adjustments, repair, overhaul, alignment and subsequent performance testing of all machine tools and industrial shop equipment and their attachments under cognizance and inventory control of the activity.

(2) Manning and operating of all inside and outside tool rooms.

(3) Conditioning and sharpening of all cutting tools, including saws.

(4) Heat treating of tools regardless of physical location of the facilities.

(5) Procurement initiation, inventory control, maintenance, storage, issue, accountability and development of statistics on tool life, usage, cost and performance of craftsmen's furnished by the activity, abrasion wheels and devices, and special issue of industrial clothing and safety equipment.

(6) Minor layouts.

(7) The acquisition of safety shoes, safety goggles and lenses (including prescription lenses) and the custody, maintenance and issue of such equipment and other safety equipment.

b. Direct.

(1) Purchase or manufacture of tools required for work outside of the activity assigned missions/functions, and such other tools as are necessary to fill a particular need under a specific customer order and their future use on other work is not contemplated. Such tools become the property of the customer and are disposed of in accordance with his direction.

(2) Overhaul and repair of equipment in the Navy supply system.

(3) Overhaul and repair of ship equipment and allowance materials.

(4) Miscellaneous services for the Inactive Ship Maintenance Facility.

(5) Loaned tools lost or damaged beyond economical repair shall be charged to the customer.

2.2.61 Temporary Services.

a. Overhead.

(1) Maintenance of facilities required to perform assigned functions such as storage bins and racks, work benches, cleaning vats, lines, blowers, ventilation equipment, pumps, etc.

(2) Manufacture, stage and store items such as electrical distribution equipment; air, water, hoses, strainers, values, sewage lift stations built by the FMA, air and water filter systems, chilled water units, refrigeration units (chill and freeze boxes), air conditioning units, heaters, etc., for nuclear as well as non-nuclear. Build/repair tool air hose for the tool rooms. Assemble and maintain emergency response gear (electrical and mechanical) for disaster relief support, nuclear and non-nuclear (spills, earthquakes, etc.)

(3) Maintenance work (cleaning, lubricating and minor adjustment of temporary service equipment). This excludes the regular maintenance of equipment which is under the responsibility of Shop 06.

(4) Security patrol, emergency response, of temporary service connections provided dry docks and berthing areas shall be charged to the overhead of the performing cost center.

b. Direct Cost. Cost of installation, connection, maintenance and removal for utilities services such as fresh and salt water, steam and hot water, steam power, hydraulic power, electricity, gas and compressed air furnished ships and communication systems at an activity or off-site location.

2.2.62 Severance Pay.

a. Overhead. Severance pay costs will be charged to overhead.

b. Direct Cost. None.

2.2.63 Special Programs (External/Claimant Authorized). To provide a better focus on the costs of this type, only programs specifically authorized by the claimant will be included. Basically, such programs will be approved only if they are directed by the claimant and are not an inherent functional responsibility of a specific department or activity, e.g., activity assignments under the FMA MIS program are usually automated information systems assignments and will continue to be charged as such.

a. Overhead. The cost of activity-wide special programs that have been specifically authorized for reporting in this category shall be charged to overhead. Each program must be separately identifiable, so that the cost of each individual program can be readily determined.

b. Direct Cost. None.

NOTE: THE DIRECT COSTING OF SUPERVISION IS NOT ALLOWED WHEN THE SUPERVISION IS OF EMPLOYEES WHOSE EFFORTS ARE FOR A MULTITUDE OF END PRODUCTS OR CUSTOMERS. THE PRORATION OF SUPERVISORY COSTS FOR DIRECT CHARGING, WHERE THE BASIS OF PRORATION IS OF AN ARBITRARY NATURE AND THE TIMEKEEPING EFFORT IMPRACTICAL, IS PROHIBITED.

2.2.64 Supervision.

a. Overhead. When performing administrative functions, or supervisory functions which cannot be readily identified to one project, the supervisory effort will be charged to overhead.

b. Direct Cost. Time spent when working on a specific project where the supervisory effort is directly identifiable to the end product. This could include any level of supervision, e.g., project managers, if the effort is identified to one project. This also applies to engineering codes if the supervisor's employees are clearly costed to only one sponsor. Supervisors may not be charged direct to a productive job when working in an administrative capacity.

2.2.65 Consumable Supplies.

a. Overhead. Consumable supplies, such as x-ray film, tracing cloth and office supplies, including those consumed in the process of serving tenants, shall be charged to the appropriate overhead classification.

b. Direct Cost. Industrial x-ray film and other specialized consumable supplies issued in quantities that can be identifiable to a specific customer may be charged direct. Direct costs should be easily identifiable items not of the pre-expended bin type.

2.2.66 Operation and Maintenance of Tank Cleaning System.

a. Overhead. Maintenance costs are charged to the overhead for this equipment.

b. Direct Cost. Operating costs for productive work will be charged direct.

2.2.67 Telephone Services.

a. Overhead. The following costs should be charged to overhead:

(1) Activity telephone services - all costs including installation/removal, lease lines, basic service, relocation, message units (or current electronic texting devices) and toll charges when the service is for the benefit of the activity will be charged to overhead.

(2) Ships with an availability - basic services and toll call charges related to activity's industrial effort will be charged to overhead.

b. Direct Cost.

(1) The following costs should be charged direct:

(a) Voice - the charge for toll calls and identifiable additional message units, installation and relocation costs, special services and devices such as data phones, speaker phones, call directors and private leased lines.

(b) Data/record - the charges for private line services and leased equipment, such as TWX, TELEX and FACPHONE and off-line message preparation using optical character reading machines or other special equipment when such equipment is not required by the Naval Communication Telecommunication Service Center.

(2) Tenant activities and other users - costs in 2.2.67 a.(1) and 2.2.67 a.(2) which can be identified to the users will be charged direct.

(3) Cable installation connections for ships with an availability are charged to ship funds. Connections for those telephones needed to coordinate or support the FMA's ship availability work both aboard ship and ashore are chargeable to ship overhaul funds. Connections for additional convenience telephones are properly chargeable to the ship's Operating Target Fund.

(4) The cost of telephone services, including cable connections, rentals, etc., including toll calls, rendered to ships in the activity for berthing only, shall be charged to the ship funds.

2.2.68 Issue of Uncontaminated and Contaminated On Return Tools.

a. Overhead. None.

b. Direct Cost. When the effort requires the use of a special tool crib and can be readily identified to a specific ship, the costs shall be charged to a service job order and to the sponsors. Proration will be based on auditable, consistent accounting methods.

2.2.69 Training of Personnel.

a. Overhead.

(1) All training on the job by supervisors is a regular duty of supervision and the supervisors' time will be charged to the supervisor's regular job order. Any formal training of apprentices on jobs will be treated as an expense of the job order on which the apprentice is working.

(2) Apprentices while attending Apprentice School Training will charge so that the expense is separately identifiable. All other training not associated with the Apprentice School will be charged to overhead.

(3) Apprentice Instructors charge overhead in their applicable shop/department.

