

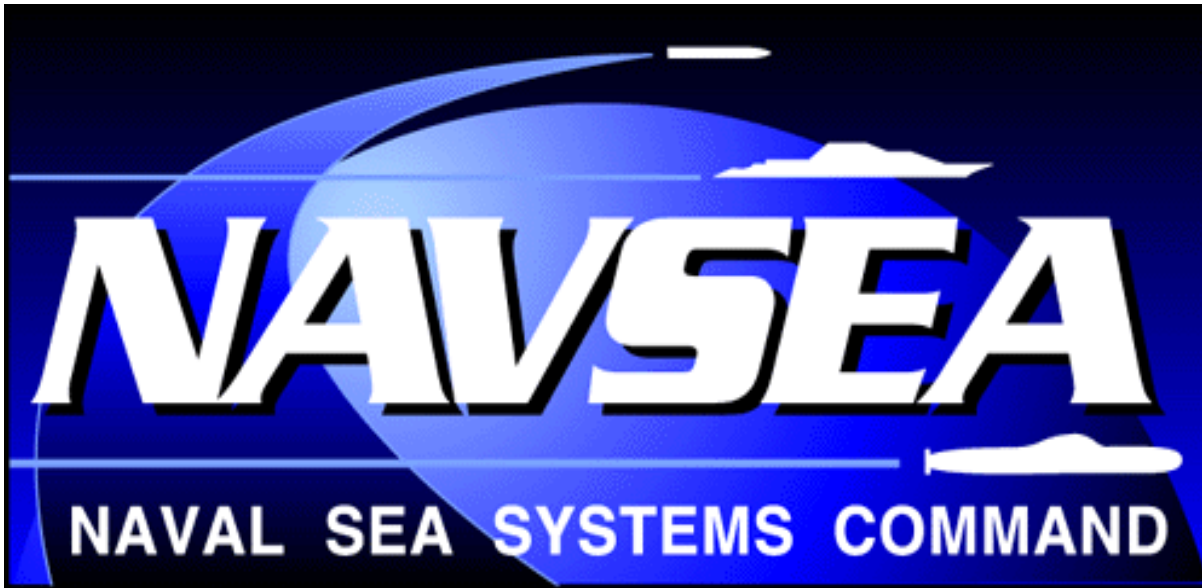
TECHNICAL SPECIFICATION

**TITLE: ALTERATIONS TO SHIPS ACCOMPLISHED BY ALTERATION
INSTALLATION TEAMS**

NO.: TS9090-310F

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ALTERATIONS/SHIP CHANGES TO SHIPS ACCOMPLISHED BY ALTERATION INSTALLATION TEAMS

1 SCOPE

This specification establishes procedures applicable for all shipboard Alterations/Ship Changes (SCs) accomplished by Alteration Installation Teams (AITs) or any organization that performs the duties or functions of an AIT.

1.1 General

This specification provides requirements for the planning, scheduling, and accomplishment of logistically supported alterations/SCs on active and reserve U.S. Navy ships by AITs and provisions for a Quality Management System (QMS) for accomplishment of such work.

a. Planning

Only alterations and SCs approved by the Navy Modernization Process (NMP), as applicable, will be installed in U.S. Navy ships.

No funds shall be expended for ships scheduled for deactivation within five years without a Secretary of the Navy (SECNAV) waiver or approved Memorandum for Record (MFR). See reference 2.2.3(14).

Note: This paragraph applies only to changes funded outside of Shipbuilding and Conversion, Navy (SCN) accounts. SCN-funded change processing questions should be referred to the respective Ship Acquisition Program Managers (SHAPMs).

b. Scheduling

For submarine Type Commander Alterations (TYCOMALTS) the TYCOM Alteration Management System (TAMS) serves as the official authorization database until the Navy Data Environment (NDE) database can be modified to accommodate TYCOM requirements and Unclassified Navy Nuclear Propulsion Information (UNNPI) data.

OHIO Class Submarines do not use NDE. Configuration is managed in the Submarine Acquisition and Support (SAS) System and uploaded via Configuration Data Managers Database – Open Architecture (CDMD-OA) to the Weapons System File (WSF). Installations are scheduled in the Navy Tool for Interoperability Risk Assessment (NTIRA) / Submarine Modernization and Alteration Requirements Tool (SMART) and the TAMS. Submarine scheduling/programming of Title “K” and “KP” alterations is also accomplished in the NDE program module.

Surface ship and carrier modernization is scheduled in Navy Data Environment-Navy Modernization (NDE-NM). In addition, SCs that are ship modifications (legacy 'K' & 'D' SHIPALTs) are scheduled/programmed by the Sponsor in the NDE program module.

For New Construction Carriers, Surface Combatants, and Amphibious Ships, configuration is managed by the respective SHAPMs while the ship is in the SCN Window, from the ship's Delivery to the Obligating Work Limiting Date (OWLD).

The Availability Work Package (AWP) serves as the official authorization database for scheduling and tracking. Configuration is managed and uploaded via CDMD-OA to Enterprise Resource Planning (ERP) by the respective SHAPM's Configuration Data Manager (CDM).

c. Accomplishment

The installation of alterations/SCs are accomplished through established procedures noted in this specification, references 2.2.3(14), and 2.2.2(1).

Note: Milestones within this document are expressed in calendar days for Surface Ships and Carriers and in months for Submarines.

1.2 Definitions

As used in this document, the definitions contained in Appendix G herein apply.

1.3 Applicability

This specification applies to all legacy alterations and SCs accomplished by AITs on U.S. Navy ships, including surface ships, carriers, submarines, and service craft, except as noted in paragraph 1.4.

This NAVSEA Technical Specification (NSTS) cancels and supersedes Technical Specification (TS) 9090-310E.

1.4 Exceptions

This specification does not apply to:

- a. Alterations to nuclear components and systems under the cognizance of the Deputy Commander for Nuclear Propulsion (NAVSEA 08).
- b. Strategic Systems Program Alterations (SPALTs) issued by the Director, Strategic Systems Programs (DIRSSP).
- c. Temporary modifications performed as part of a shipyard availability to support industrial work or associated testing.
- d. Temporary Alterations (TEMPALTs) to be accomplished on submarines. References 2.2.3(18)) and 2.2.3(12) provide specific policy and procedures for submarine TEMPALTs.
- e. Technical support personnel and certification teams who only provide technical guidance, equipment check-out and grooming or certification of systems or on-site training for Ship's Force not associated with the accomplishment of an alteration/SC.
- f. Technical support personnel for non-invasive installations supporting short term experimentation efforts where desktop/laptop computers are brought aboard and not connected to the network to support clearly defined experimentation objectives for a finite period of time and do not require AITs for installation.

1.5 Roles and Responsibilities

The general roles and responsibilities for the following activities are identified to provide guidance for AIT installations. These roles and responsibilities are further defined throughout this TS and can be refined, if required, in a Memorandum of Agreement (MOA). It is recommended that Headquarters System Commands (HSC)/AIT units that use alternative AIT titles within their organization use the terminology of TS9090-310(Series) in position description/billet assignments of personnel. If alternative titles are used, ensure personnel assigned parallel AIT duties are familiar with TS9090-310(Series) responsibilities. All activities identified in this TS are responsible for entering and maintaining accurate data in NDE.

1.5.1 Naval Supervising Activity/Authority

1. The single naval activity responsible for the integration, oversight, and verification of all work accomplished by all activities (i.e. Naval Shipyards (NSYs), Regional Maintenance Centers (RMCs), Supervisors of Shipbuilding, Conversion, and Repair (SUPSHIPS) contractors, TYCOM sponsored contractors, Fleet Maintenance Activities (FMAs), AITs, and Ship's Force) working within the assigned availability, and which acts as the single point of contact for this work. The Naval Supervising Authority/Activity (NSA) must possess a Naval Sea Systems Command (NAVSEA) Technical Warrant. The NSA will provide the oversight required to ensure that all work in the assigned availability is authorized and completed in compliance with applicable technical requirements and maintenance/modernization policy, and that all work meets schedule, cost, quality, and environmental/safety requirements. In accordance with reference 2.2.2(1) Volume VI, Chapter 43 (Guidance For Enhanced Modernization And Alteration Installation Team Integration During Availabilities) the NSA has overall responsibility for the availability, and possesses the authority to organize, structure, and coordinate all availability execution matters. All other participants will support the NSA in this regard. Specific NSA strategies to accomplish this oversight will vary, however, an integrated planning process, work control process, and ship certification process are essential to the success of the availability.
2. Depending on the complexity of the availability, the NSA responsibilities include but are not limited to:
 - a. Coordination with other Maintenance Activities (i.e. NSYs, RMCs, SUPSHIPS, AITs, Ship's Force, and other participating activities) through an authorized MOA.
 - b. Act as the single point of contact for the Lead Maintenance Activity (LMA) shipboard personnel and AIT Manager.
 - c. Verify completion of work for milestones, key events, end of availability, and availability departure report based on documentation provided by all activities.
 - d. Based on the amount of work accomplished, the NSA may also assume the role of LMA.
3. For Chief of Naval Operations (CNO) Availabilities, the NSA will:

- a. (NSYs only) Also serve as LMA, when applicable.
- b. Participate in selected work definition and planning conferences.
- c. Facilitate planning efforts. Ensure detailed planning and integration of the work package is accomplished to provide a schedule that incorporates the work and testing of all organizations involved in the availability. The schedule will address work definition, key events, ship checks, job summaries, material preparations, and strategy preparations. Identify milestones with sufficient detail to measure intermediate progress toward each key event. Ensure orientation briefings and training are conducted as necessary so that personnel understand applicable project processes and requirements. Communicate with the AIT Manager to provide sample documents (Plan of Actions and Milestones (POA&M), MOA, AIT Support Services Request Forms, etc.) in accordance with paragraph 3.6.1.
- d. During work execution, review all changes to specifications and work items impacting propulsion plant or designated areas of nuclear powered ships to ensure requirements are met
- e. Prior to Fast Cruise, Sea Trials, and availability completion, verify all authorized work has been completed unless waived.
- f. Monitor the effectiveness and the quality of AIT Managers' execution of their Quality Assurance (QA) oversight responsibilities. Assess their execution of QA oversight responsibilities and conduct Quality Sampling of AIT performance.
- g. Ensure required participants are notified of all applicable Planning Conferences and review meetings to discuss and resolve any issues related to the alteration; (for surface ships) the Work Package Integration Conference (WPIC) and Work Package Execution Review (WPER), (for submarines) NSA Final Planning Meeting/AIT Conference, (for carriers) the Modernization Readiness Assessment (MRA) Conference and/or equivalent New Construction Conferences.
- h. Verify the delivery of all required Integrated Logistics Support (ILS) products and report any ILS problems or deficiencies to the appropriate authorities (Ship Program Manager (SPM), TYCOM, Participating Acquisition Resource Manager (PARM), In-Service Engineering Agent (ISEA), Ship's Force). Perform surveillances of installations on a sampling basis and use the sampling evidence to indicate conformance or nonconformance with NAVSEA requirements.
- i. Attend AIT In/Out briefs and coordinate with the AIT Manager/AIT On Site Installation Coordinator (AIT OSIC) and Ship's Force to ensure satisfactory completion of alterations
- j. Exercise final arbiter for conflict resolution in accordance with reference 2.2.2(1) Volume VI Chapter 43.
- k. In cases where the AIT is unable to complete the installation within the availability, the NSA will:
 - i. Perform an independent assessment of the impact of the unfinished work.
 - ii. Contact Planning Yard (PY), as required, to complete this assessment.

- iii. Determine required mitigating actions as appropriate. These may include additional spare parts, installation of temporary valves, etc.
 - iv. Ensure a Departure From Specification (DFS) is documented, if required.
 - v. Determine if temporary changes to watch bills, training aid booklets, operating procedures, etc., are required, and ensure required changes are implemented.
 - vi. Provide a complete package to Ship's Force, the PY, the appropriate TYCOM, and the appropriate Program Executive Officer (PEO) detailing how above items i through v have been adjudicated.
 - vii. Provide concurrence to the AIT Manager that the availability may complete.
 - viii. Ensure the AIT Sponsor is involved in this process.
 - ix. Notify the applicable Program Office and NAVSEA 04 of any AIT work suspension/cancellation.
- l. Oversee AIT work on critical systems in accordance with paragraph 3.5.2.
 - m. The NSA and LMA will jointly prepare a MOA in accordance with reference 2.2.2(1) to clarify the responsibilities of all participating activities involved in the installation of alterations/SCs by AITs for all availabilities.
 - n. Verify that the AIT has checked in Regional Maintenance and Modernization Coordination Office (RMMCO) prior to commencing work.

1.5.2 Lead Maintenance Activity

The LMA is the single activity responsible for work being accomplished on U.S. Navy ships during any type of availability. In accordance with reference 2.2.2(1) Volume VI, Chapter 43 (Guidance For Enhanced Modernization And Alteration Installation Team Integration During Availabilities) the LMA has overall responsibility for the availability, and possesses the authority to organize, structure, and coordinate all availability execution matters. All other participants will support the LMA in this regard. Specific LMA strategies to accomplish this oversight will vary, however, an integrated planning process, work control process, and ship certification process are essential to the success of the availability.

LMA's responsibilities are:

1. Conduct or attend routine progress review meetings with all assigned activities. Identify and resolve coordination problems and work conflicts. Advise the appropriate alteration/SC sponsors (e.g. NSA, NAVSEA, TYCOM, AIT Sponsor, SPM, etc.) of significant quality, cost, and schedule problems and impacts.
2. (CNO and SCN Availabilities) Coordinate work and testing controls to include Work Authorization Forms (WAFs), tag-outs, and test sequencing.
3. (CNO and SCN Availabilities) Coordinate preparations by assigned activities for all key events (i.e. docking, undocking, hot operations, dock trials, fast cruise, sea trials, etc.) to include verification signature checklists of readiness to start.

4. (CNO and SCN Availabilities) Coordinate crane operations, pier lay-down areas, dry dock work areas, and resolve other real estate conflicts which may impede efficient execution of the availability.
5. (CNO Availabilities only) Provide sea trials agenda with all participating activities input for Ship CO concurrence and TYCOM approval.
6. Integrate the work of all activities. For CNO Availabilities, this includes integrated work and testing schedules. For non-CNO Availabilities, integrated schedules may be used based on the complexity of the work as determined by the LMA. The schedule shall ensure adequate time is provided for crew training.
7. (Submarine CNO Availabilities only) Provide a copy of all DFS to Ship's Force QA Officer and the TYCOM N43 organization.
8. (Submarine CNO Availabilities only) Appoint a Ship Safety Officer to chair the Ship's Safety Council and coordinate work that affects control of a ship's control system.
9. (Submarines only) Provide management oversight of ship safety council in accordance with reference 2.2.3(2).
10. (Submarines only) Coordinate all safety programs (such as sail safety and sail closeout) efforts by assigned activities.
11. For Submarine Safety (SUBSAFE), Deep Submergence System-Scope of Certification (DSS-SOC), and Fly-By-Wire (FBW) work ensure that the MOA identifies the certifying activity.
12. Maintain a list of activities working on the ship. Ensure the list is updated weekly or on an as-needed basis. Ensure activities working on the ship have the proper credentials, work schedule and pedigree (authorized activity) prior to being added on the work authorization list (e.g., SUBSAFE, Scope of Certification (SOC), FBW, radiological, etc.).
13. Track progress of all activities.
14. Provide local points of contact to AIT and OSIC.
15. Attend all production management meetings to communicate/resolve priorities, problems, job interferences, and issues.
16. Participate in critiques and problem investigations (e.g. Trouble Reports) as necessary.
17. Conduct Ship's Force and AIT orientation briefings and training in accordance with this TS and reference 2.2.3(22).
18. The NSA and LMA will jointly prepare a MOA in accordance with reference 2.2.2(1) to clarify the responsibilities of all participating activities involved in the installation of alterations/SCs by AITs for all availabilities.

1.5.3 Ship Acquisition Program Manager (SHAPM)

For New Construction ships, the SHAPM has the programmatic responsibility, accountability, and authority for ship configuration. SHAPM responsibilities include:

1. Fulfill the roles and responsibilities of the TYCOM for configuration control throughout the SCN Window, and be the final authority for the installation of any alteration/SC during the SCN Window.
2. Fulfill the roles and responsibilities of the NSA pertaining to:
 - a. All AIT work not tasked to the executing shipyard for industrial work or support items; except in matters of: PSA Executing Shipyard Administering Contracting Officer (ACO) and Technical Warrant Holder responsibilities; environmental, safety; local area AIT training requirements; clearance and visit request distribution to ships and shipyards.
 - b. Distribution of ILS products and reporting of any ILS problems or deficiencies to the appropriate authorities.
3. Attend AIT In/Out Briefs and coordinate with the AIT Manager and Ship's Force to ensure satisfactory completion of alterations.
4. Fulfill the roles and responsibilities of the LMA for:
 - a. Developing the consolidated Sea Trials agenda with input from all participating activities for ship CO's concurrence.
 - b. Checking in and logging all AIT personnel, except those directly contracted or subcontracted by the executing shipyard.
5. Perform the functions of RMMCO including Gatekeeping and Production during the SCN Window.
6. Assume all the roles and responsibilities of the RMC pertaining to AIT management, coordination, integration, scheduling, oversight, reporting, resolution of technical issues and logistics.
7. Provide and manage C5I Surveillance and Reconnaissance (C5ISR) configuration status in accordance with reference 2.2.2(2).
8. Coordinate OWLD extension requests with the appropriate FLTCDR prior to extension taking effect in order to assure alignment with operational considerations.
9. Develop and submit a Completion Report for all availabilities.
10. Develop and deliver a Transfer Book documenting the turnover of life cycle support of new construction ships to the In-Service SPM.

