

JOINT FLEET MAINTENANCE MANUAL
VOLUME II
INTEGRATED FLEET MAINTENANCE
LIST OF EFFECTIVE PAGES

Page Numbers	Change in Effect	Page Numbers	Change in Effect
i thru v	Change 5	II-I-2F-1	Change 2
vi thru x	Change 3	II-I-2F-2	REV C
xi thru xviii	Change 5	II-I-3-1 thru II-I-3-3	Change 2
xix thru xx	Change 4	II-I-3-4	Change 4
xxi thru xxiv	Change 3	II-I-3-5	Change 5
II-I-1-1 thru II-I-1-2	REV C	II-I-3-6	Change 2
II-I-1A-1	Change 2	II-I-3-7	REV C
II-I-1A-2	Change 5	II-I-3-8	Change 2
II-I-1A-3	Change 3	II-I-3-9 thru II-I-3-69	Change 5
II-I-1A-4	Change 5	II-I-3-70	Change 2
II-I-1A-5 thru II-I-1A-6	Change 4	II-I-3A-1	Change 4
II-I-1B-1	Change 1	II-I-3A-2 thru II-I-3A-4	REV C
II-I-1B-2	REV C	II-I-3B-1 thru II-I-3B-2	Change 2
II-I-1B-3	Change 4	II-I-3C-1 thru II-I-3C-2	Change 3
II-I-1B-4	Change 3	II-I-3D-1	REV C
II-I-2-1 thru II-I-22	Change 5	II-I-3D-2	Change 1
II-I-2A-1	Change 1	II-I-3E-1 thru II-I-3E-2	REV C
II-I-2A-2 thru II-I-2A-12	REV C	II-I-3F-1 thru II-I-3F-2	REV C
II-I-2B-1	REV C	II-I-3F-3	Change 1
II-I-2B-2	Change 1	II-I-3F-4	REV C
II-I-2C-1	Change 4	II-I-3G-1 thru II-I-3G-2	REV C
II-I-2C-2	REV C	II-I-3H-1 thru II-I-3H-2	REV C
II-I-2D-1 thru II-I-2D-2	REV C	II-I-3I-1	REV C
II-I-2E-1	Change 5	II-I-3I-2 thru II-I-3I-4	Change 1
II-I-2E-2	REV C	II-I-3J-1	Change 2

Page Numbers	Change in Effect	Page Numbers	Change in Effect
II-I-3J-2	REV C	II-I-3AC-1 thru II-I-3AC-2	REV C
II-I-3K-1 thru II-I-3K-6	Change 2	II-I-3AD-1 thru II-I-3AD-2	REV C
II-I-3K-7 thru II-I-3K-8	REV C	II-I-3AE-1 thru II-I-3AE-2	REV C
II-I-3L-1	Change 2	II-I-3AF-1 thru II-I-3AF-2	REV C
II-I-3L-2 thru II-I-3L-4	REV C	II-I-3AG-1 thru II-I-3AG-2	REV C
II-I-3M-1	REV C	II-I-3AH-1 thru II-I-3AH-2	REV C
II-I-3M-2	Change 2	II-I-3AI-1 thru II-I-3AI-2	REV C
II-I-3N-1	REV C	II-I-3AJ-1	Change 1
II-I-3N-2 thru II-I-3N-3	Change 2	II-I-3AJ-2	REV C
II-I-3N-4	Change 3	II-I-3AK-1	Change 2
II-I-3N-5	Change 5	II-I-3AK-2	REV C
II-I-3N-6	Change 2	II-I-3AL-1	Change 5
II-I-3O-1 thru II-I-3O-2	REV C	II-I-3AL-2	REV C
II-I-3O-3	Change 4	II-I-3AM-1	Change 3
II-I-3O-4	Change 2	II-I-3AM-2	Change 5
II-I-3O-5	Change 5	II-I-3AN-1	Change 5
II-I-3O-6	Change 3	II-I-3AN-2	REV C
II-I-3O-7	Change 4	II-I-3AO-1 thru II-I-3AO-5	Change 5
II-I-3O-8	Change 2	II-I-3AO-6	Change 1
II-I-3O-9	Change 5	II-I-3BA-1 thru II-I-3BA-2	REV C
II-I-3O-10	REV C	II-I-3BB-1	Change 1
II-I-3P-1	Change 2	II-I-3BB-2	REV C
II-I-3P-2	REV C	II-I-3BC-1 thru II-I-3BC-2	Change 2
II-I-3Q-1 thru II-I-3Q-2	Change 2	II-I-3BD-1 thru II-I-3BD-2	REV C
II-I-3Q-3 thru II-I-3Q-8	REV C	II-I-3BE-1 thru II-I-3BE-2	REV C
II-I-3R-1	Change 2	II-I-3BF-1	Change 1
II-I-3R-2	Change 4	II-I-3BF-2	REV C
II-I-3AA-1 thru II-I-3AA-2	REV C	II-I-3BG-1 thru II-I-3BG-2	REV C
II-I-3AB-1 thru II-I-3AB-2	REV C	II-I-3BH-1 thru II-I-3BH-2	REV C

Page Numbers	Change in Effect	Page Numbers	Change in Effect
II-I-3BI-1 thru II-I-3BI-2	REV C	II-I-3CG-2	REV C
II-I-3BJ-1 thru II-I-3BJ-2	REV C	II-I-3CH-1	Change 1
II-I-3BK-1	Change 1	II-I-3CH-2	REV C
II-I-3BK-2	REV C	II-I-3CI-1	Change 1
II-I-3BL-1 thru II-I-3BL-2	REV C	II-I-3CI-2	REV C
II-I-3BM-1	REV C	II-I-3CJ-1 thru II-I-3CJ-2	REV C
II-I-3BM-2	Change 3	II-I-3CK-1 thru II-I-3CK-2	REV C
II-I-3BN-1 thru II-I-3BN-2	REV C	II-I-3CL-1	Change 1
II-I-3BO-1	Change 1	II-I-3CL-2	Change 2
II-I-3BO-2	REV C	II-I-3CM-1	Change 1
II-I-3BP-1	Change 4	II-I-3CM-2	REV C
II-I-3BP-2	REV C	II-I-3CN-1 thru II-I-3CN-2	REV C
II-I-3BQ-1	Change 4	II-I-3CO-1 thru II-I-3CO-2	REV C
II-I-3BQ-2	REV C	II-I-3CP-1	REV C
II-I-3BR-1 thru II-I-3BR-2	Change 4	II-I-3CP-2	Change 3
II-I-3BS-1	Change 4	II-I-3CQ-1 thru II-I-3CQ-2	REV C
II-I-3BS-2	REV C	II-I-3CR-1	Change 4
II-I-3BT-1	Change 4	II-I-3CR-2	REV C
II-I-3BT-2	REV C	II-I-3CS-1 thru II-I-3CS-2	Change 4
II-I-3CA-1 thru II-I-3CA-2	REV C	II-I-3CT-1 thru II-I-3CT-2	Change 4
II-I-3CB-1	Change 2	II-I-3CU-1 thru II-I-3CU-2	REV C
II-I-3CB-2	REV C	II-I-3CV-1	Change 4
II-I-3CC-1 thru II-I-3CC-3	Change 2	II-I-3CV-2	REV C
II-I-3CC-4	REV C	II-I-4-1	Change 1
II-I-3CD-1	Change 1	II-I-4-2 thru II-I-4-6	Change 4
II-I-3CD-2	Change 2	II-I-4-7	Change 5
II-I-3CE-1 thru II-I-3CE-2	REV C	II-I-4-8 thru II-I-4-21	Change 4
II-I-3CF-1 thru II-I-3CF-2	REV C	II-I-4-22	Change 5
II-I-3CG-1	Change 1	II-I-4-23 thru II-I-4-28	Change 4

Page Numbers	Change in Effect	Page Numbers	Change in Effect
II-I-4A-1	Change 3	II-I-4R-1	Change 3
II-I-4A-2	REV C	II-I-4R-2	REV C
II-I-4B-1 thru II-I-4B-2	REV C	II-I-4S-1	Change 1
II-I-4C-1 thru II-I-4C-2	REV C	II-I-4S-2	REV C
II-I-4D-1 thru II-I-4D-4	REV C	II-I-4T-1 thru II-I-4T-2	REV C
II-I-4E-1 thru II-I-4E-2	REV C	II-I-4U-1	Change 1
II-I-4E-3	Change 3	II-I-4U-2	REV C
II-I-4E-4 thru II-I-4E-6	REV C	II-I-4V-1 thru II-I-4V-2	REV C
II-I-4F-1 thru II-I-4F-2	REV C	II-I-4W-1 thru II-I-4W-2	REV C
II-I-4G-1 thru II-I-4G-2	REV C	II-I-4X-1 thru II-I-4X-2	REV C
II-I-4H-1	Change 4	II-I-4Y-1 thru II-I-4Y-2	REV C
II-I-4H-2	Change 2	II-II-1-1 thru II-II-1-4	Change 1
II-I-4H-3 thru II-I-4H-6	Change 3	II-II-1-5	Change 3
II-I-4H-7 thru II-I-4H-8	Change 4	II-II-1-6	Change 1
II-I-4I-1 thru II-I-4I-2	REV C	II-II-1-7	Change 2
II-I-4J-1 thru II-I-4J-2	REV C	II-II-1-8 thru II-II-1-9	Change 3
II-I-4K-1	Change 1	II-II-1-10	Change 1
II-I-4K-2	REV C	II-II-1A-1 thru II-II-1A-7	Change 1
II-I-4L-1 thru II-I-4L-2	REV C	II-II-1A-8	REV C
II-I-4M-1	Change 2	II-II-2-1 thru II-II-2-2	Change 3
II-I-4M-2 thru II-I-4M-4	REV C	II-II-2-3	Change 2
II-I-4N-1 thru II-I-4N-2	REV C	II-II-2-4	REV C
II-I-4O-1	Change 1	II-II-2-5	Change 1
II-I-4O-2	REV C	II-II-2-6	Change 5
II-I-4P-1 thru II-I-4P-2	REV C	II-II-2-7	Change 3
II-I-4Q-1 thru II-I-4Q-2	REV C	II-II-2-8 thru II-II-2-10	Change 4
II-I-4Q-3	Change 1	II-II-2-11	Change 2
II-I-4Q-4	Change 5	II-II-2-12	Change 3
II-I-4Q-5 thru II-I-4Q-6	REV C	II-II-2A-1 thru II-II-2A-2	Change 3

Page Numbers	Change in Effect	Page Numbers	Change in Effect
II-II-2A-3 thru II-II-2A-4	REV C	II-III-5-1 thru II-III-5-6	REV C
II-II-2B-1 thru II-II-2B-3	Change 2	II-III-5A-1 thru II-III-5A-2	REV C
II-II-2B-4	Change 3	II-III-5B-1 thru II-III-5B-2	REV C
II-II-2B-5 thru II-II-2B-6	REV C	II-III-5C-1 thru II-III-5C-2	REV C
II-II-2C-1	Change 3	II-III-5D-1 thru II-III-5D-2	REV C
II-II-2C-2	REV C	II-III-5E-1 thru II-III-5E-4	REV C
II-II-2D-1 thru II-II-2D-6	Change 2		
II-II-2D-7 thru II-II-2D-26	Change 5		
II-II-2E-1 thru II-II-2E-2	REV C		
II-II-2F-1	Change 3		
II-II-2F-2	REV C		
II-II-2G-1	Change 3		
II-II-2G-2	REV C		
II-II-2H-1 thru II-II-2H-2	REV C		
II-II-2H-3 thru II-II-2H-4	Change 3		
II-II-3-1	Change 2		
II-II-3-2	Change 5		
II-II-3-3 thru II-II-3-4	Change 2		
II-III-FWD-1 thru II-III-FWD-2	REV C		
II-III-1-1 thru II-III-1-2	REV C		
II-III-2-1 thru II-III-2-3	REV C		
II-III-2-4	Change 2		
II-III-2-5	REV C		
II-III-2-6	Change 2		
II-III-2-7 thru II-III-2-9	REV C		
II-III-2-10	Change 2		
II-III-2-11 thru II-III-2-20	REV C		
II-III-3-1 thru II-III-3-4	REV C		
II-III-4-1 thru II-III-4-4	REV C		

(This Page Intentionally Left Blank)

JOINT FLEET MAINTENANCE MANUAL
VOLUME II
INTEGRATED FLEET MAINTENANCE
TABLE OF CONTENTS

	Page No.
LIST OF EFFECTIVE PAGES	i
RECORD OF CHANGES	vii
JOINT FLEET MAINTENANCE MANUAL CHANGE REQUEST FORM.....	ix
PART I	
CHAPTER 1 - INTRODUCTION	
1.1 Purpose	II-I-1-1
1.2 Scope	II-I-1-1
1.3 Changes and Corrections	II-I-1-2
1.4 Request for Copies of the Manual	II-I-1-2
Appendices	
A List of Acronyms	II-I-1A-1
B Glossary of Terms.....	II-I-1B-1
CHAPTER 2 - MAINTENANCE AND MODERNIZATION PROGRAM	
2.1 Purpose	II-I-2-2
2.1.1 Naval Supervisory Authority	II-I-2-2
2.1.2 Lead Maintenance Activity.....	II-I-2-5
2.1.3 Ship's Responsibility.....	II-I-2-6
2.2 Maintenance Accomplishment Levels.....	II-I-2-6
2.2.1 Fleet Maintenance.....	II-I-2-6
2.2.2 Industrial Maintenance	II-I-2-6
2.3 Reliability Centered Maintenance.....	II-I-2-7
2.4 Condition Based Maintenance	II-I-2-7
2.4.1 Unrestricted Operations (Submarines Only).....	II-I-2-7
2.4.2 Periodic Maintenance Requirements Program (Submarines Only)	II-I-2-7
2.4.3 Material Condition Assessment Feedback Program (Submarines Only).....	II-I-2-7
2.4.4 Machinery Condition Analysis (Surface Force Ships and Aircraft Carriers).....	II-I-2-8
2.4.4.1 General.....	II-I-2-8
2.4.4.2 Automated Machinery Condition Analysis.....	II-I-2-8
2.4.4.3 Machinery Condition Analysis Surveys.....	II-I-2-8
2.4.4.4 Ship's Force Machinery Vibration Analysis Program.....	II-I-2-8
2.4.5 Ship Assessment, Groom and Evaluation	II-I-2-8
2.4.6 Performance Monitoring Team.....	II-I-2-8
2.4.7 Command, Control, Communications, Computers and Combat Systems Readiness Assessment Program (Aircraft Carriers Only).....	II-I-2-9
2.4.8 Electronic Systems Review (SSBN/SSGN 726 Class Submarines Only)	II-I-2-9
2.5 System/Component Maintenance Programs (Submarines and Aircraft Carriers Only).....	II-I-2-9
2.5.1 Advanced Equipment Repair Program (Submarines Only)	II-I-2-9
2.5.2 TRIDENT Planned Equipment Replacement Program (SSBN/SSGN 726 Class Submarines Only)	II-I-2-10
2.5.3 Aircraft Carrier Planned Equipment Replacement Program (Aircraft Carriers Only).....	II-I-2-10

2.5.4	SEAWOLF Class Rotatable Pool Program.....	II-I-2-10
2.6	Modernization.....	II-I-2-10
2.6.1	Navy Modernization Program	II-I-2-10
2.6.2	Types of Ship Changes	II-I-2-11
2.6.3	Navy Data Environment System.....	II-I-2-11
2.6.3.1	Submarine Force Navy Modernization Process	II-I-2-11
2.7	Integrated Fleet Maintenance Management.....	II-I-2-11
2.7.1	Continuous Maintenance	II-I-2-12
2.7.1.1	Continuous Screening Process	II-I-2-12
2.7.1.2	Continuous Planning Process.....	II-I-2-12
2.7.1.3	Continuous Execution Process.....	II-I-2-12
2.8	Technical Assistance	II-I-2-12
2.8.1	Regional Maintenance Center.....	II-I-2-12
2.8.2	Ship Assessment, Groom and Evaluation.....	II-I-2-12
2.8.3	Carrier and Field Service Unit.....	II-I-2-13
2.8.4	Elevator Support Unit.....	II-I-2-13
2.8.5	Propulsion Plant Engineering Activity (Aircraft Carriers Only)	II-I-2-13
2.8.6	Waterfront Corrective Action Program	II-I-2-13
2.8.7	Fleet Maintenance Support Branch (Nuclear Powered Vessels Only).....	II-I-2-13
2.9	Propulsion Plant Material Condition (Aircraft Carriers Only).....	II-I-2-13
2.9.1	Purpose	II-I-2-13
2.9.2	Applicability	II-I-2-13
2.9.3	Ship's Force Requirements	II-I-2-13
2.9.3.1	Reactor Maintenance Officer	II-I-2-13
2.9.3.2	Material Condition Assessment Process	II-I-2-14
2.9.3.3	Methods for Assessment of Material Condition.....	II-I-2-18
2.9.3.3.1	Attributes and Acceptance Standards for Material Condition Inspections.....	II-I-2-19
2.9.3.4	Propulsion Plant Planned Maintenance.....	II-I-2-19
2.9.3.5	Training for Ship's Force	II-I-2-19
2.9.4	Type Commander Responsibilities.....	II-I-2-19
2.9.4.1	Type Commander Mobile Training Team Visits	II-I-2-20
2.9.5	Assessing Deficiency Impact and Scheduling Corrective Action.....	II-I-2-20
2.10	100 Hour Transition Periods (Surface Force Ships Only)	II-I-2-20
2.10.1	Critical Time Period	II-I-2-20
2.10.2	First 100 Hour Plan.....	II-I-2-20
2.10.3	Final 100 Hour Plan.....	II-I-2-21

Appendices

A	Material Condition Assessment Process Timeline.....	II-I-2A-1
B	CVN Propulsion Plant Material Condition Assessments.....	II-I-2B-1
C	System Certification Checklist for CNO Availability Key Events (Aircraft Carriers Only)	II-I-2C-1
D	Scope of Visual Inspections of Reactor Plant Fluid Systems	II-I-2D-1
E	First 100 Hours for Surface Force Scheduled Availability.....	II-I-2E-1
F	Final 100 Hours for Surface Force Scheduled Availability	II-I-2F-1

CHAPTER 3 - CHIEF OF NAVAL OPERATIONS SCHEDULED MAINTENANCE AVAILABILITIES

3.1	Purpose	II-I-3-4
3.2	Chief of Naval Operations Scheduled Maintenance Availabilities.....	II-I-3-4
3.2.1	Early Start	II-I-3-5
3.2.2	Early Start Concurrence.....	II-I-3-5
3.2.3	Readiness to Start Availability (Aircraft Carriers and Surface Force Ships Only).....	II-I-3-5
3.2.3.1	Readiness to Start Brief.....	II-I-3-5

3.3	Maintenance Policies and Procedures.....	II-I-3-6
3.3.1	Critical Path Jobs.....	II-I-3-6
3.3.2	Work Sequence Schedule.....	II-I-3-6
3.3.3	Milestones.....	II-I-3-6
3.3.4	Production Completion Date.....	II-I-3-7
3.3.5	Combat Systems Production Completion Date (AEGIS Light Off for AEGIS ships) (Surface Force Ships Only).....	II-I-3-8
3.3.6	Memorandum of Agreement.....	II-I-3-8
3.3.7	Responsibilities.....	II-I-3-9
3.3.7.1	Fleet Commander.....	II-I-3-9
3.3.7.2	Type Commander.....	II-I-3-9
3.3.7.3	Type Commander/Immediate Superior In Command (Group or Squadron).....	II-I-3-10
3.3.7.4	Submarine Maintenance Engineering Planning and Procurement Activity/Planning Engineering Repairs and Alterations.....	II-I-3-11
3.3.7.5	(Surface Force Ships only) Surface Maintenance Engineering Planning Program (SURFMEPP).....	II-I-3-11
3.3.7.6	Ship's Commanding Officer.....	II-I-3-12
3.3.7.7	Maintenance Team (Surface Force Ships Only).....	II-I-3-13
3.3.7.8	Technical Warrant Holders and In-Service Engineering Agents (Surface Force Ships Only).....	II-I-3-13
3.3.7.9	NAVSEA 05D (Surface Force Ships Only).....	II-I-3-13
3.4	Availability Work Package Planning.....	II-I-3-13
3.4.1	Forces Afloat Planning Sources.....	II-I-3-13
3.4.2	Forces Afloat Planning Actions.....	II-I-3-14
3.4.2.1	Forces Afloat Work Package Preparations.....	II-I-3-14
3.4.3	Availability Work Packages.....	II-I-3-15
3.4.3.1	Availability Work Package Content.....	II-I-3-15
3.4.3.2	Availability Work Package Sources.....	II-I-3-15
3.4.3.3	Availability Work Package Development.....	II-I-3-15
3.5	Availability Planning.....	II-I-3-16
3.5.1	Ship's Force Pre-Planning.....	II-I-3-16
3.5.1.1	Industrial Activity Visit.....	II-I-3-17
3.5.1.2	BAWP Milestones for Surface Force Ships.....	II-I-3-18
3.5.1.2.1	Corrosion Planning Conference.....	II-I-3-18
3.5.1.2.2	Life Cycle Planning Conference.....	II-I-3-18
3.5.1.2.3	Baseline Availability Work Package.....	II-I-3-18
3.5.1.2.4	Fleet Readiness Plan Mid-Cycle Review.....	II-I-3-19
3.5.1.2.5	Mid-Cycle Review.....	II-I-3-19
3.5.1.2.6	Review of BAWP and CSMP.....	II-I-3-19
3.5.1.2.7	Updating the BAWP.....	II-I-3-19
3.5.1.2.8	BAWP Turnover to TYCOM.....	II-I-3-20
3.5.1.3	Availability Coordinator (Submarines Only).....	II-I-3-20
3.5.2	Docking Conference.....	II-I-3-20
3.5.3	Ship's Force Administrative Preparations.....	II-I-3-20
3.5.4	TYCOM AWP Schedule and Documentation Requirements (Surface Force Ships Only).....	II-I-3-21
3.5.4.1	Resource Allocation.....	II-I-3-21
3.5.4.2	Technical Resolution.....	II-I-3-21
3.5.4.3	Change Notifications.....	II-I-3-21
3.5.4.4	Technical Deferral and Adjudication Process for Post-AWP Definitization (for Cost Contracts and Award (Firm Fixed Price Contracts) Through the End of the Execution Period).....	II-I-3-21
3.5.5	BAWP/AWP Change Management Process (Surface Force Ships Only).....	II-I-3-22
3.5.5.1	Branding.....	II-I-3-22
3.5.5.2	CMP Cancellation Deferral Notification System.....	II-I-3-22
3.5.5.3	BAWP Work Item Branding Categories.....	II-I-3-22
3.5.5.4	Branding Responsibility.....	II-I-3-23
3.5.5.5	Change Request Types.....	II-I-3-23

3.5.5.6	Deferral Process for an “A” Branded Mandatory Requirement (Surface Force Ships Only)	II-I-3-23
3.5.6	Modernization (Surface Force Ships Only)	II-I-3-24
3.5.6.1	Modernization List.....	II-I-3-24
3.5.6.2	BAWP/AWP Update	II-I-3-24
3.6	Availability Execution	II-I-3-24
3.6.1	Responsibilities.....	II-I-3-24
3.6.1.1	Fleet Commander.....	II-I-3-24
3.6.1.2	Type Commander/Immediate Superior In Command (Group or Squadron).....	II-I-3-24
3.6.1.2.1	Extended Operating Cycles	II-I-3-26
3.6.1.3	Fleet Maintenance Activity	II-I-3-26
3.6.1.4	Ship's Force and MST (if assigned)	II-I-3-26
3.6.2	Arrival Conference	II-I-3-27
3.6.2.1	Scheduling and Conducting	II-I-3-27
3.6.3	Routine Meetings and Conferences	II-I-3-27
3.6.3.1	Weekly Management Meetings.....	II-I-3-27
3.6.3.2	Docking/Undocking Conferences	II-I-3-29
3.6.3.3	Interim Completion Conferences (Surface Force Ships Only).....	II-I-3-29
3.6.4	Assist Ship's Force Funds.....	II-I-3-29
3.6.5	Integrated Logistics Overhaul.....	II-I-3-29
3.6.6	Ship's Selected Records.....	II-I-3-31
3.6.7	New Work.....	II-I-3-31
3.6.8	Trials, Inspections and Crew Certification	II-I-3-32
3.6.8.1	Surface Force Ship.....	II-I-3-32
3.6.8.1.1	Availability Work Certification and Completion Requirements (Surface Force Ship Only)	II-I-3-33
3.6.8.1.2	Key Event/Milestone Readiness (Surface Force Ship Only)	II-I-3-34
3.6.8.1.3	Availability/Key Event/Milestone Certification Procedures (Surface Force Ship Only)	II-I-3-36
3.6.8.1.4	Availability Certification Requirements and Procedures (Surface Force Ship only)	II-I-3-36
3.6.8.2	Aircraft Carriers	II-I-3-41
3.6.8.3	Trials, Inspections and Certification Minor Availabilities (Less Than Six Months) (Submarines Only)	II-I-3-42
3.6.8.3.1	Operating Depth Policy	II-I-3-45
3.6.8.3.2	Propulsion Plant Tests (If Required).....	II-I-3-45
3.6.8.3.3	Ocean Engineering Project Availability	II-I-3-45
3.6.8.3.4	Salvage Inspection (As Required)	II-I-3-45
3.6.8.3.5	Phase II Crew/Material Condition Inspection.....	II-I-3-45
3.6.8.3.6	Pre-Critical Inspections.....	II-I-3-45
3.6.8.3.6.1	Scheduling of Pre-Critical Inspections	II-I-3-45
3.6.8.3.6.2	Composition of the Inspection Team	II-I-3-46
3.6.8.3.6.3	Reports of Inspection	II-I-3-46
3.6.8.3.7	Dock Trials	II-I-3-46
3.6.8.3.8	Fast Cruise	II-I-3-46
3.6.8.3.9	Sea Trials	II-I-3-46
3.6.8.3.10	Interrupted Sea Trials	II-I-3-48
3.6.8.3.11	Availability Completion Prerequisites	II-I-3-48
3.6.8.4	Trials, Inspections and Certification Major Availabilities (Greater Than Six Months) (Submarines Only)	II-I-3-49
3.6.8.4.1	Responsibilities.....	II-I-3-52
3.6.8.4.2	Type Commander Embarked Representative	II-I-3-60
3.6.8.4.3	Availability Completion Prerequisites	II-I-3-60
3.6.8.4.4	Inspection Procedures	II-I-3-61
3.6.8.4.5	Dock Trials	II-I-3-64
3.6.8.4.6	Fast Cruise	II-I-3-64
3.6.8.4.7	Sea Trials	II-I-3-64