(4) The time of trainees while they are receiving scheduled instruction away from productive work and the instructor's time will be charged as overhead. Related training duties applicable to instructors are the preparation and revision of course and lesson plans and related materials.

(5) The training and qualification of personnel to perform special skills, within their cognizance, which are required by advanced technology being applied. Examples are: Train and qualify welders to perform welding in accordance with applicable standards; train and qualify personnel for reactor plant work, i.e., radiological control, quality control and all classroom work to qualify or periodically requalify Shift Refueling Engineers, Shift Test Engineers, Chief Test Engineers, etc. Retraining and requalification are required based on lapsed time.

(6) The cost related to sending employees to the equipment manufacturer's plant for in-house training to undergo training for a new product or system shall be treated as an overhead expense. This includes training and qualification of employees to perform special skills, within their cognizance, which are required by advanced technology. In such instances, the costs (travel, per diem and labor) are chargeable to overhead expense.

(7) The cost of training after the initial training for a new product or function that has been introduced into the Navy shall be treated as overhead expense.

b. Direct Cost.

(1) Apprentices' time when working (not merely observing or other non-contributive conduct) on productive jobs is chargeable to the job order on which the apprentice is working.

(2) The training and qualification of personnel to perform specific functions when such training and qualification is required each time the function is performed is chargeable directly to the benefiting customer.

(3) The development and qualification of employees requested by activities outside the activity shall be a direct charge to the requesting customer.

(4) It is suggested that, initially, training be provided to state and local government employees on a space available basis and that the activity not require reimbursement for this service. If, however, the scope, frequency or other characteristics of the training requested by the state or local government requires significant alteration to the activity’s existing training program, reimbursement should be requested for the costs incurred from the appropriate state/local government.

(5) The adaptation of standard activity procedure to specific application is chargeable to the benefiting customer.

(6) The cost of providing the initial training for new products or weapons systems is chargeable to the organization introducing the new product or system. These costs include instructional material and instructors costs which occur as a result of contracts placed with equipment

manufacturers or within the Navy to teach maintenance and repair techniques to employees of the Government. After an initial training for a new product or system has been introduced, the training program is chargeable to overhead.

(7) Training and qualification of personnel to perform specific functions, when such training and qualifications are required each time the function is performed, is chargeable directly to the benefiting customer. In this instance, the training is peculiar to and identifiable to a specific product or system and expertise is lost through non-use. Examples of this exception include the training of personnel to overhaul/repair unique equipment, which is not within their normal cognizance or expertise, nor is it expected that such unique equipment will be overhauled/repaired for other customers in the future. In addition, if a customer imposes additional training or re-qualification of personnel even though the personnel may be properly certified in accordance with current training manuals, then the additional training costs would be properly charged to the benefiting customer.

2.2.70 Traumatic Injuries - Continuation of Pay. When an employee sustains a traumatic injury, Public Law 93-416 provides that the employee can be retained in full pay status for up to 45 calendar days for each injury without charge to leave.

a. Overhead. The labor cost for employees sustaining traumatic injuries will be charged to a separate overhead job order.

b. Direct Cost. None.

2.2.71 Utilities for Ships. Utilities, excluding telephone service, include fresh and salt water, steam and hot water heat, steam power, hydraulic power, electricity, gas and compressed air, whether delivered to the vessels proper or used by shore activity personnel in dockside operation.

a. Overhead. None.

b. Direct Cost.

(1) All utilities for ships with an assigned availability shall be charged to a service type job order based upon utility rates.

(2) Utilities for ships not in an availability shall be charged to funds provided for this purpose.

VOLUME II

PART III

CHAPTER 3

UNIFORM COSTING POLICIES AND PROCEDURES RESPONSIBILITIES

REFERENCES.

(a) OPNAVINST 4780.6 - Policy for Administering Service Craft and Boats in the Navy
(b) DoD Financial Management Policies and Procedures Regulation 7000.14-R - Volume 12, Chapter 9

3.1 DIRECT AND INDIRECT COST IDENTIFICATION FUNCTIONS AND TASKS OVERVIEW. Since the consolidation of the Repair Supervisors of Shipbuilding, Conversion and Repair, USN (SUPSHIP) into the Regional Maintenance Centers (RMC), RMCs have assumed responsibility, within their geographic region, for all ship maintenance work contracted for accomplishment by commercial shipyards as well as organic intermediate level maintenance efforts. Along with operational responsibility came the responsibility to prepare and manage financial budgets and budget execution. This chapter provides an overview of the RMC functions and responsibilities regarding uniform costing of direct versus indirect expenditures within the maintenance enterprise. Uniform costing of direct versus indirect is an important tool in the budget process.

3.1.1 Financial Management Organization. The financial management program with regard to maintenance is managed at various levels of the Department of the Navy.

a. Chief of Naval Operations (CNO).

b. Naval Sea Systems Command (NAVSEA).

c. Commander Fleet Forces Command.

d. Type Commanders (TYCOM).

e. Ship Commanding Officer/Officer in Charge.

f. Commander, RMC/Commanding Officer, Fleet Maintenance Activity (FMA).

3.2 ORGANIZATIONAL RELATIONSHIPS FOR FINANCIAL MANAGEMENT OF MAINTENANCE ACTIVITIES.

3.2.1 General. The following sections discuss the basic responsibilities of various levels of the Navy as they affect the financial management of maintenance funding within each organization.

3.2.2 Chief of Naval Operations. The CNO is responsible to the Secretary of the Navy for the readiness, operations and logistics support of all U.S. Naval Forces. As the military chief of the Navy, the CNO is the principal advisor to the Secretary of the Navy and the executive branch of the Government on naval military matters, including funding of ship maintenance. The CNO formulates detailed budget submissions which identify the resources required to carry out the missions assigned to the Navy. These budget submissions are based on detailed support from subordinate commands and include funding requests to Congress for the resources necessary to carry out specific ship modernization, repair and maintenance programs.

3.2.3 Systems Commands.

a. To provide support for the operating Fleet, the Navy has established five Systems Commands (SYSCOM) with specific support responsibilities. These SYSCOMs are:

(1) Naval Sea Systems Command (NAVSEASYSCOM or NAVSEA).

(2) Naval Air Systems Command (NAVAIRSYSCOM).

(3) Space and Naval Warfare Systems Command (SPAWARSYSCOM).

(4) Naval Supply Systems Command (NAVSUPSYSCOM).

(5) Naval Facilities Engineering Command (NAVFAC).

b. The SYSCOMs are responsible for establishing technical requirements and meeting logistics, maintenance and support requirements of Fleet Commanders in the area of new construction and ship maintenance. In addition, these SYSCOMs provide technical requirements for all varieties of maintenance and conduct detailed analyses to determine the proper balance between design improvement and logistics support to achieve the required operational availability.