1.5.4 Program Executive Office Submarines (PEO SUBS) Modernization Advance Planning Team (PMAPT)

1.5.4.1 The PEO SUBS Modernization Advance Planning Team (PMAPT)

The PEO SUBS Modernization Advance Planning Team (PMAPT) consists of a core group of representatives from various organizations, with the lead offices at Norfolk Naval Shipyard and Regional Support Group, Groton (due to their close proximity to the submarine PY). The PMAPT develops and submits the Advance Modernization Planning Package (AMPP) at A-10 in accordance with section 3.4.6.

The PMAPT is tasked with Modernization Planning Package Development for submarines including the following:

1. Providing coordination and integration interface between the joint NSA/LMA Project Team and all individual AITs assigned work during the modernization period.
2. Providing the AMPP to the AIT Managers, NSA, and LMA for validation and refinement as applicable to the project's Milestones and Key events.

1.5.4.2 The PEO SUBS LMA/AIT Modernization Coordination and Integration Team

The PEO SUBS LMA/AIT Modernization Coordination and Integration Team consists of representatives at each of the locations where submarine modernization is performed. Their responsibilities, as tasked by PEO SUBS and in accordance with a PEO SUBS/Naval and Private Shipyards/Program Offices MOA, include the following:

1. Provide coordination and integration interface between the joint NSA/LMA Project Team and all individual AITs assigned work during the modernization period.
2. Provide AIT installation planning support to the NSA and LMA to include:
 - a. Assisting in organizing, scheduling, and planning AIT integration conferences.
 - b. Coordination and schedule support of Pre-Installation Check Out (PICO)/ship checks
 - c. Resource support for work schedule integration.
 - d. Resource support for logistic requirements.
 - e. Resource support for MOAs.
 - f. Resource support for Readiness to Start status tracking.
 - g. Resource support for service requests and tracking service requests.
 - h. Resource support for modernization execution status tracking.
 - i. Resource support for Ship's Force to include integration of training plans as provided by the Submarine Learning Center and Program Offices.
 - j. Resource support for integrated System Operational Verification Test (SOVT)

- k. Resource support to the NSA, LMA, and AIT Managers to fully integrate the AIT schedules in AIM/PSS and/or other master schedules.
- l. Provide “Lessons Learned” from previous modernization periods and incorporate into current availability planning and execution.
- m. Conduct on-site evaluations and assessments of Submarine Warfare Federated Tactical System (SWFTS) alterations in progress and provide a weekly status report (for all projects currently being supported) to the joint NSA/LMA Project Team, AIT Managers, SPAWAR, and PEO SUBS. This report is the PEO SUBS LMA/AIT Integration and Coordination Representative’s independent, objective assessment of the AITs and the support being provided to the AITs. An advance copy of the weekly report will be provided to the individual availability Superintendent(s)/Manager(s) for review prior to distribution.

1.5.5 AIT Sponsor

The AIT Sponsor is the government activity that tasks and funds the AIT Manager. The AIT Sponsor will:

- 1. Ensure TS9090-310(series) requirements are invoked.
- 2. Ensure AITs and associated activities are fully funded in a timely manner to support planning requirements and milestones established by references 2.2.2(1), 2.2.3(14), 2.2.3(35) and this TS.
- 3. Ensure annual quality assessments are performed of AITs by AIT Managers as delineated in paragraph 3.12.2.3.
- 4. Ensure all work within the SUBSAFE Certification Boundary is performed by a reference 2.2.3(20) activity and that Supervising Authority functions required by reference 2.2.3(9) are performed by a Government Activity identified by reference 2.2.3(20).
- 5. Ensure all work within FBW Certification Boundary is performed by an activity authorized in accordance with reference 2.2.3(34)
- 6. Ensure all DSS-SOC work is performed in accordance with reference 2.2.3(1).
- 7. Ensure AIT Manager requires activity submit a letter to AIT Sponsor certifying that all SUBSAFE boundary work has been identified for their completion before commencement of the actual work in accordance with reference 2.2.3(20).
- 8. Ensure AIT Installations are funded to the level necessary to ensure all QMS requirements are met.
- 9. For carriers, submit to TYCOM N432, AIT Manager point of contact, information for each Ship Change Document (SCD) assigned by hull.

1.5.6 AIT Manager

The government activity, ISEA, military person or government civilian tasked and funded by the AIT Sponsor to initiate, fund, plan, coordinate, schedule, manage and oversee the successful accomplishment of the alteration/SC. The AIT Manager will:

1. Ensure that the AIT effort is fully coordinated with the SPM, SHAPM, Life Cycle Manager (LCM), NSA, LMA, TYCOM, and PY, including participation in AIT integration efforts directed by the NSA during the availability advance planning process.
2. Ensure alteration/SC is authorized for installation and is properly scheduled in NDE-NM for surface ships and carriers and in NTIRA for submarines.
3. Follow the impact assessment/risk assessment process when warranted, as outlined in reference 2.2.3(14).
4. When accomplishing a Quick Reaction Alteration (QRA)/Emergent SC in accordance with paragraph 3.2.2.3.1(2), the AIT Manager will begin immediate liaison with the NSA, LMA, and/or RMMCO to facilitate rapid installation completion.
5. Sign MOAs in accordance with paragraph 3.6.1.
6. Identify the AIT and manage AIT funding accordance with paragraph 3.2.1.
7. Ensure the AIT has a designated AIT Lead.
8. Ensure AITs have a QMS plan accepted by NAVSEA 04XQ prior to installation that complies with Appendix C and that proper training, certifications, and QA controls are in place for the work identified.
9. Develop and maintain an AIT Manager's Quality Assurance Program (AMQAP) to ensure AIT compliance with specified technical and quality requirements. Guidelines and provisions for an AMQAP are provided in Appendix D.
10. Review AIT quality trends and take corrective action when negative trends can degrade product quality.
11. Review AIT QA workbook and ensure it is available prior to each installation in accordance with paragraph 3.2.2.1.4.
12. Define AIT support services requirements and provide funding in accordance with paragraphs 3.6.4 and 3.7.
13. Ensure the AIT In-brief is scheduled and conducted in accordance with Appendix E.
14. Provide POA&M to the NSA and LMA in accordance with reference 2.2.2(1), Volume VI, and Chapter 43. The POA&M submittal shall be in accordance with paragraph 3.5.1 and the templates for the submittal are provided in Appendices A and B.
15. Provide information for the creation of a Job Control Number (JCN) by one of the following methods: 1) Coordinate with local RMC to generate a Work Item for Regional Maintenance Automated Information System (RMAIS). 2) For submarines and carriers, provide this information to the TYCOM Representative for loading in RMAIS. 3) For New Construction provide this information to the SHAPM for incorporation into the Availability Work Package (AWP).

16. Ensure an AIT OSIC is assigned to an installation prior to RMMCO Electronic Check-in (A single AIT OSIC may be designated for multiple alterations/SCs). If the OSIC is from a different organization than the AIT Manager, the AIT Manager shall ensure that scope of authority designated to the OSIC is documented via a MOA.

Note: AITs that do not have an assigned AIT/OSIC will be denied access to the ship.

17. Assign an AIT OSIC for each shift if multiple-shift work is to be accomplished.
18. Use discretion and experience to determine the amount of physical on-the-ship presence that is required of the AIT OSIC based on production work complexity, critical system work, contractor experience, etc. OSIC manning will be discussed during the WPIC and Final Planning Conference, and/or equivalent New Construction Conferences.
19. Verify configuration change data is loaded in CDMD-OA sixty (60) days prior to start of installation and ensure final configuration data is submitted to the LCM/ISEA at installation completion to support CDMD-OA update (see paragraph 3.22). For New Construction ships, configuration change data is provided to the SHAPM's CDM representative who will load it into CDMD-OA.
20. Ensure appropriate Security Clearance information is provided in accordance with paragraph 3.8.
21. Ensure the AIT complies with applicable Occupational Safety and Health Administration (OSHA) Standards and NAVSEA Standard Items (SIs).
22. Identify Critical System work in accordance with paragraph 3.5.2.
23. Ensure electronic check in with RMMCO is accomplished in accordance with paragraph 3.13.
24. Ensure representatives are present at applicable Planning Conferences and review meetings, to discuss and resolve any issues related to the alteration; (for surface ships) the WPIC and WPER, (for submarines) NSA Final Planning Meeting/AIT Conference, (for carriers) the MRA Conference and/or equivalent New Construction Conferences.

Note: Representatives may opt out of personal attendance if it is cost prohibitive (e.g. held overseas on a deployed unit). Teleconferencing or Video-teleconferencing may be employed, if reasonably available. For New Construction surface ships and carriers, attend PSA Planning Conferences and Work Package Scrubs as required by the SHAPM.

25. (Submarines only) Release readiness to start information in accordance with paragraph 3.18.13.
26. Ensure physical check in with RMMCO is accomplished including submission of required documentation for review and verification.

Note: Ensure OSIC and AIT Lead attend a physical check-in with the applicable Environmental, Safety, and Occupational Health (ESOH) Office before work commences.

27. Ensure adherence to safety, technical, environmental, and production process requirements. Coordinate with NSA and LMA to determine requirements for local area AIT training requirements, including (but not limited to) Shipyard safety briefings and Work Authorization/Tag Out procedures.
28. Ensure OSIC executes AMQAP on-site as planned.
29. Have AMQAP available for review by NSA when requested.
30. Provide a copy of any surveillance reports or audits conducted to the NSA when requested.
31. Investigate significant problems and submit critique and Trouble Reports in accordance with references 2.2.3(17) and 2.2.3(35). The ship involved, the contractor(s) involved, and the applicable NSA and LMA will be parties to the investigation and will assist in the preparation of the Trouble Report. Implement the corrective actions addressed in the Trouble Report.
32. Review and submit Liaison Action Record (LAR) requests and incorporate into future installs if applicable.
33. Ensure all QMS requirements are met, appropriate quality oversight during installation is provided and qualified/trained personnel are in place to perform requisite technical and quality oversight responsibilities, including in-process monitoring on all shifts conducting work.
34. Ensure proper completion of inspection/installation records by reviewing completed Sections 6 and 7 of the QA Workbook (Section 3.12.1.5).
35. Ensure RMMCO Check-out is completed in accordance with paragraph 3.24.3
36. Upon completion of the installation, report alteration/SC completion in accordance with paragraph 3.24.2, verify delivery of ILS products, show the status of completion of each alteration/SC and list those items authorized but not undertaken to the TYCOM and SPM in accordance with existing instructions. Copies of the completion report will be sent to the NSA, LMA, PY, applicable Squadron/Group Commander, RMC, Submarine Maintenance, Engineering, Planning and Procurement (SUBMEPP), the applicable SPM, the Carrier Planning Activity (CPA) (carriers only), and the Naval Sea Logistics Center (surface ships only).
37. Forward copies of the Alteration/SC Completion Report (ACR) in accordance with paragraph 3.24.2. More than one completion report may be submitted for a single alteration/SC accomplished by multiple AIT activities. However, a single completion report must be issued for each alteration/SC.
38. Upon completion of each installation, ensure that red lined drawings are provided to the ship in accordance with paragraph 3.24 and to the PY in accordance with paragraphs 3.24.4.1 and 3.24.4.2.
39. Support any post-installation lessons learned meetings, including ensuring representation at post-Chief of Naval Operations (CNO) Availability Hot Washes.
40. Perform annual quality assessments in accordance with paragraph 3.12.2.3.

41. Recommend to AIT Sponsor and NAVSEA 04XQ the revoking of QMS acceptances when AITs are not in compliance with this or other invoked specifications.
42. In cases where the AIT is unable to complete the installation within the availability, the AIT Manager will:
 - a. Document the amount of work left to be accomplished.
 - b. Ensure the SPM, NSA, LMA, Ship CO, and AIT Sponsor have been informed.
 - c. Verify and concur in writing that the AIT assessment of the impact of the missing equipment or capability and function is accurate and complete.
 - d. Add amplifications or clarifications as appropriate.
 - e. Obtain NSA and LMA concurrence that all required mitigating actions and documentations have been performed.
43. Provide Ship's Force/NSA red line drawings in support of tag-out boundary shifts during the installation.
44. Ensure that reference 2.2.3(20) activity submits a letter to the AIT Sponsor certifying that all SUBSAFE boundary work has been identified for their completion before commencement of the actual work.
45. Coordinate any required installation training, testing, and/or SOVT.
46. Ensure all training to be provided at the time of installation has been accomplished in accordance with paragraph 3.21.
47. For work on nuclear powered ships, verify requirements of reference 2.2.3(22) are met.
48. Ensure adherence to PICO requirements

1.5.7 AIT On-Site Installation Coordinator

The AIT OSIC is the government or military employee designated by and acting with the authority of the AIT Manager. The AIT OSIC will:

1. Be assigned and present during each installation, particularly for key/critical milestones and events in accordance with paragraph 3.2.2.2.
2. Maintain an on-site presence as dictated by the scope of work, AIT Manager and as further described in paragraph 3.2.2.2.
3. Have general responsibility for the conduct of the AIT and installation.
4. Attend advance planning meetings at the direction of the AIT Manager.
5. Be knowledgeable of and responsible for AIT adherence to all invoked requirements including safety, environmental, workmanship, quality, technical instructions, and any NSA/LMA MOA in effect with the NSA, LMA and AIT Manager.
6. Verify AIT personnel have required training and personnel/procedural qualifications for processes required for the installation.

7. Assist in providing visit requests and clearance information in accordance with paragraph 3.8.
8. Participate in negotiating and signing MOAs.
9. Coordinate with the AIT Lead, NSA and LMA for all planning and installation issues.
10. Support electronic RMMCO Check-in as designated by the AIT Manager.
11. Support RMMCO/NSA physical check-in.
12. Schedule and conduct ship's in-brief in accordance with Appendix E.
13. Obtain points of contact from the ship and provide AIT points of contact to the ship at the in-brief.
14. Ensure NSA and LMA has contact information for after normal duty hours in the local geographical area.
15. Be the primary point of contact for all matters regarding the AIT installation. Resolve AIT issues, particularly those relating to a stop work order.
16. Support PICO.
17. Execute AMQAP, including performing on-site QA surveillance inspections and audits to ensure AIT compliance with specified technical and quality requirements in accordance with Appendix D.
18. Employ the Corrective Action Request (CAR) Process in accordance with Appendix D.
19. Assist in coordinating work by other activities for associated or conjunctive alterations including the coordination of test/certification plans.
20. Ensure the AIT complies with applicable OSHA standards and NAVSEA SIs.
21. Ensure that proper housekeeping and ESOH requirements are maintained.
22. Ensure that work on a nuclear powered ship is in compliance with references 2.2.3(19), 2.2.3(22), and 2.2.3(33). Notify the NSA and LMA to assist in review of changes to specifications.
23. Ensure AIT contractor is maintaining a QA workbook on site during the installation.
24. Be responsible for verifying AIT accomplishment of Inspection (I) and Verification (V) check points and for conducting and signing Government (G) check points. Receive notifications of and take appropriate corrective action for any AIT QA deficiencies from NSA, LMA or Ship's Force.
25. Provide a periodic task status report to the AIT Manager. Report shall address overall alteration status, AIT progress, problems encountered and lessons learned.
26. Participate in Daily Production and Weekly Progress Meetings to provide updated progress on installations and changes to production schedule.
27. Ensure all requested AIT support services required for the installation have been provided. Ensure AIT support services are coordinated and tracked. Mediate any discrepancies regarding AIT support services in a timely fashion. Report any discrepancies to the AIT Manager.

28. Ensure AIT SUBSAFE work is performed in accordance with references 2.2.3(10) and 2.2.3(20).
29. Ensure AIT FBW work is performed in accordance with reference 2.2.3(34).
30. Keep the NSA, LMA and ship informed of SOVT Testing status. Provide a complete set of test reports to Ship's Force, NSA and LMA at the completion of the alteration/SC testing. Forward certification test results to the AIT Manager as provided by the AIT.
31. Ensure AIT is maintaining red lined mark-ups of all required drawings and documents reflecting all approved changes made during the installation and ensure copies are provided to the ship after installation.
32. Ensure LARs are generated and submitted in accordance with references 2.1.1(1) and 2.2.3(14). Ensure the AIT Manager is aware of any design changes requiring LARs.
33. Present signature verification that marked-up/red lined CDMD-OA workfile for all configuration alterations (adds/deletes/modifications) has been provided to the designated Ship's Force representative or designated NSA representative at RMMCO Check-out in accordance with paragraph 3.24.3.
34. Ensure delivery of ILS Support Documentation to the designated recipients as part of the RMMCO Check-out process in accordance with paragraph 3.23.
35. Ensure any ILS products not provided prior to installation completion are reported/documented.
36. Coordinate and conduct Ship's Force/NSA Out-brief.
37. Provide the draft of the Completion Report Message at the out-brief.
38. Conduct final walk-through with the ship and obtain signatures on the ACR.
39. Conduct RMMCO/NSA Check-out in accordance with paragraph 3.24.3.
40. Return completed ACR to AIT Manager.
41. Ensure all training to be provided at the time of installation in accordance with paragraph 3.21 has been accomplished.
42. Provide red line drawings in support of tag-out boundary shifts during the installation.
43. Ensure the AIT is following its QMS procedures, quality inspection and test plan, applicable safety and environmental compliance requirements and technical instructions.
44. Ensure the QMS, applicable work instructions/procedures, including contractually related procedures requiring acceptance, evidence of required personnel training/qualification, and evidence of required procedure approval/qualification are available upon request by NSA/RMMCO.
45. Attend a physical check-in with the applicable ESOH Office before work commences.
46. In cases where the AIT is comprised of all government personnel and the change is an internal equipment modification where no QA is required, the OSIC and AIT Lead functions can be performed by the OSIC.
47. Sign necessary work completion documents as required by the NSA and/or LMA.