3.6.8.4.8	Interrupted/Additional Sea Trials	II-I-3-66
3.6.8.4.9	Availability Completion Prerequisites	II-I-3-67
3.7	Completion of Availability	II-I-3-67
3.8	Availability Completion Departure Conference	II-I-3-68
3.8.1	Departure Conference and Availability Completion Message.....	II-I-3-68
3.9	Post Availability	II-I-3-68
3.9.1	Completed Availability Work Package	II-I-3-68
3.9.2	End-of-Cycle Analysis (Surface Force Ships Only)	II-I-3-68
3.9.3	Post-Availability Analysis (Surface Force Ships Only).....	II-I-3-68
3.10	Baseline Availability Work Package Close-Out (Surface Force Ships Only)	II-I-3-68
3.10.1	Fleet Readiness Plan Maintenance Cycle BAWP Close-Out.....	II-I-3-68
3.10.2	BAWP Close-Out Verification and Assessment Meeting	II-I-3-68
3.10.2.1	Attendees.....	II-I-3-68
3.10.2.2	BAWP Close-Out Letter	II-I-3-69

Appendices

A	Typical CNO Availability Planning Milestones (Submarines Only).....	II-I-3A-1
B	Typical CNO Availability Planning Milestones (Surface Force Ships Only).....	II-I-3B-1
C	Typical CNO Availability Planning Milestones (Aircraft Carriers Only)	II-I-3C-1
D	Suggested Guidelines for Forces Afloat Review of Availability Work Packages	II-I-3D-1
E	Monitoring Procedures (Surface Force Ships and Aircraft Carriers).....	II-I-3E-1
F ₁	SITREP/Progress Report (Aircraft Carriers Only)	II-I-3F-1
F ₂	SITREP/Progress Report (Surface Force Ships Only).....	II-I-3F-3
G	Sample New Work Forwarding Letter and Index	II-I-3G-1
H	Suggested Message Format for a New Work Candidate	II-I-3H-1
I	Minimum Dock Trials Requirements (Surface Force Ships and Aircraft Carriers).....	II-I-3I-1
J	Minimum Fast Cruise Requirements (Surface Force Ships and Aircraft Carriers).....	II-I-3J-1
K	Minimum Tests to be Performed During Sea Trials (Surface Force Ships and Aircraft Carriers).....	II-I-3K-1
L	Minimum Dock Trials Requirements (Submarines Only)	II-I-3L-1
M	Minimum Fast Cruise Requirements (Submarines Only)	II-I-3M-1
N	Minimum Sea Trials Requirements for Chief of Naval Operations Availabilities Less Than Six Months Duration (Submarines Only)	II-I-3N-1
O	Minimum Sea Trials Requirements for Chief of Naval Operations Availabilities Greater Than Six Months Duration (Submarines Only)	II-I-3O-1
P	Summary of Significant Post Repair Sea Trial Requirements (Submarines Only).....	II-I-3P-1
Q	Applicable RMC Availability Completion Certification Sheet (Surface Force Ships Only).....	II-I-3Q-1
R	Availability Quality Management Plan (QMP) (Surface Force Ships Only).....	II-I-3R-1

SAMPLE MESSAGES FOR CNO SCHEDULED AVAILABILITIES (SURFACE FORCE SHIPS ONLY)

AA	Sample Ship's Request for Permission to Commence Fast Cruise (Surface Force Ships and Aircraft Carriers).....	II-I-3AA-1
AB	Sample Ship's Report of Fast Cruise Completion (Surface Force Ships and Aircraft Carriers).....	II-I-3AB-1
AC	Sample Supervising Authority Readiness for Sea Trial Message (Surface Force Ships and Aircraft Carriers).....	II-I-3AC-1
AD	Sample Prime Contractor Availability Key Event Readiness Certification Memorandum (Surface Force Ships Only)	II-I-3AD-1
AE	Sample Fleet Maintenance Activity Availability Key Event Readiness Certification Memorandum (Surface Force Ships Only).....	II-I-3AE-1
AF	Sample Naval Shipyard Availability Key Event Readiness Certification Memorandum (Surface Force Ships Only)	II-I-3AF-1
AG	Sample Alteration Installation Team Availability Key Event Readiness Certification Memorandum (Surface Force Ships Only).....	II-I-3AG-1
AH	Sample Ship's Force Availability Key Event Readiness Certification Memorandum (Surface Force Ships Only).....	II-I-3AH-1

AI	Sample Quality Assurance Availability Key Event Readiness Certification Memorandum (Surface Force Ships Only).....	II-I-3AI-1
AJ	Sample Final Availability Key Event Readiness Certification Memorandum (Surface Force Ships Only).....	II-I-3AJ-1
AK	Branding Category (CAT) A Change Deferral Process (Surface Force Ships Only)	II-I-3AK-1
AL	BAWP Change Deferral Request (SAMPLE)	II-I-3AL-1
AM	Availability Planning Conference Agenda Sample (Surface Force Ships Only)	II-I-3AM-1
AN	BAWP Work Item Branding Categories (Surface Force Ships Only)	II-I-3AN-1
AO	BAWP to AWP Process (Surface Force Ships Only)	II-I-3AO-1

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

BA	Sample TYCOM Message Concerning Escort Services	II-I-3BA-1
BB	Sample ISIC Message to TYCOM Concerning Crew Certification and Material Condition for Fast Cruise and Sea Trials.....	II-I-3BB-1
BC	Major Trial and Inspection Milestones	II-I-3BC-1
BD	Sample TYCOM Message to Ship Concerning Sea Trials Depth Authorization	II-I-3BD-1
BE	Sample Ship Message to TYCOM Concerning Readiness for Follow-On Sea Trials	II-I-3BE-1
BF	Sample ISIC Message to TYCOM Concerning Material Certification for Follow-On Sea Trials.....	II-I-3BF-1
BG	Sample TYCOM Message to Ship Concerning Follow-On Sea Trials Depth Authorization	II-I-3BG-1
BH	Sample Ship Message to ISIC Concerning Readiness for Fast Cruise	II-I-3BH-1
BI	Sample ISIC Message to Ship Authorizing Commencement of Fast Cruise	II-I-3BI-1
BJ	Sample Ship Message to ISIC and TYCOM Concerning Readiness for Sea Trials	II-I-3BJ-1
BK	Sample ISIC Message to TYCOM Concerning Final Material Certification Prior to Sea Trials	II-I-3BK-1
BL	Sample Ship Message to ISIC and TYCOM Concerning Material Certification Upon Completion of Sea Trials	II-I-3BL-1
BM	Submarine Sea Trial Situation Report (SITREP)	II-I-3BM-1
BN	Sample Message Concerning Mod Alert Notification	II-I-3BN-1
BO	Sample TYCOM Message to Ship Concerning URO.....	II-I-3BO-1
BP	Message Scenario for CNO Availabilities of Less than Six Months in Duration	II-I-3BP-1
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	II-I-3BQ-1
BR	Sample TYCOM Message to Ship Concerning Authorization to Use Fly-By-Wire Ship Control Systems	II-I-3BR-1
BS	Sample ISIC Message to TYCOM Concerning Fly-By-Wire Material Certification Upon Completion of At-Sea Testing or Sea Trials	II-I-3BS-1
BT	Sample TYCOM Message to Ship Concerning URO for Fly-By-Wire Ship Control Systems.....	II-I-3BT-1

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

CA	Sample SRDRS Support Services Message.....	II-I-3CA-1
CB	Sample ISIC Message to TYCOM Concerning Crew Certification	II-I-3CB-1
CC	Major Trial and Inspection Milestones	II-I-3CC-1
CD	Sample TYCOM Message to Ship Concerning Completion Prerequisites.....	II-I-3CD-1
CE	Sample TYCOM Message to NAVSEA Concerning Fast Cruise and Critical Reactor Operations	II-I-3CE-1
CF	Sample TYCOM Message to Ship Concerning Sea Trials Depth Authorization	II-I-3CF-1
CG	Sample TYCOM Message to Ship Concerning URO.....	II-I-3CG-1
CH	Sample ISIC Message to TYCOM Concerning Material Certification Prior to Sea Trials	II-I-3CH-1
CI	Sample ISIC Message to TYCOM Concerning Material Certification upon Completion of Sea Trials	II-I-3CI-1
CJ	Sample Ship Message to TYCOM Concerning Readiness for Fast Cruise	II-I-3CJ-1
CK	Sample Ship Message to TYCOM Concerning Readiness for Sea Trials	II-I-3CK-1

CL	Sample TYCOM Message Concerning Resumption of Sea Trials Completion Prerequisites.....	II-I-3CL-1
CM	Sample ISIC Message to TYCOM Concerning Material Certification for Follow-On Sea Trials.....	II-I-3CM-1
CN	Sample Ship Message to TYCOM Concerning Readiness for Follow-On Sea Trials	II-I-3CN-1
CO	Sample TYCOM Message to Ship Concerning Follow-On Sea Trials Depth Authorization	II-I-3CO-1
CP	Submarine Sea Trial Situation Report (SITREP)	II-I-3CP-1
CQ	Sample Message Concerning Mod Alert Notification	II-I-3CQ-1
CR	Message Scenario for CNO Availabilities of Greater than Six Months in Duration	II-I-3CR-1
CS	Sample NAVSEA Message to TYCOM Concerning Fly-By-Wire Ship Control Systems Material Condition Readiness for Sea Trials	II-I-3CS-1
CT	Sample TYCOM Message to Ship Concerning Authorization to Use Fly-By-Wire Ship Control Systems	II-I-3CT-1
CU	Sample ISIC Message to TYCOM Concerning Fly-By-Wire Material Certification Upon Completion of At-Sea Testing or Sea Trials	II-I-3CU-1
CV	Sample TYCOM Message to Ship Concerning URO for Fly-By-Wire Ship Control Systems	II-I-3CV-1

CHAPTER 4 - FLEET MAINTENANCE AVAILABILITIES

4.1	Purpose	II-I-4-2
4.2	Definitions	II-I-4-2
4.2.1	Fleet Maintenance Activity.....	II-I-4-2
4.2.2	Lead Maintenance Activity.....	II-I-4-2
4.2.3	Executing Activity	II-I-4-2
4.2.4	Business Case Analysis	II-I-4-2
4.2.5	Planning Board for Maintenance	II-I-4-3
4.2.6	Maintenance and Modernization Business Plan	II-I-4-3
4.2.7	Immediate Superior In Command.....	II-I-4-3
4.3	Fleet Maintenance Availabilities	II-I-4-3
4.3.1	Ship's Force Upkeep.....	II-I-4-3
4.3.2	Scheduled Continuous Maintenance Availability.....	II-I-4-3
4.3.3	Unscheduled Continuous Maintenance Availability.....	II-I-4-4
4.3.4	Emergent Availability.....	II-I-4-4
4.4	Common Elements.....	II-I-4-4
4.4.1	Responsibilities.....	II-I-4-4
4.4.1.1	Immediate Superior In Command	II-I-4-4
4.4.1.2	Regional Maintenance Center/Lead Maintenance Activity	II-I-4-4
4.4.1.3	Ship's Maintenance Team	II-I-4-5
4.4.1.4	Assigning Lead Maintenance Activity/Ship's Force Maintenance Responsibility..	II-I-4-5
4.4.1.5	Fleet Maintenance Activity/Nuclear Regional Maintenance Department Radiological Controls Support.....	II-I-4-6
4.4.2	Submission of Work Candidates.....	II-I-4-6
4.4.2.1	Documenting Requests	II-I-4-6
4.4.2.2	Message Work Candidates.....	II-I-4-6
4.4.3	Critical Jobs	II-I-4-6
4.4.4	Integrated Work Schedule	II-I-4-7
4.4.5	Technical Assistance and Assessment	II-I-4-7
4.4.6	Late Work and Scope Control	II-I-4-7
4.4.7	Memorandum of Agreement.....	II-I-4-7
4.4.8	Radiological Controls	II-I-4-7
4.4.9	Ship to Shop Material Control	II-I-4-7
4.4.10	Shipchecks	II-I-4-8
4.4.11	Lead Maintenance Activity Daily Production Meeting	II-I-4-8
4.4.12	Lead Maintenance Activity Progress Review.....	II-I-4-8

4.4.13	100 Hour Transition Periods (Submarines only)	II-I-4-9
4.4.13.1	First 100 Hour Plan (Submarines only).....	II-I-4-9
4.4.13.2	Final 100 Hour Plan (Submarines only).....	II-I-4-10
4.5	Ship's Force Upkeep	II-I-4-10
4.5.1	Upkeep Work Planning.....	II-I-4-10
4.5.1.1	Planning Sources.....	II-I-4-10
4.5.1.2	Ship's Force Planning Actions	II-I-4-10
4.5.2	Ship's Force Upkeep Work Execution	II-I-4-10
4.5.3	Ship's Force Upkeep Work Completion	II-I-4-10
4.5.3.1	Management Closeout Procedures	II-I-4-10
4.5.3.2	Dock Trials/Fast Cruise/Sea Trials	II-I-4-11
4.5.4	Ship Certification Prior to Underway (Submarines Only).....	II-I-4-11
4.6	Scheduled Continuous Maintenance Availability.....	II-I-4-11
4.6.1	Scheduled Continuous Maintenance Availability Planning.....	II-I-4-11
4.6.1.1	Scheduled Continuous Maintenance Availabilities Planning Sources	II-I-4-11
4.6.1.2	Scheduled Continuous Maintenance Availability Planning Functions	II-I-4-12
4.6.1.3	Issue Availability Planning Response Message (Submarines only).....	II-I-4-14
4.6.1.4	Arrival Conference.....	II-I-4-14
4.6.2	Continuous Maintenance Availability Execution	II-I-4-16
4.6.3	Continuous Maintenance Availability Completion Procedures	II-I-4-16
4.6.3.1	Management Reports Close-out Procedures	II-I-4-16
4.6.3.2	End of Scheduled Continuous Maintenance Availability Departure and Assessment Conference	II-I-4-16
4.6.3.3	Fast Cruise/Sea Trials	II-I-4-18
4.6.4	Hot Wash/Lessons Learned	II-I-4-18
4.6.5	Maintenance Management Performance Goals (Submarine Tenders only).....	II-I-4-18
4.6.5.1	Activity Performance Summary.....	II-I-4-18
4.6.5.2	Available Production Hours.....	II-I-4-19
4.6.5.3	Performance Indices.....	II-I-4-19
4.7	Year Long Continuous Maintenance	II-I-4-20
4.7.1	Year Long Continuous Maintenance Planning	II-I-4-20
4.7.2	Year Long Continuous Maintenance Work Execution	II-I-4-21
4.7.3	Continuous Maintenance Completion.....	II-I-4-21
4.8	Emergent Availability.....	II-I-4-21
4.8.1	Emergent Availability Planning.....	II-I-4-21
4.8.2	Work Execution	II-I-4-21
4.8.3	Availability Completion	II-I-4-21
4.9	Interim Drydocking/Pre-Inactivation Restricted Availabilities	II-I-4-21
4.9.1	Type Commander/Immediate Superior In Command (Group or Squadron) Responsibilities	II-I-4-21
4.9.2	Certification Availabilities (Less Than Six Months) (Submarines Only)	II-I-4-22
4.9.3	Operating Depth Policy	II-I-4-24
4.9.4	Propulsion Plant Tests (If Required).....	II-I-4-24
4.9.5	Phase II Crew/Material Condition Inspection.....	II-I-4-24
4.9.6	Pre-Critical Inspections.....	II-I-4-24
4.9.6.1	Scheduling of Pre-Critical Inspections.....	II-I-4-24
4.9.6.2	Composition of the Inspection Team	II-I-4-24
4.9.6.3	Reports of Inspection	II-I-4-25
4.9.7	Dock Trials	II-I-4-25
4.9.8	Fast Cruise	II-I-4-25
4.9.9	Sea Trials	II-I-4-25
4.9.10	Interrupted Sea Trials	II-I-4-27
Appendices		
A	Sample Message to TYCOM from ISIC Requesting Concurrence to Defer, Delete or Shorten a Scheduled CMAV.....	II-I-4A-1
B	Sample TYCOM Message Concerning Escort Services for IDD or PIRA Availabilities	II-I-4B-1

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
AIM	Advanced Industrial Management
AIM4RMC	Advanced Industrial Management for Regional Maintenance Centers
AIMXP	Advanced Industrial Management Express
AIPS	Alteration Installation Planning System
AIT	Alteration Installation Team
AMCA	Automated Machinery Condition Analysis
AMPS	Afloat Master Planning System
ARRS	Analysis, Record and Report Section
ASF	Assist Ship's Force
AWP	Availability Work Package
AWPM	Availability Work Package Manager
AWR	Automated Work Request
AWS	Attack Weapons Systems
BAWP	Baseline Availability Work Package
BCP	Ballast Control Panel
BQC	Emergency Underwater Telephone
C5RA	Command, Control, Communications, Computers and Combat Systems Readiness Assessment
CAR	Corrective Action Request
CARPER	Aircraft Carrier Planned Equipment Replacement
CASREP	Casualty Report
CBM	Condition Based Maintenance
CDMD-OA	Configuration Data Managers Database-Open Architecture
CDNS	Cancellation Deferral Notification System
CFR	Contractor Furnished Report
CHENG	Chief Engineer
CJ	Critical Job
CM	Continuous Maintenance
CMAV	Continuous Maintenance Availability
CMP	Class Maintenance Plan
CNO	Chief of Naval Operations
CNRMC	Commander, Navy Regional Maintenance Center
CNSL	Commander, Naval Surface Atlantic
CNSP	Commander, Naval Surface Pacific
CO	Commanding Officer
COMNAVSEASYSKOM	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
COMSUBRON	Commander, Submarine Squadron
COSAL	Coordinated Shipboard Allowance List
CPA	Carrier Planning Activity
CPJ	Critical Path Job
CS/CCS	Command and Control Systems

CSMP	Current Ship's Maintenance Project
CVN	Nuclear Powered Aircraft Carrier
CWP	Controlled Work Package
DFS	Departure From Specification
DISSUB	Disabled Submarine
DSRA	Docking Selected Restricted Availability
DSS	Deep Submergence System
DTG	Date Time Group
EA	Executing Activity
EAB	Emergency Air Breathing
ECM	Electronic Counter Measure
EDL/ESL	Equipment Deficiency/Status Log
EDSRA	Extended Docking Selected Restricted Availability
EM	Emergent Availability
EMBT	Emergency Main Ballast Tank
EOC	Engineered Operating Cycle
EOG	Electrolytic Oxygen Generator
ESM	Electronic Warfare Support Measures
ESR	Engineering Service Request
FAC	Funding Activity Code
FBW SCS	Fly-By-Wire Ship Control Systems
FDNF	Forward Deployed Naval Forces
FFP	Firm Fixed Price
FMA	Fleet Maintenance Activity
FMPMIS	Fleet Modernization Program Management Information System
FRP	Fleet Readiness Plan
FWP	Formal Work Package
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
ILS	Integrated Logistics Support
IMA	Intermediate Maintenance Activity
IMPAC	Integrated Modernization Planning for Aircraft Carriers
INSURV	Board of Inspection and Survey
IPC	Integrated Planning Conference
IPTD	Integrated Project Team Development
ISE	Individual Ships Exercises
ISEA	In-Service Engineering Activity
ISIC	Immediate Superior In Command (Group or Squadron)
IT	Information Technology
IWS	Integrated Work Schedule
JCN	Job Control Number
JFMM	Joint Fleet Maintenance Manual
LAR	Liaison Action Request

LCPC	Life Cycle Planning Conference
LDS	Logistics Data System
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
MLOC	Master Light-Off Checklist
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
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
NDE	Navy Data Environment
NDE-SIDE	NDE-SPAWAR Integrated Data Environment
NEC	Navy Enlisted Classification
NMD	Navy Maintenance Database
NMP	Navy Modernization Program
NNSY	Norfolk Naval Shipyard
NPEB	Nuclear Propulsion Examining Board
NRL	Naval Research Laboratory
NRMC	Navy Regional Maintenance Center
NRMD	Nuclear Regional Maintenance Department
NRRO	Naval Reactor Representative Office
NSA	Naval Supervisory Authority
NSSFNL	Naval Submarine Support Facility New London
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
OQE	Objective Quality Evidence
ORDALT	Ordinance Alteration
PAC	Pre-Arrival Conference
PARM	Participating Acquisition Resource Managers
PB4M	Planning Board for Maintenance
PCD	Production Completion Date
PCO	Primary Contracting Officer
PE	Port Engineer
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
PR	Planning Review
PRC	Project Review Conference
PSIA	Private Sector Industrial Activity
PTD	Provisioning Technical Documentation
PVI	Product Verification Inspection
QA	Quality Assurance
QAS	Quality Assurance Supervisor
QMP	Quality Management Plan
QMS	Quality Management System
RCC	Request for Contract Change
RCD	Required Completion Date
REC	Re-Entry Control
RLAR	Reverse Liaison Action Request
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

VOLUME II

PART I

CHAPTER 2

MAINTENANCE AND MODERNIZATION PROGRAM

REFERENCES.

- (a) NAVSEAINST 5400.95 - Waterfront Engineering and Technical Authority Policy
- (b) NAVSEA SL720-AA-MAN-030 - Navy Modernization Process Management and Operations Manual (NMP-MOM)
- (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 S9AA0-AB-GOS-010 - General Specifications for Overhaul of Surface Ships
- (h) NAVSEA T0300-AA-MMI-010 - Commercial Industrial Services (CIS) Manual
- (i) NAVSEAINST 4710.6 - Submarine Advanced Equipment Repair Program (AERP); Assignment of Responsibilities for and Administration of
- (j) SSN21-081-PMS350L-035 - Rotatable Pool Management Plan for the SEAWOLF Class SSN
- (k) NAVSEAINST C9210.4 - Changes, Repairs and Maintenance to Nuclear Powered Ships
- (l) NAVSEAINST 4720.23 - Deep Submergence Systems Temporary Modifications
- (m) NAVSEAINST 4130.9 - Configuration Control Procedures for Preparation of Ordnance Alterations (ORDALTS) to Expendable and Non-Expendable Items
- (n) NAVSEAINST 4720.15 - Machinery Alterations on HM&E Equipment and Systems
- (o) MIL-STD-2039 - Field Changes and Field Change Kit Preparation
- (p) COMLANFTLTINST 4700.10 - Policies and Procedures for Fleet Technical Support (FTS) (Cancelled)
- (q) COMPACFLTINST 4341.1 - Fleet Technical Assistance (FTA) Program (Cancelled)
- (r) NAVSEA 0989-LP-043-0000 - Commissioned Surface Ship General Reactor Plant Overhaul and Repair Specification
- (s) NAVSEAINST 4730.2 - Shipyard Inspection and Required Conditions of Propulsion Plant Systems (Non-Nuclear) for Nuclear-Powered Surface Ships
- (t) NAVSEA STD DWG 605-5529700 - CVN 68 Class Commissioned Ships Reactor Plant Paint Schedule
- (u) NAVSEA S9086-VD-STM-010-NSTM Chapter 631 - Preservation of Ships in Service - General
- (v) TMIN SL700-AB-GYD-010 - Pictorial Guide for Painting Ships Interiors
- (w) NAVSEA STD DWG 213-4362626 - Lagging and Insulation Schedule for Reactor Plant Systems
- (x) CNAP/CNALINST 9210.4 - Nuclear Propulsion Note 9200-2
- (y) NAVSEAINST 9304.1 - Shipboard Electric Cable and Cableway Inspection and Reporting Procedures
- (z) DOD-STD-2003 - Military, Standard, Electric Plant Installation Standard Methods for Surface Ships and Submarines
- (aa) NAVSEA 0989-LP-062-4000 - Naval Nuclear Quality Control Manual for Shipyards
- (ab) NAVSEA 0989-031-4000 - Reactor Plant Instrumentation and Control Equipment Maintenance
- (ac) NAVSEA 0989-LP-026-1000 - A4W/A1G Reactor Plant Manual
- (ad) OPNAVINST 3120.32 - Standard Organization and Regulations of the U.S. Navy
- (ae) COMLANFTLTINST 5400.2 - U.S. Atlantic Fleet Regulations
- (af) COMPACFLTINST 5400.3 - U.S. Pacific Fleet Regulations
- (ag) OPNAVNOTE 4700 - Representative Intervals, Durations, Maintenance Cycles, and Repair Mandays for Depot Level Maintenance Availabilities of U.S. Navy Ships
- (ah) OPNAVINST 4780.6 - Policy for Administering Service Craft and Boats in the U.S. Navy
- (ai) MIL-STD-3034 - Reliability-Centered Maintenance (RCM) Process
- (aj) MIL-STD-1388 - Logistic Support Analysis
- (ak) OPNAVINST 3120.33 - Submarine Extended Operating Cycle (SEOC) Program
- (al) NAVSEA TL710-AB-MAN-010 - Depot Modernization Period (DMP) Procedures Manual
- (am) OPNAVNOTE 4710 - Fleet Depot Maintenance Schedule
- (an) SSPINST 5600.11 - Preventive Maintenance Management Program for Strategic Weapon Systems Equipment and Associated Material

LISTING OF APPENDICES.