3.2.4 Naval Sea Systems Command.

a. For procurement purposes, Commander, NAVSEA, is Head Contracting Agency with delegated authority in the Federal Acquisition Regulation to enter into and administer contracts for materials and services for which the COMNAVSEA is responsible. COMNAVSEA, in turn, has delegated this authority to the Deputy Commander for Contracts (NAVSEA 02). Delegation of authority to the RMC Contracts Department Head is addressed in the NAVSEA Contracts Handbook and in other volumes of this manual. Only COMNAVSEA and individuals designated by NAVSEA 02 who are duly authorized and acting within the limits of their written delegated authority can commit the Government to any contractual action.

b. As the agent of the CNO, COMNAVSEA maintains the Fleet Modernization Program Management Information System and develops documentation for all authorized alterations. COMNAVSEA also authorizes and funds all program alterations not authorized and funded by the cognizant TYCOM. The maintenance, repair and modernization of ships, submarines, craft and boats assigned to the operating forces may be carried out by procurement of services and material from private industry through the RMCs, organic assets of the RMCs, or the Naval Shipyards (organic depot maintenance).

c. COMNAVSEA is also responsible for developing, validating and maintaining Organizational, Intermediate, and Depot-level maintenance requirements and tasks in the Planned Maintenance System.

3.2.5 The Atlantic and Pacific Fleets. The Commanders, Atlantic and Pacific Fleets under the direction of the Commander, Fleet Forces Command are responsible for all aspects of their assigned ships including adequate funding of maintenance requirements. The Commanders must balance the competing needs of funding the operational Fleets with the funding need for maintenance and modernization of the Fleet. Ships and craft under their cognizance comprise the largest portion of the repair and overhaul budget. Fleet Commanders, through their respective Fleet Maintenance Officers, are responsible for the budgeting, scheduling and executing CNO-scheduled ship maintenance and modernization availabilities plus emergent maintenance requirements. Through the respective TYCOMs, the Fleet Commanders provide funding for advance planning and execution of scheduled ship maintenance availabilities.

3.2.6 Type Commanders.

a. Under each Fleet Commander, there is a TYCOM assigned for surface, air and subsurface assets. In conjunction with Commander, Fleet Forces Command, there is a Lead TYCOM for each asset type to represent a unified TYCOM position up the chain of command for all requirements, to include maintenance.

b. TYCOMs and RMCs are responsible for preparing budget submissions and managing budget execution in support of ship modernization, repair and maintenance availabilities as well as the material readiness and training of their assigned ships. The basis of the TYCOM budget should be historical cost incurred for similar efforts. These historical costs are generated by the RMC/FMA based on direct versus indirect maintenance cost identification. In this regard, the TYCOM is one of the most important activities involved in scheduling and managing ship repair planning activities.

c. Under guidelines established by the CNO and Fleet Commanders, the TYCOMs and RMC manage funds for advance planning for repairs and some selected alterations, and execution of the availabilities. TYCOMs are responsible for providing advanced planning funds to the respective ships Maintenance Team for availability planning. After the availability work package has been identified and documented, the TYCOM provides a level of funding to accomplish necessary repairs and some of the alterations. Depending on the availability of funds, the funds provided may not be sufficient to accomplish the entire work package.

3.2.7 Regional Maintenance Centers/Fleet Maintenance Activities.

a. The CNO has delegated authority to RMC Commanding Officers to assign restricted and technical availabilities for ships under their cognizance. The local RMC has overall responsibility for efficient planning, brokering and execution of all ship maintenance and modernization for assigned ships. The RMC is a subordinate command to the Fleet Commander. The RMC shall report Additional Duty to the appropriate Lead TYCOMs. This reporting relationship ensures that TYCOMs continue to get the information necessary to effectively carry out their responsibilities relating to material readiness of their ships. The Regional Maintenance Center locations are identified in Volume VI, Chapter 35 of this manual. Contact information for the RMCs can be found in Appendix A of Volume VI, Chapter 2 of this manual. This section outlines RMC/FMA responsibilities related to financial budgeting, execution and reporting.

b. From a budget formulation perspective, the individual RMC/FMA is the first step in preparing the annual budget submission for ship maintenance. Based on cost incurred in prior periods, the RMC/FMA determines the resources necessary to perform the anticipated level of maintenance effort. The charges passed on to the reimbursable customers form the basis for preparing their budget submission for the maintenance the activity plans for the future period. Therefore, it is critical that all costs are properly classified as direct or indirect. With regard to reimbursable customers, the RMC/FMA is only allowed to pass on direct cost incurred for their project since indirect costs are supported with direct mission funding. If direct costs are misclassified as indirect, the RMC/FMA is not able to recoup the cost of the effort and the customer's historical record shows a flawed lower cost for the effort and consequently future funding requests may not be sufficient to support future maintenance efforts. The RMC will perform the following related to direct versus indirect charge:

(1) Providing detailed guidance regarding identifying, charging, classifying, collecting and reporting expenditures related to maintenance cost with the exception of organic depot level maintenance.

(2) Review budget submissions from subordinate commands.

(3) Prepare budget submissions, with appropriate supporting documentation, for submission to higher headquarters.

(4) Provide necessary training and supervision to internal intermediate level resources to ensure the requirements of this manual are implemented.

(5) It is the responsibility of the local RMC to provide necessary oversight to subordinate FMAs ensuring the requirements of this manual are executed.

3.2.8 User Commands or Activities (Users). In accordance with reference (a), the CNO assigns service craft and boats to Users. These craft and boats are maintained and overhauled using funds granted by Support Commanders to their subordinate Users activities. Service craft and boats under the cognizance of the Users comprise a portion of the RMC/FMA repair and overhaul workload and the User Commands must provide the required funding through reimbursable orders for the RMC/FMA to maintain the User's assets. For example, the Naval Station Port Operations are assigned service craft that support home ported or visiting ships. When one of these craft requires maintenance the Naval Station Port Operations provides a reimbursable order to the RMC/FMA to provide the required maintenance.

3.2.9 Naval Inactive Ship Maintenance Facilities. The RMC/FMA may be required to support the inactivation of ships scheduled for retention at Inactive Ship Maintenance Facilities. The TYCOM normally authorizes the work and NAVSEA funds such work using reimbursable orders. In some cases, inactive ships may be reactivated for delivery to foreign Governments through the Foreign Military Sales Program. This work is normally authorized and funded by NAVSEA or higher authority using reimbursable orders.

3.2.10 Naval Reserve Force Vessels. Ships assigned for training Naval Reserve Force personnel comprise a portion of the RMC/FMA workload. The TYCOM who has cognizance over these ships authorizes and funds the repair and overhaul work using the reimbursable order process.

3.2.11 Foreign Governments. RMCs/FMAs may interact with foreign Governments, when requested and authorized by the CNO or NAVSEA, to procure commercial repair work to:

a. Recondition and otherwise repair Navy ships that are to be, or have been, transferred to foreign Governments.

b. Effect emergency voyage repairs or other services for vessels of foreign Governments, when approved and authorized by CNO.

c. Unless specific legal authority to price on other than a full cost basis, DoD services and materials shall be priced on a full cost basis in accordance with Volume 12, Chapter 9 of reference (b). In order to accomplish this requirement it is critical the RMC/FMA accurately identify and accumulate direct and indirect cost. Full cost basis requires that the RMC/FMA accumulate all costs associated with the maintenance effort. This includes all direct costs that are normally captured as well as a portion of the indirect cost. In a situation like this, if the system for capturing cost is not accurate, the RMC/FMA may recoup more or less than the cost incurred and if it is discovered later, a refund or additional bill would have to be issued.