48. Certify integration products that identify and track AIT work at the time of accomplishment as required by the NSA and/or LMA.

1.5.8 AIT Lead

The AIT Lead is the senior member of the AIT. The AIT Lead will report directly to the AIT OSIC, execute contract requirements, and will:

1. Ensure successful execution of the installation as tasked.
2. Ensure the AIT adheres to all aspects of TS9090-310(series) and requirements defined in applicable MOAs, NAVSEA SIs, Work Specification Items and/or NSY Uniform Industrial Process Instruction (UIPI).
3. Attend AIT in-brief and scheduled out-briefs.
4. Sign the ACR once all work has been satisfactorily completed.
5. Attend a physical check-in with the applicable ESOH Office before work commences.

In cases where the AIT is unable to complete the installation within the availability, the AIT Lead will:

1. Inform the OSIC and the NSA as early in the process as possible.
2. Completely describe in writing the extent of the unfinished work including valve numbers, piping, missing wiring, etc. This will usually include "red line" drawings at a minimum.
3. Completely describe in writing the impact of the missing equipment on capability or function if known.

1.5.9 AIT

A unit (military, government activity and/or contractor and subcontractors) under the direction of an AIT Manager/OSIC that is trained and equipped to accomplish specific alterations/SCs on specified ships. The AIT is responsible for the installation, performance and completion of the alteration/SC. The AIT will:

1. Maintain an up-to-date accepted QMS that complies with Appendix C.
2. Perform all work in accordance with the requirements of this TS, NAVSEA SIs, MOA, Work Specification Items, and/or NSY UIPI as applicable.
3. Comply with requirements of reference 2.2.3(10) to ensure that all SUBSAFE work is performed by an activity authorized by reference 2.2.3(20).
4. Ensure all work within the FBW Certification Boundary is performed by an activity authorized in accordance with reference 2.2.3(34).
5. Attend advance planning meetings as tasked (WPIC, WPER, AIT Conference, Final Planning Meeting, etc. or appropriate New Construction Conferences).

6. Provide AIT Manager with a POA&M (in accordance with paragraph 3.6.1 using templates in Appendices A and B) to support development of an integrated schedule in accordance with paragraph 3.6.3.
7. Provide visit clearance information to the ship, TYCOM, NSA, or other appropriate naval activities in accordance with regional procedures.
8. Along with OSIC, accomplish RMMCO Check-in and Ship In-brief.
9. Supply, assemble, and transport all of the material (ex: IAF, CFM) that is not Headquarters Centrally Procured Material (HCPM) for the installation.
10. Receive, inspect, and maintain control of all HCPM provided for the alteration/SC.
11. Provide proper handling and storage of Hazardous Material (HM)/Hazardous Waste HW) during the installation process in accordance with references 2.2.1(2), and 2.2.2(1).
12. Provide all required environmental reports cited in reference 2.2.3(21) to the AIT OSIC who will then provide to the NSA via the environmental coordinator.
13. Witness or conduct PICO of applicable systems in accordance with paragraph 3.6.2.
14. Comply with all NSA, LMA, and regional environmental instructions and procedures.
15. Maintain on-site QA workbook and when requested provide to the NSA and LMA for review.
16. Attend daily/weekly production and progress review meetings as tasked.
17. Report and update installation status, problems encountered and lessons learned to AIT OSIC.
18. Notify AIT OSIC of all instances where the installation cannot be executed in accordance with approved design documentation including as found conditions and instances of delay and disruption.
19. Maintain red lined mark-ups of all required drawings and documents reflecting any changes made during the installation and ensure copies are provided to the AIT Manager after installation in accordance with paragraph 3.24.4.2.
20. Perform testing as tasked and in accordance with the QA workbook, test procedures, approved drawings, and applicable ship specifications.
21. Provide certification test results to the AIT Manager/OSIC.
22. Along with AIT OSIC, accomplish Ship Out brief and RMMCO/NSA Check-out.
23. The AIT shall be held accountable for a Test and Inspection Plan which meets the requirements of SI 009-04 and amplify that (I), (V) and (G) points are not all inclusive. Any other tests and inspections required by other applicable references will be included in the Test and Inspection Plan as well.

1.5.10 Regional Maintenance and Modernization Coordination Offices (RMMCOs)

A regionally-aligned organization that serves as the initial point of entry for all waterfront related alteration/SC installations performed by AITs. The RMMCO Gatekeeper is designated by and

acting with the authority of the NSA/Norfolk Ship Support Activity (NSSA)/RMC/SHAPM. The RMMCO will:

1. Serve as the control point (i.e. Gatekeeper) for AIT check-in and check-out for all alterations/SCs.
2. Verify alterations/SCs are properly authorized and mature. Liaison with appropriate stakeholders to ensure all alteration/SC maturity and authorization issues are resolved.
3. Operate and maintain the RMMCO website at <https://rmmco.navy.mil> which allows entry and tracking of alteration/SC installations performed by AITs. This website generates the authorized RMMCO/AIT Installation Check-In/Check-Out Form.
4. Submit the RMMCO Concept of Operations (CONOPS) to NAVSEA 04RP for annual review.
5. Submit RMMCO Form changes to NAVSEA 04RP for review.

Note: To foster standardization across all regions, if RMMCO personnel are assigned additional NSA responsibilities (i.e. dual-hatted) those responsibilities shall be kept separate from the RMMCO roles and responsibilities.

1.5.11 Regional Maintenance Centers (RMCs)/Norfolk Ship Support Activity (NSSA)/Ship Repair Facilities (SRF)

Regional Maintenance Centers (RMCs/NSSA/Ship Repair Facilities (SRFs) are responsible for work accomplished by all activities and act as the single point of contact. When not acting as an NSA, these responsibilities include but are not limited to:

1. Broker all Intermediate (I) and Depot (D) level work to assigned shipyards or appropriate activities as applicable.
2. Obtain all NAVSEA Availability Letters of Authorization (LOA)/Hull Modernization Plan (HMP) and monitor the CNO Availabilities in NDE (except submarines).
3. Review all planned alterations/SCs for equipment removal and disposal request by the SPM/PARM (except submarines).
4. Collect lessons learned metrics and schedule post-availability hot washes (except submarines).

Note: In areas where there is no RMC/NSSA/SRF these responsibilities will be performed by the NSA.

1.5.12 Planning Yard (PY)

The PY is the Ship Class Engineering Design Agent responsible for life cycle and configuration change control to assigned ships. For carriers, PY responsibilities including those listed below are divided among the carrier shipyards in accordance with reference 2.2.3(26). For New Construction ships, the roles and responsibilities of the PY are accomplished by the Building Yard, when tasked. The PY shall:

1. Participate in planning conferences, design reviews, and problem reviews with the SPM, TYCOM, etc.
2. (Carriers and LPD 17 Class only) Maintain and coordinate Fiber Optic Cable Plant (FOCP) path reservation assignments with FOCP ISEA (Naval Surface Warfare Center (NSWC), Dahlgren Division).
3. Provide LAR services, including on-site engineering field services, to NSAs/Installing Activities for clarification of requirements, review and approval of changes.
4. Provide Design Service Allocation (DSA) services including COSAL Overhaul Planning (COP), Bill of Materials (BOM), Ship Selected Record (SSR), Design Change (DC), and Ship Configuration and Logistic Support Information System (SCLISIS) as funded.
5. Maintain a weight control baseline system.
6. Provide configuration control and maintain configuration data.
7. Develop test requirements for complex alterations/SCs when specified in the Ship Alteration Records (SARs)/SCDs
8. Develop, review and approve Ship Installation Drawings (SIDs) as tasked.
9. Provide a complete set of SIDs to the NSA and the ship receiving the alteration/SC.
10. Participate in accomplishing ship checks as tasked.

1.5.13 Configuration Data Manager

The designated activity, assigned by ship class, that has total responsibility for the completeness and accuracy of data within the Ship Configuration and Logistics Support Information System (SCLISIS) database and the Configuration Data Managers Database - Open Architecture (CDMD-OA). The CDM will:

1. Identify and track all configuration changes in accordance with reference 2.1.1(3).
2. Process end-of-installation configuration workfile updates submitted by the applicable ISEA and change the Installation/Alteration Status Codes (ASCs) within 30 days of installation completion.

1.5.14 In-Service Engineering Agent

The ISEA is the activity delegated to perform functions for the overall engineering, test, maintenance and logistics requirements incident to specific operational equipment. The ISEA functions typically include:

1. Providing technical expertise to the NSA, LMA, PY, SPM, TYCOM, and AIT Manager/OSIC as required.
2. Performing ILS planning and installation execution functions as tasked and funded by the PARM/PEO.

3. Coordinating with AIT Manager/OSIC to ensure ILS product turnover is properly documented and any deficiencies are identified to the SPM, NSA, LMA, RMC, Ship CO, Executive Officer (XO), Supply Officer (SUPPO).
4. Provide training of system/equipment as required.
5. Coordinating with the AIT Manager/OSIC to ensure end-of-installation configuration workfile updates are provided to the applicable CDM for processing via the SCLISIS process upon installation completion.
6. Provide Test Procedures to NSA, LMA, TYCOM, AIT Manager and PY as required.
7. Accomplish SOVT/System testing as required.

1.5.15 Immediate Superior In Command

The Immediate Superior In Command (ISIC) is responsible for providing oversight during modernization availabilities for all assigned units. The ISIC will:

1. Prepare the TYCOM LOA for fleet alterations/SCs when this action has been delegated by TYCOM (e.g. as is the case with Surface Ship Class Squadrons (CLASSRONs)) or for New Construction ships, when this action has been delegated by the SHAPM (e.g. LCS).
2. Participate in the availability advance planning process.
3. As required by Higher Authority, maintain the following files: Ready to Start Messages and Naval Message Completion Reports, alteration/SC briefs and other related documentation.

1.5.16 NAVSEA 04RP - Modernization Planning and Sustainability Office

NAVSEA 04RP, the Modernization Planning and Sustainability Office, is responsible to NAVSEA 04 via NAVSEA 04R for revising this TS and for monitoring the effectiveness of the overall AIT program. NAVSEA 04RP will:

1. Maintain direct contact with AIT Subject Matter Experts (SMEs) in the Surface Ship, Carrier, and Submarine communities who perform AIT tasks and who recommend changes to revise TS 9090-310 to improve documenting the AIT process.
2. Ensure TS is written to provide requirements to individuals and activities directly involved in the installation of ship alterations.
3. Serve as the process administrator.
4. Provide Advance Change Notices (ACNs) for process updates prior to releasing each revision.
5. Revise TS by incorporating/adjudicating all changes recommended, discussed, reviewed and approved by the AIT Process SMEs Working Groups (WGs).
6. Prepare and submit draft of TS proposed revisions to SMEs WGs for their review and concurrence.

7. Submit draft approved by SMEs WGs to NAVSEA 04, 04R, and the Navy Modernization Process Team (NMPT) for final approval.
8. Post revisions of TS as Appendix H to NMP-MOM website at <https://www.nde.navy.mil>.

1.5.17 NAVSEA 04XQ - Quality Programs and Certification Office

NAVSEA 04XQ supports NAVSEA 04RP by providing Quality Policy and Quality Policy oversight for alterations/SCs to ships accomplished by AITs. NAVSEA 04XQ will:

1. Monitor compliance with quality responsibilities of AIT Sponsors, AIT Managers, AIT OSICs and AITs. This will include efforts to develop audit plans and schedule audits of AIT Sponsors and AIT Managers to ensure compliance to TS9090-310(series).
2. Review AIT QMSs for compliance with SI 009-04. AIT changes, other than administrative, to QMS procedures must be resubmitted to NAVSEA 04XQ for acceptance. AITs are required to resubmit their QMS procedures every three years after NAVSEA acceptance letter date, or submit a letter stating they are working to QMS revision date stated in NAVSEA acceptance letter.
3. Maintain list of AIT organizations with NAVSEA Accepted Quality Systems (AQS) in the RMMCO website.

2 REFERENCED DOCUMENTS

The following documents form a part of this TS to the extent specified herein. Use current revision where the version referenced has been superseded.

2.1 Specifications

2.1.1 Naval Sea Systems Command

1. Technical Specification 9090-100 (Series) - Liaison Action Report (LAR).
2. Technical Specification 9090-600 (Series) - Ship Alteration (SHIPALT) Installation Drawing (SID) Preparation.
3. Technical Specification 9090-700 (Series) - Ship Configuration and Logistics Support Information Systems (SCLISIS)
4. NAVSEA Standard Items (SIs) - <http://www.sermc.surfor.navy.mil/ssrac1/standard.htm>.

2.2 Publications

2.2.1 Chief of Naval Operations

1. OPNAVINST 4790.4 (Series) - Ships Maintenance and Material Management (3M) System Policy – <http://doni.daps.dla.mil>
2. OPNAVINST 5100.19 - Navy Safety and Occupational Health (SOH)

2.2.2 Commander, U.S. Fleet Forces Command (COMUSFLTFORCOM)/Commander, U.S. Pacific Fleet (COMPACFLT)

1. COMUSFLTFORCOMINST 4790.3 - Joint Fleet Maintenance Manual (JFMM)
2. Commander, U.S. Fleet Forces Command (COMUSFLTFORCOM /Commander U.S. Pacific Fleet (COMPACFLT 4720.3 (Series) - (C5ISR) Modernization Policy

2.2.3 Naval Sea Systems Command (NAVSEA)

1. NAVSEA SS800-AG-MAN-010/P-9290(Series) – System Certification Procedures and Criteria Manual for Deep Submergence Systems
2. NAVSEA 0905-LP-485-6010(Series) – Manual for Control of Testing and Ship Conditions
3. NAVSEA S0400-AD-URM-010(Series) – Tag-out User’s Manual (TUM)

4. NAVSEAINST 5400.95(Series) – Naval Shipyard, SUPSHIP and Fleet Engineering and Technical Authority Policy
5. NAVSEA 0948-LP-045-7010(Series) – Material Control Standard Volume 1
6. NAVSEA S9074-AR-GIB-010/278(Series) – Requirements for Fabrication Welding and Inspection, and Casting Inspection and Repair for Machinery, Piping and Pressure Vessels
7. NAVSEA 0900-LP-001-7000(Series) – Fabrication and Inspection of Brazed Piping Systems, w/CHG 1
8. NAVSEA TL855-AA-STD-010(Series) – Naval Shipyard Quality Program Manual
9. NAVSEA 0902-LP-018-2010(Series) – General Overhaul Specifications for Deep Diving Submarines (DDGOS)
10. NAVSEA 0924-LP-062-0010(Series) - Submarine Safety (SUBSAFE) Requirements Manual, Revision C, w/CHGS 1-2
11. NAVSEA S9040-AA-GTP-010(Series) – Shipboard Systems Certification Requirements for Surface Ship Industrial Periods (Non-Nuclear)
12. NAVSEA S9070-AA-MME-010(Series) – Guidance Manual for Temporary Submarine Alterations
13. NAVSEA S9AA-AB-GOS-010(Series) – General Specification for Overhaul of Surface Ships, Including the AEGIS Supplement
14. NAVSEA SL720-AA-MAN-030 – Navy Modernization Process Management Operations Manual (NMP-MOM) –<https://www.nde.navy.mil/>
15. NAVSEA Standard Items – <http://www.sermc.surfor.navy.mil/ssrac1/standard.htm>
16. NAVSEA T9066-AA-MAN-010(Series) – Navy Outfitting Program, Policies and Procedures Manual; Volume 1, Other Procurement Navy (OPN)
17. NAVSEAINST 4700.17(Series) – Preparation and Review of Trouble Reports
18. NAVSEAINST 4720.14(Series) – Temporary Alterations to Active Fleet Submarines

19. NAVSEAINST C9210.4(Series) – Changes, Repair and Maintenance to Nuclear Powered Ships
20. NAVSEANOTE 5000(Series) – Activities Authorized to Perform Submarine Safety (SUBSAFE) Work
21. NAVSEA Standard Item 009-02
22. NAVSEAINST 4350.2C - Contract Work Onboard Nuclear-Powered Ships
23. NAVSEA letter 4720 Ser 04X/086 of 22 Apr 2002, – Submarine Non-Nuclear SHIPALT Migration and Pricing Policy
24. NAVSEA T9074-AD-GIB-010/1688 – Requirements for Fabrication, Welding and Inspection of Submarine Structure
25. NAVSEA S0300-B2-MAN-010(Series), SUPSHIP Operations Manual (SOM)
26. NAVSEA SL 130-AF-CCD-10 - Integrated Design and Engineering Activity (IDEA) Operations Manual
27. NAVSEAINST 5400.97 - Virtual SYSCOM Engineering and Technical Authority Policy Concept of Operations for the Fiber Optic Cable Plant (FOCP) In-Service Engineering Agent (ISEA) in Support of Aircraft Carrier FOCP Systems
28. NAVSEA T9410-HD-PRO-010 - OHIO Class (SSBN/SSGN) Command and Control System (CCS) and Non-Propulsion Electronic System (NPES) Alteration Installation Team Standard Operating Procedures
29. DOD-STD-2003 (NAVY) Electrical Plant Installation Standard Methods for Surface Ships and Submarines
30. MIL-STD-1689 Fabrication, Welding and Inspection of Ships Structures
31. MIL-STD-2042 Fiber Optic Cable Topology Installation STD Methods for Naval Ships
32. NAVSEA S9AA0-AB-GOS-020/GSO Supply General Specifications for Overhaul of Surface Ships (GSO) Nuclear Supplement
33. OPNAVINST 4700.7 (Series) – Maintenance Policy for U.S. Navy Ships

34. NAVSEA T9044-AD-MAN-010 Requirements Manual for Submarine Fly-By-Wire Ship Control Systems
35. NAVSEA INST 4790.23 (series), Baseline Project Management Plan
36. NAVSEA T9074-AS-GIB-010 Requirements for Nondestructive Testing Methods
37. NAVSEA T9074-AQ-GIB/248 – Requirements for Welding and Brazing Procedures and Performance Qualifications
38. PEO SHIPS FL – Logistics and Material Support Plan for Aegis Destroyers (DDG 51 Class) Post Shakedown Availabilities
39. PEOTAD/SCN Notice 5223, Serial 4000/595 of 09 June 1998 – DDG 51 Class Shipbuilder Special Studies Procedures
40. SUBSAFEGRAM 87A, Serial 9077/07Q21 of 17 April 2008 – Standard Elements of a Memorandum of Agreement Addressing SUBSAFE Work

3 REQUIREMENTS

This specification outlines the process to be followed for the planning, scheduling and accomplishment of all permanent alterations/SCs and TEMPALTs/Non-Permanent Changes (NPCs), except as defined in paragraph 1.4, to ships by AITs. For the purposes of this document, the AIT process commences with the scheduling of the alteration/SC in NDE-NM. A representative AIT Process Flow Diagram is shown in Figure 3-1. Each block in Figure 3-1 corresponds with a paragraph of text below that delineates the process in that block. For a description of all AIT process flow responsibilities please see Section 3. Sequencing of an individual AIT process flow may vary slightly from the diagram below, based on local NSA and LMA policies, guidance, and other factors.