- A Material Condition Assessment Process Timeline
- B CVN Propulsion Plant Material Condition Assessments
- C System Certification Checklist for CNO Availability Key Events (Aircraft Carriers Only)
- D Scope of Visual Inspections of Reactor Plant Fluid Systems
- E First 100 Hours for Surface Force Scheduled Availability
- F Final 100 Hours for Surface Force Scheduled Availability

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 (an). 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 Shipbuilding (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 contracted work where the majority of the work is performed onboard the ship. However, for repair/maintenance/modernization work packages where TRIDENT Refit Facility Kings Bay (TRFKB), Naval Submarine Support Facility New London (NSSFNL) or the Tender is assigned as the Lead Maintenance Activity (LMA), no NSA Assignment is required (whether or not the work package includes contracted work). Local Technical Authority for the LMA is delegated by their assigned Chief Engineer in accordance with reference (a) as defined in a Memorandum of Agreement (MOA) between the responsible organizations. When such an MOA exists, the LMA (TRFKB, NSSFNL, Tenders) executes the specific NSA responsibilities of paragraphs 2.1.1.d.(1) through 2.1.1.d.(4) of this chapter when no NSA is assigned.
 - (1) Alterations installed by Alteration Installation Teams (AIT) per reference (b) can only be executed in availabilities that have a designated NSA, with the exception of availabilities where TRFKB, NSSFNL, or Tenders are the assigned LMA. 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 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 (a).
 - (4) **The NSA designation does not apply to alterations to ships accomplished by AITs where the NSA may be responsible:**
 - (a) Alterations to nuclear components and systems under the cognizance of the Deputy Commander for Nuclear Propulsion (NAVSEA 08).

- (b) Strategic Systems Program Alterations (SPALT) issued by the Director, Strategic Systems Programs and alterations under the TRIDENT SYSTEM Change Management Program.
 - (c) Temporary modifications performed as part of a shipyard availability to support industrial work or associated testing.
 - (d) Temporary Alterations (TEMPALT) to be accomplished on Submarines.
 - (e) Technical support personnel and certification teams who only provide technical guidance, equipment check-out and grooming or certification of systems or on-site training for Ship's Force not associated with the accomplishment of an alteration/Ship Change.
 - (f) Boats, small craft, service craft, equipage and other exceptions including items that are not permanently installed and are portable.
- 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. Facilities such as the Tenders, NSSFNL, TRFKB and Ship's Force cannot be considered NSAs.

NOTE: DELEGATION OF NSA RESPONSIBILITIES CAN BE ACCOMPLISHED THROUGH A 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)/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 all work definition, planning and completion 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 (b) 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
Non-CNO Public (3) (4)	RMC/NSY	RMC/NSY Fleet Maintenance Activity (FMA)
Non-CNO Private (3)	RMC/SUPSHIP (2)	Contractor
Emergent/Voyage repair (4)	RMC/SUPSHIP/NSY	FMA/RMC/NSY/Contractor
New Construction	SUPSHIP	Contractor
AIT availabilities	RMC/SUPSHIP/NSY	FMA/RMC/NSY/AIT Contractor
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, NSSFNL, TRFKB 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 (b) 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 and testing that affects ship's conditions (i.e., buoyancy, list, trim, stability and watertight integrity) and prevention and protection from fire and flooding.

- u. (Carrier Incremental Availabilities only) A Ship Safety Council is not required, but a Ship Safety Officer will be appointed and on site to oversee any high risk evolutions in accordance with Section 046 of reference (g).

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 (b). 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 (h) 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 equipment 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 Force Ships and Aircraft Carriers).

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 Command, Control, Communications, Computers and Combat Systems Readiness Assessment Program (Aircraft Carriers Only). The Command, Control, Communications, Computers and Combat Systems Readiness Assessment (C5RA) 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 C5RA/Total Ship's Readiness Assessment (TSRA) 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 (i) 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 (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 (j) provides specific guidance for managing the SEAWOLF Rotatable Pool program.

2.6 MODERNIZATION.

2.6.1 Navy Modernization Program. The Navy Modernization Program (NMP) is a CNO managed program to develop, plan, fund and accomplish Ship Changes and alterations in accordance with policies mandated in reference (b). It is executed in accordance with Volume VI, Chapter 3 (Submarines) and Chapter 36 (Surface Ships/Aircraft Carriers) 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 equipment 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 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 Changes. There are only two types of Ship Changes in the NMP: Program Changes and Fleet Changes. The Submarine Force breaks these two types of Ship Changes into further sub-categories. See Volume VI, Chapter 3 of this manual for further details and definitions.

- a. Program Changes are programmed for installation by System Commands or Program Executive Offices, as well as funded for accomplishment by the System Commands, Program Executive Offices or other organizations as agreed upon.
- b. Fleet Changes are programmed and budgeted as part of TYCOM Ship Maintenance funding. Fleet Changes typically address safety of personnel and/or equipment, provide increased efficiency, reliability or maintainability and generally do not increase or add new capability.
- c. Non-Navy Ship Change Documents are programmed for installation on Naval vessels by Non-Navy organizations and they are funded for implementation by these organizations per previous agreement.
- d. Combination Ship Change Documents are programmed for installation on Naval vessels by a combination of the above organizations and their implementations are funded by those organizations per previous agreement. Under normal conditions these Ship Change Documents are funded by their Programs; otherwise they are funded by the Fleet.

2.6.3 Navy Data Environment System.

- a. Navy Data Environment (NDE) was designed as an enterprise data model to integrate and merge existing modernization, maintenance and logistics legacy data structures into a single design. The objective of NDE is to consolidate Fleet Modernization Business Processes and legacy Data Systems. The following applications have been merged into the NDE common model:
 - (1) Fleet Modernization Program Management Information System (FMPMIS) (Logistics Module) and Alteration Installation Planning System (AIPS) became (NDE-NM).
 - (2) FMPMIS Program Module and FMPMIS Execution Modules (became NDE Program and Execution Modules respectively).
 - (3) Afloat Master Planning System (NDE AMPS Module).
 - (4) Integrated Logistics Support (ILS) Cert/Master List Module.
- b. The following systems replicate data and interface with NDE to share alteration, scheduling, material and financial data:
 - (1) NDE-SPAWAR Integrated Data Environment (NDE-SIDE).
 - (2) Configuration Data Managers Database-Open Architecture (CDMD-OA).
- c. The following systems will replicate data and interface with NDE to share alteration, scheduling, material and financial data:
 - (1) TYCOM Alteration Management System (TAMS).
 - (2) Integrated Modernization Planning for Aircraft Carriers (IMPAC).

2.6.3.1 Submarine Force Navy Modernization Process. Submarine Force Navy Modernization Process phased implementation details are covered further in reference (b), Section 9 and Volume VI, Chapter 3 of this manual.

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 (p) and (q) 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 (r). 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 (r), 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 (Nuclear Powered Vessels Only).

- 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 conjunction 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 (s). 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 (t), (u) and (v) provide additional guidance on applying and resurfacing plant structural components and coating color schemes.

NOTE: REFERENCE (v) 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), (h), 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 (w). 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 (t), (u) and (v) (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 (t), (u), (v) and (x) (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 (y) and (z). 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 (s) shall be used to inspect non-nuclear propulsion systems and components. The checklist provided in Appendix C is to be used as a guide during CNO Availabilities when reference (r) is invoked for determination of system readiness to support execution of a Key Event. This checklist may also be used outside of availabilities to determine system readiness to support ship operations.
- b. References (aa), (ab) and (r) shall be used to inspect nuclear propulsion systems and components. Inspection criteria for nuclear mechanical systems is listed in Appendix D. Inspection criteria for nuclear electrical systems is listed in reference (ab).

2.9.3.4 Propulsion Plant Planned Maintenance. Reference (ac) 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.

2.10 100 HOUR TRANSITION PERIODS (SURFACE FORCE SHIPS ONLY).

2.10.1 Critical Time Period. The 100 hours at the beginning and at the end of an availability are critical times for availability execution. The ISIC, TYCOM, NSA/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. First 100 Hour Plan should be discussed at the following:

- a. For Continuous Maintenance Availability, discuss First 100 Hour Plan at the Work Package Execution Review (WPER).
- b. For CNO Availability, discuss First 100 Hour Plan at the WPER.

Details for the first and final 100 hours shall be as follows:

2.10.2 First 100 Hour Plan. 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, as indicated in Appendix E, and will be discussed again at the Arrival Conference.

- a. Conduct Tag-out audit.

- b. Establishing plant conditions.
- c. Establishing working hours and implement work controls (i.e., Tag-outs and Work Authorization Forms (WAF) throughout the availability.
- d. NSA/LMA and Ship's Force will have a plan ready to execute at the start of the availability to place required equipment/systems into Inactive Equipment Maintenance status.
- e. Jobs still requiring ship checks will be listed in the Availability Planning Message.
- f. 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.
- g. Brief all critical path jobs (i.e., work that requires most of the availability to complete) that will start during the first 100 hours.
- h. Establish who from Ship's Force is authorized to sign off equipment testing (i.e., E-7 and above).
- i. Confirm weekly progress meetings and times with Ship's Force and contractor management.
- j. Submit Availability Start Message to cognizant Fleet Commander.
- k. Provide Ship's Force with an Executive Level Integrated Maintenance Availability schedule (i.e., critical path jobs, long lead time jobs, Maintenance Control Team jobs, high visibility jobs).
- l. Conduct maintenance availability training/stand down for Ship's Force on critical safety systems (i.e., Tag-out/electrical safety, hearing conservation, sight protection, respiratory safety, etc.).

2.10.3 Final 100 Hour Plan. The Final 100 Hour Plan will notionally begin four days prior to the beginning of sea trials; or if no sea trials, last day of the ship's scheduled availability. Items listed below must be completed in accordance with Appendix F, which provides 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 events to occur without delay.
- b. Production related temporary services removed.
- c. Conduct departure conference.
- d. Commence dock trials; complete dock trials.
- e. Conduct Tag-out audit.
- f. WAFs require close out no later than 72 hours prior to the beginning of sea trials; or if no sea trials, end of the availability. Conduct final WAF audit after closeout.
- g. Testing associated with production work is completed and reviewed. (Testing should be ongoing as production work is completed throughout the ship's availability.)
- h. Operationally test systems/equipment repaired or modernized during the availability.
- i. Conduct Pre-Underway checks and Master Light-Off Checklists (MLOC).
- j. Crew watchbills and berthing bills complete.
- k. Conduct Fast Cruise.
- l. Complete Fast Cruise.
- m. Crew rest and final administration.

(This Page Intentionally Left Blank)

APPENDIX E

FIRST 100 HOURS FOR SURFACE FORCE SCHEDULED AVAILABILITY

Prior to 100 hrs	Transition day	24 hours	48 hours	72 hours	100 hours
Pre-Availability	A	A+1	A+2	A+3	A+4
<p>ISIC, TYCOM, NSA/LMA and Ship will coordinate 100 hour plan.</p> <p>CMAV - discuss 100 Hour Plan at WPER.</p> <p>CNO Avail - discuss 100 Hour Plan at WPER.</p> <p>Jobs requiring ship checks will be listed in the Availability Planning Message.</p> <p>Provide S/F with Executive Level IMA schedule.</p> <p>Establish Pre-arrival Tag-out, WAF & work control plan.</p> <p>Discuss "Early Start" work items at WPER (if applicable).</p> <p>Develop IEM plan (NSA&S/F).</p>	<p>Arrival Conference (100 Hour clock starts).</p> <p>Availability commences. Submit Availability Start Message</p> <p>Conduct Tag-out audit.</p> <p>Establish Plant Conditions.</p> <p>Establish working hours and implement work controls.</p> <p>Execute developed plan and place required equipment/ systems into IEM status.</p> <p>Brief all critical path jobs (jobs that may take entire avail to complete)</p> <p>Conduct S/F availability safety training.</p>	<p>Establish Plant Conditions (cont'd).</p> <p>Implement work controls (cont'd).</p> <p>Place required equipment/systems into IEM status.</p> <p>Test forms required for S/F retest of FMA work will be delivered to the ship for S/F review.</p> <p>Establish authorized S/F personnel to sign off equipment testing</p> <p>Confirm weekly progress meetings and times with S/F and contractor management</p>	<p>Establish Plant Conditions (cont'd).</p> <p>Implement work controls (cont'd).</p> <p>Place required equipment/ systems into IEM status.</p> <p>Test forms required for S/F retest of FMA work will be delivered to the ship for S/F review.</p>	<p>Establish Plant Conditions (cont'd).</p> <p>Implement work controls (cont'd).</p> <p>Place required equipment /systems into IEM status.</p> <p>Brief all critical path jobs - FINAL.</p>	<p>Availability continues.</p>

(This Page Intentionally Left Blank)

- (c) Docking Planned Incremental Availability.
 - (d) Extended Drydocking Phase Maintenance Availability.
 - (e) Post Shakedown Availability.
 - (f) Carrier Incremental Availabilities.
- 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.
 - (10) Post Shakedown Availability.
 - (11) Pre-Inactivation Restricted Availability (PIRA)

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.

3.2.2 Early Start Concurrence. The Naval Supervisory Authority (NSA) (e.g., Naval Shipyard, Ship Repair Facility, Regional Maintenance Center, Supervisor of Shipbuilding (SUPSHIP)) shall request an “early start” period via Naval Message no later than A-75 days, A-365 days or A-210 days from scheduled availability start for surface force ships, aircraft carriers and submarines, respectively. TYCOMs shall provide concurrence to execute an “early start” period. 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.

3.2.3 Readiness to Start Availability (Aircraft Carriers and Surface Force Ships Only). The Project will conduct a Readiness to Start brief in accordance with the appropriate milestones listed in Appendix C for Aircraft Carriers and Part II, Chapter 2, Appendix D of this volume for Surface Force Ships. The purpose of this briefing is for the Project Team to demonstrate its readiness to execute, test and certify the maintenance availability. The Project Team shall review the Availability Work Package (AWP) for risks that would threaten the Project Team’s ability to accomplish the work to the expected level of quality within the scheduled time and budget. The Project Team shall develop risk mitigation strategies that eliminate or minimize risks. These risk mitigation strategies shall be outlined in a letter provided to the TYCOM and the NSA’s Immediate Superior In Command (ISIC) (e.g., Commander, Navy Regional Maintenance Center (CNRMC), NAVSEA 04X, Program Executive Officer (PEO)).

3.2.3.1 Readiness to Start Brief.

- a. All required Technical Work Documents (TWD) are complete, reviewed and approved by the NSA Engineering Department. Any unfinished TWDs will be discussed.
- b. The Quality **Management** Plan (QMP) is complete and signed.

- c. The initial conditions can be established to support the work (e.g., drained, depressurized, de-energized, tag out and Work Authorization Form (WAF)).
- d. The required repair parts, materials (including pre-fabrication) and test equipment are available or will be available to support the work.
- e. Assigned project team personnel are knowledgeable, trained and qualified. The Executing Activity shall provide appropriate written documentation to support the qualifications or certifications prior to personnel performing any work.
- f. The milestones and key events schedule, critical path jobs and budget (including the overtime plan).
- g. All required MOAs are signed and a communications plan has been established between the key participants of the availability.
- h. A risk management plan is developed to mitigate or reduce risk. These mitigation or risk reduction options will be continuously evaluated throughout the availability.
- i. A Fast Start strategy shall be developed and monitored. A 100 hour beginning of the availability strategy will be part of this plan.
- j. Ship's Force availability related training plan.
- k. Readiness to receive Ship's Force. Items to be discussed shall include: adequacy of work space, computer and telephone connectivity, completion of training and Ship's Force watchbill qualifications.

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. NAVSEA will issue specific advance planning milestones for each CNO Maintenance Availability.

- 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), **Deep Submergence Systems/Scope of Certification (DSS/SOC) and Fly-By-Wire (FBW) work** responsibility of each activity for all phases of SUBSAFE, **DSS/SOC and FBW** work prior to issuing Re-Entry Controls/**Controlled** 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).

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

3.3.7.1 Fleet Commander.

- a. Maintain the Availability Intervals and Cycles issued in reference (e) 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 (f) when shipboard facilities are expected to become unusable or uninhabitable.

3.3.7.2 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 AWP's prepared by Submarine Maintenance Engineering, Planning and Procurement (SUBMEPP) Activity (Submarines only)/PMS 312C (Aircraft Carriers only) with recommendations from the ship's CO, Maintenance Manager and ISIC (if applicable). Exercise all work candidate

screening and follow up actions relating to the availability directly with the ship concerned. (Surface Force Ships only) Assume the lead role in managing the AWP from the Baseline Availability Work Package (BAWP) developed by Surface Maintenance Engineering Planning Program (SURFMEPP).

- 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 Work Definition Conference (WDC)/Project Review Conference (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.
- n. (Submarines Only) Verify that all Submarine Flight Critical Component (SFCC) - certified On Board Repair Parts are loaded out by Fast Cruise following any major or minor CNO availability.

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

- a. All Ships.
 - (1) Assist the TYCOM, SUBMEPP (Submarines)/PMS 312C (Aircraft Carriers) and SURFMEPP (Surface Force 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 3.3.6 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 Squadron (COMSUBRON) ELEVEN 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.
 - (10) Report that all SFCC-certified On Board Repair Parts are loaded out by Fast Cruise following any major or minor CNO availability (Appendix BQ or Appendix CS).
- c. Surface Force Ships Only.
- (1) In coordination with the RMC Chief Engineer (CHENG), submit Change Deferral Requests and Change Notifications to SURFMEPP per Appendices AK and AL. These documents will provide adequate information to support a technical analysis, including the date the maintenance was last accomplished, the proposed timeframe for accomplishment, reason for non-accomplishment using the deferral codes provided and a mitigation strategy with impact statement for non-accomplishment. In addition, TYCOM will maintain mandatory BAWP requirements proposed for non-accomplishment in an active planning status until adjudicated.
 - (2) Coordinate with SURFMEPP to update the AWP when Class Maintenance Plan (CMP) changes drive a change to the BAWP after A-360.
 - (3) Coordinate meetings as required at key milestones and as required to support resolution of major issues, such as those associated with large budget reductions or shipyard resource shortfalls due to scheduling conflicts.

3.3.7.4 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 AWP's 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 AWP's 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.

3.3.7.5 (Surface Force Ships Only) Surface Maintenance Engineering Planning Program (SURFMEPP).

- a. Act as the surface force ship CMP development and management activity.
- b. Build Technical Foundation Papers for each ship class and Ship Sheets by hull.
- c. Identify, track and process all mandatory CMP requirements.
- d. Develop, track and process the BAWP to reflect changes in the CMP.

- e. Capture all mandatory maintenance close-out/return costs at the Job Control Number and Ship's Work List Item Number (SWLIN) levels.
- f. Review Change Deferral Letters and Cancellation Deferral Notification System (CDNS) requests for sufficient supporting documentation, mitigating actions and to determine the impact of reprogramming work or reducing scope in accordance with the change deferral process located in Appendix AK of this chapter.
- g. Develop a response in conjunction with applicable Technical Authorities and Engineering Authorities such as Naval Air Systems Command, Space and Naval Warfare Systems Command, Naval Surface Warfare Centers and other stakeholders. If required, coordinate the revision of the mitigation strategy with Commander, Naval Surface Atlantic (CNSL)/Commander, Naval Surface Pacific (CNSP) N43.
- h. Review and forward recommended action for CDNS requests to NAVSEA 05D with justification/recommendation for approval or disapproval within fourteen (14) calendar days of receipt.
- i. SURFMEPP will provide recommendations to Deferral Letters and forward to NAVSEA 05 for Surface Ship Engineering Operation Cycle designators and provide final determination for all other tasks to the TYCOM with information copy to SEA 05.
- j. Ensure the CMP configuration data, Last Maintenance Accomplished dates as designated in the Maintenance and Ship Work Planning program, next Due Dates and associated periodicities remain current using historical technical data to correct deficiencies when necessary.
- k. Review NAVSEA 05D responses to Change Deferral Requests and send the Final Disposition Letter to TYCOM within ten (10) calendar days of receipt.
- l. Coordinate the Corrosion Planning Conference, Life Cycle Planning Conference (LCPC), CSMP/Departure From Specifications (DFS)/BAWP Mid-Cycle Review and the BAWP Close-Out Verification and Assessment Meeting and summarize all Deferral Letters, Change Notifications and resulting actions for the current Fleet Readiness Plan (FRP) Maintenance Cycle.
- m. Brand tasks residing in the CMP and CSMP, as applicable.
- n. Issue the CNO Availability Advance planning schedule.
- o. Integrate Modernization tasks into the BAWP prior to A-360 in accordance with an issued Advance Planning Letter. After BAWP/AWP turnover, enter authorized Modernization tasks into the CSMP in accordance with the Navy Modernization Process and brand in accordance with Appendix AN.
- p. Attend TYCOM, RMC, and Private Sector Industrial Activity (PSIA) planning conferences for each ship.

3.3.7.6 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 AWP's 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.

3.3.7.7 Maintenance Team (Surface Force Ships Only).

- a. BAWP requirements uploaded to the CSMP with a due date prior to the ship's Mid Cycle Review must be screened and brokered within ten (10) calendar days after receipt of task.
- b. Screen and broker 100 percent of the BAWP's mandatory requirement 2-kilos by **Mid Cycle Review**.
- c. Meet with TYCOM Representatives and SURFMEPP by **Mid Cycle Review** to review the ship's BAWP, CSMP, Availability Duration Estimate, active DFSs, Class Advisories and routines/services. The CSMP will be reviewed and evaluated for branding per Appendix AN. The ship will assign a Job Control Number (JCN) to active temporary DFSs with no open JCN in the CSMP (the ship shall update the DFS to reflect the new JCN as appropriate and the Port Engineer will ensure the "Job Closure Method" is set to "Both" as referred in Part II, Chapter 3 of this volume).
- d. Screen and broker any mandatory CMP requirement uploaded to the CSMP by Mid Cycle Review within ten (10) days of receipt into the Information Technology (IT) screening and brokering system.

NOTE: MAINTENANCE TEAM (MT) WILL SCREEN ALL REQUIREMENTS TO A SCHEDULED OR FUTURE MAINTENANCE PERIOD TOTAL SHIP READINESS ASSESSMENT (TSRA) EVENT WITHIN THE CURRENT FRP MAINTENANCE CYCLE.

- e. Provide timely close-out information for completed requirements.
- f. When required, provide CMP configuration data corrections to SURFMEPP.

3.3.7.8 Technical Warrant Holders and In-Service Engineering Agents (Surface Force Ships Only).

- a. Evaluate Deferral Letters requested by NAVSEA 05D (Ship Design Manager).
- b. Evaluate CDNS deferral requests as requested by NAVSEA 05D.
- c. Provide approval or disapproval recommendations to NAVSEA 05D in support of Deferral Letters and CDNS Deferral Requests.

3.3.7.9 NAVSEA 05D (Surface Force Ships Only).

- a. Review, adjudicate and provide a response for all Change Deferral Requests to SURFMEPP within ten (10) business days of receipt.
- b. For Deferral Letters requiring other agency approvals (e.g., Naval Air Systems Command, Naval Ship Systems Engineering Station, etc.), NAVSEA 05D will coordinate with the appropriate Technical Authority for adjudication.
- c. Review, adjudicate and provide a response for all CDNS requests within ten (10) business days.
- d. NAVSEA 05D (Ship Design Manager) shall provide a representative to all BAWP Process Milestone Meetings when practical.