3.2.12 Private Companies - Demilitarizing and Stripping. The RMC/FMA may be required to arrange for the demilitarization and stripping of ships that are programmed for disposal or for sale to private concerns. In the case of ships programmed for disposal, these functions, when not performed by the activity having cognizance of the vessel, are carried out by the responsible RMC/FMA. When the ships are sold to private concerns, the work will be performed by the purchasing contractor as a condition of sale. In these cases, the RMC/FMA will be requested to provide surveillance over the work to ensure its proper performance. Of particular concern is the compliance with Environmental Protection Agency rules and regulations where there is potential for environmental impacts resulting from work associated with disposal action. The cost of this surveillance would be considered a direct cost and charged to the contract.

3.3 STANDARDS OF CONDUCT.

a. Congress has passed numerous laws which place significant controls over funds management such as those identified in Volume VII Chapter 6 of this manual (references (a) through (f)). The Department of Defense has promulgated additional regulations in the form of reference (b). Practices that may be acceptable in the private business world regarding funds management are not necessarily acceptable for naval personnel. Individuals who manage, control, expend or report on government funding are held to high standard regarding the control of those funds. In order to accomplish the intent of these legal requirements it is critical the RMC/FMA accurately identify and accumulate direct and indirect cost.

b. All personnel shall exercise special diligence to prevent fraud, collusion, larceny, embezzlement or other improper conduct within the area of their responsibilities and shall report immediately to the RMC Commanding Officer any instance of fraud or other improper conduct they observe or suspect. Failure to accurately record expenditures could be considered improper conduct in certain circumstances.

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VOLUME II

PART III

CHAPTER 4

RETENTION OF FINANCIAL RECORDS

REFERENCES.

(a) SECNAV M-5210.1 - Records Management Manual, Part III Chapter 7
(b) DoD Financial Management Regulation Policies and Procedures 7000.14-R - Volume 1, Chapter 9
(c) National Archives and Records Administration General Records Schedules, General Records Schedule 8 - Stores, Plant, and Cost Accounting Records, Transmittal No. 13, September 2004
(d) National Archives and Records Administration General Records Schedules, General Records Schedule 8 - Stores, Plant, and Cost Accounting Records, Transmittal No. 8, December 1998

4.1 PURPOSE. This chapter provides guidance and policy for maintaining and retaining financial records related to the charging of direct and indirect maintenance expenditures.

4.2 GENERAL. Maintenance cost records provide a historical record of financial resources required to perform a specific level of maintenance and the cost history of repairs and alterations performed on individual ships of the fleet. These records must be accurate and complete so as to "stand alone", that is, the record will be understood without additional explanation. These records will provide a basis to estimate the cost of similar efforts in the future and preparing and supporting future budget requests. Records will be maintained for direct mission funded efforts, indirect mission funded efforts, and reimbursable orders.

4.2.1 Maintenance Cost Record Requirements. The process of maintaining financial related records can affect the perceived validity of completed financial record. If the process used to maintain the financial records appears to have inadequate controls, then the accuracy and completeness of the information produced will be questionable. In order to maintain confidence in Fleet maintenance financial records, and to provide the necessary support for budgeting, the following record keeping rules are specified:

a. When recording labor or materials against a specific Job Order Number it is critical that all entries be legible and in ink. Erasures, write-overs, white outs, ditto marks, continuation arrows, signature stamps, etc., are not acceptable. When corrections are required the employee must initial all changes.

b. Neatness and readability of the original record is paramount. Copying records to "make them neat" is prohibited. Original documentation must be maintained to support summary reports.

c. When an error is made, it will be corrected by drawing a single line through the error, recording the correct entry, initialing and dating the correction. This allows the original record to be available and provides an audit trail through the entire process.

d. When a questionable item is identified, research will be initiated to determine the validity of the item. The research will be fully documented and if the research determines the original item was correct or incorrect, that will be clearly identified and the documentation will fully explain the decision and be added or appended to the original record as appropriate.

4.2.2 Record Retention in General. The following paragraphs summarize the general requirements for retaining financial records and how long they will be retained:

a. Records required to be maintained for periods exceeding 12 months may be reduced in size (such as by microfilming or CD-ROM in .pdf format only). However, the Fleet Maintenance Activity (FMA) responsible for the record will ensure that the reduced size records are clearly legible, reproducible, and will so certify prior to destroying the original records. The following procedure will be followed for record reduction:

(1) Record reduction shall be in accordance with reference (a).

(2) Compare the reduced size record against the original record to ensure each page of the original record has been reduced, is clearly legible and reproducible. This comparison shall ensure that the front and the associated back of documents have been reproduced.

(3) Reproduce two randomly selected pages of the reduced record into paper copy. Verify completeness and legibility of reproduced pages by comparing against the original record.

(4) Person making comparison will sign the logbook or some other permanent record to certify that the reduced size record is complete and legible after being reproduced.

b. After steps (1) through (4) above are satisfactorily completed, the original record may be destroyed.

4.3 IMMEDIATE SUPERIOR IN COMMAND RECORD RETENTION.

4.3.1 Financial Record Retention. Copies of documents used to provide maintenance funds to FMAs and Immediate Superiors In Command will be retained in accordance with reference (b).

4.3.2 Inspection Record Retention.

a. Copy of last Immediate Superior In Command or Type Commander inspection of the FMAs financial records including copies of discrepancies identified, root cause analysis performed and corrective action implemented.

4.3.3 Command Evaluation and Independent Audit Record Retention.

a. Records of command evaluation reviews related to financial management will be retained for 5 years after cutoff of corrective actions as required by references (b) and (c).

b. Copy of last independent audit (if any) of FMA financial management procedures and processes.

4.3.4 Assessments, Evaluations and Audits. The Financial Management Officer will retain records of assessments and evaluation for the past 24 months (unless otherwise stated). The records will consist of:

a. A log will be maintained of all Financial Management Discrepancy Forms, Part III, Chapter 5, Appendix E of this volume. Financial Management Discrepancy Form, Part III, Chapter 5, Appendix E of this volume identifies the Job Order Number reviewed, work center responsible, discrepancy identified (if any), corrective action to be taken, and estimated date corrective action is expected to be complete.

b. Copy of last higher authority assessment and the corrective action for all discrepancies identified.

c. Results of all reviews of the financial reporting program, including the corrective action taken or pending. (This may be kept with the rest of the monitor program records.)

d. Last annual evaluation of the financial reporting program performed.

4.3.5 Training. Each employee will be trained on how to accurately charge their labor and materials to direct and indirect Job Order Numbers. Records related to this training will be retained in accordance with Type Commander or Immediate Superior In Command instructions.

4.4 FLEET MAINTENANCE ACTIVITY FINANCIAL MANAGEMENT RECORD RETENTION. Financial records, including those focusing on direct versus indirect costs, will be maintained for 3 years, in accordance with references (b) and (d). Reference (b) requires the financial information "be maintained for at least the minimum period specified in the applicable National Archives and Records Administration General Records Schedules and longer if compelling reasons exist or supplemental guidance directs". The specific records addressed by this volume relate to cost accounting which must be maintained for at least 3 years from the date the actions are closed.