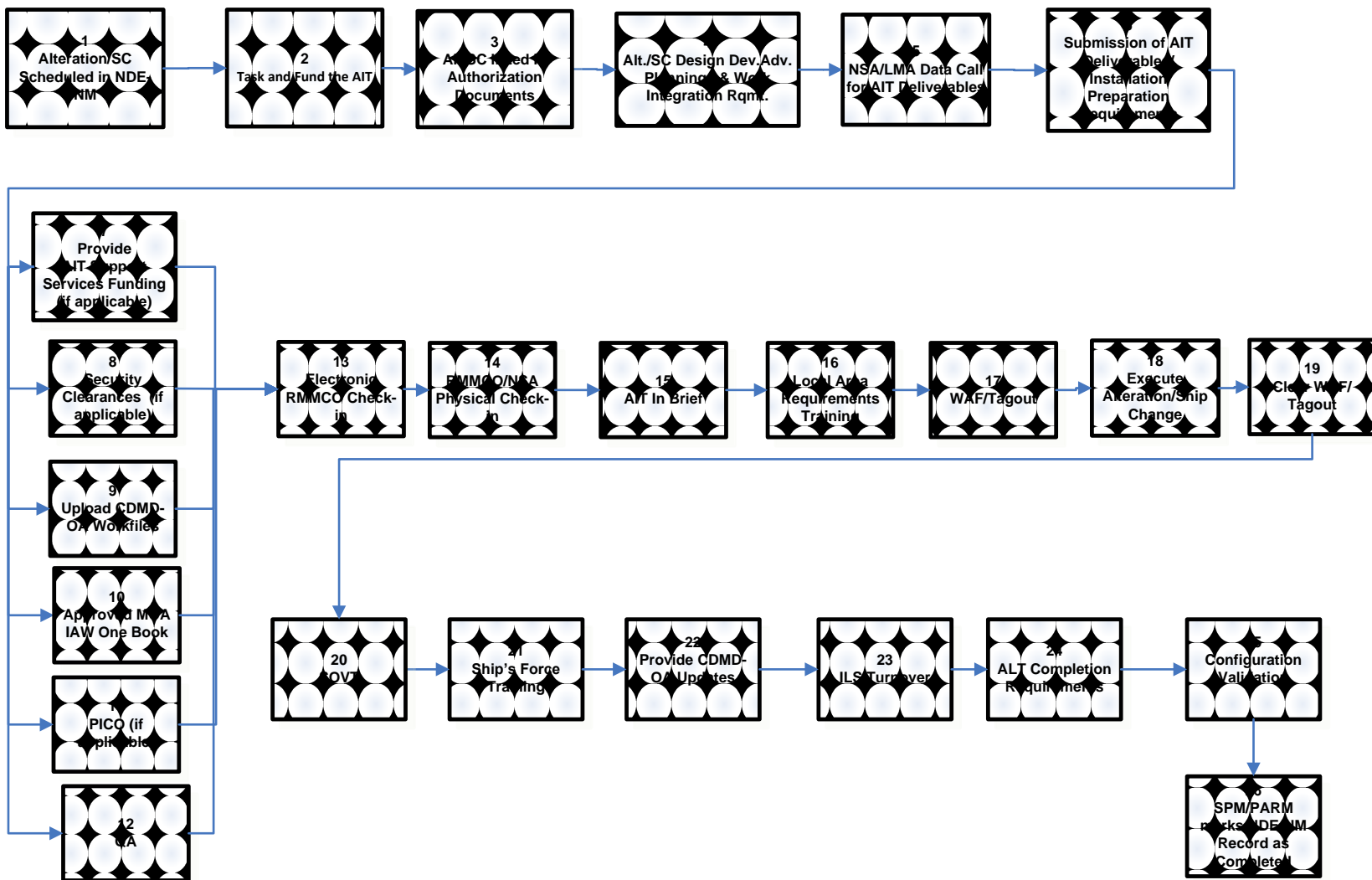


Figure 3-1 AIT Process Flow Diagram

3.1 Alteration/SC Scheduled in NDE-NM

For specific details on scheduling in NDE-NM, see reference 2.2.3(14) Section 3 for Surface Ships and Section 9 for Submarines. NDE-NM Website is <https://www.nde.navy.mil>.

3.1.1 Alteration/SC Scheduling in NDE-NM

An alteration/SC is scheduled in NDE-NM reflecting planned installation dates. The scheduled alteration/SC may be inside or outside a Modernization Window (MW). Additionally, the scheduled alteration/SC can be in a CNO Availability or a Non-CNO Availability.

For surface ships, the SPM, PARM, ISEA or AIT Manager enters scheduling dates in NDE-NM. For New Construction, SCN-funded alteration/SC scheduling is done with the SHAPM. For submarines, scheduling of Title "K" and "KP" alterations is via the programming in the program module of NDE and NTIRA. Submarine PARMs schedule Engineering Changes (ECs), Field Changes (FCs), Ordnance Alterations (ORDALTs), Software Delivery (SWD) in NDE and ECs, FCs, and SWD in NTIRA. Submarine TEMPALTs and OPALTs are exempt from this process and are tracked internally by the SPM and TYCOM.

3.1.2 Availability Types

There are two basic types of availabilities – CNO Availabilities (DMP, ROH, EOH, SRA, DSRA, PMA, DPMA, etc.); Non-CNO (TYCOM) Availabilities (CMAV, Window of Opportunity (WOO), DMD, RAV, TAV (Technical Availability), etc.) and New Construction (SCN) Availability (Extended Post Delivery Availability (EPDA), Follow On Availability (FOA), Industrial Post Delivery Availability (IPDA), Post Shakedown Availability (PSA), etc.). For a complete listing of all the different types of availabilities, categorized as CNO and Non-CNO see NDE-NM.

3.1.3 Modernization Window

The MWs are noted in NDE-NM. Any alterations/SC scheduled outside of the MW is a Target Configuration Date (TCD) "Bust" and will need to follow the TCD Offer Process in accordance with reference 2.2.2(2). The final approval of the TCD Offer is the authorization needed to satisfy RMMCO Check-in. TCDs are required for C5I and Combat System alterations/SCs and are not required for Hull, Mechanical and Electrical (HM&E) alterations/SCs. For New Construction, the MW is from Delivery to TCD or OWLD, whichever comes first. TCD for New Construction occurs 60 days after the completion of PSA.

3.2 Task and Fund the AIT

3.2.1 AIT Sponsor Assigns AIT Manager

The AIT Sponsor shall task the AIT Manager to accomplish a specific alteration/SC. Multiple installing activities or multiple AIT Managers may be required to accomplish a specific

alteration/SC. The AIT Sponsor needs to fund the AIT Manager as soon as funding is available in order to allow for maximum possible planning time, support meeting attendance, material procurement, planning, AIT funding, etc. Ensure reference 2.2.3(10) requirements are invoked for any SUBSAFE boundary work specified in the Ship Alteration (SHIPALT) installation drawings. When SUBSAFE boundary work is identified in the approved SHIPALT drawings, activities listed in reference 2.2.3(20) are required to perform the work and are the only activities authorized to perform the work.

3.2.1.1 Tasking Elements

Tasking for accomplishment of alterations/SCs will authorize procurement of required long lead-time and incidental material and accomplishment of the applicable alteration/SC. The tasking may include design development. Tasking will address the following:

1. The specific alteration/SC(s) covered by the task.
2. The specific applicable hull(s) covered by the task.
3. The type of task (alteration/SC design or accomplishment).
4. Whether NAVSEA 0902-018-2010, NAVSEA S9070-AA-MME-010/-SSN/SSBN, NAVSEA S9AA0-AB-GOS-010/GS or other general specification is invoked for basic guidance for design, installation, material selection, testing and certification requirements, tasking will require the AIT to be in compliance with the requirements of this TS.
5. The SPM point(s) of contact.
6. The equipment/system PARM/ISEA (Naval Air Systems Command (NAVAIR), Naval Sea Systems Command (NAVSEA), Space and Naval Warfare Systems Command (SPAWAR), etc.) point of contact and when certification in accordance with reference 2.2.3(11) is a requirement, the designated Certifying Authority.
7. The AIT Manager and financial points of contact (if other than the PARM/ISEA or the SPM).
8. The applicable Class PY points of contact.
9. Approval requirements for installation design products (SIDs, test procedures, etc.) for installation design tasks.
10. For submarines, whether SUBSAFE work is required and verification the SUBSAFE work is tasked to an activity authorized by reference 2.2.3(20) to perform SUBSAFE work.
11. For submarines, whether FBW work is required and verification that the FBW work is tasked to an activity authorized by reference 2.2.3(34) to perform FBW SCS work.
12. Submittal of AIT quality data analysis to support Sponsor's Annual Quality Assessment Report submittal to NAVSEA 04.
13. Any other financial/status reporting requirements desired of the AIT by the AIT Sponsor.

3.2.2 AIT Manager Tasking

3.2.2.1 AIT Manager Assigns AIT

The make-up and management of the AIT is the responsibility of the AIT Manager tasked to accomplish the alteration/SC. The AIT can be comprised of government, contractor, or military personnel.

3.2.2.1.1 AIT Contract/SOW Preparation

For alterations/SCs accomplished by AIT (using contractor entities), the AIT Manager will have in place the AIT contract in accordance with references 2.2.2(1) Volume VII Chapter 13 Shipboard Contracting Strategy and Utilization and 2.2.3(14) modernization milestones. ASN Memorandum of 27 Mar 2009 provides policy for non-nuclear Navy maintenance and modernization contracting strategy. The contract/Statement of Work (SOW) shall ensure that requirements of this TS are invoked. Contract/SOW tasking shall include support for, but not limited to, ship check, installation execution, procurement of incidental and consumable material, testing, and post-install. To perform an alteration/SC, the AIT Manager will ensure that the selected contractor has a NAVSEA 04XQ accepted QMS, before accomplishment of shipboard industrial work. The AIT Manager will ensure that the contract/SOW identifies all contractor deliverables necessary to facilitate pre-planning, execution and/or completion of alteration/SC. All work practices shall conform to the latest version of reference 2.1.1(4). For SUBSAFE, DSS-SOC, and FBW work to be contracted, the AIT Manager will verify compliance with the requirements of references 2.2.3(10), 2.2.3(20), 2.2.3(1) and 2.2.3(34), respectively.

3.2.2.1.2 AIT Formulation

The make-up of the AIT will be as determined by the AIT Manager based on the skill level requirements of the work to be accomplished and the number of shifts the AIT is planned to work. For those skills that require specific training, qualification and/or certification (welding, electrical connector assembly, SUBSAFE, Signal Security (SIGSEC), Telecommunications and Electrical Machinery Protected from Emanations Security (TEMPEST), PCMS installation, Level 1, fiber optic cable/equipment installation, FBW, etc.), AIT members performing these functions will be fully qualified/certified.

3.2.2.1.3 Transportation and Billeting

The AIT Manager will ensure that the AIT is tasked with transporting AIT personnel, tools, material, and support equipment to and from the installation site. All billet arrangements will be the responsibility of the AIT.

3.2.2.1.4 AIT Quality Assurance Workbook

The AIT Manager must ensure that the selected AIT is tasked to develop a QA Workbook in accordance with paragraph 3.12.1.5 for each installation.

3.2.2.1.5 Participation of Other Activities

At the tasking phase, the AIT Manager will assess the necessity of participation of other activities required for accomplishment of required conjunctive or associated alterations/SCs, or for testing or

certification of equipment or systems associated with the accomplishment of the tasked alterations/SCs. The AIT Manager will coordinate participation of the applicable system/equipment ISEA, PARM, or other designated activity, to ensure responsibilities for work are clearly defined and how certification of the alterations/SCs will be accomplished.

3.2.2.2 AIT Manager Assigns OSIC

For each alteration/SC, the AIT Manager will assign an AIT OSIC. The AIT OSIC will be a government or military employee and will be present during each installation. The AIT OSIC will act with the authority of the AIT Manager.

The AIT OSIC will have general responsibility for the conduct of the installation and will be the point of contact with the ship, AIT Manager, NSA and LMA. The AIT OSIC will be knowledgeable of and responsible for AIT adherence to all invoked requirements including safety, quality plan, technical instructions and, when applicable as identified in the SUPSHIP Operations Manual (SOM), NAVSEA SIs or any NSA MOA in effect with the NSA and AIT Manager.

A single AIT OSIC may be designated for multiple installations dependent upon the complexity of the alterations. If multiple-shift work is to be accomplished, an AIT OSIC for each shift shall be identified. AIT Managers will use their discretion and experience to determine the amount of physical on-the-ship presence required of the AIT OSIC based on production work complexity, critical system work, contractor experience, etc. AIT OSIC manning will be discussed during the WPIC and Final Planning Conference. If off-site at any time, the AIT OSIC must remain on call and be available to respond on-site within two (2) hours of request. Installations that do not have an assigned AIT OSIC, or documented approval from the SPM that an AIT OSIC is not required, will not attempt to accomplish alterations to ships and will be denied access to ships.

3.2.2.3 AIT Manager Conducts Advance Planning

The AIT Manager will initiate a planning strategy for alteration/SC accomplishment as soon as the determination is made to accomplish the alteration/SC by an AIT. This strategy shall incorporate advance planning milestones as dictated by reference 2.2.3(14). For alterations/SCs, the planning schedule will be based on SPM/PY approval of the SAR/SCD, SIDs and ILS certification. In addition, AIT Managers will include as part of their planning strategy the schedule of equipment/kit delivery, availability of AITs, availability of ILS products, test procedures and/or system certifications/SOVT, and the anticipated industrial availability schedules of applicable ships.

3.2.2.3.1 Scheduling and Pre-Installation Coordination Requirements

1. **Routine Scheduling and Coordination:** The AIT Manager will ensure that the alteration/SC is scheduled in accordance with paragraph 3.1.
 - a. *During Scheduled CNO Availabilities:* The AIT Manager will ensure the alteration/SC is authorized for accomplishment during a CNO Availability via the SPM's Advance Planning Letter, LOA, MRA, or from the TYCOM Authorization Letter/Message, and NTIRA for submarine ECs/FCs/SW and NDE.

The AIT Manager will coordinate all planning for the alteration/SC with the NSA and LMA in accordance with paragraph 3.6, including industrial services

support (e.g., crane and rigging services, welding/burning, compressed air). The AIT Manager will keep the ISEA/PARM, TYCOM, SPM, CNO availability planning activity, CDM, PY, LMA, and NSA informed of the AIT's schedule and any schedule changes.

- b. *Outside of Scheduled CNO Availabilities:* The AIT Manager will ensure that the alteration/SC is scheduled via the TYCOM quarterly scheduling process. TYCOM authorizes the accomplishment of an alteration/SC scheduled during a Non-CNO Availability via an AIT Installation Scheduling Message. (NTIRA for submarines). The AIT Manager will verify that the alteration/SC is authorized in the TYCOM's AIT Installation Scheduling Message or NTIRA for submarine ECs/FCs/SW and NDE prior to the AIT initiating RMMCO processing..

If a C5I alteration/SC is scheduled outside a MW, the AIT Manager will ensure that a TCD waiver request is submitted in accordance with reference 2.2.2(2). Note that HM&E alterations/SCs do not require a TCD waiver.

Unlike an availability executed in an industrial facility, pierside availabilities generally do not include provision of AIT support services. The AIT Manager/AIT OSIC will ensure that all required support services are provided by the AIT or arranged via third-party providers. The AIT Manager will keep the ISEA/PARM, TYCOM, SPM, CNO Availability planning activity, CDM, PY, LMA, and NSA informed of the AIT's schedule and any schedule changes.