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.
 - (a) (Aircraft Carriers and Submarines only) 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/Navy Modernization Process are candidates for accomplishment during each availability.
 - (b) (Surface Force Ships only) SURFMEPP enters alterations on the ship's CSMP as discussed in section 3.3 of this chapter.
 - (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.
 - (4) Life Cycle Planning Conference (Surface Force Ships Only). Representatives from SURFMEPP, TYCOM and the ship's Port Engineer (PE) will convene for a LCPC. SURFMEPP will be responsible for planning and conducting the conference. TYCOM, RMC Assessment Directors, Program Manager Representatives, representatives from NAVSEA 05, NAVSEA 21 Modernization, Planning Activity and the ship's MT should attend the LCPC. Appendix AO illustrates the entire process timeline.
- 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 (Surface Force 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 and Calibration Support Plan.
- 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. Forces Afloat actions in the AWP scheduled to complete prior to availability start are critical in defining additional work candidates in accordance with Appendix D.

3.4.3.2 Availability Work Package Sources.

- a. CMP.
- b. NAVSEA authorized alterations.
- c. TYCOM authorized alterations, repairs, PMRs, Engineering for Reduced Maintenance Costs items and baseline AWP.
- 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 (all other Surface Ships) develop and maintain Baseline AWP for each ship class and type of availability.
- b. SURFMEPP (Surface Force Ships only) is responsible for BAWP development. The BAWP is comprised of mandatory assessment and corrective maintenance requirements from the CMP. Additional mandatory life cycle critical work (i.e., CSMP repairs that have been branded as mandatory by SURFMEPP) as well as non-mandatory CMP items (i.e., TYCOM requested assessments, approved and authorized modernization jobs and CNO availability services) will be combined with the BAWP to develop the AWP as the maintenance cycle progresses. Mandatory life cycle critical work (identified by having an "A" brand in the category of work field), regardless of its origin (e.g., SURFMEPP, Ship's Force or RMC), will be tracked and/or adjudicated using processes described in this section.

- c. SUBMEPP (Submarines)/PMS 312C (Aircraft Carriers)/applicable TYCOM (all other Surface Force 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.
- d. 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.
- e. SUBMEPP (Submarines only)/PMS 312C (Aircraft Carriers only)/TYCOM (Other Surface Force 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. A reason for rejecting a work candidate will be provided. For Surface Force Ships only, the NSA Chief Engineer will review requested growth and new work items for technical compliance.
- f. SURFMEPP (Surface Force Ships only) will host **four** scheduled meetings over the course of the ship's FRP Maintenance Cycle: **Corrosion Planning Conference**, the LCPC Mid-Cycle Review and the BAWP Close-Out Verification and Assessment Meeting. When possible, SURFMEPP conferences will be held in conjunction with other MT scheduled meetings, such as monthly Availability Advanced Planning Meetings and Planning Board for Maintenance (PB4M).
- g. 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.
- h. 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 and NSA Chief Engineer. The SYSCOM/TYCOM will authorize or reject each new work candidate submitted. A reason for rejecting a work candidate will be provided. For Surface Force Ships only, the NSA Chief Engineer will review requested growth and new work items for technical compliance.
- i. 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.

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. This training shall address the WAF/tagout process described in Volume IV, Chapter 10, paragraph 10.4.1.2 of this manual.
 - (c) SUBSAFE REC Procedures **and, if applicable, SOC and FBW 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 BAWP Milestones for Surface Force Ships. Specific milestone timeline is located in Part II, Chapter 2, Appendix D of this volume.

3.5.1.2.1 Corrosion Planning Conference. SURFMEPP, TYCOM representatives, RMC, CNRMC, Ship Repair Facility (SRF) (Japan only) and ship's Project Team will review current FRP cycle corrosion requirements for: tank/void conditions, tank/void assessments, tank/void preservation (includes boundary tank review), tank/void repairs, tank/void mitigation strategies, long range tank planning, structural assessments, intake/uptake assessments, bilge well assessments, structural repairs/preservation, CMP preservation requirements, deferred corrosion related maintenance, corrosion related modernization, corrosion related DFS and shipboard habitability improvements.

3.5.1.2.2 Life Cycle Planning Conference. SURFMEPP will conduct an LCPC and issue a BAWP for ships at the beginning of each ship's FRP maintenance cycle. The purpose of the LCPC is to review contents of the preliminary BAWP and planning timeline schedules with TYCOM, RMC Assessment Directors, Program Manager Representatives, representatives from NAVSEA 05, NAVSEA 21 Modernization, Planning Activity and the MT. Feedback from the meeting will be folded into the issued BAWP as applicable.

3.5.1.2.3 Baseline Availability Work Package. SURFMEPP will send a list of the FRP Maintenance Cycle CMP requirements and a list of recommended availability services to the ship's PE for review. This list is a preview of the initial BAWP and will be discussed in detail at the LCPC. SURFMEPP will provide a list of CMP-required assessments to TYCOM, Navy Regional Maintenance Center (NRMC) and RMC as requested in support of the TSRA process.

- a. SURFMEPP will upload a data file (MM0001 file) with all mandatory requirements and expected CNO Availability services into the ship's CSMP in support of ship-specific MT screening and brokering requirements.
- b. SURFMEPP will issue formal correspondence detailing the BAWP planning schedule and outstanding action items from the LCPC.
- c. Requirements uploaded to the IT screening and brokering system with a due date prior to the ship's Mid-Cycle Review milestone must be screened within ten (10) calendar days after receipt of task.

- d. The PE shall screen 100 percent of the BAWP requirements in IT screening and brokering system no later than Mid-Cycle Review and will only utilize the IT screening and brokering system or the Maintenance Support Tool to accomplish this task. These requirements shall be screened by the PE to a scheduled or future maintenance period/availability (other than Unfunded) within the current FRP Maintenance Cycle.

3.5.1.2.4 Fleet Readiness Plan Mid-Cycle Review. SURFMEPP will conduct a mid-cycle review of the ship's BAWP and CSMP to ensure inclusion of all mandatory requirements, services/routines and lifecycle impacting Class Advisories, active DFSs and Avail Duration. Navy Data Environment (NDE) modernization forecasts are addresses as applicable. TYCOM, RMC Assessment Directors, Program Manager Representatives, representatives from NAVSEA 05, NAVSEA 21 Modernization, Planning Activity and the MT should attend this meeting.

- a. 100 percent of the BAWP requirements in the IT screening and brokering system are required to be screened by the ship's PE. These requirements shall be screened by the PE to a scheduled or future maintenance period/availability (other than Unfunded) within the current FRP Maintenance Cycle.
- b. Any mandatory CMP requirement pushed after LCPC (initial BAWP push) is required to be screened within ten (10) calendar days of receipt into the appropriate IT system.

3.5.1.2.5 Mid-Cycle Review.

- a. Following the Mid-Cycle Review, SURFMEPP will update the BAWP with lifecycle critical tasks.
- b. Further TYCOM deferrals or deletions to the BAWP must be submitted using a Deferral Letter or the CMP CDNS.
- c. CMP work completion, configuration updates and new CMP additions will require SURFMEPP to upload more CMP requirements into a ship's CSMP following the Mid-Cycle Review. These updates will be coordinated with the ship's PE prior to initiation. If the ship is beyond the BAWP turnover to TYCOM, updates shall be coordinated with the respective TYCOM AWP Manager in addition to the ship's PE.
- d. Mandatory CMP requirements pushed after LCPC (initial BAWP push) are required to be screened within ten (10) calendar days of receipt into the IT screening and brokering system.

3.5.1.2.6 Review of BAWP and CSMP.

- a. SURFMEPP, TYCOM representatives, RMC and the ship's MT will meet to review the ship's BAWP and CSMP to ensure inclusion of all required services/routines and lifecycle impacting Class Advisories and active DFSs. NDE modernization forecasts are addressed as applicable. RMC Assessment Directors, RMC and TYCOM TSRA Planners, NRMC, Program Manager Representatives and representatives from NAVSEA 05D, NAVSEA 21 Modernization, CNSL/CNSP N43, PSIA Contractor (or Planning Activity), ISIC, and the ship's MT shall attend this meeting.
- b. 100 percent of the BAWP requirements in the maintenance screening and brokering system (i.e., RMAIS) are required to be screened by the ship's PE. These requirements shall be screened by the PE to a scheduled or future maintenance period/availability (other than Unfunded) within the current FRP Maintenance Cycle.
- c. Any mandatory CMP requirement pushed after **LCPC** is required to be screened within 60 days of the maintenance screening and brokering system import date.

3.5.1.2.7 Updating the BAWP.

- a. SURFMEPP will update the BAWP with lifecycle critical repair tasks resulting from assessment requirements in addition to the results (i.e., deferral or technical challenges) from the CSMP/DFS/BAWP Mid-Cycle review.
- b. Further changes to the BAWP must be submitted using a Change Request Deferral Letter or the maintenance screening and brokering system.

- c. CMP work completion, configuration updates and new CMP additions will require SURFMEPP to upload more CMP requirements into the BAWP whose next due date falls within the current FRP Maintenance Cycle through C+120. These updates will be coordinated with the ship's PE prior to calldown. If the ship is beyond A-360, updates shall be coordinated with the respective TYCOM AWP Manager in addition to the ship's PE.
- d. Mandatory CMP requirements pushed after **LCPC** are required to be also screened within 60 days of their maintenance screening and brokering system import date.
- e. Ship Design Manager authorization via SURFMEPP Platform Engineering will be obtained if stakeholders desire to withhold or delay CMP requirements generated by configuration updates and new CMP additions if these requirements will be due prior to the end of the current FRP Maintenance Cycle.
- f. Updates will cease after 100 percent D-level maintenance lock.

NOTE: IF BAWP TURNOVER TO TYCOM OCCURS WITHIN 30 CALENDAR DAYS OF LCPC, THE PE MAY FORGO THE 50 PERCENT SCREENING MILESTONE AND INSTEAD HAVE 100 PERCENT OF THE BAWP REQUIREMENTS SCREENED BY MID-CYCLE REVIEW.

3.5.1.2.8 BAWP Turnover to TYCOM. The TYCOM's AWP Manager will review the BAWP and assume responsibility for planning and developing the AWP as described in paragraph 3.5.4 of this chapter.

3.5.1.3 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.

3.5.4 TYCOM AWP Schedule and Documentation Requirements (Surface Force Ships Only).

- a. Assume lead responsibility for AWP management at A-360.
- b. TYCOM will conduct Availability Planning Conferences periodically throughout the availability planning timeline in accordance with the milestones listed in Part II, Chapter 2, Appendix D of this volume. Further details concerning Availability Planning Conferences can be found in Appendix AM.

3.5.4.1 Resource Allocation.

- a. Identify and evaluate the links between the technically mandated life cycle/service life requirements contained in the CMP, the known repair tasks mandated in the BAWP and the current readiness/corrective maintenance requirements identified in the ship's CSMP.
- b. Across this mutually supportive prioritization and resource allocation process, TYCOM will function as the representative for making resource allocation recommendations in direct support of the AWP.
- c. Submit Change Deferral Requests at any time to expedite reallocation of resources.

3.5.4.2 Technical Resolution. To resolve technical issues in a timely manner, there **is one** major milestone for processing Deferral Letters and Change Notifications by the TYCOM.

- a. TYCOM will submit a Deferral Letter to SURFMEPP in accordance with the milestone chart located in Part II, Chapter 2, Appendix D of this volume, which will include a list of mandatory tasks in the current FRP Maintenance Cycle being requested for deferral. The information provided in the Deferral Letter should have a sufficient level of detail to enable a complete evaluation by the Technical Warrant Holder and the Ship Design Manager. SURFMEPP will review the requested deferrals and forward the recommendation to NAVSEA 05D for technical resolution.
- b. Subsequent Deferral Letter submissions occurring after TYCOM delivery of the Deferral Letter shall be individually submitted. It is incumbent upon MTs and TYCOMs to discuss Deferral Letters as early as possible to enable a technical evaluation and an approval/disapproval granted prior to A-35/**Award**.

3.5.4.3 Change Notifications. Subsequent submissions occurring after delivery of the **Deferral Letter** will be provided to SURFMEPP by TYCOM at the BAWP Close-Out Verification and Assessment Meeting using Appendix AL format and will include the same information provided **in any Deferral Letter submitted during the current cycle.**

NOTE: THIS SECTION DOES NOT GOVERN NOR MODIFY THE POST-AVAILABILITY TESTING AND CERTIFICATION OR CLOSE-OUT PROCESS.

3.5.4.4 Technical Deferral and Adjudication Process for Post-AWP Definitization (for Cost Contracts and Award Firm Fixed Price Contracts) Through the End of the Execution Period).

- a. The local RMC/SRF SEA 05 Chief Engineer is empowered as prescribed in reference (b) to provide final technical deferral authority of mandatory ("A" branded) tasks from **Definitization/Award** through the end of availability execution **period**.
- b. In the event the RMC/SRF Chief Engineer exercises this deferral authority, a signed letter with the following information must be provided to both TYCOM and SURFMEPP no later than **the** Availability closeout meeting.

- (1) JCN, Job Summary.
 - (2) Reason for Non-Accomplishment.
 - (3) DFS number if required.
 - (4) Any further information that may help future completion or scheduling integration.
- c. The TYCOM will provide a letter documenting all technically adjudicated and deferred work. This letter will be forwarded to SEA 21 and SEA 05, via SURFMEPP, prior to either Hull, Mechanical and Electrical or Combat Systems Production Completion date, whichever is later.

3.5.5 BAWP/AWP Change Management Process (Surface Force Ships Only).

3.5.5.1 Branding. To support work prioritization and authorization decisions, BAWP work items must be branded using the branding category codes in Appendix AN. Change Requests to “A” branded items require adjudication through the BAWP Change Management process per Appendix AK. Deferral Letters and CDNS Requests are adjudicated by NAVSEA 05D via SURFMEPP. Work Item Branding Categories will be entered in the “Category of Work” block of the Automated Work Request (AWR) by SURFMEPP.

3.5.5.2 CMP Cancellation Deferral Notification System. The CDNS is imbedded in the maintenance screening and brokering system and is used to track the status of all CMP mandatory maintenance in a ship’s shore file CSMP. If a particular maintenance requirement is screened to a maintenance period that starts greater than 90 days before or after the requirement’s due date, if the requirement is screened by the ship’s PE to an “unfunded availability”, a series of e-mails are automatically sent from CDNS to key maintenance plan stakeholders. The stakeholders then communicate with the MT to provide technically sound adjudication for the situation surrounding that specific requirement. Deferrals using this system will be routed through SURFMEPP and NAVSEA 05 as appropriate. This system provides an automated, auditable process for monitoring each ship’s accomplishment of CMP requirements. MTs will use this system to request deferral or cancellation of mandatory CMP requirements as follows:

- a. CDNS will only be used to request deferral of CMP tasks within the FRP. Requests for deferrals outside the FRP shall be submitted using the Deferral Letter process.
- b. Once SURFMEPP has entered the ship’s CMP requirements into IT screening and brokering system, the MT will screen each requirement to an appropriate maintenance period or TSRA event. CMP requirements may be identified by the MT as requiring deferral or correction based on errant configuration data, substitution JCNs or an inability to accomplish the requirement by the due date.
- c. When the MT identifies such a condition, it shall contact the local SURFMEPP Detachment to review the situation.
- d. If both parties agree this item should be addressed by higher technical authority, the MT will screen the item to an “Unfunded” availability to initiate the CDNS process.
- e. The CDNS adjudication process will be followed to resolve the request.
- f. The PE will provide all approved deferrals to the TYCOM AWP Manager, who will list them on the BAWP Deferral letter.
- g. This process is authorized for use from LCPC to Definition.

3.5.5.3 BAWP Work Item Branding Categories.

- a. Branding Category A (Mandatory - Technical). An approved Deferral Letter or positive CDNS adjudication is required to defer the maintenance requirement (see Appendix AK). Only SURFMEPP or an authorized Technical Warrant Holder is authorized to brand items in this category. BAWP requirements in this branding category include maintenance actions which have high-level technical requirements and have been subdivided into branding categories as detailed in Appendix AN. Any “A” branded item whose deferral violates a technical requirement (e.g., CMP mandatory requirement) requires NAVSEA 05 adjudication via the CDNS or a Deferral Letter. Late, cancelled or deferred execution of a technical requirement may require a QA form 12 through the e-DFS system. See Volume V of this manual for guidance regarding DFS requirements.

- b. Branding Category B (Required - Non-Technical). Items in this branding category include tasks significant to TYCOM; however, non-accomplishment does not require adjudication via the technical chain of command. Work items in this branding category have been subdivided into branding categories as detailed in Appendix AN.

3.5.5.4 Branding Responsibility.

- a. SURFMEPP brands all technically-required, mandatory maintenance requirements residing in the CMP and any other tasks meeting branding Category “A” criteria. In addition, SURFMEPP will brand all Category “B” CMP issued tasks per Appendix AN.
- b. The Assessment Director is responsible for ensuring CSMP-ready repair AWRs are provided following assessment completion. In all cases, these AWRs will start the Block 35 narrative AWR with the words “Per (JCN)”, where ‘(JCN)’ is the Assessment JCN that generated the repair 2-Kilo followed by the characters “XXX” (e.g., “Per YYYYYEM01ZA56 “XXX”, where “YYYYY” is the ship’s Unit Identification Code and “XXX” signifies a break between the JCN and the beginning of the 2-Kilo’s text description). This methodology allows maintenance personnel to connect each repair job to its initiating assessment.

3.5.5.5 Change Request Types. Change Requests and Change Notifications will be identified in one of the following three ways:

- a. Reprogram. Requirements due during the current FRP Maintenance Cycle, but will be moved to a future FRP Maintenance Cycle. These requests shall be requested through the Deferral Letter Process.
- b. Cancel. Requirements neither applicable nor due during the current FRP Maintenance Cycle and therefore should not be included in the BAWP, including items for which the configuration or requirement has changed and requirements with periodicities extending to a future FRP Maintenance Cycle beyond C+120 of the current cycle.
- c. De-scope. Requirements that experienced a reduction in the original scope of work, where the portion of work not accomplished is reprogrammed.

3.5.5.6 Deferral Process for an “A” Branded Mandatory Requirement (Surface Force Ships Only).

- a. Deferral of an “A” branded mandatory task within the current FRP shall be requested from the Ship’s Design Manager and NAVSEA 05 by the Maintenance Team using the CDNS if it cannot be accomplished within 90 days of its due date.
- b. Deferral of an “A” branded mandatory task outside the current FRP shall be requested from the Ship’s Design Manager and NAVSEA 05 by the Maintenance Team using the deferral letter process if it cannot be accomplished within the current FRP.
- c. On approval of deferral of the task by NAVSEA 05 within the current maintenance cycle SURFMEPP will change the branding of the task from “A1” or “AR” to “AH”. SEA 05 will send the deferral recommendation to the TYCOM via SEA 21.
- d. On approval of the deferral and at the end of the current cycle, SURFMEPP shall change the brand from “AH” to “A6”. If the task cannot be accomplished in the second FRP, then the ship should initiate a request for a Major DFS in accordance with Volume V, Part I, Chapter 8 of this manual and request a technical review by SEA 05 and a programmatic review by SEA 21. If the review results in a recommendation to not defer, then a 2 Flag Panel review will be conducted between the TYCOM and either SEA 05 or SEA 21. The 2 Flag Panel will make the final adjudication. If disapproved by the 2 Flag Panel, then the task will be completed in the current FRP.
- e. On approval of deferral of the task to the third FRP, SURFMEPP shall change the branding from “A6” to “AD”.
- f. If the task cannot be accomplished in the third FRP and is requested for deferral to the fourth FRP, then a 3 Flag Panel review (TYCOM, SEA 05, SEA 21) is required. Flag level approval is required to defer the task to the fourth FRP. If disapproved by the 3 Flag Panel, then the task will be completed in the current FRP. The AD brand will remain until the task is executed or superseded.

3.5.6 Modernization (Surface Force Ships Only). NAVSEA and TYCOM Letters of Authorization (LOA) are issued identifying all modernizations scheduled for the CNO Availability.

3.5.6.1 Modernization List. Forecasted ship changes may be viewed through the NDE database at LCPC and continuing throughout the BAWP to AWP development process. This list will be reviewed at each BAWP Milestone Meeting. Items from this list will not be entered into the ship's CSMP until they have been reconciled with an issued Advance Planning Letter/LOA. After this reconciliation, SURFMEPP is responsible for entering the modernization work into the ship's CSMP. Category A and Category B BAWP-branded assessment tasks that may be affected by forecasted Ship Change Documents shall be planned and executed, despite discussion of removal or upgrade of equipment due to pending ship changes. Since the majority of "approved and authorized" modernization alterations are completed during the CNO availability, executing the assessments throughout the cycle as scheduled in the BAWP is required to ensure operational readiness throughout the FRP Maintenance Cycle. For example, NDE indicates CG-XX is scheduled for the electric modification SHIPALT 588K, which, among other changes, removes the waste heat boilers. The 18-month and five (5) year mandatory boiler inspections were entered in the BAWP at LCPC for completion during the SRA. The MT, in this case, cannot cancel the scheduled assessment without following the established deferral/adjudication process.

3.5.6.2 BAWP/AWP Update. The BAWP/AWP will be updated as subsequent LOAs are issued by NAVSEA and TYCOM as ship changes mature. This process will continue through the advanced planning and execution phases of the availability to capture late and newly authorized alterations.

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 (f), 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 (i) and (j).

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 (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 concurrent 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 F₁ or F₂, 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 F₁ or F₂, 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 F1 and F2, 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 (g). 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.
- f. Cost Performance Index/Schedule Performance Index (Surface Force Ships Only). In accordance with Volume VII, Chapter 7 of this manual, the RMC shall report Cost Performance Index and Schedule Performance Index.

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 (k).

3.6.3.3 Interim Completion Conferences (Surface Force Ships Only). The NSA and the Lead Maintenance Activity (LMA) shall conduct 25/50/75 percent completion conferences. These conferences will review all completed work, testing and certification. All open and remaining work shall be discussed to include: schedule, upcoming key events, milestones, planned production manning versus actual production manning, integrated test plan, certification and Departures From Specification. All open and inspect work shall be completed in the first 20 percent of the maintenance availability. Two days prior to the 25 percent review conference, the LMA shall provide the status of all open and inspect results so final adjudication on any growth or new work items may be completed.

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. "Incidental Material" cost, when measured against the cost of labor on each specific ASF work item, will not exceed ten percent of the total job cost without TYCOM permission.
- 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 maintenance requiring industrial level assistance which is not authorized until after contract award or definitization.

- 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 Ashore Ships Maintenance Manager, Project Manager or Program Manager. Ashore Ships Maintenance Manager and Program Manager recommendations regarding requirement to perform repairs, risk assessment, and schedule impact are mandatory. The TYCOM, or the formally designated TYCOM representative, shall be the final approving authority for all new work. For Surface Force Ships only, the NSA Chief Engineer will review requested new work items and determine whether or not they are technically required and/or required to achieve minimum material readiness requirements. 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.

3.6.8 Trials, Inspections and Crew Certification.

3.6.8.1 Surface Force Ship.

- 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 (m), (n) and (o), 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 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 the 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/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 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 F₁ or F₂ as applicable, of this chapter provide the desired format for this report.

3.6.8.1.1 Availability Work Certification and Completion Requirements (Surface Force Ship Only). Timely and technically correct planning and execution of availabilities demands a rigorous approach to certifying major Key Events leading to availability completion. A NSA certification plan verifies that work is completed and technically correct and must include Executing Activity qualifications, NSA approval of mandatory technical requirements, an integrated test plan and adequate NSA oversight of all availability work. These elements provide the NSA with maximum reasonable assurance that availability work is complete and technically correct. Executing Activity work completion starts with assurance that each Executing Activity has an approved and current Quality Management System. Each Executing Activity must provide certification of technically correct work completion and Objective Quality Evidence (OQE) as required in NAVSEA Standard Items or other technical requirements. NSA work oversight must include a minimum level of supervision to provide assurance that all mandatory technical requirements have been met and sufficient review of work specifications, integrated test plan, technical work

documents, audit of work items, in-process surveillance (Planning Review (PR), Procedures Evaluation, Product Verification Inspection (PVI)) and review of OQE. The NSA shall utilize a risk-based availability QMP as discussed in Volume VII, Chapter 11 and Appendix R. NSA certification includes assurance that technical review/approval has been conducted on all OQE for work items requiring mandatory technical review. NSA certification includes technical review and approval of all waivers and deviations by the NSA CHENG. This includes assurance that any exceptions to completion have been approved as to not adversely impact Key Event completion.