4.5 LOST RECORDS.

a. In the event that it is determined that some portion of the financial records have been lost and/or destroyed, an investigation will be performed to document the circumstances. The RMC/FMA Commanding Officer will appoint, in writing, an investigating officer. The written appointment will identify, in detail, the lost records and the circumstances, as they are known. The investigating officer will make sufficient inquiries to determine the most likely disposition of the records.

b. The investigating officer will prepare a written report to the Commanding Officer, detailing the results of the investigation. The report will include recommendations designed to correct the control weakness that allowed the records to be lost.

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VOLUME II

PART III

CHAPTER 5

FINANCIAL AUDITS, EVALUATIONS AND ASSESSMENTS

LISTING OF APPENDICES.

A Vertical Audits
B Horizontal Audits
C Checklist for Evaluating Direct versus Indirect Costing
D Financial Management Audit Discrepancy Form
E Financial Management Discrepancy Form

5.1 PURPOSE. This chapter provides requirements, procedures and criteria for audits, evaluations and assessments regarding direct versus indirect expenditures incurred by the Fleet Maintenance Activities (FMA). The expenditures include both Direct Mission Funded Resources and funds received through reimbursable orders and the provisions of this chapter apply to both.

5.2 GENERAL. An effective command evaluation program is essential to ensure the accuracy and completeness of the cost data associated with maintenance efforts. Audit, evaluation and assessment programs are objective, constructive tools to monitor the accuracy and completeness of the maintenance cost data collected. These same tools also evaluate the effectiveness and efficiency of the collection process. The purpose of the command evaluation program is to determine the activity's compliance with established directives and their ability to capture and correctly classify the overall cost of maintenance and provide an opportunity to correct any discrepancies. The command evaluation program must be flexible and dynamic. Focusing on specific areas of interest or current issues should be done on a regular basis to increase the benefit of the audit. Focusing reviews would prove most beneficial when the activity is involved with infrequent repair efforts, components with an abnormally high cost of maintenance or first time repair efforts. Review guides should be developed which lend themselves to evaluating recent command, division or cost center efforts related to identifying the accuracy and completeness of direct versus indirect expenditures. The involvements of the highest levels of the command are essential to ensure the Department of the Navy gets the greatest return from the limited maintenance funds available.

5.2.1 Audits. Audits are an independent systematic comparison of financial cost reports with the supporting documentation to ensure the accuracy and completeness of maintenance cost reported to higher headquarters and used to support budget requests. Different types of audits may be performed depending on the area to be audited and the purpose of the audit. The general audit categories are as follows:

a. Vertical Audit. These audits review all aspects of the cost of one repair/maintenance action or Job Order Number (JON). They track the maintenance task from inception to completion. This is done by verifying all cost aspects of the technical, material, process and documentation requirements associated with the work. These audits include attributes covering the entire spectrum of the cost charged to the effort. Reviewing the direct versus indirect charging of cost will be just one part to the audit. Appendix A provides guidelines for the preparation and execution of vertical audits.

b. Horizontal Audit. These audits are conducted on only one specific area or aspect of the direct or indirect cost program (e.g., material charges or a specific category of labor on multiple JONs, administrative efforts within the activity, etc.). They focus on the particular area and do not track a complete JON from inception to completion but rather track expenditures across the activity for a specific function. Appendix B provides guidelines for preparation and conduct of horizontal audits.

c. Repeat Findings. Once an audit is conducted and findings are identified, it is expected that the command will take action to correct the identified discrepancy and institute controls that will prevent reoccurrence of the condition. If during the course of an audit a repeat finding is identified, the recommended corrective actions must be addressed to the Immediate Superior In Command (ISIC). A repeat finding is one that was identified in the preceding audit.

5.2.2 Evaluation. The results of evaluations provide the Commanding Officer with an unbiased review of the overall accuracy and completeness of cost reported. Based on these results the Commanding Officer can, if discrepancies are noted, make an informed decision to apply additional emphasis or resources against the program to improve the condition. If the results of the evaluation reveal no significant discrepancies then the Commanding Officer has independent verification of the effectiveness of the function.

5.2.3 Assessments. Assessments are an external programmatic review of processes to ensure compliance with parent directives. The assessment could include a review of the accuracy and completeness of direct versus indirect costing. Assessments are normally conducted by the activity's Type Commander or ISIC with participation of other commands if the Type Commander or ISIC determines additional expertise is necessary.

5.2.4 Key Elements of an Effective Command Evaluation Review. Fleet Activities will use, as a minimum, the following key elements to assure the effectiveness of their command evaluation program.

a. Conduct training for all personnel assigned to the command evaluation effort on techniques for preparation, execution, documentation and the evaluation of findings prior to conducting an audit for the first time. Subsequent evaluations, performed with experienced personnel, will only require refresher training. The training should be adequately documented in order for other independent reviewers to ascertain what was and who were trained.

b. Development and use of attribute sheets/guides. These should be based on key attributes from the source documents and are not meant to limit the scope of the review.

c. Develop a thorough review process focusing on previously identified audit deficiencies to disclose potential adverse trends and recurring deficiencies.

5.2.5 Record Retention. The retention of records for audits will be in accordance with Part III, Chapter 4 of this volume.

5.3 RESPONSIBILITIES AND PROCEDURES.

5.3.1 Fleet Maintenance Activity Audit and Evaluation Program.

a. Audits. FMAs will schedule and conduct the following command evaluation audits:

NOTE: IF YOU ONLY OBSERVE PERSONNEL WORKING ON SHIPS, EXPECT TO FIND VIRTUALLY 100% DIRECT. THEREFORE, WHEN SELECTING THE PERSONNEL TO OBSERVE, ENSURE YOU GET A REPRESENTATIVE SAMPLING.

(1) Annual audits to be conducted:

(a) Perform an evaluation of the percentage of direct versus indirect expenditures using Appendix C as a guide. Identify and evaluate any unusual results in order to determine the root cause of the anomaly. Also, based on the results of this review, evaluate whether it is possible to economically reduce the indirect percentage. The command is required to review the percentage of indirect expenditures on a monthly basis and report that information to the ISIC.

(b) Perform an audit on the accuracy of charges direct versus indirect. This will involve observing the recording of cost against selected JONs.

(2) Perform post closeout audit of the expenditure charge for selected Controlled Work Packages (CWP). Determine if the total direct expenditures recorded were within the range of what was expected. The CWPs selected should be representative of the maintenance efforts performed during the period.

(3) Written audit guides shall be used for each audit. The activity performing the audit will develop audit guides based on the unique nature of the audit planned. The audit guides should be tailored and customized for the specific organization or area being audited. One successful technique is to acquire a collection of audit findings from other FMAs and incorporate these into the audit guides. Once an audit guide is prepared, it will be filed and reused when similar audits are performed. It is also recommended that the FMAs share audit guides.