- c. *During New Construction SCN Availabilities:* Throughout the New Construction MW, the FLTCDR has operational control (OPCON) of the ship and is responsible for the ship fulfilling its operational requirements. The SHAPM has the responsibility, accountability and authority for the configuration management of the ship. The AIT Manager or designated representative shall present the proposed alteration/SC accomplishment schedule to the SHAPM for coordination and concurrence. Notification for these alterations/SCs will be discussed at the PSA Planning Conference Work Package review or other planning meetings. If authorized for install during the SCN Window (inside or outside of a shipyard availability), the alteration/SC will be incorporated into the AWP for tracking.

Note: The late add and emergent processes are not applicable during New Construction SCN Availabilities. Proposed Late Add installations shall be coordinated directly with the SHAPM.

During SCN shipyard availabilities for any non-SCN funded alteration/SC work, the AIT Manager will coordinate all planning with the ACO in accordance with paragraph 3.6, including industrial support service requirements (e.g., crane and rigging services, welding/burning, compressed air). The AIT Manager shall keep the SHAPM and ACO informed of the AIT's schedule and schedule changes.

When a planned alteration/SC is not required to support a SCN event (Combat System Ship Qualification Trial (CSSQT), Post Delivery Test and Trials (PDT&T), Shock, Development Test/Operational Test (DT/OT), etc.), the installation should be scheduled during a SCN shipyard availability (EPDA, FOA, IPDA, PSA, etc.). For all other AIT work during a SCN shipyard availability, the AIT Manager will coordinate all planning with the SHAPM or SHAPM representative.

During pierside (non-shipyard) availabilities within the SCN MW, the AIT Manager will coordinate all alteration/SC planning with the SHAPM or SHAPM representative. Special consideration is given to alterations/SCs which support the operational requirements of an upcoming SCN event (CSSQT, PDT&T, Shock Quals, DT/OT, etc.). Since pierside availabilities generally do not include provision of AIT industrial support services, the AIT Manager/OSIC shall ensure that all required support services are provided by the AIT or arranged via third party providers. The AIT Manager shall keep the SHAPM or SHAPM representative informed of the AIT's schedule and any schedule changes.

2. **Emergent Alterations/SCs Requirements:** The Emergent Process, as defined by reference 2.2.3(14), applies to alterations/SCs that require immediate installation (30 days or less) and that do not have an approved SCD. When the Emergent Process applies, the AIT manager will utilize reference 2.2.3(14) for the approval process. The AIT Manager will coordinate all planning for Emergent Alterations/SCs with the NSA and LMA as applicable.
3. **Late Add Process:**
Any alteration/SC added to an availability for installation after reference 2.2.3(14) milestones, is considered a late addition and must either be mature with concurrence from the Platform TYCOM, or have an approved Hull Installation Impact Assessment. See reference 2.2.3(14) for additional details.

3.3 Alteration/SC in Authorization Documents

3.3.1 Alteration/SC Authorization for a CNO Availability

SPM authorization is required for Program Funded Alteration/SC's during a CNO Availability. This is accomplished through the use of LOAs or the MRA process; and programming in the NDE-NM module. For submarines ECs, FCs, and SWD are scheduled in NDE-NM by the PARM and approved for installation in NITRA. ORDALTs are scheduled in NDE-NM by the PARM and authorized via the SPM's LOA. The TYCOM/CLASSRON provides authorization for Fleet funded alteration/SC's in a CNO Availability via message LOAs. CNO Availabilities that are SCN funded (e.g., Submarine EROs, Carrier RCOHs) are subject to SPM authorization processes.

3.3.2 Alteration/SC Authorization Outside a CNO Availability

For Surface Ship Non-CNO Availabilities, the TYCOM provides installation approval for both Fleet and Program authorized alteration/SC's via the TYCOM Quarterly Installation Scheduling message as noted in Section 7-5 of reference 2.2.3(14). The Quarterly Scheduling Message provides guidance for submitting additional alteration/SC's for approval.

For submarines, SPM authorization is required for Program Funded Alterations. The TYCOM provides installation approval for both Program and Fleet Alterations. Fleet Alterations installed by AITs along with Program Alterations are authorized via NTIRA. For submarines ECs, FCs, and ORDALTs are scheduled in NDE-NM by the PARM and approved for installation in NTIRA.

For Carriers, alterations/SCs shall be approved and scheduled in NDE-NM (in agreement with the approved NDE-EP fielding plan) and are tracked through the MRA database. AITs must go through RMMCO to install alterations/SCs outside of CNO Availabilities. Coordination with TYCOM is required. AIT POA&Ms are still required in accordance with reference 2.2.3(14) milestones.

3.3.3 Authorization During a New Construction Availability

For specific details for authorization contact the applicable New Construction SHAPM.

3.4 Alteration/SC Design Development, Advance Planning, & Work Integration Requirements

3.4.1 Alteration/SC Design Ship Check:

A Design Ship Check will be conducted on each hull when the AIT Manager and SPM determine that the technical risk warrants the cost. When a non-PY party is performing the ship check, participation by the PY may be requested by the AIT Manager or directed by the SPM (depending on the complexity of the SC). Funding will be provided by the AIT Manager to the PY. The SPM will be the only activity to task PY efforts, unless otherwise agreed to by the SPM and the AIT Manager. In either case, ship checks must be performed in time to meet milestones specified in references 2.2.3(14) and 2.2.2(1).

3.4.1.1 Scheduling of Alteration/SC Design Ship Checks

Design Ship Checks will be conducted at the convenience of the ship being checked, following the policies of the TYCOM, on a not-to-interfere basis. In preparation for the Design Ship Check, ship availability dates will be coordinated between the activity developing the alteration design and the respective TYCOM or TYCOM designee, employing local coordination policies. AIT Manager will notify applicable ships and NSA of the intent to accomplish the alteration/SC ship check via the port engineer or maintenance ISIC, as applicable.

3.4.1.2 Design Ship Check Security Clearances

Where access is required to secure areas or equipment, the individual Design Ship Check team members requiring such access are required to have the proper level of clearance for access without escort. Whether a ship check is to be accomplished in or out of a scheduled CNO Availability, the AIT Manager/AIT Lead will provide visit clearance information to the ship, TYCOM, and other appropriate Naval activities a minimum of seven (7) days prior to the scheduled ship check date or as established by TYCOM or regional policy. Prior to sending the clearance requests, the AIT Manager/AIT Lead will verify with the ship/ISIC/LMA that ship and/or industrial activity operations will permit completion of ship check requirements during the intended ship check period. If not, it should be re-scheduled.

3.4.1.3 Alterations/SCs Affecting Nuclear Powered Ships

Reference 2.2.3(19) defines propulsion plant and related systems and spaces in nuclear powered ships that require prior NAVSEA approval before modification or change. As it may not always be readily apparent that modifications or changes in nuclear powered ships affect reactor plant operations or personnel safety, it is of the utmost importance that reference 2.2.3(19) be reviewed when developing alterations/SCs that affect nuclear powered ships, to ensure the required reviews and approvals are obtained. NAVSEA, the applicable reactor plant PY, ship-class PY, or nuclear capable shipyard shall be consulted if any uncertainty exists as to the applicability of reference 2.2.3(19). Reactor Plant PY approval will be obtained by the AIT Sponsor before drawings are submitted to ship-class PY for final approval.

Reference 2.2.3(22) provides policy and direction for contracting work onboard nuclear powered ships, including requirements for prior NAVSEA approval before contracting work within spaces specified in reference 2.2.3(19).

3.4.1.4 Fiber Optic Cable Requirements

AIT Managers directing the install of Fiber Optics Systems on ships with centrally managed BOF FOCPs are required to contact the cognizant PY for FOCP path reservation assignments prior to SID development via LAR. If situations arise where deviations from these assignments are necessary a follow-on LAR shall be submitted to the PY to resolve the deviation prior to work being conducted. Resolution of LARs affecting the FOCP will be coordinated between the PY and the FOCP ISEA.

3.4.1.5 Design Ship Check In-Brief

A Design Ship Check in-brief will be conducted upon arrival onboard for appropriate members of Ship's Force, TYCOM, and the PY On-Site Representative (OSR). The briefing will explain the purpose and extent of the planned ship check, and provide an outline of data to be gathered, spaces requiring access, and other relevant information.

3.4.1.6 Design Ship Check Out-Brief

After completion of the Design Ship Check, the team will conduct a Design Ship Check Out-brief for appropriate members of Ship's Force, TYCOM representative, and the PY OSR. This brief will discuss the extent of work required to accomplish the alteration/SC as well as any

ship-provided support requirements. This will include requirements for PICOs, weapons handling, and other relevant information.

3.4.1.7 Design Ship Check Report

The AIT Manager, in coordination with the SPM's designated design agent and/or the PY when tasked and funded, will issue a Ship Check Report to the appropriate offices, including the Ship and NSA (if assigned), within fourteen (14) days after the Design Ship Check is completed. The SPM will be the only activity to task PY efforts, unless otherwise agreed to by the SPM and the AIT Manager.

The Ship Check Report shall include detailed sketches showing location and dimensions of existing equipment and systems, existing component designations/markings (e.g., circuit numbers, valve numbers), and interface(s) with other systems. The Ship Check Report will also include red line as-built mark-ups, when applicable, to reflect the ship's unique configuration to the PY, allowing identification and coordination of interferences/interaction with other alteration/SC designs under development by the PY.

3.4.1.8 Design Ship Checks for New Construction Ships within the SCN Window

The AIT Manager shall notify the SHAPM of the intent to accomplish ship checks. Whenever possible, Design Ship Checks should be accomplished prior to Sailaway. The AIT Manager shall notify the SHAPM of the time and location for all Design Ship Check In Briefs/Out Briefs and ensure that the SHAPM is on distribution for all Ship Check Reports.

3.4.2 Alteration/SC Design Element Review & Approval

All design products not prepared by the ship-class PY shall be reviewed and approved by the applicable PY prior to the initiation of work on any U.S. Navy ship. Unless prior agreement exists, the AIT Sponsor, PARM, SPM, PEO or System Command (SYSCOM) will provide funding for the PY to review non-PY developed design products, including drawings. Products and funding must be provided in time to allow PY to meet Ship Change Installation Drawing (SID) approval milestones as specified in references 2.2.2(1) and 2.2.3(14). The SPM will be the only activity to task PY efforts, unless otherwise agreed to by the SPM and the PARM. AITs without PY approved drawings will not accomplish alterations/SCs to ships without documented approval from proper authority in accordance with reference 2.2.3(14). AITs without PY approved designs or documented approval will be denied access to ships.

3.4.2.1 Ship Installation Drawings (SIDs) Not Developed By Planning Yard

Individual SIDs shall be prepared in accordance with reference 2.1.1(2) for each hull authorized in the tasking documentation, unless development of class-applicable SIDs has been authorized by the SPM and PY. The alteration/SC design that is represented in these drawings will be based on criteria presented in the approved SAR (for SHIPALTs) and approved SCD (for Ship Changes), Technical Data Packages (TDPs) provided by the ISEA/PARM, approved guidance LAR, plan schedule, installation control drawings, lessons learned, design guidance provided by the PY, actual configuration determined during a Design Ship Check of the applicable ship, references 2.2.3(9) and 2.2.3(13) or other general specifications as applicable. The PARM/LCM or their designated representative will approve

System/Equipment level drawings. All SIDs require approval by the applicable PY. To minimize errors or omissions that could hinder timely approval, SIDs shall address the following:

1. Interfaces required to accomplish the alteration/SC (e.g. NAV interface, distributed system interfaces (Heating, Ventilating, and Air Conditioning (HVAC), Power, Chilled Water, FOCP, etc.)).
2. Identify base materials of anything to be welded or brazed.
3. Identify mounting HM requirements to ensure shock and technical requirements are met.
4. When known, specify Navy Stock System (NSN) Standard Material.
5. Identify testing for existing hazardous materials, such as lead, asbestos and Poly Chlorinated Biphenyl (PCBs), in affected systems and components.
6. Arrangement drawings showing location of new equipment within existing space.
7. Critical systems as defined in paragraph 3.5.2.

3.4.2.2 Review and Approval of First-of-Class Alteration/SC Drawings

When specified in the tasking documentation, non-PY developed drawings for the first planned accomplishment of an alteration/SC on a ship class shall be reviewed in coordination with the SPM, PY, Deputy Commander for Integrated Warfare Systems (NAVSEA 05W), NAVSEA Chief Engineer, and the system/equipment LCM. The drawings will be reviewed for technical accuracy, design adequacy and clarity, compliance with applicable design technical requirements (e.g., SIGSEC, TEMPEST, Electromagnetic Compatibility (EMC), Electromagnetic Interference (EMI), Radiation Hazard (RADHAZ), NSV, Electrostatic Discharge (ESD), EMP, Radar Cross Section (RCS), SUBSAFE, FBW, etc.), technical standards [references 2.2.3(29), 2.2.3(30) and 2.2.3(31)], applicable TSs (including Gen Specs for Overhaul and New Construction [references 2.2.3(9), 2.2.3(13) and 2.2.3(32)], and drawing format in accordance with reference 2.1.1(2).

3.4.2.3 Alteration/SC Installation Drawing Submission Requirements

Depending on the PY, the drawings will be submitted either via LAR or transmittal letter and must include the scheduled installation date for the specific hull, two points of contact with corresponding phone numbers and e-mail addresses, and an explanation of type of submittal (i.e., initial review, comment incorporation validation, etc.). When submitted via LAR, the following information must also be included: tasking documentation, supporting calculations (as applicable), Ship Check Report (as defined in paragraph 3.4.1.7), applicable guidance documents (i.e., ICDs, TDPs) provided by the ISEA/PARM, LARs, shock certification documentation, Reactor Plant PY approval documentation, topside arrangement documentation, IC Switchboard ISEA concurrence documentation, etc.).

Except for very large or complex alterations/SCs, the review cycle will be sixty (60) calendar days or less for surface ships and carriers and three (3) months or less for submarines, following PY receipt of drawings and appropriate funding. If the review cannot be completed

within the allotted time, the PY will coordinate the completion date with the SPM and alteration/SC Sponsor.

The requirement to review alteration/SC designs for follow-on ships will be at the discretion of the applicable PY, unless otherwise required by the tasking documentation. A PY review of follow-on SHIPALT/SC designs will usually be required due to significant design differences among ship hulls. The interpretation of the degree of change required to prompt additional design review will be defined by the PY. The PY will, subsequent to the review of the first ship design, advise the AIT Manager if a review of follow-on ship design is considered necessary and under what circumstances.

3.4.2.4 Electronic Equipment Test Procedure/Record Approvals

Equipment-specific test procedures and test record forms for electronic equipment may be required to be approved for work on critical systems or for high visibility programs. The approving activity in these cases shall be the system/equipment LCM (usually the AIT Manager). When an alteration/SC affects interfaces with other systems or equipment via various signal distribution modes, the ISEAs for each impacted system or equipment shall participate in the test procedure approval process.

3.4.2.5 Changes to Approved Alteration/SC Designs

Once SIDs have been approved, only the PY, SPM, or the SPM's designated representative can approve deviations and waivers to the design. In accordance with reference 2.2.3(4) all technical and/or configuration change recommendations to approved SIDs must be submitted to the PY (via LAR or transmittal letter, as applicable) for review and approval prior to implementation of those changes. Approved design changes to alterations/SCs may still require that a DFS be submitted, in accordance with reference 2.2.2(1).

Note: NSA Chief Engineers designated in reference 2.2.3(4) may approve minor deviations and waivers to the design. Acceptance and agreement by the NSA Chief Engineer to assume this responsibility will be documented in the MOA between the AIT(s) and NSA.

3.4.3 Advance Planning & Work Integration

1. In accordance with reference 2.2.2(1) the NSA and LMA are responsible for integration of the AWP. Reference 2.2.2(1), and for submarines reference 2.2.3(35), require all activities participating in an availability to support the NSA, LMA, or PMAPT, as applicable, in advance planning and work package integration.

For submarines, the PMAPT will initiate contact with the AIT Manager at A-10 months as detailed in paragraph 1.5.4.1.

For surface ships and carriers, the NSA and LMA are responsible for initial contact with the AIT Manager. Initial contact with the AIT Manager will occur early enough to allow the AIT Manager to develop and submit required deliverables in accordance with milestones for the specific availability type. In the event that the contact does not occur before A-180 (A-225 for Firm Fixed Price Contracts), the AIT Manager should

initiate the contact. At a minimum, AIT Managers will provide Technical Points of Contact to assist the NSA and LMA with advance planning and integration questions, and submit required AIT deliverable items in accordance with paragraphs 3.6 and 3.9.

When an alteration/SC is planned for execution during a Non-CNO Availability or other Window of Opportunity, the AIT Manager will coordinate with the NSA and LMA when the alteration/SC is authorized for installation by the TYCOM and ensure participation in advance planning and work integration as specified by the NSA and LMA.

2. For each authorized alteration/SC, the AIT Manager/AIT OSIC will request a JCN by email from the RMC/Work Broker (the activity charged with entering JCNs into the maintenance database, e.g., CLASSRON, ISIC, or maintenance team), in accordance with paragraph 1.5.6(15). In addition, if the alteration/SC requires industrial support services to be provided, a second JCN for Services must be requested by the AIT Manager and entered by the RMC into the maintenance database. This second JCN will be used to develop a Work Specification Item for the required support services.