3.6.8.1.2 Key Event/Milestone Readiness (Surface Force Ship Only). Minimum Key Events/Milestones that require certification and prerequisite lists to assure proper completion are listed below. These Key Events constitute the critical availability completion events for the crew to transition from the maintenance phase to an operational phase. Certification of required work and testing supporting each Key Event/Milestone shall be accomplished using a detailed prerequisite list. Appendix Q will be tailored for each Key Event/Milestone and be used to certify work required for each specific Key Event/Milestone. In addition to giving the NSA reasonable assurance that work accomplished is technically correct to support the specific Key Event/Milestone, certification of Key Events/Milestone assures that certification for Fast Cruise/Sea Trial is properly completed to certify the availability. The NSA will normally designate the LMA to develop and track an Event Readiness List utilizing NAVSEA Standard Items 009-60 and 009-67. The Event Readiness List will consist of all prerequisites including work items and actions to be completed by the NSA and all executing activities that have been associated with the Key Event/Milestone. These associations shall include technical connections (technically required to support follow-on training/testing) and strategic ties (work deemed relevant by the maintenance team as required to meet the Key Event). Appendix Q will be tailored to the Key Event and utilized by the NSA for Undocking, Propulsion Plant PCD/Combat Systems PCD, Dock Trials and work completion and certification by all maintenance activities. In lieu of Naval Message, a signed letter/memorandum or centrally managed exception list may be utilized to document completion of all prerequisites for the Key Event/Milestone. If there are exceptions to completion, exceptions will be clearly identified and concurred with by Technical Authority. The Project Manager, Ship's CO, TYCOM, Port Engineer and the NSA will sign the letter/memorandum or centrally managed list for the record noting agreement with Key Event/Milestone completion, including listed exceptions. When memoranda are used as an exception list, sample letters/memorandums (Appendix AD through AJ) shall be tailored to each Key Event and used to certify that work and testing is complete.

- a. Interim Completion Conferences. Milestone to document the availability completion percentage. For these Milestones, the maintenance team shall review and document work listed as complete and verify against OQE and proof of work certification. The emphasis for the maintenance team shall be to certify all work as soon as possible after completion. For any work listed as complete, there shall be follow-on status entries to document OQE on file and completion of Work Certification. If OQE and Work Certification have not been completed, there shall be follow-on status entries to document when it is scheduled to be performed.
- b. Undocking. Key Event to document that the ship is ready in all aspects for Undocking. The NSA Chief Engineer must certify all related work and testing is completed prior to commencing the ship's Undocking, with any exceptions noted and approved by the appropriate technical authority and agreed to in writing by the Ship's CO, TYCOM and the NSA.
- c. Engineering Plant Production Completion Date. Key Event scheduled prior to Propulsion Plant Hot Operations to document that all production work effecting the minimum equipment requirements for LOA is completed and certified up through Stage 2 testing per reference (p). Stage 2 testing is accomplished prior to operation of installed or relocated equipment, cabling, piping, ventilation etc., to ensure that each installation has been accomplished in accordance with established plans and specifications. PCD includes all required reports and OQE have been submitted to, reviewed and approved by the NSA Chief Engineer. The NSA and LMA are responsible for thorough and rigorous management of this Key Event and minimizing exceptions. In the event of incomplete work, an evaluation by the Ship's CO, NSA and TYCOM must be performed to determine if the incomplete work will impede uninterrupted preparations and accomplishment of LOA. Exceptions must be approved by the NSA Chief Engineer and agreed with in writing by the Ship's CO. PCD is scheduled to provide the crew sufficient time to prepare and train for LOA, and to shift from a maintenance to an operations environment.

- d. Combat Systems Production Completion Date (AEGIS Light Off for AEGIS Ships). CSPCD and AEGIS Light Off are Key Events to validate and document the completion of all non-Ship's Force work (which includes testing and inspections) required before returning Combat Systems to Ship's Force for testing, training and operations. This includes that all required reports and OQE have been submitted to, reviewed and approved by the NSA Chief Engineer. Exceptions must be approved by the appropriate NSA technical authority and agreed with in writing by the Ship's CO. This ensures that Combat Systems equipment and associated spaces are turned over to the crew by a pre-designated date that allows them sufficient time to shift from a maintenance environment back to operations. It allows for training in preparation for required Combat Systems Readiness Assessments and Certifications.
- e. Dock Trials. Key Event conducted during an industrial activity availability prior to Fast Cruise to determine the ability of a ship's readiness for sea and capability to safely conduct Sea Trials. The NSA and LMA are responsible for conducting integrated dockside system testing, with special sea and anchor detail and general quarters manning to ensure system readiness for sea. The NSA Chief Engineer must certify all required work and testing is completed prior to commencing Dock Trials, with any exceptions noted and approved by the appropriate technical authority and agreed to in writing by the Ship's CO, Project Manager, TYCOM and the NSA. The minimum requirements for Dock Trials are listed in Appendix I.
- f. Fast Cruise. Key Event conducted after Dock Trials and prior to Sea Trials during which Ship's Force operates the ship and all equipment and systems as if underway for in port training. The primary purpose of the Fast Cruise is to ensure that Ship's Force operational proficiency is adequate prior to conducting at-sea operations. The Ship's CO is responsible for conducting Fast Cruise prior to Sea Trials where the ship assumes an "at-sea" posture to exercise all equipment and systems to the maximum extent possible. The NSA Chief Engineer must ensure that all work is completed and certified prior to commencing Fast Cruise, with any exceptions noted and approved by the appropriate technical authority and agreed to in writing by the Ship's CO, TYCOM and the NSA. The minimum requirements for Fast Cruise are listed in Appendix J. Commencement of Fast Cruise requires TYCOM permission. Appendix AA provides a sample message format for ship's request for permission to commence Fast Cruise. Appendix AB provides a sample message format for ships to report Fast Cruise completion.
- g. Sea Trials. Key Event following Fast Cruise that constitutes the final determination of a ship's material readiness and ability to rejoin the Fleet as a fully operational unit. The Ship's CO is responsible for conducting Sea Trials in accordance with an agenda developed by the NSA, concurred on by the Ship's CO and approved by the ISIC. The NSA Chief Engineer must certify that all required work and testing is completed prior to commencing Sea Trials, with any exceptions noted and approved by the appropriate technical authority and agreed to in writing by the Ship's CO, TYCOM and the NSA. The minimum requirements for Sea Trials are listed in Appendix K. Commencement of Sea Trials requires TYCOM permission. The NSA Chief Engineer must certify to the TYCOM that all work and testing is complete and readiness to start Sea Trials (with exceptions noted) via the Readiness for Sea Trials message. Appendix AC provides a sample message format for the Supervising Activity to report all work necessary for Sea Trials has been satisfactorily completed. Completion of Sea Trials requires a formal report from the Ship's CO to the TYCOM via the ISIC.
- h. Availability Completion. Key Event to document all work, testing and inspections planned for and executed during the availability are complete and that all required reports and OQE have been submitted to, reviewed and approved by the NSA Chief Engineer. Availability Completion signifies that the availability is complete and the ship has successfully determined that all maintenance and modernization work performed by the NSA is fully operational. The NSA Chief Engineer must certify all work tied to the Key Event is completed per the Availability Work Certification process or technically adjudicated in writing prior to reporting Availability Completion.

- i. End of Maintenance Phase. Milestone to document the end of the Maintenance Phase and entrance into the Basic Training Phase. The Maintenance Phase exit criteria for equipment shall include, but not be limited to: successful passing of Readiness Assessments and Certifications for non-Engineering systems (i.e. AEGIS Light-Off, Aviation Certification, TSRA, etc.), and a Light-Off Assessment for Engineering systems, and successful completion of comprehensive post-Availability Sea Trials that tests all systems. Minimum Equipment (Redlines) must be met and maintained for all Mission Areas.

3.6.8.1.3 Availability/Key Event/Milestone Certification Procedures (Surface Force Ship Only).

- a. The procedures outlined in the following sections provide the minimum requirements to (RMCs/NSA) to utilize during execution of CNO Availabilities and major Continuous Maintenance Availabilities (as directed by the Fleet or TYCOM) for Availability Certification and Key Event/Milestone Management. This process is developed to provide the RMC Commander, via the RMC Project Manager and RMC CHENG, the maximum reasonable assurance that all availability work has been properly completed and that the ship is materially ready for the next Key Event or Sea Trial. This process provides assurance that all technical waivers/deviations have been reviewed and approved, any work exceptions (incomplete work) have been approved to not impact the Key Event/Sea Trials and work was planned, executed and tested technically correct.
- b. The following process defines the steps to be taken by the NSA and all Executing Activities when certifying work to support readiness for Key Event/Milestone. When Key Events/Milestones are accomplished sequentially and in conjunction with a tailored availability QMP, (Appendix R), this process will support incremental certification of Readiness for Fast Cruise/Sea Trials and Availability Completion and avoid late gathering of data and certifications to ensure readiness for Fast Cruise/Sea Trials. Certification may be tracked via a centralized signature sheet and central exceptions list or through each Executing Activity providing memoranda documenting work certification and exceptions. When memoranda are used, the Appendix Q signature sheet and Appendix AD through AJ certification letters/memorandums shall be collected in an Availability Certification Book maintained by the Project Support Engineer on the Project Team. Normally, the Project Support Engineer works closely with the Integrated Test Engineer to manage the availability certification process for the Project Manager. The paragraphs below describe minimum requirements associated with each action leading to certification.

3.6.8.1.4 Availability Certification Requirements and Procedures (Surface Force Ship Only).

- a. Work Authorization. This step is required for Fast Cruise/Sea Trial Certification and Availability Completion Certification, but is not normally required for Key Event/Milestone Certification. TYCOM work authorization is screened and brokered by availability vice by availability Key Event. TYCOM certification of work authorization may be completed prior to Fast Cruise/Sea Trial and does not need to be repeated prior to availability completion unless new/growth work is identified during Sea Trials which is required to be added to the AWP as a condition of availability completion.
 - (1) The TYCOM's agent (Port Engineer) or Business Agent SRF-Japan Regional Maintenance Center (JRMC) will certify that all authorized CNO Availability or Continuous Maintenance Availability work identified in the AWP has been tasked to the Prime Contractor (PSIA or Firm Fixed Price), Naval Shipyard (NSY), FMA, Alteration Installation Team (AIT) or Ship's Force.
 - (2) The TYCOM's agent (Port Engineer) or Business Agent (SRF-JRMC) will certify that all work identified after work package definition (new/growth work) has been branded and authorized for accomplishment or deferred. If work branded as "A" or technically mandated as required to be deferred, it must be concurred on by the waterfront Technical Warrant Holder (NSA CHENG).
 - (3) The TYCOM's agent (Port Engineer) or Business Agent (SRF-JRMC) will certify that a review has been accomplished on all existing deviations, waivers, and records of out-of-commission equipment. This review shall include all conditions resulting in Temporary Standing Orders (TSO), DFSs and Casualty Reports (CASREP). Deviations have either been

- included in the AWP or an extension of the technical deviation has been submitted to the NSA CHENG for approval and concurred on by the TYCOM. If the condition resulting in a TSO or CASREP does not require technical concurrence for extension, the TYCOM must concur with not correcting the condition that resulted in the TSO or CASREP.
- (4) Prior to Fast Cruise/Sea Trial, the TYCOM will certify to the NSA via signature on central signature sheet or serialized letter/memorandum that the above conditions have been met. Exceptions will be noted and provided for approval by the NSA.
 - (5) The NSA/RMC certification signature will be provided by the Project Manager with the TYCOM signature or letter/memorandum and serial number noted, verifying receipt of TYCOM certification or proper work authorization accomplished.
- b. Work Documents Issued/Prime Contractor. (This step shall be completed by Key Event/Milestone for work tied to each Key Event/Milestone.)
- (1) Code 200 & 130 Review of Work Specifications and Test Procedures. The RMC/NSA Code 200 Project Support Engineer or Test Engineering (SRF-JRMC) and RMC/NSA Code 130 Quality Assurance Supervisor (QAS) will validate that Work Specifications and Test Procedures issued by the Master Ship Repair Contractor have received a technical review in accordance with RMC attributes checklist. At a minimum, work specifications will receive technical review in accordance with approved Availability QMP requirements and as outlined in Volume VII, Chapter 11, paragraph 11.2.3 of this manual.
 - (2) Code 300 Review of Work Specifications and Test Procedures. The RMC/NSA Project Manager shall validate that all work specifications and test procedures issued by the prime contractor have received a government review for compliance with contractual requirements in accordance with Volume VII, Chapter 4, Appendix E of this manual and approved in the appropriate maintenance database.
 - (3) Contractor Furnished Reports (CFR). The RMC/NSA Project Manager will verify that all required CFRs have been received as required by NAVSEA Standard Item 009-01, paragraph 3.2.
 - (4) CFRs. The RMC/NSA Project Support Engineer will verify that all CFRs requiring Code 200 action have been reviewed and answered, all deferred maintenance action and/or test result CFRs have been technically adjudicated, and all CFRs screened to Code 200 for action have been documented via Engineering Service Request (ESR).
- c. Key Event/Availability Completion/Prime Contractor. (This step shall be completed by Key Event/Milestone for work tied to each Key Event/Milestone.) The prime contractor will provide to the NSA a signed letter/memorandum (Appendix AD) or sign a centrally managed list certifying all authorized work is completed satisfactorily, with any exceptions noted. Exceptions must be itemized and technically approved by the RMC/NSA CHENG as to not impact Key Event/Milestone completion or Readiness for Sea Trials. Exceptions must include a plan for accomplishment. Testing scheduled to be conducted on Sea Trials does not need to be itemized on this letter/memorandum or centrally managed list, but can be referred to as “except testing included on Sea Trials agenda.” Signature of the centrally managed signature sheet or a letter/memorandum will be received prior to Key Event/Sea Trials. The RMC/NSA Project Manager will sign the signature sheet acknowledging receipt of letter/memorandum and noting serial number or signed list as noted above.
- d. Key Event/Availability Completion/FMA (I-Level). (This step shall be completed by Key Event/Milestone for work tied to each Key Event/Milestone.) The FMA/RMC Code 900 will provide to the NSA assigned letter/memorandum (Appendix AE) or sign a centrally managed list certifying that all Formal Work Packages/Controlled Work Packages (FWP/CWP) and test procedures planned and accomplished by the FMA are technically correct and completed. Exceptions will be noted and technically approved by the RMC/NSA CHENG as to not impact Key Event/Milestone completion or Readiness for Sea Trials. Exceptions must include a plan for accomplishment. Testing scheduled to be conducted on Sea Trials does not need to be itemized on this letter/memorandum or centrally managed

- list, but can be referred to as “except testing included on Sea Trials agenda.” The RMC/NSA Project Manager will sign the signature sheet acknowledging receipt of letter/memorandum and noting serial number or signed list as noted above.
- e. Key Event/Availability Completion/NSY. (This step shall be completed by Key Event/Milestone for work tied to each Key Event/Milestone.) The NSY Project Superintendent will provide to the NSA a signed letter/memorandum (Appendix AF) or sign a centrally managed list certifying that all TWDs and test procedures planned and accomplished by the NSY are technically correct and completed. Exceptions will be noted and technically approved by the RMC/NSA CHENG as to not impact Key Event/Milestone completion or Readiness for Sea Trials. Exceptions must include a plan for accomplishment. Testing scheduled to be conducted on Sea Trials does not need to be itemized on this letter/memorandum or centrally managed list, but can be referred to as “except testing included on Sea Trials agenda.” The RMC/NSA Project Manager will sign the signature sheet acknowledging receipt of letter/memorandum and noting serial number or signed list as noted above.
 - f. Key Event/Availability Completion/AIT. (This step shall be completed by Key Event/Milestone for work tied to each Key Event/Milestone.) Each AIT On-Site Installation Coordinator will provide to the NSA a signed letter/memorandum (Appendix AG) or sign a centrally managed list certifying that respective AIT work and test procedures are technically correct and complete, with exceptions noted. Exceptions must be itemized and technically approved by the RMC/NSA CHENG as to not impact Key Event/Milestone completion or Readiness for Sea Trials. Exceptions must include a plan for accomplishment. Testing scheduled to be conducted on Sea Trials does not need to be itemized on this letter/memorandum or centrally managed list, but can be referred to as “except testing included on Sea Trials agenda”. Signature of the centrally managed signature sheet or a letter/memorandum will be received prior to Key Event/Milestone. The Project Manager or AIT Manager (if assigned) will sign the signature sheet acknowledging receipt of letter/memorandum and noting serial number or signed list as noted above.
 - g. Key Event/Availability Completion/Ship’s Force (SF). (This step shall be completed by Key Event/Milestone for work tied to each Key Event/Milestone.) Ship’s Force CO will submit to the NSA a signed letter/memorandum (Appendix AH) or sign a centrally managed list certifying all Ship’s Force FWPs and CWPs are technically correct and complete to support Key Event/Milestone completion or readiness for Fast Cruise/Sea Trials. At a minimum, this certification shall include a review of:
 - (1) Ship’s Force Work Package derived from the CSMP.
 - (2) Inactive Equipment Maintenance is properly performed.
 - (3) TSO review.
 - (4) PMS review, including all checks to remove equipment/systems from IEM.
 - (5) Pre-underway or Pre-Event check-off list checks are complete.
 - (6) The RMC/NSA Project Manager will sign the signature sheet acknowledging receipt of Ship’s Force CO letter/memorandum and noting serial number or signed list as noted above.
 - h. Key Event/Availability Completion/RMC Engineering. (This step shall be completed by Key Event/Milestone for work tied to each Key Event/Milestone.)
 - (1) RMC/NSA CHENG to certify that all work assigned has been tasked and properly executed prior to Fast Cruise/Sea Trials and at the end of an availability where RMC is the NSA. This process also ensures that there are no outstanding technical waivers/deviations or QA deficiencies that have not been properly adjudicated and identifies any exceptions to completion, including work or testing that will occur after Sea Trials completes and assures these work items have been technically adjudicated to prevent adverse impact on availability completion.
 - (2) RMC/NSA CHENG shall certify that all assigned assessments (TSRA) or Fleet Technical Assists (FTA) tied to Key Event/Milestone or Fast Cruise/Sea Trial are completed. If TSRA assessments or FTA are ongoing, the RMC/NSA CHENG will certify that they do not impact the Key Event or Fast Cruise/Sea Trial.

- (3) All “A” branded requirements in the current FRP maintenance cycle shall be reviewed for their completion status during the work certification and close out process. If an “A” branded requirement was screened for completion and was not fully **accomplished** as delineated in the task’s Block 35/work item **by the executing activity**, its status shall be reported during the departure conference **to the RMC/Ship Repair Facility Commanding Officer or designated representative** and **in the** follow-on departure report by JCN and work item as applicable. **If the executing activity is an In-Service Engineering Activity (ISEA), the Project Manager or his/her designated representative shall make this report.**
- i. Testing. (This step shall be completed by Key Event/Milestone, utilizing the approved Test and Inspection Plan required under NAVSEA Standard Item 009-67 for the Integrated Test Plan.
- (1) The LMA Test Engineer shall certify that all Hull, Mechanical and Electrical and C51 test procedures identified in NAVSEA Standard Item 009-67 Integrated Test Plan were completed with OQE documentation or added to the exceptions list and that all tests required to be completed at sea have been identified for inclusion on the Sea Trial agenda. The LMA Test Engineer will provide to the NSA this certification via signature of a centrally managed signature sheet or letter/memorandum. The RMC/NSA Integrated Test Engineer (or Project Support Engineer) will verify compliance and sign the signature sheet, noting the LMA Test Coordinator memorandum/serial number or signed list as noted above.
 - (2) The LMA WAF/Coordinator and Ship’s CO will verify that all WAFs and Tag Outs required for Key Event/Milestone have been closed and cleared in accordance with NAVSEA Standard Item 009-106. Signature of a centrally managed signature sheet or a supporting memorandum documenting WAF and Tag Out clearance will be provided to the RMC/NSA Integrated Test Lead. The RMC/NSA Integrated Test Coordinator will verify and sign the signature sheet acknowledging WAF/Tag Out completion to support Key Event of Sea Trials.
- j. Waivers and Deviations. (This step shall be completed for work tied to each Key Event/Milestone.) The RMC/NSA CHENG will certify that all technical non-conformances have been satisfactorily resolved in order to support Key Event/Milestone to include availability completion. This includes certifying that all:
- (1) DFSs have been properly adjudicated and DFSs expiring during the availability have been corrected or extended.
 - (2) AIT/PMR Liaison Action Request (LAR)/Reverse Liaison Action Requests (RLAR) have been incorporated and all RMC Design Service Requests/LARs/RLARs have been answered and incorporated.
- k. Quality Assurance. (This step shall be completed by Key Event/Milestone for work tied to each Key Event/Milestone.)
- (1) The RMC/NSA Code 130 QA Manager will submit to the Project Manager a signed letter/memorandum (Appendix AI) or sign a centrally managed list certifying that all QA Office actions regarding resolution of QA Audits and Surveillances necessary to support Key Events/Milestones are completed.
 - (2) All Contractor Corrective Action Requests (CAR – Method B-D) issued during the availability are either closed or at an acceptable level of completion to support work certification. Include a letter/memorandum (Appendix AI) describing outstanding items, remaining actions, and Estimated Completion Dates, if applicable.
- l. Final Key Event/Readiness for Sea Trials Completion Certificate. (Sub-paragraphs (1), (2), and (3) below shall be completed for work tied to each Key Event/Milestone and before Fast Cruise/Sea Trial. Sub-paragraph (4) below is only required prior to Fast Cruise/Sea Trial.)

- (1) The NSA Project Manager shall verify that availability work required to commence Key Event/Readiness for Sea Trials is complete. NSA oversight (PR, Procedures Evaluation, PVI) and G points have been completed in accordance with the Availability QMP (Appendix R). Non-conformances identified have been corrected or provided to NSA Technical Authority for adjudication. Any exceptions to completion have been reviewed and do not impact Key Event/Sea Trials completion.
- (2) The NSA CHENG will verify that availability work required to support Sea Trials has been completed in a technically correct manner and that all exceptions listed have been reviewed and authorized. NSA technical review of work items has been conducted in accordance with the Availability QMP (Appendix R).
- (3) The RMC/NSA Project Manager and RMC/NSA CHENG will sign a letter/memorandum (Appendix AJ) or centrally managed list for the record acknowledging completion of all actions required for Key Event/Milestone. Any exceptions will be listed and concurred with by the RMC, TYCOM and Ship's CO.

NOTE: THIS STEP (SUB-PARAGRAPH (4)) REQUIRED PRIOR TO FAST CRUISE/SEA TRIAL ONLY.

- (4) When the signature sheet (Appendix Q) is complete and any exceptions have been concurred on by Technical Authority, the NSA will release a message utilizing the format provided in Appendix AC. Sea Trials will commence after Ship's satisfactory report of Fast Cruise is completed by Ship's CO to the TYCOM per Appendix AB, mandatory 48 hour rest period, and NSA report of readiness for Sea Trials to the TYCOM. TYCOM authorization of Sea Trials commencement will reference Ship's Fast Cruise completion message and NSA Readiness for Sea Trials message.
- m. Final Availability Certification. Upon completion of Sea Trials, a final certification will be accomplished utilizing test results from Sea Trials. If Sea Trials testing resulted in new/growth work that does not support completion of the availability (after consultation with TYCOM), this new/growth work and re-testing must be completed prior to final availability certification. If all availability testing completed satisfactorily, or identified new/growth work does not impact availability completion, the NSA will certify availability completion.
- (1) RMC/NSA Project Manager. Verify all testing required for availability completion has been completed on Sea Trials. Exceptions to completion (including any new/growth identified on Sea Trials) have been adjudicated via Technical Authority and agreed by TYCOM as to not impact availability completion. These exceptions will be tracked to completion by the Project Manager via the Availability Closeout process.
 - (2) RMC/NSA CHENG. Verify that all testing required for availability completion has been completed on Sea Trials. Any exceptions to completion (including new/growth work identified on Sea Trials) have been reviewed and do not impact availability completion.
 - (3) Availability Completion. The NSA will utilize Appendix Q to track signatures required to document Sea Trial testing completion and adjudication of any availability completion exception items. After gaining concurrence from TYCOM and the Ship's CO, the NSA will report availability completion to TYCOM utilizing Appendix F2 via CNRMC.
- n. End of Maintenance Phase. This documents the end of the Maintenance Phase and entrance into the Basic Training Phase for the ship.
- (1) RMC/NSA Project Manager. Coordinate with Ship's Force to verify those systems and equipment not worked during the maintenance availability and operationally tested to ensure the ship is ready to transition from the maintenance phase to the training phase. Adjudicate all found deficiencies.
 - (2) Ship's Force. Operate all equipment and systems not worked during the maintenance availability. Identify and document any deficiencies. Coordinate with the RMC/NSA Project Manager to adjudicate all deficiencies that were found.

3.6.8.2 Aircraft Carriers.

- 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 are 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 (n), (o), (q) and (r), 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 (s).
- 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 (r).
 - (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 (t). (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 F₁ of this chapter provides the desired format for this report.