(4) The results of each step in the audit guides will be documented sufficiently to support the final conclusion/finding.

(5) Audits should be conducted on an annual basis unless a shorter period is specified. Those areas identified as weak should be followed-up on more frequently. The periodicity of these audits shall be adjusted by the Financial Management Officer (FMO) based upon the results of previous audits.

(6) Report results of all audits to the Commanding Officer with copies to the FMO and cognizant Department Head/Division Officer.

(7) A copy of the final report will be provided to the Commander, Navy Regional Maintenance Center or appropriate ISIC after the FMA Commanding Officer has accepted and implemented the corrective actions.

b. Evaluations. The FMA FMO will conduct a semi-annual evaluation of the overall adequacy and effectiveness of the FMA's direct versus indirect program. This effort is less than an audit, requiring less documentation and of shorter duration. The results of this evaluation will provide an indication of the effectiveness of the program. If the results indicate a significant, widespread problem the evaluation will be expanded into an audit.

(1) Results of this evaluation will be provided to the FMO, appropriate Department Head, and Commanding Officer if the results indicate a significant problem.

(2) A copy of the final report will be provided to the Commander, Navy Regional Maintenance Center or appropriate ISIC after the FMA Commanding Officer has accepted and implemented the corrective actions.

5.3.2 Management Metrics for Direct Versus Indirect Costing.

5.3.2.1 Metric Number 1, Total Indirect Time.

5.3.2.1.1 Activity Goal. Recognizing that establishing an activity goal for indirect cost before the FMAs have had an opportunity to evaluate and implement the guidance is arbitrary and will probably require adjustment after more detailed information is accumulated. The initial goal for indirect expenditures is 10% of total expenditures. Total expenditures are the sum of total direct mission funding plus the total of reimbursable order expenditures. This metric is computed at the organizational level.

5.3.2.1.2 Activity Level. On a monthly basis, the financial manager will determine the total expenditures for the overall FMA; this includes both direct mission funding expended and reimbursable order funding expended for the period. Based on the collection of cost information using the guidance in Volume II, Part III of this manual, determine the total indirect cost reported by the FMA for the period. Using this information and the following formulas, determine the percentage of expenditures which are attributable to indirect efforts. The following formula will be used:

Direct Mission Funds Expended
Plus + Reimbursable Order Funding Expended
Equals = Total Expenditures by Maintenance Activity for Period

(Total Indirect Expenditures for Period) Divided by/
(Total Expenditures by Maintenance Activity for Period)
Equals = (Percentage of Indirect Expenditure for Period)

If the total indirect percentage exceeds the goal, the FMA should determine what events caused the increase. The FMA should identify what actions are necessary to bring the indirect into the acceptable range. The results of the evaluation will be provided to the Commander, Navy Regional Maintenance Center not later than the 15th day following the close of the month.

RATINGS: GREEN 10% or less RED More than 10%

5.3.2.2 Metric Number 2, Direct Positions Charging Indirect.

5.3.2.2.1 Activity Goal. The goal of the FMA with regard to direct versus indirect costing is to minimize indirect expenditures. Minimizing indirect expenditures will help maximize the return that the Fleet gets from resources committed to maintenance efforts. The FMA is staffed with personnel who are primarily working on direct maintenance efforts and some personnel who would primarily be performing overhead assignments. For personnel who are primarily working on direct maintenance efforts, occasionally they will be required to charge their efforts against an indirect Job Order Number (JON). Charging personnel who are primarily assigned to the activity to perform direct maintenance efforts against indirect JONs should be minimized. Therefore, another metric that should be measured is the amount and percentage of indirect cost generated by personnel in direct maintenance positions.

5.3.2.2.2 Activity Level. On a quarterly basis, obtain a listing of all personnel who charged to an indirect JON for the preceding month. Determine if personnel who normally work on direct maintenance efforts are identified on the list. If any of the direct personnel charged over 10% of their available efforts to an indirect JON, determine why the indirect JON was used. Document the results. If the charges were inappropriate, document corrective actions taken to prevent a reoccurrence of the error.

Using the same listing, review the charges for personnel who potentially could have charged a direct effort, such as contract specialists, and identify their direct charges for the period. Determine if there were other opportunities for them to charge a direct JON.

RATINGS: GREEN 10% or less RED More than 10% without adequate explanation

5.3.2.3 Metric Number 3, Indirect Charges Against Reimbursable Orders.

5.3.2.3.1 Activity Goal. The FMA is allowed to pass along all direct costs incurred in the completion of a reimbursable order. Those costs include materials, direct labor, and contracts or any other cost that must be incurred to complete the work requested. All indirect costs must be borne by the activity using direct mission funding. The indirect cost must be captured because in certain instances, such as performing work for private parties or foreign government, they must be recouped.

5.3.2.3.2 Activity Level. On a quarterly basis, randomly select 5 reimbursable orders which were completed during the period. Evaluate the cost that was charged to them to determine if any indirect costs were charged to the efforts. If as a result of the evaluation it is determined that indirect cost has been improperly charged to the reimbursable orders reviewed, document the control that failed and the actions taken to prevent future inappropriate charges against reimbursable orders.

Using the same 5 reimbursable orders, review the charges for personnel who would normally charge an indirect effort, such as administrative staff, and identify their direct charges for the period. Determine if those charges were appropriate. This test provides assurance that the direct charges reported are supportable.

RATINGS: GREEN 0 RED More than 0

5.3.3 Immediate Superior In Command Financial Management Assessments and Audits.

a. Financial Management (FM) Program Assessment.

(1) The ISIC shall schedule and conduct a financial management program assessment periodically, but not less than annually of all assigned Regional Maintenance Centers (RMC)/FMAs. This assessment will review the following areas:

(a) Vertical audit of selected JONs.

1 Material charges to those JONs.

2 Contract charges to those JONs.

3 Evaluate whether direct versus indirect cost charging training for personnel working on those JONs was conducted.

(b) Review selected FM records to determine that they are complete and retention is in accordance with regulations.

(2) Copies of the assessment reports will be provided to the RMC/FMA Maintenance Officer and the FMA Commanding Officer. Written responses will be provided by the FMA Commanding Officer if any significant findings or if findings of an unusual or serious nature were identified.

(3) Copies of the assessment reports will be forwarded to the ISIC Maintenance Officer, to include the FMA Commanding Officer's comments, if there are any significant findings or if findings of an unusual or serious nature are found requiring corrective action by the ISIC or higher authority.

b. ISICs will conduct the following additional periodic audits:

(1) Conduct periodic monitoring of RMC/FMA direct versus indirect cost charges related to controlled work and on all assigned ships during maintenance availabilities.

(2) Conduct monitoring of assigned FMAs direct versus indirect cost charges. This monitoring will include:

(a) Review of direct versus indirect cost charges procedures including practices related to opening and closing of maintenance efforts.

(b) Monitoring of direct versus indirect cost charges for progress work both on tended ships and in FMA work centers.