Note: For New Construction, a JCN assignment during an SCN availability is only required for alterations that are not SCN funded. A second JCN for support services may not be required, if support services are tasked in the SCN AWP. Contact the respective SHAPM to verify requirements.

3.4.4 Advance Planning Requirements for Nuclear Powered Ships

Reference 2.2.3(33) defines the work in nuclear powered surface ships which must be assigned to nuclear capable activities (e.g., nuclear capable shipyards). Reference 2.2.3(22) defines requirements for the conduct of contract work onboard nuclear powered ships (e.g. the work in nuclear powered ships that need not be assigned to nuclear capable activities). When conducting work in a nuclear powered ship, it may not always be readily apparent that modifications or changes in the nuclear powered ship, affects reactor plant systems, operations, or personnel safety. Therefore it is of the utmost importance that references 2.2.3(19), 2.2.3(33) and the associated requirements in reference 2.2.3(22) be reviewed to ensure that work in a nuclear powered ship is in compliance with these requirements. The AIT Manager is responsible for this review during advance planning for alteration/SC installation.

For contracted work onboard nuclear powered ships, the AIT Manager(s) will ensure that spaces under the cognizance of references 2.2.3(19) and 2.2.3(22) are identified on the submissions provided under paragraph 3.5.1. The NSA will review the submissions to ensure that all spaces listed therein are correctly identified with regards to cognizance of 2.2.3(19) and 2.2.3(22). Incorrect identification of spaces covered by references 2.2.3(19) and 2.2.3(22), or the lack of NAVSEA approval letter accompanying a submission and/or a signed MOA as required by reference 2.2.3(22), is sufficient reason for the NSA to hold or reject the POA&M acceptance. However, the submission may still be used by the NSA for schedule integration and planning purposes pending the receipt of the required additional documentation and final acceptance.

3.4.5 (Submarines) AIT Performed Modernization Advance Planning and Schedule Integration

The submarine modernization planning process is crucial to the success of the NSA/LMA project team and the modernization Program Offices. History has proven that without proper manning, planning and schedule integration well in advance of the execution phase, the risk to the project and modernization programs is high. Submarine modernization performed by AITs can add significant man-days to availability and can require a significant amount of support services to be provided. Full integration and coordination of AITs is crucial to completing availability on time.

Note: NSYs use AIM to plan, track and manage work. References to AIM and associated AIM features (PSS, CU phases, CU assemblies) are not applicable to Fleet Maintenance Activities using other AIS systems.

3.4.6 Submarine Advance Modernization Planning Package (AMPP)

The PMAPT will develop and submit a draft of AMPP at A-10 months to the AIT Managers and assigned NSA, LMA, and the PEO SUBS LMA/AIT Modernization Coordination and Integration Team for validation and refinement, as applicable, to the project's Milestones and Key Events. The AIT Managers, the NSA, LMA, and the PEO SUBS LMA/AIT Modernization Coordination and Integration Team will validate and revise the AMPP and provide the updated Modernization Project Plan (MPP) to the NSA and LMA no later than 6.5 months to support the A-6 months AIT Conference. The products supplied by the PMAPT include, but are not limited to the items shown in Table 3.1.

The assigned NSA and/or LMA may provide additional planning documents/data as well. The AIT Manager will validate and revise the AMPP and any additional planning documents/data from the NSA and provide the updated MPP to the NSA and LMA no later than A-6.5 months to support the A-6 months AIT Conference.

Table 3.1 - Typical Advance Modernization Planning Package (Submarines Only)

<u>Deliverable</u>	<u>Purpose</u>	<u>Requirement</u>
Integrated AIT List with Ship Alterations and EC/FC	Support AIT Conference Planning, generate the Standard MOA Template and support AIM Network Development	NTIRA, the Advance Planning Letter and NDE SHIPALT Programming.
Integrated AIM Modernization Network(s)	Supports advance planning and refinement to support the Milestones and Key events of the project	Validate and Refine the Network(s), Submit to AIT Mangers to support the AIT Conference at A-6
Integrated MS Excel Support Service Matrix. The integrated support service matrix is developed utilizing years of data from major modernization efforts both in CNO and Non-CNO availabilities.	Provide scope of support service plan to the LMA and NSA. Allow required support services contracting actions as needed.	Validate and provide to Code 1200 for budgeting
Recommended Power Isolation Plan	To support Equipment Off-Load and System Readiness to commence industrial efforts.	Validate and refine as required with each AIT.
Combat Systems equipment power restoration plan	Support the integrated AIT Combat Systems Light-Off plan and testing phase.	Validate and refine as required with each AIT.
Work Authorization Form (WAF) Priority List Template *Based on historical data, may not be available for first-time work.	Provide a best practice WAF template as currently known from previous modernization efforts and lessons learned.	Validate and refine as required with each AIT
List of AIT Tests and SWFTS Test interface Matrix	Ensure On-time delivery to AIT Managers at A-10	Validate and refine as required with each AIT
Project Initial Risk Letter	Identify any AIT modernization that could impact the schedule based on past history lessons learned, AIT quality issues and scope of new alterations (first time alterations).	Ensure risk mitigation plans are in place to identify each item. The risk will be tracked at the quarterly Readiness Review.

3.4.6.1 Preparations for the AIT Conference

Upon delivery of the AMPP at A-10, the PEO SUBS LMA/AIT Modernization Coordination and Integration Team will commence planning and integration of all AIT work. Work identified in the AMPP will be aligned to the project’s Key Events and Milestones. The objective is to have a draft integrated schedule for review at the A-6 AIT Conference.

The PEO SUBS LMA/AIT Modernization Coordination and Integration Team will review/prepare the following in support of the AIT Conference:

1. Provide standardized MOA template to the AIT Managers.

2. Provide standardized job summaries for all modernization work based on the AMPP.
3. Review most current drawing, material, and ILS status from the quarterly PEO SUBS MIC&R Review.
4. Provide updated AIT installation schedules and validated networks to the AIT Managers as schedules are updated.
5. Develop PICO plan/schedule.
6. Review the RMMCO Web Site and verify all scheduled AITs have a NAVSEA Approved Quality Plan.
7. Prepare and transmit the “AIT Conference Notification and Agenda” Naval Message.
8. Develop the AIT Conference Shipyard Participant List with the Project Superintendent.
9. Finalize LMA work requirements in support of AITs and Critical Systems Work and determine with the LMA management whether the shipyard has the capacity to perform the work.
10. AIT Managers will provide the PEO SUBS LMA/AIT Modernization Coordination and Integration Team a list of Critical Systems Work at A-8 for acceptance.

3.4.6.2 The A-6 AIT Conference

The Scope of the AIT Conference will be driven by the amount of AIT work approved and included in the AMPP. AIT Conferences should be planned over a two (2) day period and include the following topics:

1. Project Superintendent Opening Remarks and expectations/goals.
2. Project schedule overview with Key Events and Milestones.
3. Modernization Package review.
4. Lessons Learned and best practices (from AMPP)
5. AIT AIM Network validation/Refinement.
6. Validation of AIT service requests and contracted work requirements.
7. NSA and LMA discuss their intentions to perform Critical Systems Work previously identified by the AIT Managers at A-8.
8. Review of draft MOAs

3.4.6.3 AIT Conference Follow-up Actions

1. The PEO SUBS LMA/AIT Modernization Coordination and Integration Team continues to refine the AIT products provided by the PMAPT, ensuring the LMA’s project schedule is updated and supports the project planning Key Events and Milestones.
2. Integrating the AIT work into the project’s Resource Constraint Schedule (RCS) requires joint efforts for planning and validation of the AMPP. Good teaming communication and project goals are essential in development of the AIT integrated

schedule. The following work requirements should be compiled and entered into the AIT integrated schedule by the PEO SUBS LMA/AIT Modernization Coordination and Integration Team based upon validation of the AMPP and results of the AIT Conference:

- a. Timeframe for AITs to commence work (if not A-0)
 - b. Timeframe for AITs to complete approved work, to include all testing and training.
 - c. Number of shifts required to complete work, to include overtime requirements for support services.
 - d. Services required to accomplish work, i.e. crane lifts, power, air, lay-down areas, quality control, work requested for LMA to accomplish (all to be identified in the MOA).
 - e. Space close out schedule to support Habitability Key Event
 - f. WAF prioritization (validation of the AMPP submittal).
 - g. Fleet Training (comprised of new system maintenance/operability and crew certification on new combat/communication systems).
 - h. All other ship's evolutions, certifications and requirements that may impact schedule performance during the availability.
 - i. Schedule Integration of AIT Work
3. Each AIT assigned will have their key work entered into the project's schedule as a CU phase or CU phase assembly. AIT work will be broken down by primary components and tasks affected to identify interfaces with other maintenance providers.
 4. AIT work that is directly tied to shipyard Key Events and/or Milestones (such as EAFW, power restoration, Sail close out/test, etc.) need to be associated with those Key Events and/or Milestones.
 5. The LMA will develop additional schedule activities in PSS, or CU phases in AIM, as appropriate, for AIT work that interfaces with other maintenance providers.

3.5 NSA and LMA Data Call for AIT Deliverables

3.5.1 Pre-Installation Coordination Requirements

The NSA and LMA will require the AIT Manager to provide specific information and documentation in support of availability advance planning and the work integration process. AIT submission of required documentation (POA&M) shall be in accordance with the Navy Modernization milestones of reference 2.2.3(14). The NSA and LMA will initiate the request for AIT deliverable items far enough in advance as to allow AITs adequate time to prepare and submit the required items (e.g. NSA and LMA initiate data call at A-180 when AIT submission milestone is A-135). The NSA and/or LMA shall provide, no later than A-180, an availability Key Event and Milestone schedule for use by the AIT in developing their POA&M. In order to streamline and standardize AIT deliverable documents, the NSA and

LMA data call shall require AIT submissions in a specific format provided in Appendices A and B. Distribution of templates and/or sample documents to AIT Manager will be concurrent with the NSA and LMA data call. Documents commonly required to be submitted in a specified format include MOAs, PICO Requirements, Production and Testing Schedules, POA&M and Industrial Support Service Requests. Each POA&M submittal by an AIT shall consist of the following documents:

1. AIT POA&M Cover Sheet (Microsoft Excel or equivalent template per Appendix B)
2. AIT POA&M Task Details (Microsoft Project or equivalent template and instructions per Appendix B)
3. AIT Support Services Request (Microsoft Work or equivalent template per Appendix A)

NOTE: The Project version of item #2 above includes an export to Excel capability in cases where the NSA/RMC requests an Excel input; however, the Project template is the same for ease of data entry.

NOTE: Item #3 is required for the initial submittal even if no support services are required, but is only required for subsequent revised submittals if support service requirements change.

AIT POA&M shall be submitted to the NSA/RMC at or before A-135 days. If the AIT is not under contract at A-135, then the sponsor or their government designate shall submit a notional POA&M no later than A-135 to be followed by an AIT-produced POA&M as soon as possible after the AIT is under contract.

For Submarines - Configuration Change Processing for OHIO Class Submarines: For OHIO Class Submarines, creation and processing of all planning records and configuration records are performed in the SAS system for nightly replication into CDMD-OA for subsequent upload into the WSF. Reference 2.2.3(28) provides processes and procedures for AITs specific to OHIO Class pre-installation planning and subsequent configuration change reporting.

3.5.1.1 Data Call for AIT Deliverables Outside a CNO Availability

When an alteration/SC is scheduled for execution during a Non-CNO Availability or other Window of Opportunity, the AIT Manager shall initiate contact with the NSA and/or LMA, upon authorization of the alteration/SC by the TYCOM/TYCOM Designee. Submission content requirements will be the same as for a CNO Availability and submissions are due at I-135 (135 days prior to installation start). Unlike an availability executed in an industrial facility, pier side availabilities generally do not include provision of AIT industrial support services. The AIT Manager shall ensure that all required support services are provided by the AIT or arranged via third-party providers.

For submarines, the advance planning process for large modernization packages scheduled for installation during Non-CNO Availabilities is the same as described in paragraph 3.4.3

3.5.2 Installations Impacting Critical Systems or Critical System Boundaries

Critical systems are defined as SUBSAFE, FBW, Level 1, DSS-SOC, P1 & P3A piping systems, A-1, A-2, A-3 pressure vessels (including boilers), and M-1 machinery systems, as defined in technical guidance documents, references 2.2.3(1), 2.2.3(5), 2.2.3(6), 2.2.3(7), 2.2.3(9), 2.2.3(10), 2.2.3(24), and 2.2.3(34).

Critical work consists of production processes such as fit-up/welding, brazing and mechanical joint assembly, documentation of work, and performance of related tests and inspections on critical systems.

The AIT Manager will ensure that work on critical systems, required to support the alteration/SC, is clearly identified on the Production & Testing Schedules, and in the AIT Support Services Request. (if requesting the LMA to perform). The AIT Manager shall identify any critical work and the activity that will be contracted to perform the work (LMA, NAVSEA NOTE 5000 Contractor, other qualified contractor) to the LMA prior to the A-6 Conference. If the LMA performs the critical system work, the AIT Manager will fund the LMA to accomplish production work and related engineering products (including testing) required for any portion of an alteration/SC impacting critical systems boundaries. If the LMA cannot execute the critical work due to resource constraints or other reasons, the NSA and/or LMA may, at their option, contract the critical work to a RMC, obtain the required resources from another LMA, or approve the AIT Manager's assignment of the critical work to a qualified contractor.

For critical work performed by an activity not qualified to perform as a NSA, the NSA shall perform QA oversight in accordance with the requirements of references 2.2.2(1), 2.2.3(8) and 2.2.3(25), as applicable, to ensure compliant production processes, personnel/procedure qualifications, and work documentation and certification. For SUBSAFE and FBW work to be contracted, the NSA and LMA will comply with the requirements of references 2.2.3(10), 2.2.3(20) and 2.2.3(34), respectively.

Note: AITs qualified to perform SUBSAFE work IAW NAVSEA NOTE 5000 are exempt from the requirement to offer SUBSAFE, Level 1, and P1 piping system work to the LMA.

For contracted work aboard nuclear vessels, the AIT Manager will ensure that spaces under the cognizance of references 2.2.3(19) and 2.2.3(22) are identified on the submissions provided under paragraph 3.5.1. The NSA will review the submissions to ensure all spaces listed therein are correctly identified with regards to cognizance of 2.2.3(19) and 2.2.3(22). Incorrect identification of spaces covered by references 2.2.3(19) and 2.2.3(22), or the lack of NAVSEA approval letter accompanying a submission and/or a signed MOA as required by reference 2.2.3(22), is sufficient reason for the NSA to hold or reject the submission. However, the submission may still be used by the NSA for schedule integration and planning purposes pending the receipt of the required additional documentation and final acceptance.

3.6 Submission of AIT Deliverables/Installation Preparation Requirements

The AIT Manager will ensure installation preparation requirements are provided to the NSA and LMA in accordance with references 2.2.2(1) and 2.2.3(35) for Submarines and reference 2.2.3(14) for Surface Ships and Carriers. When applicable, the NSA and/or LMA will then

provide significant installation preparation requirements, including material, team formulation and AIT production schedule to the Master Ship Repair (MSR)/Agreement for Boat Repair (ABR) to allow coordination and integration of the alteration/SC.

3.6.1 Memorandum of Agreement

While NAVSEA TS 9090-310(Series) is written to provide requirements to activities involved in the alteration/SC process, the MOA shall be written to provide specific requirements to each activity involved in accomplishing an alteration/SC.

For Submarines, the standard MOA template of reference 2.2.3(35), with applicable standard enclosures, and reference 2.2.3(40) shall be provided by the NSA to the AIT Manager as part of the AMPP at A-10 months. The AIT Manager shall verify/revise these documents and return to the NSA at A-6.5 months to support the AIT Conference at A-6 months.

For Surface Ships and Carriers, the NSA and LMA will jointly prepare a MOA in accordance with reference 2.2.2(1) to clarify the responsibilities of all participating activities involved in the installation of alterations/SCs by AITs for all availabilities.

NSA and LMA support services and funding requirements to accomplish the responsibilities will be clearly defined in the written MOA, and, when applicable, will be in accordance with reference 2.2.2(1). Some NSAs have developed standard MOA templates for use during their availabilities. The NSA and LMA will provide each AIT Manager with draft MOA containing information and requirements that are applicable to all participating activities in the availability. Each AIT Manager will respond with the specific requirements of their alteration(s), not addressed in the draft MOA. The NSA and LMA will take action to review and deconflict the AIT-specific requirements (with all involved parties, as appropriate), and incorporate them into the final MOA.

The depth of the specific requirements, identified in the MOA, will depend on the complexity of each alteration/SC and the combined Work Package. Participants include, but are not limited to, the AIT, NSA, LMA, LCM, MSR, Ship, and support activities. MOAs shall be approved and signed by all applicable activities prior to the AIT commencing the alteration/SC. The following are sample topics:

1. Funding requirements
2. Meeting attendance
3. NAVSEA SIs that are invoked for the installation
4. Clearly defined Technical Authority responsibilities consistent with references 2.2.3(4) and 2.2.3(27)
5. Clearances and insurance requirements
6. AIT Training requirements (ex. Hot work, RADCON, 6010 Manual)
7. In brief/out brief
8. Tag-out and work control
9. General cleanliness

10. Steam plant cleanliness environmental controls
11. Asbestos control
12. Hazardous Waste (HW) management
13. Heavy Metals Testing, Control and Abatement
14. Painting and adhesive application permit
15. Environmental reporting (e.g. paint, solvent, adhesive, fuel, welding rod usage reports, as per reference 2.1.1(4))
16. Quality Assurance
17. Work certification
18. Ship certification
19. General Safety
20. Nuclear Interface
21. Industrial radiation safety
22. Site-specific EPA HW generator ID number, if using a MSR or ABR to dispose of HW
23. Violations of safety/hazardous materials
24. Diesel engine (50hp or greater) registration/permit

Note: This is not an all-inclusive topic list. The areas that may warrant inclusion in the MOA may vary with each alteration/SC installation.