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

- a. Duties and Responsibilities for Sea Trials and Inspections. Reference (u) 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 (h). 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 performed by TYCOM managed activities, 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 by TYCOM managed activities, 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 (u). 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 (v), 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 (w), 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 (x), 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 (y) through (ad). The material certification consisting of an ISIC audit of all Ship's Force **controlled** 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/equipment 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 (w), (y) through (ad) 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 load out of Lithium Hydroxide canisters for Disabled Submarine (DISSUB) (granular or ExtendAir®, no mix), Lithium Hydroxide curtains (or ExtendAir® Deployment kits, if equipped), 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 (or three ExtendAir®, if equipped), four Lithium Hydroxide curtains (or one ExtendAir® Deployment kit for every multiple of 60 ExtendAir® canisters in the compartment, if equipped), one EAB mask, one SEIE suit and two Oxygen candles shall be carried for each rider exceeding normal crew manning. Stowage of this additional equipment for DISSUB shall be in the same escape compartment as the rider's designated General Emergency muster site assigned by the Commanding Officer. 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 (ae), 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 (ae), 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.

NOTE: ASSIGNMENT OF AN SRDRS AND/OR PLACING AN SRDRS IN MOD ALERT IS NOT REQUIRED WHEN THE SCOPE OF WORK IN THE AVAILABILITY DOES NOT REQUIRE AN ESCORT, IN ACCORDANCE WITH REFERENCE (ae), AND THE ONLY REASON FOR ASSIGNMENT OF AN ESCORT IS PERFORMING AN EMBT BLOW FROM DEPTHS GREATER THAN 400 FEET AS A REQUIREMENT OF THE SEA TRIAL AGENDA.

- (1) A SRDRS 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) 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 Squadron (COMSUBRON) ELEVEN. Sample messages in Appendices BN and CQ of this chapter.
- (3) The ship conducting Sea Trials will notify COMSUBRON ELEVEN 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 COMSUBRON ELEVEN any additional SRDRS requirements to support the interrupted trials. Sample message in Appendices BN and CQ of this chapter.
- f. Submarine surface transits from industrial port in advance of completion of CNO availabilities (prior to certification for unrestricted operations) to a different or homeport can be executed without a sea trial, without an escort and without an SRDRS after obtaining NAVSEA concurrence and authorization from the TYCOM. The submarine shall not be authorized to dive and no testing is permitted during the transit. Operational need for transit and mitigating actions, if applicable, shall be determined by the TYCOM.

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 (x), 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 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 (r), (w), (af) and (ag) 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 (ah) and (u) 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 (h). 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 (x). 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 (ai) 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 (u).

- (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 (x), 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) For FBW-SCS equipped ships, in order to maintain certification of the FBW-SCS and SFCC Boundaries, the Supervising Authority shall:
 - (a) Execute the Lifecycle Certification requirements of reference (aj), Section 5.4.
 - (b) Identify the pertinent information for inclusion in ship certification correspondence.
 - (c) Ensure that any required submarine FBW-SCS testing evolutions are included in the at-sea test/Sea Trial Agenda submitted to the ISIC for approval.
- (6) 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.
- (7) Schedule the ship salvage inspection to ensure sufficient time for the TYCOM to conduct the inspection and for correction of deficiencies.
- (8) 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 (x), 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 (x), 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 (x), 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.
- (9) Report by message (reference (x), 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.
- (10) Coordinate the schedule for Fast Cruise and post repair trials with the TYCOM/ISIC representative.
- (11) 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 NAVSEA and/or 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 NAVSEA 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 (x), 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 (y) through (ad). 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 by TYCOM managed activities, 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) Witness and certify to the TYCOM that the state of crew training is satisfactory for at-sea operations in accordance with references (y) through (ad). 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 COMSUBRON ELEVEN.
- (13) Provide updated sea trials status by telephone to COMSUBRON ELEVEN if SRDRS "modified 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 (u). 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 by TYCOM managed activities, 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 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.

e. Ship CO.

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

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 (ak), 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 (al) and Planned Maintenance Management Program in accordance with reference (am), 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 (y) through (ad).
 - (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 (x), 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 (x), 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 (u).
- 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 (x), 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 (x), 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, SOC, FBW, 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, SOC and FBW 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 shall conduct a Pre-Critical Inspection within six weeks of intended criticality. The Pre-Critical Inspection shall be scheduled such that the qualification program and material condition of the ship are sufficiently complete to allow for a thorough inspection, but early enough to allow time for the correction of identified deficiencies 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) 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 (y) through (ad). 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 (y) through (ad).

- (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 equipment is in fact ready to support Sea Trials. It is expected that individual equipment 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 equipment 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 load out of Lithium Hydroxide canisters for DISSUB (granular or ExtendAir®, no mix), Lithium Hydroxide curtains (or ExtendAir® Deployment kits, if equipped), EAB masks, SEIE suits and oxygen candles is not sufficient to support this increase in personnel. Therefore, an additional four Lithium Hydroxide canisters (or three ExtendAir®, if equipped), four Lithium Hydroxide curtains (or one ExtendAir® Deployment kit for every multiple of 60 ExtendAir® canisters in the compartment, if equipped), one EAB mask, one SEIE suit and two oxygen candles shall be carried for each rider exceeding normal crew manning. Stowage of this additional equipment for DISSUB shall be in the same escape compartment as the rider's designated General Emergency muster site assigned by the Commanding Officer. 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 the 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 COMSUBRON ELEVEN 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 COMSUBRON ELEVEN. 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 (x), 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 (x).
- 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 (x), 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.
- g. Submarine surface transits from industrial port in advance of completion of CNO availabilities (prior to certification for unrestricted operations) to a different or homeport can be executed without a sea trial, without an escort and without an SRDRS after obtaining NAVSEA concurrence and authorization from the TYCOM. The submarine shall not be authorized to dive and no testing is permitted during the transit. Operational need for transit and mitigating actions, if applicable, shall be determined by the TYCOM.

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 (x), 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 (x) 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 Force Ships/Aircraft Carriers) In order to standardize reporting practices, the official end of a CNO Availability will be upon Certification of work in accordance with "Availability Work Certification" dictated in this chapter and completion of the TYCOM approved Sea Trials Agenda. Ships shall report Sea Trial Agenda Completion in the form of Appendix F1 or Appendix F2 of this chapter. Availability Certification Completion can occur with agreed to exceptions as discussed in Volume VII, Chapters 7 and 8 of this manual. The TYCOM, Contractor, FMA and NSA should consider Work Certification Requirements and the definition of "Availability Completion" when adjudicating New or Growth work in any availability. If scope, time and cost are impacted by New or Growth work, the impact should be addressed and documented in writing (by the RMC Project Manager) to the TYCOM/ISIC.
- 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. Further policy on availability completion can be found in Volume VII, Chapter 7, paragraph 7.12 and Chapter 8, paragraph 8.5 of this manual. 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)/SURFMEPP (Surface Ships) will issue the Completed Work Package.

3.9.2 End-of-Cycle Analysis (Surface Force Ships Only). Provide inputs to support the SURFMEPP End-of-Cycle Analysis. These inputs will include DFSs approved during the availability and work that was accomplished, but not in the approved AWP.

3.9.3 Post-Availability Analysis (Surface Force Ships Only). TYCOM will participate in the post-availability analysis process and attend CNO Availability completion Maintenance and Modernization Performance Reviews in accordance with Volume VI, Chapter 44 of this manual.

3.10 BASELINE AVAILABILITY WORK PACKAGE CLOSE-OUT (Surface Force Ships Only).

3.10.1 Fleet Readiness Plan Maintenance Cycle BAWP Close-Out. The following procedures will be utilized to close-out and complete the FRP Maintenance Cycle and associated BAWP.

3.10.2 BAWP Close-Out Verification and Assessment Meeting. No later than 45 days after CNO Availability completion, SURFMEPP will conduct a BAWP Close-Out Verification and Assessment Meeting. This meeting will determine the status of all "A" branded BAWP items. A list of all BAWP work items that were not accomplished and the reason(s) for non-accomplishment will be compiled for inclusion in the BAWP Close-Out Report.

3.10.2.1 Attendees. The BAWP Close-Out Verification and Assessment Meeting will be chaired by a SURFMEPP representative. The following personnel are encouraged to attend this meeting:

- a. Ship's CO (or designated representative).
- b. Engineer Officer and Availability Coordinator.
- c. Project Engineer and Combat Systems Project Engineer.
- d. Project Manager and/or Class Team Lead.
- e. PSIA/LMA/Planning Activity Representative.
- f. TYCOM Representative.
- g. ISIC Representative.
- h. Planning Yard Representative.
- i. Program Manager's Representative.

- j. Navy Regional Maintenance Center Representative.
- k. NRMCA Assessment Director.
- l. NAVSEA 05D Representative.

3.10.2.2 BAWP Close-Out Letter. This letter is a deliverable due at the BAWP Close-Out Verification Meeting in accordance with Part II, Chapter 2, Appendix D of this volume. This meeting is used to ascertain the final disposition of each BAWP mandatory requirement ("A" branded JCN in the FRP maintenance cycle) and a BAWP Close-Out Report to summarize all changes for SURFMEPP, Technical Warrant Holders, Ship Design Managers, engineering authorities and other stakeholders as applicable. Maintenance requirement status will be reviewed at the meeting for deferred, accomplished or non-accomplished-no deferral authorized status. At the conclusion of the meeting, all non-accomplished-not authorized for deferral JCNs will require adjudication via the deferral letter process. The NSA/RMC and TYCOM will coordinate this effort as described in paragraph 3.5.4.5 of this chapter, which discusses the technical deferral and adjudication process for post-AWP definitization.

(This Page Intentionally Left Blank)

- (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 (ai) 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. Cycling of rudder and planes through full throw **shall** be limited to 90% of test depth. **For SSN 21 Class follow the specific Sea Trial Agenda.**
- (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 (ai).

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 (ai) (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 (ai). 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 (u); 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.

- (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 (ai). OBSERVE RESTRICTION ON OPERATION OF SYSTEMS LISTED IN PARAGRAPH 4.d. OF REFERENCE (ai).

- (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.
 - (k) Where installed, demonstrate ability of sanitary pump to discharge overboard.
- (17) Conduct an EMBT blow from 200 feet keel depth. Check bank pressure before and after surfacing. **Additionally, for SSN 23 only, perform a MBT 6 normal blow from the BCP until MBT 6A and 6B are blown to residual water levels.** 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. (See Note 19.)
 - (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 (u). Accurately fix the ship's position within the specified dive area, in accordance with reference (u). 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 (ai) (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 (ai), 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 (ai).

NOTE: REQUIRED SYSTEMS ARE LISTED IN PARAGRAPH 4.b. OF REFERENCE (ai). OBSERVE RESTRICTION ON OPERATION OF SYSTEMS LISTED IN PARAGRAPH 4.d. OF REFERENCE (ai).

- (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.
- (k) Where installed, demonstrate ability of sanitary pump to discharge overboard.

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 shall be limited to 90% of test depth. For SSN 21 Class follow the specific Sea Trial Agenda.
12. Check operation of electrodes, head valve and each snorkel safety circuit.
13. The following table summarizes SPM/SPU limitations:

TABLE 1. SPM/SPU Limitation Table (all classes)

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

* Do not violate the SOE of the ship.

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 (u), 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.
19. Perform resistance measurement checks on communication antennas in accordance with Volume IV, Chapter 22, paragraph 22.4 of this manual.
20. Electrical or fault localization testing of sonar sensors located above the waterline should be tested while the sonar sensor is submerged following the deep dive.

(This Page Intentionally Left Blank)

APPENDIX AL
BAWP CHANGE DEFERRAL REQUEST (SAMPLE)

4700
 XX/XXXX
 DD MMM YY

From: Commander, U.S. Atlantic/Pacific Fleet

To: Commanding Officer, Surface Maintenance Engineering Planning Program

Subj: USS SHIP (HULL NUMBER) FYXX-FYXX FLEET READINESS
 PLAN MAINTENANCE CYCLE BASELINE/AVAILABILITY WORK
 PACKAGE CHANGE DEFERRAL REQUEST/NOTIFICATION

Ref: (a) COMUSFLTFORCOMINST 4790.3 (SERIES), Joint Fleet Maintenance Manual (JFMM)
 (b) USS SHIP (HULL NUMBER) FYXX-FYXX Baseline Availability Work Package (BAWP)

Encl: (1) USS SHIP (HULL NUMBER) FYXX-FYXX BAWP Change Request Sheet
 (2) List of Previously Deferred CMP Requirements

1. USS SHIP (HULL NUMBER) FYXX XXX/SRA is scheduled to commence DD MMM YYYY. This letter confirms completion of **“Submit Deferral Letter”** in reference (a).

2. Enclosure (1) lists BAWP maintenance requirements recommended for non-accomplishment which require technical adjudication. Request adjudication of branding category “A” items identified in enclosure (1).

3. Operational Risk Summary: USS SHIP (HULL NUMBER) is/is not at risk of attaining a clear path to light-off at LOA. Additionally, the ship will/will not be materially ready to begin Unit-Level Training in one or more mission areas.

4. In accordance with reference (a), the list below contains the remaining planning milestones and dates (tasks are based on the “CNO PSIA Entitled Process”):

TASK	DATE
PSIA CONTRACTOR COMPLETE PLANNING & ESTIMATING OF WORK ASSIGNED BY A-240	DDMMMYY
80% D-LEVEL WORK PACKAGE LOCKED BASED ON \$	DDMMMYY
PSIA CONTRACTOR COMPLETE PLANNING & ESTIMATING OF WORK ASSIGNED BY A-120 DATE	DDMMMYY
100% D-LEVEL WORK PACKAGE LOCKED BASED ON \$	DDMMMYY
100% D-LEVEL WORK PACKAGE PLANNED/ ESTIMATED	DDMMMYY

5. A list of CMP and repair items already approved for deferral is included in enclosure (2).

6. Point of Contact: NAME, COMMAND, PHONE NUMBER.

X.X.XXXXXXXXXX
 RANK, USN

Copy to:

NAVSEA 05D

COMNAVSURFLANT/COMNAVSURFPAC (N43)

RMC

USS SHIP (HULL NUMBER)

USS SHIP NAME (HULL NUMBER)			
List of Previously Deferred CMP Items			
JCN	Task Description	Date Authorized	Method Authorized
EX01 ZA00	G1N6 Assessment of Store Room	15 Nov 2009	CMP Electronic Notification System
EM01 ZA55	G1E8 Assessment of GTM 2A	10 Dec 2009	SDM/SURFMEPP E-Mail

APPENDIX AM
AVAILABILITY PLANNING CONFERENCE AGENDA SAMPLE
(SURFACE FORCE SHIPS ONLY)

1. Introduction of Attendees. (Chair)
 - a. TYCOM Type Desk. (TDO/Availability Work Package Manager (AWPM)/PE) (Chair)
 - b. Ship's Force.
 - c. Maintenance Team.
 - d. SURFMEPP.
 - e. TSRA.
 - f. Program Office Management Representative.
 - g. Planning Yard Representative.
 - h. Space and Naval Warfare Systems Command (SPAWAR) Representative.
 - i. Government Planners.
 - j. PSIA Contractor Representatives.
2. Meeting Overview - Agenda Topics. (Chair)
3. Availability Overview. (Chair)
 - a. Type.
 - b. Location.
 - c. Start Date/End Date/Duration.
 - d. Notional Mandays/Dollars/AP Dollars.
 - e. Expected Control Mandays/Dollars/AP Dollars.
4. Availability Budget. (TYCOM Type Desk)
 - a. Expected Control Breakdown.
 - (1) Fees.
 - (2) Reservations.
 - (3) Farm-Out.
 - b. Cost of work screened to date.
 - c. Budget Assessment.
5. Review ship's schedule. (Chair)
 - a. Home port.
 - b. Deployments and Underway periods.
 - c. Scheduled Availabilities. (CMAV and TSRA)
 - d. Inspections and Assessment Visits.
 - e. Alteration Installation Teams.
 - f. Special evolutions that affect ship access.
6. Review remaining advance planning milestones highlighting key dates and deadlines. (TYCOM (AWPM/PE))

7. Brief BAWP contents including status of all mandatory repair and assessment tasks due during the cycle, showing those completed, scheduled and overdue. (SURFMEPP)
8. SURFMEPP Turnover BAWP to TYCOM. (SURFMEPP)
9. Brief CSMP showing the screening of all off-ship jobs. Highlight potential technical issues, including Departures from Specifications (DFS) and other jobs that may later be deemed mandatory. Discuss any other concerns. (TYCOM (PE))
10. Brief status of all mandatory repair and assessment tasks due during the cycle, showing remaining tasks scheduled and overdue and discuss concerns. (SURFMEPP)
11. Brief status of all mandatory CMP task Change Deferral Requests, showing those approved, approval pending and disapproved. (SURFMEPP)
12. Assess impact of disapproved CMP task Change Deferral Requests. (TYCOM (PE))
13. Brief schedule of remaining TSRA availabilities and mitigation strategy to accomplish those mandatory CMP assessments that were not executed as scheduled. (TSRA)
14. Assess impact of remaining inspections and assessments. (TYCOM (PE))
15. Brief Program/Fleet Alteration changes since last briefed. (TYCOM (AWPM) (SEA21 briefs Program Alterations changes, if present, else AWPM briefs both))
16. Assess impact of modernization changes on other work. (TYCOM (AWPM)/TYCOM (PE)/Planner)
17. Assess impact of AWP on habitability. (TYCOM (PE))
18. Review and assess Ship's Force planned work that may impact other work. (TYCOM (PE))
19. Review and assess Ship's Force deferred work that may need to be included in the AWP. (TYCOM (PE))
20. New Issues.
21. Ship Commanding Officer Concerns.
22. Action Required after the Meeting:
 - a. TYCOM (AWPM) distributes meeting minutes with action items.
 - b. TYCOM Type Desk briefs chain of command of the Commanding Officer Concerns.
 - c. SURFMEPP negotiates the uploading of all new CMP tasks identified after this point with the TYCOM. (AWPM/PE)

APPENDIX AN
BAWP WORK ITEM BRANDING CATEGORIES
(SURFACE FORCE SHIPS ONLY)

Mandatory (Technical): Requires an approved Change Request prior to non-accomplishment. Only SURFMEPP is authorized to brand items in this category. BAWP work items in this branding category include maintenance actions, which have high-level technical requirements and/or are NAVSEA-mandated. Resolution is managed by the applicable Technical Warrant Holder.		
Type Sequence Number	Brand Code	
811	A1	Mandatory maintenance by direction of higher authority.
816	A6	Reprogrammed BAWP items from previous maintenance cycles.
831	AD	Mandatory items deferred at least two FRP cycles.
833	AH	Mandatory maintenance approved for deferral in the current maintenance cycle.
832	AR	Repair task that must be accomplished within the current FRP Maintenance Cycle.
	AS	Mandatory Safety-Related Modernization.
Required (Non-Technical): Requires TYCOM approval and subsequent notification to SURFMEPP prior to non-accomplishment.		
	B2	MTA/MILR and legacy as failed alterations.
843	B3	All other modernization not included as categories B1 or B2. (Note: "B1" N/A to Surface Ships)
846	B6	Availability Services. (Temp/Routine)
847	B7	Repair work related to an active CASREP or DFS.
849	B9	Non-Mandatory Technical Requirement/Non-Service/Routine CMP task.

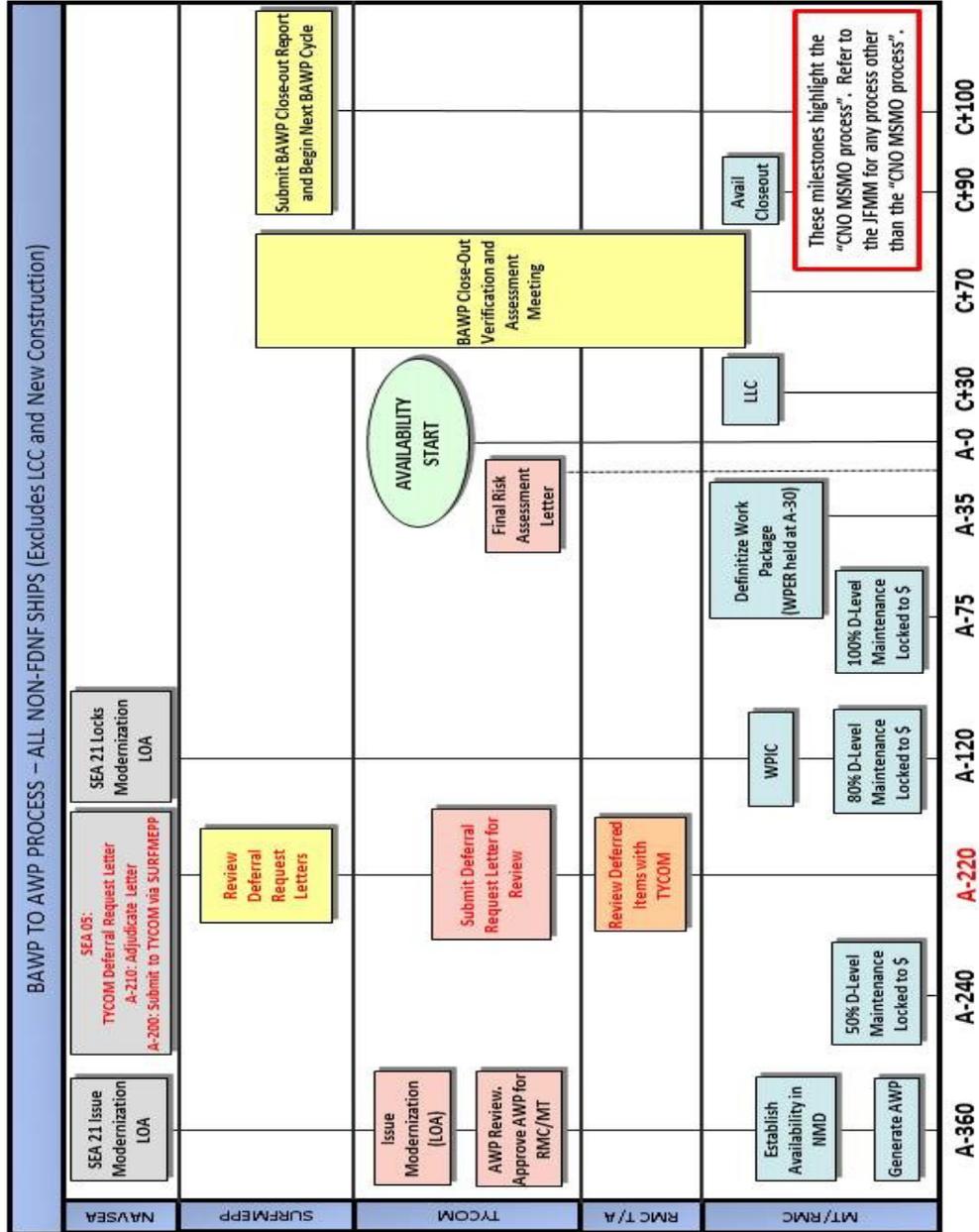
(This Page Intentionally Left Blank)

APPENDIX AO
BAWP TO AWP PROCESS
(SURFACE FORCE SHIPS ONLY)

NOTE: SURFMEPP WILL HOST FOUR (4) SCHEDULED MEETINGS OVER THE COURSE OF THE SHIP'S FRP MAINTENANCE CYCLE: THE CORROSION PLANNING CONFERENCE (C+115), THE LCPC (C+140), THE MID-CYCLE REVIEW AND THE BAWP CLOSE-OUT VERIFICATION AND ASSESSMENT MEETING (C+70). DUE TO A COMPRESSED FRP MAINTENANCE CYCLE, TWO MAINTENANCE CYCLES ARE PLANNED CONCURRENTLY. THE FOLLOW-ON CYCLE'S LCPC OCCURS AFTER TYCOM'S CURRENT CYCLE DEFERRAL LETTER SUBMISSION AND PRIOR TO THE START OF THE CURRENT CYCLE'S CNO AVAILABILITY. WHEN POSSIBLE, SURFMEPP CONFERENCES WILL BE HELD IN CONJUNCTION WITH OTHER MT SCHEDULED MEETINGS, SUCH AS MONTHLY AVAILABILITY ADVANCED PLANNING MEETINGS AND PLANNING BOARD FOR MAINTENANCE (PB4M).