5.4 REPORTING AUDIT RESULTS AND CORRECTIVE ACTION.

5.4.1 Reporting Requirements for External Audits and Assessments.

a. Audit Reports. Each finding should be a concise statement of the situation, complete to the extent that it will stand on its own as a summary of the condition. It should include the requirement for defined corrective action where discrepancies are identified. A discussion should generally be included to amplify the nature of the finding. If not included in the finding, identify positively what directives were violated. Audit findings will be reported using the format of Appendix D. Each finding will provide space for the command response to the recommended corrective action, which includes a root cause/immediate corrective action/permanent corrective action, and when returned to the originator, ensuring the single document provides the complete record of the finding and actions taken. The ISIC cover letter forwarding the FM Audit Discrepancy forms (Appendix D) will include a summary of all areas where discrepancies were identified. When repeat findings are noted the effectiveness of the corrective action taken in response to previous audits should be addressed. RMC/FMA will provide a report to the ISIC of completed corrective action, proposed corrective action and schedule of accomplishment within 60 days of receipt of the ISIC Official Audit Report. Those items determined to require immediate correction should be addressed on a case-by-case basis.

b. ISIC/RMC/FMA Reports. Reports of audit/review should usually take the form of locally generated forms. It may be an existing form used in other monitoring programs. An FM Discrepancy Form (Appendix E) should be used to report deficiencies that require investigation and program evaluation.

5.4.2 Correcting Deficiencies in Job Order Numbers and/or Financial Records. When deficiencies are identified in Financial Records associated with certified (closed) CWPs or JONs corrective action is required. The action must focus on updating or correcting those records to reflect the correct data and be thoroughly documented to leave an adequate audit trail. The CWP and financial record shall be annotated to associate the additional information to the document(s) as follows:

a. An FM Discrepancy Form shall be generated for each JON deficiency identified. Each FM Discrepancy Form shall identify the deficiency, root cause and corrective action required or completed. The corrective action taken shall clearly identify the overall impact on the financial records of the RMC/FMA and any customer records.

b. Once all required actions are completed to revise or update the financial records, a copy of the completed FM Discrepancy Form and any additional documentation generated shall be attached to the CWP and financial record such that it is clear that the record was revised or updated. The FM Discrepancy Form index log shall be updated to indicate the action was completed.

5.4.3 Assessments, Evaluations and Audits. The FMAs' FMO will retain records of assessments and evaluation for the past 24 months (unless otherwise stated). The records will consist of:

a. FM Discrepancy Form index log that has the document numbers, work center responsible to correct and estimated date corrective action is expected to be complete.

b. Copy of all FM Discrepancy Forms that have been completed during the period.

c. Copy of last higher authority assessment and the corrective action for all identified deficiencies.

d. Last annual financial management program evaluation performed.

APPENDIX A

VERTICAL AUDITS

1. The function of a vertical audit is to determine if a single job (JON) or maintenance effort has been completed in accordance with the financial management requirements. It tracks the JON from inception to completion by evaluating the documentation associated with the job (labor, material, contract charges, etc.) against the financial records. The following steps are considered the minimum requirements to conduct an audit:

   a. Assemble the documentation for the job being audited.

   b. Assemble the references.

   c. Assign auditors who are familiar with the job being audited. If the assigned auditors are not familiar with the area to be audited, provide sufficient training.

   d. Develop (if not already existing) attribute sheets to be used during conduct of audit.

   e. Assemble previous audit discrepancies, if applicable.

   f. Brief and train auditors on the following:

      (1) Purpose of vertical audit.

      (2) Common discrepancies from previous audits.

      (3) Audit attributes.

   g. Conduct audit as follows:

      (1) Review procedure against the governing references and/or documentation to ensure they reflect what was supposed to be accomplished, if it was accomplished, and how it was accomplished.

      (2) Review all documentation pertaining to financial records to ensure that they actually reflect that the job was charged correctly. Additionally, a check for accuracy and completeness of forms is required of the financial records and supporting documentation.

      (3) All deficiencies noted, that require a more detailed investigation or program evaluation to identify root cause and permit effective and permanent corrective action, will be documented on a Financial Management Audit Discrepancy form (Appendix C), or FM Discrepancy Form (Appendix E), as appropriate, and presented to the activity being audited.

2. There is no specific formula for the successful completion of a vertical audit other than time and attention to detail. If properly performed, this audit provides an excellent method to assess the effectiveness of the financial management program regarding direct versus indirect costing process, since it provides small concise snap-shots of several areas of the entire program.

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APPENDIX B

HORIZONTAL AUDITS

1. Horizontal Audit. These audits are conducted on only one specific area or aspect of the direct or indirect cost program (e.g., material charges or a specific category of labor on multiple JONs, administrative functions of the activity, etc.). These audits focus on the particular area and do not track a complete JON from inception to completion but rather track the funds expended across the activity for a specific function. This appendix provides guidelines for preparation and conduct of horizontal audits.

   a. Assemble the source documents/references for the area being audited.

   b. Assemble the documentation/records of area being audited.

   c. Develop (if not already existing) attribute sheets/audit guide to be used during conduct of the audit. These attribute sheets will be posted to the Fleet Desk Guide website (https://www.marmc.nmci.navy.mil/fdg/index.htm) for use by other commands and will initially focus on the standard processes.

   d. Assemble previous audit findings (if applicable) for area being audited.

   e. Assemble, brief and train auditors on the following:

      (1) Purpose of audit.

      (2) Audit attributes.

      (3) Common discrepancies from previous audits (if applicable).

   f. Conduct audit as follows:

      (1) Review area being audited using attribute sheets/audit guide.

      (2) Review the organization's implementation and adherence to the source documents.

      (3) Review the documentation used to certify that the organization is in compliance with the governing requirements.

      (4) Document deficiencies which require investigation or program evaluation to determine root cause and permit effective and permanent corrective action on a Financial Management Audit Discrepancy form (Appendix C), or FM Discrepancy Form (Appendix E), as appropriate, and present it to the organization being audited.

2. If properly performed this type audit provides an excellent command-wide assessment of a specific area within the overall financial management program.

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APPENDIX C

CHECKLIST FOR EVALUATING

DIRECT VERSUS INDIRECT COSTING

Evaluation Step	***Discrepancy Identified***	***Corrective Action Recommended***
1. Determine if all personnel have been trained on the identification of direct versus indirect costing.		
2. Evaluate charges placed against 5 randomly selected Job Order Numbers that were completed in the prior period.		
a. Determine if there are charges against the JON which should have been indirect.		
b. Determine if there were any charges against the JON by personnel who predominantly charge indirect JONs and evaluate the accuracy of those charges.		
3. Review the process used by the FMA to compute the monthly direct versus indirect percentage. Ensure that all expenditures were included in the computation.		
4. Randomly select 25 FMA personnel who should predominantly charge direct cost. Determine if any of those personnel charged over 10% of their available time to indirect efforts.		
a. If any of these personnel charged over 10% indirect, determine the reason.		
5. Obtain a listing of personnel who charged 100% of their efforts to an indirect JON. Select 20 personnel randomly and determine if there should have been an opportunity to charge some portion of their efforts to direct.		
6. Randomly select 5 reimbursable orders that were completed in the preceding period. Evaluate the charges against these orders to ensure that no indirect charges were applied.		