3.6.2 Pre-Installation Check-Out (PICO) Testing Requirements

When applicable, based on a requirement to conduct PICO testing in accordance with paragraph 3.11, the AIT Manager will ensure that PICO testing requirements are submitted to the coordinating activity (NSA/LMA/ISIC/Ship). Typical PICO requirements include, but are not limited to:

1. Technical Point of Contact and designated testing witnesses
2. Equipment, System, or System Interface to be tested, including required alignment or configuration
3. Applicable test procedures. (If PMS based, list MIPs/MRCs to be demonstrated or standard SUBMEPP Test Procedures. Otherwise, provide basic description of test procedures)
4. Estimated testing duration
5. Force Personnel support requirements (Ship's Force equipment operators, technicians, etc.)
6. Supporting/interfaces equipment and/or systems requirements
7. Auxiliary Support Services (power, chilled water, A/C, Dry Air, etc.)

8. External service requirements (aircraft, ship's boats, Degaussing or Shipboard Electronics Systems Evaluation Facility (SESEF) facilities, etc.)
9. Special requirements to support testing (At Sea testing, EMCON, rotate and radiate, Personnel Aloft restrictions, etc.)

3.6.3 Production and Post-Installation Testing Schedules

For Submarines, PSS/AIM Production and Test networks shall be provided by the PMAPT to the AIT Manager, NSA and LMA as part of the AMPP at A-10 months. The AIT Manager will verify/revise these documents and return to the NSA, LMA and PMAPT at A-6.5 months to support the AIT Conference at A-6 months.

For Surface Ships and Carriers, Alteration/SC installation production and testing schedules shall be submitted in the format described in paragraph 3.5.1 using the templates provided in Appendices A and B. These schedules will specify the expected start dates and duration (in calendar days) of all AIT shipboard work and post-installation SOVT schedules. Other considerations include items that could impact ship's operations or other work items in the Integrated Production and/or Test Schedules. These include, but are not limited to:

1. AIT manning, planned number of work shifts per day and hours per shift
2. Impacted areas and spaces including required access to secure spaces
3. AIT points of contact
4. Inspection requirements (gas-free, SIGSEC, TEMPEST, weight tests, etc.)
5. Specific equipment, systems, circuits, components, piping or valves which will require isolation, deactivation or removal to accomplish planned work and any associated tag-out processing requirements
6. Work on Critical Systems or Critical System Boundaries
7. Weapons/ordnance handling requirements
8. System certification that could be required/affected by accomplishment of the alteration (Navigation Certification (NAVCERT), SIGSEC, TEMPEST, EMC/EMI/RADHAZ, SUBSAFE, FBW, etc.)
9. Crew training requirements
10. Requirements for special test conditions (Sea Trials/underway testing, satellite access time, cryptographic keying material, etc.)
11. All activities must comply with key event schedules promulgated by the NSA and LMA.

3.6.4 Industrial Support Service Requirements

For Submarines, the Support Services matrix will be provided by the PMAPT to the AIT Manager, NSA and LMA as part of the AMPP at A-10 months. The AIT Manager will

verify/revise these documents and return to the NSA, LMA, and PMAPT at A-6.5 months to support the AIT Conference at A-6 months.

For Surface ships and Carriers, the AIT Manager is responsible for providing advance notification of alteration/SC accomplishment requirements/impacts and making arrangements for industrial support services that will be required to support both the Production and Testing phases of the installation.

Appendix A provides the template for requesting industrial support services. These services may include but are not limited to:

1. Administration support requirements (dedicated telephone service, desk space, etc.)
2. Material delivery and stowage requirements (number of boxes/pallets, special handling [e.g. ESD, SUBSAFE, FBW, magnetic protection], special stowage, lay-down area requirements, etc.)
3. Crane service requirements (capacity, on-load, offload, high reach, etc.)
4. Rigging service requirements
5. Scope of hot work requirements (cutting, welding, brazing, etc.)
6. Fire watches (number of welders working, number and length of shifts, etc.)
7. Access cut requirements
8. Man-aloft requirements
9. Scaffolding and staging requirements
10. Diver and cofferdam requirements
11. Planned handling, use and disposal of identified hazardous materials (e.g. fluorocarbons, paint, welding rods, partially used material, hazardous waste)
12. Specific ventilation/environmental requirements (e.g. special air flow/cooling/heating requirements, protective shelters to be installed)
13. Ship systems service requirements (e.g. power, low or high-pressure air) that may be required to support the accomplishment of the alteration, calibration or certification of the equipment
14. Post-installation testing support requirements
15. Non-Destructive Testing (NDT) requirements
16. NSA turned-in equipment/material disposal requirements
17. Tag Out and Work Control requirements
18. Critical Systems or Critical System Boundaries work requirements
19. NSA QA inspection and verification of AIT Government Inspection points at the request of the AIT Manager.

3.7 Provide AIT Support Services Funding (if Applicable)

The AIT Manager is responsible for providing advance notification of alteration/SC accomplishment requirements/impacts and making arrangements for industrial support services that will be required to support both the Production and Testing phases of the installation. The NSA and/or LMA will provide the AIT Manager a cost estimate for required support services, including applicable proration for common support service costs, in accordance with reference 2.2.3(14) and 2.2.2(1) milestones (see SUPSHIP SWT 980-01, "Alteration Installation Team Support Service, Provide"). The AIT Manager will ensure that funding for support services during a contracted shipyard availability is provided to the NSA, and/or LMA in accordance with Navy Modernization milestones identified in Appendix G of reference 2.2.3(14) for surface ships and carriers, and no later than 30 days prior to contract award or 90 days prior to the start of availabilities to be accomplished at public shipyards for submarines.

3.8 Security Clearances (if applicable)

The AIT Manager will ensure that Security Clearances are in place and will communicate with the NSA and LMA to ensure local requirements are clearly defined. For CONUS installations, the AIT Manager will ensure that security clearance information for government personnel is submitted in the appropriate Visit Request format. AIT contractor personnel are responsible for providing their own clearance information to the NSA and/or LMA. For OCONUS installations, the AIT Manager will ensure that a Country Clearance Message is issued a minimum of 30 days in advance of the installation start (or 30 days in advance of the CNO Availability start date if the install is taking place within a CNO Availability). Country Clearance Messages guidance is located in DoD 4500-54 (series), Department of Defense Foreign Clearance Manual.

Where access is required to secure areas or equipment, the individual AIT members requiring such access will have the proper level of clearance for access without escort. A minimum of seven (7) working days prior to arrival or as established by TYCOM/Regional policy, the AIT OSIC/AIT Lead will provide a visit request and clearance information for AIT members to the ship, TYCOM, NSA and/or LMA, and any other appropriate Naval activities. In situations requiring a quick response, visit request and security clearance information will be provided as far in advance as possible and by the fastest means practicable. For alterations/SCs being accomplished during contracted shipyard availabilities, the AIT will comply with security requirements of the industrial or naval activity in addition to those required for access to the ship.

3.9 Upload CDMD-OA Workfiles

The AIT Manager will verify that designated Alteration/SC LCM/ISEA pre-loads configuration planning data workfiles via CDMD-OA Database, for CDM review, no later than sixty (60) days prior to Start of Installation (SOI)/Start of Availability (SOA), in accordance with references 2.2.2(1) and 2.2.3(14). Proof of workfile submission to CDMD-OA (i.e., AIT CDMD-OA Verification Report or equivalent) will be required at RMMCO Check-In.

Note: A CDMD-OA query containing the following data elements Ship Hull, Install Date, RIN, RIC, ISC, EFD, EIN, PRID, Summary Title, RECD DATE, ALT TYPE, ALT ID, ALT RIC, ALT RIN and ALT STATUS can be substituted in place of the AIT CDMD-OA Verification Report.

For OHIO Class Submarines (SSBN/SSGN), reporting of completed configuration changes is performed in the SAS system for nightly replication into CDMD-OA for subsequent upload into the WSF. The OHIO Class configuration status reporting process is highly integrated with OHIO Class Intermediate Level (I Level) maintenance processes. AITs will coordinate with the appropriate Trident Maintenance Facility's Maintenance Department - Trident Refit Facility (TRF) Kings Bay or Intermediate Maintenance Faculty (IMF) PACNORWEST for receipt of configuration planning records from LDS in the form of pre-filled OPNAV 4790/CKs. Upon completion of installation, AITs will provide completed 4790/CKs to the requisite Trident Intermediate Facility Maintenance Department for up-line reporting. The OHIO Class (SSBN/SSGN) Command and Control System (CCS) and NPES Installation Standard Operating Procedures, reference 2.2.3(29), provides detailed process explanations, procedures and points of contact.

3.10 Approved MOA In Accordance With NMP-MOM

For Submarines: As discussed in paragraph 3.6.1, the MOA will be provided by the PMAPT to the AIT Manager, NSA and LMA as part of the AMPP at A-10. Availability participants, including AIT Manager/OSIC, will negotiate required changes and indicate concurrence via signature. Copies of the signed MOA will be made available to all members of the AIT. No AIT will be allowed to commence installation of their alteration/SC prior to all required activities/organizations signing the MOA.

For Surface Ships and Carriers: Following the initial review and update of the draft MOA, in accordance with paragraph 3.6.1 the NSA and LMA will adjudicate and incorporate recommended changes, and forward the final MOA for signature. Availability participants, including AIT Manager/OSIC, will indicate concurrence via signature, and copies of the signed MOA will be made available to all members of the AIT. No AIT will be allowed to commence installation of their alteration/SC prior to all required activities/organizations signing the MOA.

3.11 PICO (if applicable)

PICO shall be conducted as determined by the PARM/ISEA when alterations/SCs modify or relocate existing equipment or systems, including modifications that affect existing interfaces between multiple systems, as determined by PARM/ISEA or, when warranted, during Design Ship Check by the PY (see paragraph 3.4.1). For PICOs, TYCOM coordination and approval is required.

PICO is conducted in order to validate the operational status and characteristics of the equipment, systems and interfaces affected by the installation. PICO events support the establishment of clear responsibilities for maintenance and modernization communities. They also serve to identify existing discrepancies which, if uncorrected, could delay or prevent the installation of the alteration/SC, or the post-installation SOVT providing stakeholders with confidence in the post-production System Light Off and SOVT schedules. . Regional

NSAs/LMAs/RMCs may coordinate a consolidated PICO event, as part of the Availability Advance Planning process, led by a locally designated PICO Coordinator. In other instances, PICOs are coordinated directly with Ship's Force by individual AIT Managers.

During the New Construction window, multiple qualification and certification SCN events are occurring. In order to ensure integration with these events, all PICOs will be scheduled through the SHAPM or SHAPM representative. Every effort shall be made to consolidate and eliminate redundancy with duplicate or similar testing and assessments.

As noted in paragraph 3.6.2, the AIT Manager will specify the scope of PICO testing, support requirements (personnel and systems) and a proposed schedule. PICO testing may be based upon Planned Maintenance System (PMS) currently implemented on the ship. Ship's Force will complete PMS-based PICO, witnessed and assisted by the AIT OSIC/AIT Lead, if feasible. Any additional (non-PMS) test requirements/procedures will be provided to the AIT OSIC/AIT Lead by the cognizant Program Office/ISEA/PARM. Responsibility for executing and witnessing non-PMS based PICO testing will be by agreement between Ship's Force and the AIT OSIC/AIT Lead. Regardless of coordination method, required PICO will be completed prior to start of installation, nominally 60-30 days prior to the SOA should the ship's operational schedule and other factors permit.

Within five (5) days of PICO completion, the Ship's Force and AIT OSIC/AIT Lead will jointly produce a PICO completion report. The report will outline SAT or UNSAT performance and will include all known discrepancies which could impact installation or SOVT. If a consolidated PICO event was conducted, the locally designated PICO Coordinator may compile results from multiple PICOs into a consolidated PICO Report. The Ship's Force, LMA, or Maintenance Team in coordination with the ISEA/AIT OSIC/AIT Lead will evaluate discrepancies and identify the recommended activity responsible for corrective action. Ship's Force will ensure repair requirements are documented in the ship's CSMP. The ship will formalize PICO Completion Reports via naval message (see Appendix B for sample) within 14 days (30 days for submarines) of PICO completion. The PICO Completion Report Message shall be addressed to the NSA, LMA, ISIC and TYCOM representatives for record purposes and to other cognizant activities including AIT Sponsors.

3.11.1 Execution

PICO may be coordinated via three methods:

1. Between the AIT Manager and Ship's Force via TYCOM
2. At the discretion of the Regional NSA/LMA/RMC, a consolidated PICO event may be coordinated as part of the Availability Advance Planning process, led by a locally-designated PICO Coordinator.
3. For Surface Ships and Carriers, during the new construction window, multiple qualification and certification SCN events are occurring. In order to ensure integration with these events, all PICOs will be scheduled through the SHAPM or SHAPM representative. Every effort shall be made to consolidate and eliminate redundancy with duplicate or similar testing and assessments.

Regardless of coordination method, all required PICO shall be completed prior to start of installation.

As noted in paragraph 3.6.2, the AIT Manager shall specify the scope of PICO testing, support requirements and a proposed schedule via the following ways:

1. PMS-Based PICO- The AIT Manager, via TYCOM, may request Ship's Force complete PICO witnessed and assisted by the OSIC/AIT Lead, if feasible. Ship's Force PICO testing shall be limited to current Ship's Force PMS.
2. Non-PMS Based PICO- Any Non-PMS based PICO requirements shall be provided to the OSIC/AIT Lead by the cognizant Program Office/ISEA/PARM in accordance with Appendix G of reference 2.2.3(14). Responsibilities for conducting and witnessing of Non-PMS PICO testing shall be coordinated in advance and documented in a POA&M/MOA.

3.11.2 AIT Manager Responsibilities

AIT Managers are responsible for identifying PICO requirements to the NSA and LMA. This includes:

1. Providing a list of systems planned for PICO
2. Coordinating with the ISEA/SME for development of PICO requirements for targeted systems
3. Providing PICO support and test requirements, as well as the test plan, if required
4. Identifying satellite access, keymat and requirements for interfacing systems
5. Developing cost estimates and funding any required technical support or witnesses for PICO accomplishment
6. Confirming PICO dates with ship/TYCOM and SME
7. Including PICO requirements in pre-installation messages
8. Identifying a SME, if required
9. Finalizing the PICO test plan
10. Conducting a PICO In-Brief, if required
11. Conducting the PICO
12. Generating a PICO completion report message in accordance with Appendix H of reference 2.2.3(14), ensuring ALCON are included. The message will be released by the ship by PICO completion +14 days (+30 days for submarines).

The AIT Manager shall ensure PICO requirements and milestones are coordinated with the NSA, LMA, and ship in accordance with Figure 3-2.

3.11.3 NSA, LMA, and Fleet Responsibilities

The TYCOM or TYCOM-designated representative shall coordinate the PICO test schedule and execution with the NSA, LMA, and ship. For all installations, AIT and Non-AIT, Ship's Force will ensure repair requirements are documented in the ship's CSMP and coordinate

work with the NSA and LMA. Additional reporting requirements for AIT installations can be found in Appendix A.

Figure 3-2 Consolidated PICO Event (Notional Timeline for MSMO CNO Availability)

When	Requirement	Responsibility
A-135	Provide scope of PICO testing requirements to NSA	AIT Manager
A-120	Confirm PICO start date (P-0) and duration; target accomplishment between A-60 and A-30	NSA, AIT Manager and Ship
A-90	Identify ISEA/SME and provide PICO test plan	AIT Managers
P-7	Conduct ship’s in-brief, if required	AIT Manager and Ship
P-0	Perform PICO testing	Ship, PARM, SEA, OSIC/AIT Lead or Installing Activities, as required
P+5	PICO results out-briefed	OSIC/AIT Lead, as required
P+14	Document PICO results	OSIC/ AIT Lead as required
A-30	Screen new work and integrate into availability schedule, as applicable	Ship and NSA

3.12 Quality Assurance Provisions

3.12.1 AIT Quality Management System (QMS)

Note: NSYs are under control of NAVSEA 04 and are not required to submit their QMS procedures for NAVSEA acceptance. When accomplishing alterations/SCs as AITs, they shall comply with the requirements of the NSY’s QA Policies and Procedures. NSYs performing AIT work at other activities will develop a QA Workbook and the designated AIT Manager will develop a QA oversight plan per guidelines in paragraph 3.12.2.1 and Appendix D.

3.12.1.1 Initial Acceptance

Initial acceptance consists of acceptance by either NAVSEA 04XQ, SUPSHIP or the RMC.

Contractors and government activities performing AIT work will submit their QMS for review and acceptance to NAVSEA 04XQ. The QMS shall comply with the requirements of Appendix C.

RMC, NSSA and SUPSHIP are authorized to review and accept an AIT's QMS. The RMCs will then forward a copy of the acceptance letter to NAVSEA 04XQ for their master files

Note: Master Ship Repair Agreements (MSRA) and ABR contractors - Contractors performing AIT work who are MSRA or ABR Agreement holders are not required to submit their QMS to NAVSEA 04XQ but must maintain a current QMS that has been accepted by the designated RMMCs/SUPSHIPS. On an annual basis, RMCs/SUPSHIPS will provide NAVSEA 04XQ with a listing of their qualified MSRA and ABR contractors.