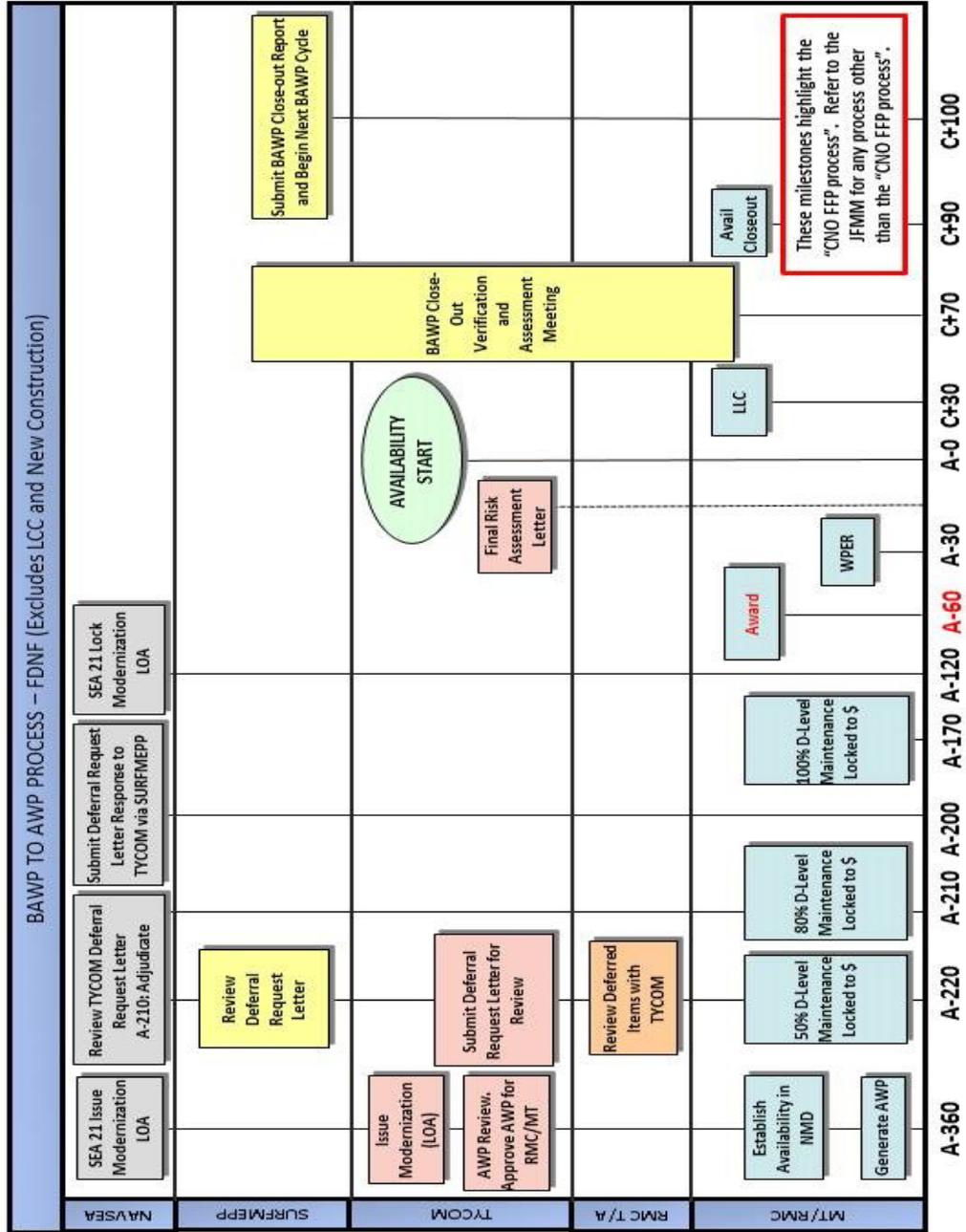
1. The Life Cycle Planning Conference will be controlled in accordance with paragraph 3.4.1a.(4) of this chapter.
2. **C+100.** SURFMEPP will **issue LCPC Announcement Letter** to establish the date, location and agenda for the LCPC.
3. **C+130.** SURFMEPP will send a list of the FRP Maintenance Cycle CMP requirements and a list of recommended availability services to the ship's PE for review and correction. This list is a preview of initial BAWP and will be discussed in detail at the LCPC. Upon request SURFMEPP will provide a list of CMP-required assessments to TYCOM, NRMC and RMC in support of the TSRA process.
4. **C+140.** The LCPC agenda will include a review of the planning schedule, required CMP assessments, Navy Data Environment (NDE) modernization forecasts, CNO Availability services/routines as applicable, organizational responsibilities, and DFSs.
5. **C+150.**
 - a. SURFMEPP will upload a data file (MM0001 file) with all mandatory maintenance actions and expected CNO Availability services into the ship's CSMP in support of ship-specific MT screening and brokering requirements. The data file will span approximately six (6) calendar quarters.
 - b. SURFMEPP will issue formal correspondence detailing the planning schedule and outstanding action items from the LCPC.
6. All other requirements listed in the body of this manual are germane (refer to Volume II, Part I, Chapter 3).

APPENDIX AO
BAWP TO AWP PROCESS - ALL NON-FDNF SHIPS
(SURFACE FORCE SHIPS ONLY)



APPENDIX AO

BAWP TO AWP PROCESS - FDNF
(SURFACE FORCE SHIPS ONLY)



(This Page Intentionally Left Blank)

- 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 submission cut-off date should not exceed the milestones listed in Appendix H1 and H2 of this chapter for submarines or Part II, Chapter 2, Appendix D of this volume for Surface Force Ships. A minimum of 30 days will be allotted for known work to be brokered to I-Level activities. This will allow a WPER to take place in accordance with the platform specific milestones. 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 late work after the submission cut-off date identified in Appendix H1 and H2 of this chapter for Submarines and Part II, Chapter 2, Appendix D of this volume for Surface Force Ships. The Business Case Analysis is described in Appendix D of this chapter. Late work identified after the submission cut-off date 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 Force Ship and Aircraft Carrier 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, **Scope of Certification (SOC) boundary and Fly-By-Wire (FBW) 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 (d). 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, when the tended ship is available in order to support process milestones, 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 Logistics 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).

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. These CASREPs are identified as emergent maintenance and ordinarily funded from emergent funds. The RMC Commander may, with the respective TYCOM's approval, convert Emergent Maintenance funds to execute CNO availability or CM in this regard. Emergent work will be scheduled to minimize premiums in as much as the operational schedule will permit. Generally, C2 CASREPs will be corrected using the CM Process where work is scheduled in the unscheduled Continuous Maintenance availability, a Window of Opportunity or a CMAV, which supports the ship schedule, need and policy objectives minimizing premiums paid and operational schedule impacts.

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 (f), 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 (g), 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 (h). 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, **SOC and FBW certification of work** not **performed** 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/**Controlled Work Package** Records is necessary for SUBSAFE, **SOC and FBW** 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) 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 (s):
 - (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 (s) 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 (s). OBSERVE RESTRICTIONS ON OPERATION OF SYSTEMS LISTED IN PARAGRAPH 4d OF REFERENCE (s).**
- (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.
 - (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.
- (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 (g). 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 (s) 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 (s) 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. Cycling of rudder and planes through full throw shall be limited to 90 % of test depth. **For SSN 21 Class follow the specific Sea Trial Agenda.**

- (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 and E:
 - (1) TYCOM/PEO SHIPS issues the Letters of Authorization for all modernization.
 - (2) The work package that began definition at the Integrated Planning Conference is further refined with a 50% lock on repair items. 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) 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) If one of the participants elects to remove maintenance, repair or modernization work from the availability work package after 80% lock, 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 80% lock, the activity requesting the SC will incur all additional prorate costs generated as a result of the additional work.
 - (6) A 100% lock is placed on all repair items. Funding is requested from the participating activities. The Naval Supervisory Authority (NSA) must receive funding to support definitization.
 - (7) 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.

2.4.6.2 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		
	<u>East coast</u>	<u>West coast</u>	<u>Navy-Wide Average</u>
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. The milestones now require that only 50% of the work, measured by 50% of the budgeted funds for repair work during the availability being committed, be “locked” at the 50% lock in accordance with the appropriate milestones in Appendix D of this chapter for Surface Force Ships and Appendix E of this chapter for Aircraft Carriers. It is expected that this work will be repair and major industrial work that is generally known well before the 50% lock. 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. Operational commitments, port loading or other reasons may require modification to availability schedules and milestones may need to be adjusted accordingly.

- a. (Surface Force Ships Only) Availabilities that are in the A-720 to A-360 window when rescheduled should not impact the Maintenance and Project Teams ability to meet milestones that begin inside of the A-360 date.
- b. Availabilities that are within the A-360 window may miss milestones due to the compressed timeline, however, every effort should be made to accommodate those milestones lost to compression. There should be no attempt to compress milestones of an availability that is already inside of the A-90 date. The TYCOM, NSA, affected Program Office and LMA will agree on the compressed milestone timeline and enter a Memorandum of Agreement (MOA) for the record dictating the agreement. Items to consider are as follows:
 - (1) The Contracting officer should be notified immediately.
 - (2) Each compression timeline will be different; therefore, adjustment of those milestones lost should be addressed and adjudicated by TYCOM, NSA, affected Program Office and LMA.
 - (3) Where availability compression causes a loss of either the 50% or 80% lock milestone, the 100% lock date should be adjusted in order to accommodate an excess of scope, plan and estimate requirements which should aide in completion of Final Technical Analysis Report (TAR) and definitization on their regularly scheduled dates.
 - (4) TYCOM, NSA, LMA sign MOA identifying the adjusted milestones.
 - (5) Where applicable, the appropriate package lock date should be met as soon as practical (if lost in the compression) following the change of availability dates. The Class Maintenance Plan (CMP) BAWP should be used to accommodate this event. Repair items on the Current Ship’s Maintenance Project (CSMP) will also be locked based on the highest readiness return on investment (Use Maintenance Figure of Merit screening values where appropriate). An example of this is: The availability is compressed and the 50% or 80% lock milestones were lost in the compression, they should in turn be met as soon as practical.
 - (6) All work items should be scoped, estimated and TAR submitted where those process milestones are lost in the compression.
 - (7) In all cases, the Final TAR and definitization milestones shall be met.
 - (8) In all cases, an Integrated Project Team Development (IPTD) Integrated Planning Conference (IPC) and Work Package Execution Review (WPER) shall be convened to discuss the integration and execution plans regarding the adjusted work package and accommodate Project Team communications regarding changes.

2.5.1 Committed Work at 80% Lock. The milestones require that 80% of the depot level work package be committed at 80%, 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 the 80% lock date.

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CNO COST (<\$5M)	CNO COST (>\$5M <\$20M)	CNO COST (>\$20M <\$100M)	CNO COST (>\$100M)	CNO FFP (JAPAN)	COMMENTS/ REMEDIAL ACTION	DESCRIPTION
19	Provide incremental funds for ordering LLTM for both repair and alt/mod work to meet required dates	SYSCOM/SPM/TYCOM	A-270	A-270	A-270	A-270	A-270 (A-315)	Overseas location of SRF-JRMC results in longer procurement and shipping times.	Incremental funding: Provide incremental funds for ordering LLTM for both repair and alt/mod work to meet required dates. This is an iterative process as LLTM is identified and funding is requested and authorized based on the lead time. It is incumbent on the Execution Planning Activity/MT to identify LLTM as soon as possible. LLTM is defined as any material with a delivery date in excess of 30 days.
20	50% of D-level maintenance work package development 2Ks have been screened based on target control	TYCOM	A-240	A-240	A-240	A-240	A-240		50% of D-level maintenance work package development 2Ks have been screened based on target control: Intent is that 50% of the expected AWRs (work, not services) have been screened to the planning activity. The planning activity continually develops specs in the most cost effective manner and does not batch this work in front of the next package development milestone.
21	Total Ships Readiness Assessment (TSRA)-1 Discrepancies Screened	Ashore Ships Maintenance Manager	A-240	A-240	A-240	A-240	A-240		Total Ships Readiness Assessment (TSRA) 1 Discrepancies Screened: TSRA-1 is a TYCOM-scheduled two-week ship-wide pre-deployment material condition assessment designed to identify work items for inclusion in the post-deployment maintenance availability. The goal of this phase is to reduce availability growth and new work, by providing the earliest possible identification of work, which is then notionally scheduled in an availability. This is a validation that the discrepancies identified as a result of TSRA-1 assessment has been screened by this date.

II-II-2D-7

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CNO COST (<\$5M)	CNO COST (>\$5M <\$20M)	CNO COST (>\$20M <\$100M)	CNO COST (>\$100M)	CNO FFP (JAPAN)	COMMENTS/ REMEDIAL ACTION	DESCRIPTION
22	Submit A-220 Deferral Letter with Maintenance Team Assist	TYCOM	A-220	A-220	A-220	A-220	A-220		<u>Submit A-220 Deferral Letter with Maintenance Team Assist:</u> At A-220, TYCOM will submit a Change Deferral Request Letter to SURFMEPP, which will include a list of Change Deferral Requests for subject FRP Maintenance Cycle.
23	Issue/Deliver SIDs to NSA for contractors and AITs	Planning Yard	A-210	A-210	A-210	A-210	A-240		<u>Issue/deliver SIDs to NSA for contractors and AITs:</u> SID delivery is listed in the NMP MOM as a critical milestone. All SIDs must be issued to the NSA NLT A-210 to ensure planning milestones can be met.
24	IPTD Strategy Development	NRMC C300	A-190	A-190	A-190	A-190	A-190		<u>IPTD Strategy Development:</u> "Strategy Development Meeting. The PT's risk assessment letter will be reviewed with the team at the event and any newly discovered risks will be evaluated and added to the letter. Strategies identified by the PT will serve as the focus of the event presentations with a goal of generating real time discussions amongst the major stakeholders pertaining to the strategy documents and by the end of the event making them acceptable for signature." The PT will review and submit to the availability risk assessment letter to the respective RMC Commander within 10 days of the A-190 milestone.
25	Planning Activity complete planning and estimating of work assigned as required by the 50% package development milestone .	Contractor	A-190	A-190	A-190	A-190	N/A		<u>Planning activity complete planning and estimating of work assigned as required by the 50% package development milestone:</u> The requirement is that all work brokered by the 50% package development milestone shall be planned (Work Item complete and LLTM identified) and estimated with minimum quality as described as a "Class C" estimate.

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CNO COST (<\$5M)	CNO COST (>\$5M <\$20M)	CNO COST (>\$20M <\$100M)	CNO COST (>\$100M)	CNO FFP (JAPAN)	COMMENTS/ REMEDIAL ACTION	DESCRIPTION
26	IGE Submitted in support of 50% package development.	RMC C300	A-190	A-190	A-190	A-190	A-190		<u>IGE Submitted in support of 50% package development:</u> The requirement is that all work Planned in support of the 50% package development milestone shall be estimated by the government with minimum quality as described as a "Class C" estimate.
27	Estimate Comparison Complete in support of 50% package development	RMC C400/C300	A-180	A-180	A-180	A-180	N/A		<u>Estimate Comparison Complete in support of 50% package development:</u> The requirement is that a bottom line comparison of the contractor provided Class C estimate and IGE Class C will be compared. Any estimate in excess of 10% or \$10K (whichever is greater) will be scoped for requirements. Estimates will be revised as required to ensure that there is a consensus for the scope of work required. The government estimate will be documented to reflect the outcome of the scoping.
28	LOA Change 1 Issued	SPM	A-180	A-180	A-180	A-180	A-180		<u>LOA Change 1 issued:</u> After LOA Change 1 is issued, 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.
29	All Modernization Risk Assessments (including waivers) submitted	PARM/ SPM/ TYCOM	A-175	A-175	A-175	A-175	A-175 (A-210)	Overseas location of SRF-JRMC necessitates earlier planning in support of longer logistics pipeline.	<u>All Modernization Risk Assessments (including waivers) submitted:</u> Complete all required design, procurement of material, pre-installation testing, and obtain all required certifications/impact assessment(s) prior to final installation. Evaluate maturity of an installation and determine if the SC is ready for installation. Perform an impact assessment for SCs that have not achieved maturity in accordance with the Navy Modernization milestone charts to determine whether or not to proceed with installation planning.

II-II-2D-9

COMUSFLTFORCOMINST 4790.3 REV C CH-5

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CNO COST (<\$5M)	CNO COST (>\$5M <\$20M)	CNO COST (>\$20M <\$100M)	CNO COST (>\$100M)	CNO FFP (JAPAN)	COMMENTS/ REMEDIAL ACTION	DESCRIPTION
30	Risk Letter Sent to CNRMC	RMC Code 100	A-170	A-170	A-170	A-170	A-170		Risk Letter Sent to CNRMC: A-180 Risk letter will be submitted to CNRMC (with copy to TYCOM) for review and endorsement no later than 10 days after the A-180 milestone. The A-180 Risk Letter (Include Modernization Risk) will address, at a minimum, the following: Budget, Schedule, Resources (Manpower/ Fiscal), RMC/NSA Capability/ Capacity, Contractor Capability/ Capacity, Availability Duration, Planning, Modernization, Funding. (Include work items MT intends to broker to IDIQ contracts and other government agencies.)
31	All Modernization Risk Assessments (including waivers) approved	FLEET/ TYCOM	A-150	A-150	A-150	A-150	A-150 (A-185)	Overseas location of SRF-JRMC necessitates earlier planning in support of longer logistics pipeline.	<u>All Modernization Risk Assessments (including waivers) approved:</u> Perform an impact assessment for SCs that have not achieved maturity IAW the Navy Modernization milestone charts to determine whether or not to proceed with installation planning.
32	Award AIT contracts for work not being done by prime contractor/ Identify all outside activities participating in the availability and associated support requirements	AIT Sponsor/ TYCOM N43/SEA 21	A-150	A-150	A-150	A-150	A-150		<u>Award AIT contracts for work not being done by prime contractor/ Identify all outside activities participating in the availability and associated support requirements:</u> The AIT Manager shall have the AIT contract in place NLT this milestone. Contract tasking can also include testing support, incidental and consumable material, ship check and post-install support. The selected contractor must have a NAVSEA 04XQ accepted QMS in order to accomplish shipboard industrial work. The AIT Manager shall ensure that the contract identifies all contractor deliverables necessary to complete schedule, return costs and design change feedback. Date supports requirement for POA&M at A-135. All non-AIT contractor outside activities will be contacted to obtain service requirements.

II-II-2D-10

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CNO COST (<\$5M)	CNO COST (>\$5M <\$20M)	CNO COST (>\$20M <\$100M)	CNO COST (>\$100M)	CNO FFP (JAPAN)	COMMENTS/ REMEDIAL ACTION	DESCRIPTION
33	Identification of AIT support requirements and POA&M provided	AIT Manager	A-135	A-135	A-135	A-135	A-180		<u>Identification of AIT support requirements and POA&M provided:</u> If the AIT will require industrial support, (e.g., crane and rigging services, welding/burning, compressed air), during accomplishment of the alteration/SC, additional information (OPNAV Form 4790/2K) requesting these services will be provided for loading into the CSMP shore file. The AIT Manager, or their designated representative, will prepare information for the creation of a 2K/JCN. In addition, if required by the NSA, any required support services must be specified using 4790/2K. The planning activity can then prepare a 4E specification work item in accordance with Volume VII, Chapter 4, Appendix E of this manual for inclusion in the CNO availability work package for private sector industrial availabilities, or a job summary and Task Group Instruction (TGI) for Naval shipyard availabilities.
34	80% of D-level maintenance work package development 2Ks have been screened based on target control	TYCOM	A-120	A-134	A-155	A-155 See Note 1	A-210		<u>80% of D-level maintenance work package development 2Ks have been screened based on target control:</u> Intent is that 80% of the expected AWRs (work not services) have been screened/brokered to the planning activity. The planning activity continually develops specs in the most cost effective manner and does not batch this work in front of the next package development milestone.
35	Conduct Work Package Integration Conference (WPIC)	RMC C300	A-120	A-120	A-120	A-120	A-120		<u>Conduct Work Package Integration Conference (WPIC):</u> Provides a forum for early identification of work requirements that require integration to avoid conflicts with other work during execution.

II-II-2D-11

COMUSFLTFORCOMINST 4790.3 REV C CH-5

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CNO COST (<\$5M)	CNO COST (>\$5M <\$20M)	CNO COST (>\$20M <\$100M)	CNO COST (>\$100M)	CNO FFP (JAPAN)	COMMENTS/ REMEDIAL ACTION	DESCRIPTION
36	LOA CH 2, 100% Modernization Lock	SPM	A-120	A-120	A-120	A-120	A-120		<u>LOA CH 2, 100% Modernization Lock:</u> The SPM shall prepare and issue the A-120 LOA. The A-120 LOA will identify any planned SCs identified in the A-360 letter that have reached maturity. All SCs that have not reached maturity at A-120 or do not have an approved impact assessment will be deferred from the availability with the exception of Sustainment Type SCs which must meet this criteria by A-75.
37	Submit Execution Risk Letter	RMC Code 100	A-110	A-110	A-110	A-110	A-110		<u>Submit Execution Risk Letter:</u> A-120 Risk letter will be submitted to CNRMC for review and endorsement (to be sent to TYCOM) NLT 10 days after the A-120 milestone. The A-120 Risk Letter is the first Risk Letter to specifically address Execution Risk along with Planning Risk.
38	Planning Activity complete planning and estimating of work assigned as required by the above 80% package development milestone.	Planning Activity	A-95	A-109	A-120	A-120 See Note 1	N/A		<u>Planning Activity complete planning and estimating of work assigned as required by the above 80% package development milestone:</u> The requirement is that all work brokered by the 80% lock milestone shall be planned (Work Item complete and LLTM identified) and estimated with the minimum quality described as a "Class C" estimate.
39	IGE Submitted in support of 80% package development	RMC C300	A-95	A-109	A-120	A-120 See Note 1	A-185		<u>IGE Submitted in support of 80% package development:</u> The requirement is that all work Planned in support of the 80% package development milestone shall be estimated by the government with the minimum quality described as a "Class C" estimate.

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CNO COST (<\$5M)	CNO COST (>\$5M <\$20M)	CNO COST (>\$20M <\$100M)	CNO COST (>\$100M)	CNO FFP (JAPAN)	COMMENTS/ REMEDIAL ACTION	DESCRIPTION
40	Total Ships Readiness Assessment (TSRA)-2 Discrepancies Screened	Ashore Ship Maintenance Manager	A-90	A-114	A-128	A-128 See Note 1	A-180		<u>TSRA-2 Discrepancies Screened:</u> TSRA-2 focuses on the evaluation of equipment after deployment to minimize growth and new work within the ship's CNO availability. It includes a post-deployment, underway material assessment of selected HM&E and C5I systems and is designed to add work items needed to fully define the Availability Work Package (AWP).
41	I-level work package fully brokered	Ashore Ship Maintenance Manager	A-90	A-90	A-90	A-90	A-90		<u>I-level work package fully brokered:</u> Intent is to fully broker all known Intermediate Level work to I-level by this date.
42	Estimate Comparison Complete in support of 80% package development	RMC C400/C300	A-85	A-99	A-110	A-110 See Note 1			<u>Estimate Comparison Complete in support of 80% package development:</u> The requirement is that a bottom comparison of the contractor provided Class C estimate and IGE Class C will be compared. Any estimate in excess of 10% or \$10K (whichever is greater) will be scoped for requirements. Estimates will be revised as required to ensure that there is a consensus for the scope of work required. The government estimate will be documented to reflect the outcome of the scoping.
43	I-level work package fully accepted	RMC Code 900	A-75	A-75	A-75	A-75	A-75		<u>I-level work package fully accepted:</u> Intent is for I-level to accept or reject all work brokered to it up to this point in time. Any work entering later in the process will be subject to the Business Case Analysis process and will likely need to be inducted into the work package as new work.

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CNO COST (<\$5M)	CNO COST (>\$5M <\$20M)	CNO COST (>\$20M <\$100M)	CNO COST (>\$100M)	CNO FFP (JAPAN)	COMMENTS/ REMEDIAL ACTION	DESCRIPTION
44	100% of O-level maintenance work package locked	Ship's Force	A-75	A-75	A-75	A-75	A-75		<u>100% O-level Maintenance Work package locked:</u> Develop a Ship's Force concurrent Work Package that includes all major maintenance actions such as Planned Maintenance System (PMS), repairs, alterations and testing to be conducted by Ship's Force during the availability, as applicable. Review PMS, CSMP and Testing requirements and ensure all Ship's Force maintenance actions scheduled for accomplishment during availability are identified
45	100% of D-level maintenance work package 2K's locked based on target control	Ashore Ship Maintenance Manager	A-75	A-90	A-120	A-140 Note 1	A-170		<u>100% of D-level maintenance work package 2Ks locked based on target control:</u> Intent is that 100% of the expected AWRs have been brokered to the planning activity. The planning activity continually develops specs in the most cost effective manner and does not batch this work in front of the next package development milestone.
46	Final Work Item Review/Approval	RMC C300	A-65	A-92	A-104	A-104 See Note 1	A-156		<u>Final Work Item Review/Approval:</u> Work Item reviews shall be accomplished on a routine drumbeat established by the MT with the final work item review being completed in support of the established publishing date for the specification package. This will include the final quality and technical and contractual review of the work items. Contractual shall include legal requirements, i.e., if sole source, is there sole source justification?