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APPENDIX D

FINANCIAL MANAGEMENT AUDIT DISCREPANCY FORM

( ) CORRECTIVE ACTION REQUIRED ( ) REPEAT FINDING

ITEM:

AREA:

AUDITOR:

DISCUSSED WITH:

REFERENCE:

FINDING:

DISCUSSION:

RECOMMENDATION ADDRESSEE AND RECOMMENDED CORRECTIVE ACTIONS:

CORRECTIVE ACTIONS TAKEN:

A. ROOT CAUSE:

B. TEMPORARY CORRECTIVE ACTION (Designed to correct financial records.):

C. PERMANENT CORRECTIVE ACTION (Designed to prevent reoccurrence of condition.):

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APPENDIX E

FINANCIAL MANAGEMENT DISCREPANCY FORM

1. JON REVIEWED	2. WC	3. DATE

4. PART 1 - DISCREPANCY DESCRIPTION (IF ANY)	
5. REVIEWER'S SIGNATURE	6. WC SUPERVISOR SIGNATURE

FINANCIAL MANAGEMENT RETAIN ORIGINAL AND FWD COPY TO DIVISION

7. PART 2 - CORRECTIVE ACTION	
ROOT CAUSE:	
CORRECTIVE ACTION:	
8. ECD	9. DIVISION OFFICER (SIGNATURE) DATE

RETAIN COPY AND FWD COPY TO FINANCIAL MANAGEMENT OFFICER

10. PART 3 - RE-INSPECTION/AUDIT COMMENTS
11. FINANCIAL MANAGEMENT OFFICER/FINANCIAL MANAGEMENT SUPERVISOR (FMO/FMS) (SIGNATURE) DATE
COPY TO: ORIGINAL - FINANCIAL MANAGEMENT DIVISION RECORD FILE

FINANCIAL MANAGEMENT DISCREPANCY FORM INSTRUCTIONS

SURVEILLANCE/MONITORING/AUDIT DISCREPANCY RECORD

PURPOSE: Provide a method or means of documenting and reporting discrepancies identified by reviewers during audits, evaluations and assessments of the financial management records process. The form also provides a means to document and monitor corrective actions taken by the FMA, Work Center or division. This form is intended for use in documenting the results of command evaluations, internal audits and inspections. When completed and maintained in an accurate, auditable fashion, the form provides a record of completed corrective action. This form can also be used to evaluate trends to improve overall financial management and reporting of FMA.

NOTE: A COPY OF ALL ASSOCIATED FM DISCREPANCY FORMS SHALL BE INCLUDED WITH THE FINAL CWP, ALONG WITH RECORD DEFICIENCIES FOUND IN A CLOSED CWP. FM RECORDS THAT REQUIRE CORRECTION SHALL BE DOCUMENTED ON AN FM DISCREPANCY FORM. NO CHANGE TO THE CLOSED CWP OR FM RECORD IS PERMITTED EXCEPT AS CITED IN THIS NOTE. THE FM DISCREPANCY FORM SERIAL NUMBER WILL BE ANNOTATED TO CLEARLY INDICATE THE FORM WAS WRITTEN AFTER THE CWP OR FM RECORD WAS CLOSED/CERTIFIED AND THAT ADDITIONAL OBJECTIVE EVIDENCE IS ASSOCIATED WITH THE CLOSED PACKAGE.

NOTE: THE REPAIR OFFICER, RESPONSIBLE DEPARTMENT HEADS, DIVISION OFFICERS AND FINANCIAL MANAGEMENT OFFICER (FMO) MUST ENSURE THAT ALL FM DISCREPANCY FORMS ARE APPROPRIATELY PROCESSED TO ENSURE THE ACCURACY AND COMPLETENESS OF THE FINANCIAL RECORDS.

PROCEDURE: The numbered blocks in FM Discrepancy Form correspond with the instructions listed below.

BLOCK 1 - JON REVIEWED

The Financial Management Supervisor (FMS) will enter the appropriate Job Order Number (JON) for the specific maintenance cost being reviewed. This allows the original submission to be compared with the validated charges.

BLOCK 2 - WORK CENTER (WC)

Person performing the review will enter the original WC responsible for the maintenance cost input.

BLOCK 3 - DATE

Person performing the review will enter the date the review was performed.

BLOCK 4 - DISCREPANCY DESCRIPTION

Person performing the review will enter a description of the discrepancy, if any are noted. Enter the CWP serial number if appropriate. If no discrepancies are noted, the details of the review should be included and note that no discrepancies were identified.

BLOCK 5 - REVIEWER'S SIGNATURE

The individual performing the review will sign, and legibly print, type or stamp his/her name.

BLOCK 6 - WC SUPERVISOR SIGNATURE

The WC Supervisor will sign, and legibly print, type or stamp his/her name signifying a review of and concurrence of the results of the review.

BLOCK 7 - CORRECTIVE ACTION

a. ROOT CAUSE: If discrepancies are identified, the FMO, with the assistance of the Division Officer of the WC where the discrepancy was identified (Block 2), will identify and enter the root cause of the discrepancy. The root cause should address the control failure that allowed inaccurate data to be reported.

b. CORRECTIVE ACTION: If discrepancies are identified, the FMO, with the assistance of the Division Officer of the WC where the discrepancy was identified, will enter a description of the corrective action that has been initiated to correct the erroneous data and address actions taken to prevent recurrence, including any process improvements and policy/procedural changes.

BLOCK 8 - ECD

If discrepancies are identified, the FMO, with the assistance of the Division Officer of the WC where the discrepancy was identified, will enter the Estimated Completion Date (ECD) of the corrective action identified in Block 7. The reviewer will follow-up to ensure the actions were effective.

BLOCK 9 - DIVISION OFFICER/DATE

The Division Officer of the WC reviewed will enter signature and date, and legibly print, type or stamp his/her name after Blocks 7 and 8 are complete.

BLOCK 10 - RE-INSPECTION/AUDIT COMMENTS

Upon completion of any required corrective actions or reaching the ECD of Block 8, the FMO or an FMS designated by the FMO and the individual who performed the review, should perform a re-inspection audit and enter the re-inspection results and any additional comments. This shall include a positive statement regarding effectiveness of the corrective action. The re-inspection audit will pay special attention to actions taken to prevent a reoccurrence of the problem.

BLOCK 11 - FINANCIAL MANAGEMENT OFFICER (FMO)/FINANCIAL MANAGEMENT SUPERVISOR (FMS) SIGNATURE

The FMO or FMS will enter signature and date, and legibly print, type or stamp his/her name indicating acceptance of the actions taken and the results of those actions identified in Block 10. This will indicate that the actions are complete and the FM Discrepancy Form is closed.

COPY TO:

The appropriate WC will be identified to receive a copy of the completed/closed form.

NOTE: AFTER ALL SECTIONS OF THE FORM HAVE BEEN COMPLETED AND THE ACTIONS COMPLETE, ALL PREVIOUS COPIES OF THE FORM MAY BE DISCARDED AND THE FINAL COMPLETED/CLOSED FORM RETAINED.

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