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CNO COST (<\$5M)	CNO COST (>\$5M <\$20M)	CNO COST (>\$20M <\$100M)	CNO COST (>\$100M)	CNO FFP (JAPAN)	COMMENTS/ REMEDIAL ACTION	DESCRIPTION
47	Solicit Bids	RMC C400	N/A	N/A	N/A	N/A	A-120		<u>Solicit Bids</u> : Non-Multi-Option Contracting Vehicles. The Federal Acquisition Regulation designates FedBizOpps as the mandatory "Government wide point of entry (GPE)" for posting of Government business opportunities, including proposed contract actions, solicitations and associated information.
48	100% of D-level maintenance work package 2Ks planned, estimated.	Planning Activity	A-65	A-89	A-106	A-106 See Note 1	A-155 (A-110)		<u>100% of D-level maintenance work package 2Ks planned, estimated</u> : The requirement is that all work brokered by the 100% lock milestone shall be planned (Work Item complete and LLTM identified) and estimated with the minimum quality described as a "Class C" estimate.
49	Planning Activity "publish" package in the appropriate IT system	Planning Activity	A-65	A-92	A-104	A-104 See Note 1	N/A		<u>Planning Activity "publish" package in the appropriate IT system</u> : This is the act of issuing a final specification package for the availability that will be used to formulate a proposal. All work after this date will be handled as supplemental and/or new work.
50	IGE Submitted in support of 100% lock	RMC C300	A-65	A-67	A-78	A-78 See Note 1	A-120		<u>IGE submitted in support of 100% lock</u> : The requirement is that all work Planned in support of the 100% lock milestone shall be estimated by the government with the minimum quality described as a "Class C" estimate.
51	Issue Specification package to FLC (SRF-JRMC only)	MT	NA	NA	NA	NA	(A-130)		<u>Issue Specification package to FLC (SRF-JRMC only)</u> : This is the act of issuing a final specification package for the availability that will be used to propose upon. All work after this date will be handled as supplemental and/or new work.

II-II-2D-15

COMUSFLTFORCOMINST 4790.3 REV C CH-5

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CNO COST (<\$5M)	CNO COST (>\$5M <\$20M)	CNO COST (>\$20M <\$100M)	CNO COST (>\$100M)	CNO FFP (JAPAN)	COMMENTS/ REMEDIAL ACTION	DESCRIPTION
52	Submit I-level work package and schedule for integration	RMC C900	A-60	A-60	A-60	A-60	A-60		Submit I-level work package and schedule for integration: The LMA shall develop an inclusive, detailed, integrated and resource-loaded schedule of all participating activities. All participants shall meet and review the proposed plan and make necessary adjustments to render a balanced and optimized integrated schedule. This formal schedule review shall occur after the WPIC, but no later than the Work Package Execution Review. The NSA/LMA shall serve as the final arbiter of conflicts. By the Work Package Execution Review, all integrated schedule conflicts shall be resolved by the NSA/LMA.
53	Cutoff for bidders questions	PCO	N/A	N/A	N/A	N/A	A-100		Cutoff for bidders questions: The NLT date, issued by the PCO, is the date that the government will no longer accept pre-bid inquiries for a particular solicitation. The time frame established allows the PCO time to respond to the inquiry while still maintaining adequate time for the contractor to produce a proposal/bid.
54	Submit Bids	Contractor	N/A	N/A	N/A	N/A	A-90		Submit Bids: This is the date, provided by the PCO, when a Firm Fixed Price (FFP) offeror must submit their bid to be considered responsive. Submissions after this date are typically rejected.
55	Award Contract	RMC C400	N/A	N/A	N/A	N/A	A-60		Award Contract: This is the notification by the Contracting Officer to a bidder that his offer, or a negotiated proposal, has been accepted. This award establishes a legal obligation between the parties.

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CNO COST (<\$5M)	CNO COST (>\$5M <\$20M)	CNO COST (>\$20M <\$100M)	CNO COST (>\$100M)	CNO FFP (JAPAN)	COMMENTS/ REMEDIAL ACTION	DESCRIPTION
56	Contractor submit final package cost proposal	Contractor	A-55	A-67	A-76	A-76 See Note 1	N/A		Contractor submit final package cost proposal: This is the date that the Prime contract holder must submit their valid/complete cost proposal. It shall be in compliance with the DCAA's "CRITERIA FOR ADEQUATE CONTRACT PRICING PROPOSALS" associated with an option within the contract in support of a defined scope of work. The proposal shall include an integrated schedule based upon the proposed work package.
57	Complete TAR	RMC C400	A-50	A-53	A-55	A-55 See Note 1	N/A		Complete TAR: The Technical Advisory Report (TAR) will be prepared by the technical analyst on claims/proposals that meet threshold criteria established by the FAR. At any value below that threshold, and at the discretion of the negotiator, a "desk" TAR may be performed by the negotiator. Usually the evaluation involves review of direct labor hours and costs associated with material, delay in delivery and/or disruption costs. It will also include review of the contractor's estimating standards. The TAR should reflect the technical evaluation and its results. The TAR serves several essential purposes, including essential file documentation, advice to the negotiator and ACO and advice to the auditor if an audit is to be conducted. The objective of the TAR is to establish the acceptability and reasonableness of the contractor's proposal and/or backup data and records.

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CNO COST (<\$5M)	CNO COST (>\$5M <\$20M)	CNO COST (>\$20M <\$100M)	CNO COST (>\$100M)	CNO FFP (JAPAN)	COMMENTS/ REMEDIAL ACTION	DESCRIPTION
58	Establish Prorate based on final cost proposal	RMC C400 RMC C300 SEA 21 Program Managers Rep TYCOM N43	A-50	A-53	A-55	A-55 See Note 1	N/A		<u>Establish prorate based on final cost proposal:</u> At A-120, all mature SCs listed on the LOA will be considered for prorations. The budgets associated with SCs and repair and maintenance will lock the proration distribution percentages. If modernization is added after this date, the sponsor will assume the full increase in cost associated with the prorated items. The percentages established at this time will be applied to the proratable items proposal amount by sponsor to establish the full funding required.
59	Submit Funding Requests to Funding Sponsors	RMC C300	A-50	A-53	A-55	A-55	N/A	Program Office wants 14 days from receipt of request to receipt of funds.	<u>Submit Funding Requests to Funding Sponsors:</u> Sponsors must be kept aware of anticipated funding needs including pro rated amounts. This typically happens as estimates come in but MUST be communicated when the proposal is received and finalized as the TAR completes.
60	Pre-Business Clearance Approved Within C400	RMC C400	A-46	A-46	A-45	A-45 See Note 1	N/A		<u>Pre-Business Clearance Approved within C400:</u> The pre-negotiation plan is an official document of the contracting officer's negotiation objectives relating to pricing, technical, business and contractual issues. It assists in the contracting officer's determination of a fair and reasonable price. It must document the pertinent issues to be negotiated and the cost objectives and a profit or fee objective. Because it serves as the basis of the negotiation, the pre-negotiation plan should fully explain the contractor and Government positions.

II-II-2D-18

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CNO COST (<\$5M)	CNO COST (>\$5M <\$20M)	CNO COST (>\$20M <\$100M)	CNO COST (>\$100M)	CNO FFP (JAPAN)	COMMENTS/ REMEDIAL ACTION	DESCRIPTION
61	Provide Availability Funding for Repair and Modernization to the RMC	SYSCOMS/ SPM/TYCOM	A-45	A-45	A-45	A-45	A-75 (A-150)		<u>Provide Availability Funding for Repair and Modernization to the RMC:</u> Availability funding is required prior to definitization. In order to assure that the correct amount and type of funding is available, it should be received at the RMC NLT 10 days prior to the scheduled definitization date. Receipt of funding later than that may cause the work package to be deleted from the work package or may delay definitization.
62	Pre BCM Routed and Approved Through SEA 02	RMC C400/SEA 02	N/A	A-40	A-40	A-40	N/A		<u>Pre-BCM Routed and Approved through SEA 02:</u> SEA 02 must approve the Pre-BCM for all contracting actions expected to exceed the Contracting Officers threshold for award.
63	Final Negotiations	RMC C400/ SEA 02	A-43	A-43	A-38	A-38 See Note 1	N/A		<u>Final Negotiations:</u> Negotiation is a procedure that includes the receipt of proposals from offerors, permits bargaining, and usually affords offerors an opportunity to revise their offers before award of a contract. Bargaining, in the sense of discussion, persuasion, alteration of initial assumptions and positions, and give-and-take, may apply to price, schedule, technical requirements, type of contract or other terms of a proposed contract.

II-II-2D-19

COMUSFLTFORCOMINST 4790.3 REV C CH-5

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CNO COST (<\$5M)	CNO COST (>\$5M <\$20M)	CNO COST (>\$20M <\$100M)	CNO COST (>\$100M)	CNO FFP (JAPAN)	COMMENTS/ REMEDIAL ACTION	DESCRIPTION
64	Post BCM Drafted within C400	RMC C400	N/A	N/A	A-35	A-35	N/A		Post BCM Drafted within C400: Upon completing negotiations, a price negotiation memorandum must be developed. It should document the purpose and results of the negotiation, the extent to which negotiation objectives were met and the basis for accepting a position that departs from the established objective. To the extent that specific negotiation objectives were met, a statement to this effect is sufficient. A restatement or summary of information and analysis provided in the pre-negotiation is not required. However, where there are differences between the negotiation objectives and the actual negotiated outcome or issues not identified in the pre-negotiation plan, the price negotiation memorandum should provide a full explanation of the agreement reached.
65	CHINFO Release	RMC C400	N/A	A-40	A-32	A-32	N/A		CHINFO Release: A news release is required per DFARs to provide information on all contractual actions or modifications that have a face value of more than \$6.5 million, excluding unexercised options. This information will be used in a public news release announcing the award. Congressional members whose states or districts are affected by the contract (either the contractor lives in the state or district or the work will be performed there) will be provided similar information concurrent with the public announcement. Contract award information will be provided to the appropriate Public Affairs Office (PAO) in the form of a news release.

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CNO COST (<\$5M)	CNO COST (>\$5M <\$20M)	CNO COST (>\$20M <\$100M)	CNO COST (>\$100M)	CNO FFP (JAPAN)	COMMENTS/ REMEDIAL ACTION	DESCRIPTION
66	Post BCM Routed and Approved Through SEA 02	RMC C400/ SEA 02	N/A	N/A	A-30	A-30	N/A		<u>Post-BCM Routed and Approved through SEA 02:</u> SEA 02 must approve the Post-BCM for all contracting actions exceeding the Contracting Officers threshold for award.
67	Definitize Work Package	RMC C400	A-35	A-35	A-30	A-30	N/A		<u>Definitize Work Package:</u> The culmination of the contractual planning efforts resulting in a negotiated price for the availability that has been funded via a supplemental agreement. This step contractually obligates both the government and contractor to the requirements of the Work Package.
68	Deliver Material (LLTM and Kitted Materials) to Executing Activity	Planning Yards/PARM	A-30	A-30	A-30	A-30	A-30 (A-75)	Overseas location of SRF-JRMC necessitates earlier receipt for recovery time in case of shortages	<u>Deliver Material (LLTM and Kitted Materials) to Executing Activity:</u> LLTM is any material that will take in excess of 30 days to procure. The government may elect to provide LLTM or prefabricated assemblies generally kitted via a planning yard. This material procured through sources other than the executing activity should be delivered 30 days prior to start of the availability to ensure that there is no disruption to production.
69	Conduct Work Package Execution Review (WPER)	RMC C300	A-30	A-30	A-30	A-30	A-30		<u>Conduct Work Package Execution Review (WPER):</u> Review of the integrated work production schedule that has been prepared by the Executing Activity. The complete LMA Availability work package is defined and agreed upon at the WPER.
70	Start of Availability	Ship's Force/ MT/ Industrial Activity	A-0	A-0	A-0	A-0	A-0		<u>Start of Availability:</u> The first day of the production period for the executing activity.
<p>Note 1: For Availabilities in excess of \$100M, milestones may need to be established earlier in the planning process to account for the DCAA Audit and other issues unique to the magnitude of the work package.</p> <p>Note2: Milestones may vary from the dollar amounts dependent on the CCO's warrant.</p>									

II-II-2D-21

COMUSFLTFORCOMINST 4790.3 REV C CH-5

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CMAV COST	CMAV FFP/IDIQ (Japan)	CME= Execution Start		ADDITIONAL NOTES	DESCRIPTION
CMAV (RMC RESPONSIBILITY)								
These are notional milestones for CM/CMAV packages that are within the TAR threshold. If availabilities are expected to exceed the TAR threshold, the MT shall establish milestones that fit the particular availability.								
							Anything over \$750k must TAR.	
71	Establish CM Availability Schedule	TYCOM	Annually	Annually	NA			<u>Establish CM Availability Schedule:</u> CMAV Schedules are established annually at the fleet scheduling conferences. TYCOM will publish routine updates as they occur for the CMAV schedules.
72	Establish Availability in the appropriate IT system	RMC C300	As Required	As Required	As Required			<u>Establish Availability in the appropriate IT system:</u> Availabilities will be established in the applicable planning data base when known or work is ready to be screened.
73	I-level work package fully brokered	Ashore Ship Maintenance Manager	A-40	A-40	N/A			<u>I-level work package fully brokered:</u> Intent is to fully broker all known Intermediate Level work to I-level by this date.
74	I-level work package fully accepted	RMC C900	A-33	A-33	N/A			<u>I-level work package fully accepted:</u> 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 and will likely need to be inducted into the work package as new work.
75	100% of D-level maintenance work package 2Ks locked based on target control.	Ashore Ships Maintenance Manager	A-60	A-60 (A-80)	N/A			<u>100% of D-level maintenance work package 2Ks locked based on target control:</u> Intent is that 100% of the expected AWRs have been screened to the CMAV. The planning activity continually develops specs in the most cost effective manner and does not batch this work in front of the next package development milestone.
76	Solicit Bids	RMC C400	N/A	A-50	N/A		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.	<u>Solicit Bids:</u> The Federal Acquisition Regulation designates FedBizOpps as the mandatory "Government wide point of entry (GPE)" for posting of Government business opportunities, including proposed contract actions, solicitations and associated information.

II-II-2D-22

COMUSFLTFORCOMINST 4790.3 REV C CH-5

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CMAV COST	CMAV FFP/IDIQ (Japan)	CME= Execution Start		ADDITIONAL NOTES	DESCRIPTION
77	100% of D-level maintenance work package 2Ks planned, estimated	Planning Activity	A-50	A-60 (A-30)	E-1			<u>100% of D-level maintenance work package 2Ks planned and estimated:</u> The requirement is that all work brokered by the 100% lock milestone shall be planned to include Work Item complete and LLTM identified and estimated with minimum quality as described as a "Class C" estimate.
78	IGE Submitted in support of 100% lock	RMC C300	A-50	A-53	E-1			<u>IGE Submitted in support of 100% lock:</u> The requirement is that all work Planned in support of the 100% lock milestone shall be estimated by the government with minimum quality as described as a "Class C" estimate.
79	Final Work Item Review/Approval	RMC C300	A-45	A-53	E-1			<u>Final Work Item Review/Approval:</u> Work Item reviews shall be accomplished on a routine drumbeat established by the MT with the final work item review being completed in support of the established publishing date for the specification package. This will include the final quality, technical and contractual review of the work items (contractual shall include legal requirements i.e.; if sole source: is there sole source justification?).
80	Planning Activity "publish" package in the appropriate IT system	Planning Activity	A-45	N/A	N/A			<u>Planning Activity "publish" package in the appropriate IT System:</u> This is the act of issuing a final specification package for the availability that will be used to formulate a proposal. All work after this date will be handled as supplemental and/or new work.
81	Contractor submit final package cost proposal	Contractor	A-35	N/A	N/A			<u>Contractor submit final package cost proposal:</u> This is the date that the Prime contract holder must submit their valid/complete cost proposal. It shall be in compliance with the DCAA's "CRITERIA FOR ADEQUATE CONTRACT PRICING PROPOSALS" associated with an option within the contract in support of a defined scope of work.

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CMAV COST	CMAV FFP/IDIQ (Japan)	CME= Execution Start		ADDITIONAL NOTES	DESCRIPTION
82	Submit I-level work package and schedule to contractor for integration	RMC C900	A-30	A-15	N/A			<u>Submit I-level work package and schedule to contractor for integration:</u> The LMA shall develop an inclusive, detailed, integrated and resource-loaded schedule of all participating activities. All participants shall meet and review the proposed plan and make necessary adjustments to render a balanced and optimized integrated schedule. This formal schedule review shall occur after the WPIC, but no later than the Work Package Execution Review. The NSA/LMA shall serve as the final arbiter of conflicts. By the Work Package Execution Review, all integrated schedule conflicts shall be resolved by the NSA/LMA.
83	BCM and Negotiations Complete	RMC C400	A-22	N/A	N/A			<u>BCM and Negotiations Complete:</u> Negotiation is a procedure that includes the receipt of proposals from offerors, permits bargaining and usually affords offerors an opportunity to revise their offers before award of a contract. Bargaining, in the sense of discussion, persuasion, alteration of initial assumptions and positions, and give-and-take, may apply to price, schedule, technical requirements, type of contract or other terms of a proposed contract. Upon completing negotiations, a price negotiation memorandum must be developed. It should document the purpose and results of the negotiation, the extent to which negotiation objectives were met and the basis for accepting a position that departs from the established objective.
84	Definitize Work Package	RMC C400	A-18	N/A	E-7			<u>Definitize Work Package:</u> The culmination of the contractual planning efforts resulting in a negotiated price for the availability that has been funded via a supplemental agreement. This step contractually obligates both the government and contractor to the requirements of the Work Package.
85	Start of Availability	RMC C300	A-0	A-0	A-0			<u>Start of Availability: The first day of the production period for the executing activity.</u>

II-II-2D-24

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

AVAILABILITY CLOSE OUT - START OF NEXT CYCLE (RMC/SURFMEPP RESPONSIBILITY)						
EVENT #	Task/Milestone	Responsible Activity	CNO	CNO FFP (Japan)	COMMENTS/REMEDIAL ACTION	DESCRIPTION
86	Conduct Departure and Assessment Conference	RMC C300	C+0	C+0		<u>Conduct Departure and Assessment Conference:</u> To verify completion of all work assigned to the availability or to document exceptions. Exceptions shall have a plan for completion with an estimated completion date and must be tracked through completion. This conference will establish the date and conditions under which the TYCOM and NAVSEA will accept redelivery of the ship.
87	Issue Completion Report	NSA	C+60	C+60		<u>Issue Completion Report:</u> NAVSEAINST 4710.8 series details the requirements for availability completion reporting which shall include financial as well as production and exception reporting.
88	SURFMEPP BAWP Close-Out Meeting	MT/ RMC/ TYCOM/ SURFMEPP	C+70	C+70		<u>SURFMEPP BAWP Close-Out Meeting:</u> To identify "A" branded BAWP requirements that were completed, not completed or deferred. To establish requirements for the next FRP Maintenance Cycle and to review outstanding DFS.
89	Verify Completion of Departure Report and Close Out of Avail in the Appropriate IT System	RMC C300	C+90	C+90		<u>Verify Completion of Departure Report and Close Out of Avail in the Appropriate IT System:</u> Purpose is to verify that financial information, AWRs and work items, as applicable, have been uploaded and closed out in the appropriate IT system as required by NAVSEA Standard Item 009-99.
90	Submit Final BAWP Close-Out Report	SURFMEPP	C+100	C+100		<u>Submit Final BAWP Close-Out Report:</u> Purpose is to document the results (including follow up action items) resulting from the Close Out Meeting.
91	Conduct the Corrosion Planning Conference	SURFMEPP	C+115	C+115		Supported by CNSF/TYCOM/SEA 21/CNRMC FLAGS and RMC Commanders.
92	Life Cycle Planning Conference (LCPC) Meeting	SURFMEPP	C+140	C+140	FDNF Yoko A-615	<u>Life Cycle Planning Conference (LCPC) Meeting:</u> The LCPC agenda will include a review of the planning schedule, required CMP assessments, NDE modernization forecasts, CNO Availability services/routines as applicable, organizational responsibilities and DFSs.

II-II-2D-25

COMUSFLTFORCOMINST 4790.3 REV C CH-5

APPENDIX D

SURFACE SHIP AVAILABILITY MILESTONES

EVENT #	Task/Milestone	Responsible Activity	CNO	CNO FFP (Japan)	COMMENTS/REMEDIAL ACTION	DESCRIPTION
93	Upload BAWP task to ship's CSMP	SURFMEPP	C+150	C+150	FDNF Yoko A-605	<u>Upload BAWP task to ship's CSMP:</u> SURFMEPP will upload a data file with all mandatory maintenance actions and expected CNO Availability services into the ship's CSMP in support of ship-specific MT screening and brokering requirements. The data file will span approximately ten (10) calendar quarters and will include the requirements through C+120.
94	Issue Post-LCPC Planning Schedule Letter	SURFMEPP	C+150	C+150	After last CNO Availability Completion	<u>Issue Post-LCPC Planning Schedule Letter:</u> SURFMEPP issue planning schedule letter containing outstanding action items from the LCPC as well as communicating the remaining BAWP-specific JFMM milestones through avail execution.
95	TSRA-5 Discrepancies Screened	Ashore Ships Maintenance Manager	C+360	C+360	Done after intermediate training phase and should be completed 90 days prior to deployment.	<u>TSRA-5 Discrepancies Screened:</u> This event is the final validation of equipment prior to the ships deployment.

VOLUME II
PART II
CHAPTER 3
MAINTENANCE WORK CLOSEOUT

REFERENCES.

- (a) NAVSEA SI 009-99 - Ship Departure Report; Provide
- (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 ship and submarine 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.** This chapter covers the process and responsibilities for closing all Form 4790/2K (2-kilos) work candidates that were screened and brokered to an activity other than Ship's Force.

3.3 **BACKGROUND.** Prior to changes in the work closeout process, 2-kilos executed in shipyards (public and private), by intermediate-level activities, and technical assistance organizations 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 Maintenance and Material Management (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 close and report accurate completion data for all 2-kilos executed by other than Ship's Force personnel.

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 60 days after the completion of an availability (including Continuous Maintenance Availability), or within 60 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. The MA shall notify the MT when cost and completion information has been entered.

- a. For Surface Forces: If the work item is a 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).
- b. For Submarine Force: If the work item is a CMP (Periodic Maintenance Requirement/Unrestricted Operation), see Volume VI, Chapter 24 and 25 of this manual.
- c. 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 and new work. As such, for Firm-Fixed-Price availabilities, cost information for original work items shall be entered by the Project Manager directly in NMD Execution on the Work Item Management screen cost tab after award, and cost information for RCCs shall be entered by the Negotiator directly in NMD Execution on

the RCC Management screen during RCC settlement. These cost values will populate to the Actual Return Cost screen in NMD Planning and are 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 contracts.

- d. 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 estimates. NMD also submits a “growth 2-kilo” for each completed growth or growth on new work 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 and Facilities Using Advanced Industrial Management (AIM) or AIM Express (AIMXP). Comply with reference (c) for submitting Ship Departure Reports. AIM (via AIMXP) transmits 2-kilo cost and completion information to the brokering Information Technology (IT) system automatically based on labor entries and material transactions made during availability execution. Users should follow local instructions for AIM operations.

3.4.1.3 Depot Maintenance Activities Not Using Navy Maintenance Database or Advanced Industrial Management. The MA is responsible for providing to the Ashore Ship’s Maintenance Manager (or Immediate Superior in Command for submarines), within 60 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. At the time of submission, return costs shall be the best prediction of the final costs for that 2-kilo. If the costs are not finalized when the MA reports return cost data (i.e., there are outstanding invoices), report costs from the Final Cost Report or equivalent financial report. 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).

3.4.2 Fleet Maintenance Activity Responsibilities.

3.4.2.1 Fleet Maintenance Activities Managing 2-kilos Using AIM, AIMXP, Advanced Industrial Management for Regional Maintenance Centers (AIM4RMC) or Tech Assist, Assessments and Scheduling Information Software (TAAS-INFO). AIMXP, AIM (via AIMXP), AIM4RMC and TAAS-INFO transmit 2-kilo cost and completion information to the brokering IT system automatically based on labor entries and material transactions made during 2-kilo execution. FMAs working 2-kilos assigned to these IT systems should follow local instructions for AIMXP, AIM, AIM4RMC or TAAS-INFO operations.

3.4.2.2 Fleet Maintenance Activities Managing 2-kilos Using Logistics Data System. Logistics Data System (LDS) transmits a portion of the required cost and completion information to the brokering IT system. 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 follow local instructions for LDS operations.

3.4.2.3 Fleet Maintenance Activities Managing 2-kilos in a System Other Than AIM, AIMXP, AIM4RMC, TAAS-INFO or LDS. The FMA is responsible for coordinating with the applicable Ashore Ship’s Maintenance Manager, within 60 days after completion of the work, to enter in the brokering IT system 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).

3.4.3 Maintenance Team Responsibilities.

- a. The MT, led by the Ashore Ship’s Maintenance Manager, is administratively responsible for all work screened and brokered to an activity other than Ship’s Force.
- b. Depending on the settings of the brokering IT system, 2-kilos may require both a “Maintenance Activity Completion” and a “Customer Completion” to fully close the 2-kilo. CMP, non-modernization “Z” 2-kilos that originate from the Surface Maintenance Engineering Planning Program (SURFMEPP) will be assigned a “Maintenance Activity complete” closure method, which will allow the task to be closed by the Maintenance Activity upon completion of work and the task Lead Maintenance Activity