NAVSEA review of the AIT's documented QMS will include review of quality manual (level I) and supporting implementing procedures (level II) to demonstrate compliance to documented processes required by SI 009-04 (ISO 9001). Work instructions (level III) and process control procedures, while an integral part of the QMS, are not reviewed and accepted by NAVSEA 04X. For AIT work, the supervisor, as identified in SI 009-04, is the AIT Manager, when work is not under the control of SUPSHIP/RMC/NSSA.

3.12.1.2 Revoking of Quality Management System (QMS) Acceptance

The AIT Manager is responsible for reviewing AIT quality trends and taking action when negative trends can degrade product quality. NAVSEA 04XQ has the authority to revoke a QMS acceptance where evidence exists (via audit reports, Trouble Reports, Method D letters, AIT Manager recommendations, AIT Sponsor evaluations, etc) of significant quality issues or non-compliance to the QMS with prior notification to the AIT Sponsor.

3.12.1.3 Quality Management System (QMS) Resubmittal

The QMS requires a one time submittal/acceptance unless the AIT changes or amends the QMS, NAVSEA SIs and/or references change, or AIT's status changes in accordance with NAVSEA SI 009-04.

3.12.1.4 Invoking AIT Quality Management System (QMS)

The AIT Manager will ensure the AITs have a QMS/plan accepted by NAVSEA 04XQ (that complies with Appendix C) prior to installation, and that proper training, certifications and quality assurance/control are in place for the work identified. Upon request by the designated NSA, the AIT will be required to show proof that their QMS has been accepted by NAVSEA 04XQ. Additionally, all other contractually related procedures requiring acceptance shall be available to the NSA prior to the start of ship work when requested.

3.12.1.5 AIT Quality Assurance (QA) Workbook

The AIT Manager must ensure that the selected AIT develops a QA workbook that outlines the scope and process of the installation. In cases where multiple related alterations/SCs are being installed by the same AIT, a single QA workbook covering all alterations/SCs is acceptable providing any unique requirements are clearly identified and addressed. In addition, the QA workbook will outline all personnel requirements and identify procedures

that will be used in accordance with reference 2.1.1(4). The QA workbook must be presented by the AIT to the AIT Manager in advance of the install for satisfactory review and be available onboard the ship during install. Where installations consist of standalone software changes, an AIT QA workbook is not required. The AIT Manager/OSIC/ISEA loading the software must have available the install and test procedure documentation onboard ship and during RMMCO Check-in.

The QA workbook will contain at a minimum, the following sections:

Section 1: Alteration/SC description – a copy of the approved SAR/SCD that describes the scope of the alteration/SC.

Section 2: Personnel – a comprehensive list of all AIT personnel, including subcontractors and temporary employees that will be onboard during the installation. This section must include up-to-date qualifications, certifications and training received that is relevant to the installation and pre-fabrication. Minimum requirements as to required personnel certifications are provided in Appendix C (AIT Quality System Requirements). The AIT shall cross-reference personnel to qualifications and/or certifications.

Section 3: Procedures – Objective Quality Evidence (OQE) is required to show that the AIT is operating under an accepted QMS. The AIT shall list in this section all NAVSEA SIs , approval letters and/or procedures that are relevant to the work being performed. The AIT shall develop all procedures and cross-reference with personnel qualifications that are provided in previous section.

Section 4: Installation POA&M provides a breakdown of AIT work being accomplished in a sequence of events, and provides time requirements. Specific requirements for the POA&M are contained in paragraph 3.6.1. A sample POA&M is provided in Appendix B.

Section 5: Ship Change Installation Drawing (SID) or Install Procedures – For alterations/SCs where SIDs are required, depending on size of SID package, the AIT will enclose a set of SIDs that reflects the latest drawing revisions. If the size of SID package is large, the AIT may include only the list of drawing numbers. For internal equipment modifications, the AIT will include the installation instructions that were developed by PARM/ISEA.

Section 6: Test and Inspection (T&I) Plan – This Section provides a step-by-step outline for accomplishing the work and testing. This ensures that work is accomplished safely, meets the technical specifications, and provides OQE that work has satisfied all requirements. This provides the Inspections, Verification and Government checkpoints (referred to as I, V&G points) that demonstrate AIT has completed all procedures. Any other tests and inspections required by other applicable references shall be included in the T&I Plan.

Section 7: Test and Inspection Records – Includes all forms that will be used to document the T&I performed in Section 6. The AIT Manager will either retain or ensure AITs retain all completed records of this section after installation has been completed.

AIT and Sponsor are required to maintain records of install in accordance with Joint Fleet Maintenance Manual (JFMM) COMFLTFORCOMINST 4790.3 Rev B, Quality Assurance Manual, Page 10.2.2 (2) Level I records. Requirement stated as follows: “Non-Nuclear/Non-Submarine (SUBSAFE) Level I Records will be maintained for a minimum of seven years from the ship’s delivery date for new construction or seven years from the availability

completion date for repairs, overhauls, conversions, etc. Disposition instructions will be requested from NAVSEA 04XQ via the appropriate TYCOM after that time.”

Records of Level I work will be retained at the activity (Ship or FMA) for at least three years following the completion of the work. After three years the records may be stored ashore.

3.12.2 Quality Assurance (QA) Oversight

3.12.2.1 Performance Surveillances/Compliance Audits

The NSA and AIT Manager or designated representative will perform process surveillances and product inspections of installations on a sampling basis and will use the sampling evidence to indicate conformance or nonconformance with requirements of the tasking/contract and this specification. NAVSEA 04 is responsible for monitoring compliance with this document at both Command and field activity levels. NAVSEA 04XQ shall audit, on a sampling basis, AIT Sponsors, AIT Managers and NSAs for compliance with the requirements of this document. In addition, the accepted QMS will also be subject to periodic compliance audits to the requirements of Appendix C as directed by NAVSEA 04XQ

3.12.2.2 AIT Manager’s Quality Assurance (QA) Program

The AIT Manager will administer the AMQAP outlined in Appendix D to evaluate the effectiveness of the AIT’s QMS.

3.12.2.3 Quality Assessment

The AIT Sponsor will ensure an annual quality trend analysis of Fiscal Year (FY) data, for each sponsored AIT is performed, using oversight reports, deficiency reports, departure requests, critiques, customer feedback, etc. to evaluate AIT performance. The AIT Sponsor will report results of this trend analysis including weaknesses identified and actions taken to NAVSEA 04XQ and NAVSEA 04RP by February of the following year.

3.13 Electronic RMMCO Form Submission

3.13.1 General

The RMMCO AIT Check-In/Check-Out application process at <https://rmmco.navy.mil/> provides the AIT Manager/AIT OSIC with a tool to initiate the check-in procedures required for the installation of an alteration/SC aboard ship. This application shall be used by the AIT to ensure rapid, problem-free completion of the check-in requirement. RMMCO eCheck-In form shall be initiated by the AIT Manager or AIT OSIC at least 30 days prior to installation start. To conduct the RMMCO Check-in, access to the RMMCO web application must be obtained by requesting access at the website. With website access, follow the steps to submit the RMMCO form. On-line help is available if necessary. Attach applicable documents pertaining to the installation to the RMMCO Form in accordance with paragraph 3.13.2.

3.13.2 Required Documentation for Electronic RMMCO Form Submission

The required documentation for Electronic RMMCO Form Submission is:

1. ILS certification or TYCOM approved ILS Risk Assessment.
2. Itemized inventory list of all ILS products to be provided to the ship (i.e. DD 1149 or equivalent)
3. Proof of work file submission to CDMD-OA (i.e., AIT CDMD-OA Verification Report or equivalent).

3.13.3 Reasons for Placing an Installation on Gatekeeper Hold

During Electronic RMMCO Form Submission, the RMMCO Gatekeeper reviews authoritative data sources, confirms the Alteration/SC is authorized by the SPM or TYCOM and that it has an approved QMS. Alterations/SCs that have not been authorized will be placed on Gatekeeper Hold. Gatekeeper will place Alterations/SCs on Gatekeeper Hold for the following reasons:

1. No Approved SID or SID Waivers. For Surface Ships and Carriers, installation shall not be placed on hold if an emergent approval has been issued in accordance with reference 2.2.3(14)
2. No Approved SAR/SCD/Legacy Alteration. For Surface Ships and Carriers, installation shall not be placed on hold if an emergent approval has been issued in accordance with reference 2.2.3(14).
3. No AIT Lead POC information.
4. No Government OSIC POC information.
5. No Government AIT Manager POC information.
6. No Government Sponsor POC information
7. No Final or Interim certified ILS Certification or TYCOM approved ILS Risk Assessment
8. For CNO Availabilities: No SPM LOA/MRA authorization.
9. AIT QMS has not been accepted by NAVSEA 04XQ.
10. For NON-CNO availabilities: No TYCOM Authorization
11. No approved risk form number from NDE-AMPS or date time group for TCD Waiver
12. No Approved Baseline.
13. No SECNAV DTG or MFR Waiver reference (DECOM)
14. No 2K in CSMP
15. No Accepted Quality S/QA Plan
16. No Country Clearance for out of CONUS visitors
17. CDMD-OA workfiles not submitted
18. ATO/IATO not approved or has no risk waiver.

3.14 RMMCO Physical Check-In

3.14.1 General

The AIT Manager/OSIC/AIT will check-in with the NSA and/or RMMCO prior to reporting to the ship. During check-in, NSA and/or RMMCO (as applicable) will review documentation provided by the AIT Manager/OSIC/AIT.

3.14.2 AIT Installation Package Required for Physical Check-In

RMMCO will require the following AIT installation package for physical check-in:

1. QA workbook prepared in accordance with paragraph 3.12.1.5.
2. Release of all Gatekeeper hold items previously identified.
3. Approved/Signed installation instructions as identified in the QA work book.

3.14.3 RMMCO Check-In Form

Once the AIT installation package is verified, the RMMCO Form will be printed by RMMCO or the NSA and provided to the AIT. This form identifies all items that will require signature verification of accomplishment and/or receipt of the list of ILS deliverables from designated Ship's Force/NSA representatives prior to check out.

3.14.4 AITs Not Meeting Requirements

For AITs not meeting any of the above requirements, the ship will be notified of the deficiencies by email from RMMCO and RMMCO will not allow the installation to commence until resolved.

3.15 AIT In-Brief

The purpose of an in-brief is to provide an overview and objectives of the alteration/SC to be accomplished. The in-brief will outline work to be performed, any critical work to be performed, review the schedule of accomplishment (i.e. POA&M) and identify impacts on the ship, confirm arrangements for requested/required services, review key schedule of events (milestones), establish responsibilities and points of contact, review planned ship's evolutions, and review ILS products and training to be provided. An in-brief will be scheduled and coordinated by the AIT OSIC. It will be conducted after RMMCO Check-in and prior to the initiation of alteration/SC accomplishment as outlined in Appendix E. Whenever possible, for alterations/SCs which impact several systems or spaces or will require more than a week to complete, or will impact critical systems identified in paragraph 3.5.2, the in-brief will be held for key personnel prior to the start of alteration/SC accomplishment.

The following personnel shall be invited to attend the in-brief: applicable Ship's Force personnel and/or designated representative to include but not limited to the following: CO, XO, Ship's Availability Manager, applicable Department Heads and Division Officers,

SUPPO, and Technical/Operator Personnel (i.e. FC, ET, OS, etc). Also invited shall be: TYCOM, Squadron, NSA, LMA, Shipyard Trades Personnel (i.e. Electrical Foreman), Lead Zone Manager (i.e. HM&E, Combat Systems, Engineering), Work Integration Representative, PY On-Site Representatives, RMMCO, Program Manager Representative (PMR), AIT OSICs, and AIT Leads.

Note: AITs that have not held an in-brief shall be denied permission to start installation of an alteration/SC.

3.16 Local Area Requirements Training

AITs are to follow the local area requirements of the industrial facility where the alteration/SC is to take place. This training is commonly conducted prior to badge access being allowed into the industrial facility. Most industrial facilities conduct the training via video. The training may consist of but is not limited to the following areas:

1. PPE Requirements
2. Badge Color Code and areas able to access
3. Requirements for access to Radiological Controlled areas and other controlled areas
4. Radiological Controlled Material handling requirements
5. Overhead Crane movements
6. Vehicle Traffic/Parking
7. Marked areas for walking
8. Alarms/Emergency Reporting Procedures (i.e. what to do, what number to call)
9. Off limit areas
10. Environmental impact
11. Confined Space Requirements
12. Hazardous Materials (HAZMAT) Requirements
13. WAF Requirements
14. Lock Out/Tag Out Requirements
15. Electrical Safety
16. Hot Work and Firewatch requirements
17. Manual for Control of Testing and Ship Conditions (Submarines)
18. Industrial Facility indoctrination.

3.17 Work Authorization Form (WAF)/Tag-Out

During accomplishment of the alteration/SC, various circuits, pipe runs, equipment, etc., may have to be temporarily deactivated or placed in a reduced operating status. The CO's designated representative and assigned NSA, LMA will be notified in writing, using a WAF in accordance with reference 2.2.2(1) of equipment and systems that require isolation to

accomplish the alteration/SC. During availabilities when the NSA and/or LMA is coordinating all WAFs and Tag-outs, this request should be made to the NSA and/or LMA. Notification will be provided prior to initiation of ship work so that tag outs can be accomplished as required by reference 2.2.3(3). Notification will be made at least forty-eight (48) hours prior to required deactivation to ensure proper coordination with other on-going work, or in accordance with local NSA and/or LMA policies. During periods of heavy industrial activity, 48 hour notification may be insufficient to ensure proper coordination and accomplishment of isolation. In these circumstances, notification should be accomplished as early as possible and/or as required by the MOA between NSA, LMA and AITs. AIT members will comply with all the requirements identified in reference 2.2.3(3).

All individuals who perform work onboard Naval Vessels shall be indoctrinated in basic purpose, use and restrictions associated with the Tag-out Users Manual (TUM).

3.18 Execute Alteration/Ship Change

3.18.1 AIT Formulation

The make-up of the AIT will be as determined by the AIT Manager, based on the skill requirements of the work to be accomplished and the number of shifts the AIT is planned to work. Each AIT will be outfitted with all tools and materials required to accomplish the alteration/SC, including (but not limited to) hand tools, PPE, General Purpose Electronic Test Equipment (GPETE), special purpose electronic test equipment, Installation and Check-Out (INCO) spares, and special alignment equipment. For those skills that require specific training, qualification and/or certification (welding, electrical connector assembly, SUBSAFE, SIGSEC, TEMPEST, PCMS installation, Level 1, fiber optic cable/equipment installation, FBW, etc.), AIT members performing these functions shall be fully trained, qualified and certified. Substantiating documents shall be made available for review by the NSA and/or LMA upon request.

3.18.2 Transportation and Billeting

Transport of AIT personnel, tools, material and support equipment to and from the installation site and all billet arrangements shall be the responsibility of the AIT.

3.18.3 Participation of Other Activities

The participation of a system/equipment ISEA, or other activity, which is required for accomplishment of required conjunctive or associated ORDALTs, MACHALTs, FCs, Software Deliveries, etc. shall be coordinated with the AIT Manager and AIT OSIC and documented in a MOA to ensure responsibilities for work are clearly defined and understood. Where an ISEA or other activity is required for testing or certification of equipment/systems associated with the accomplishment of the tasked alterations/SCs, the testing/certification plan will also be coordinated with the AIT Manager and AIT OSIC.

3.18.4 Safety Considerations

3.18.4.1 Risk Assessment, Risk Abatement, and Personal Protective Equipment (PPE)

AIT members will use Operational Risk Management (ORM) or similar Risk Assessment and Abatement of Hazards program to anticipate and mitigate the hazards associated with the task and the potential exposure to dangers in the work environment. Identified/recognized hazards will be abated using the following hierarchy:

1. Employment of Engineering controls
2. Employment of Administrative controls
3. Use of PPE

The appropriate PPE will be worn when there is potential exposure to hazards. As a minimum, Hardhat, Steel Toe Shoes, Safety Glasses and Earplugs shall be with the employee, ready for use, should the hazard arise. AIT personnel shall wear PPE when boarding and when walking around a vessel. AIT personnel shall bring PPE or arrange the acquisition of PPE when visiting sites (such as Warfare Centers, RMCs and Shipyards) where there is a potential for exposure.

3.18.4.2 Fire Protection

In accordance with 29 CFR 1915, Subpart P, each AIT must have a fire safety plan for their employees. This plan must comply with the host employer's fire safety plan.

3.18.4.3 Damage Control, Fire Fighting and Fire Protection Equipment

AIT members shall familiarize themselves with the location and details of all damage control, fire fighting and fire protection equipment and systems (e.g., detection, suppression, equipment stowage).

3.18.5 Housekeeping

The AIT will perform general housekeeping in all impacted areas. At the completion of each shift, each work site shall be broom-cleaned. All trash and debris will be removed from the ship, and all hazardous waste, industrial waste, and/or excess hazardous material will be properly disposed of. The AIT will properly dispose of all installation and associated material and will ensure equipment is protected from contamination and damage during the alteration/SC installation process.

NAVSEA SI 009-06 (Maintaining Protection and Cleanliness from Non-Radioactive Contaminate Producing Operations) and SI 009-07 (Confined Space Entry, Certification, Fire Protection and Housekeeping) provide additional housekeeping requirements. The AIT will also ensure that all hoses, welding leads, temporary ventilation trunks, and other industrial service components and materials are kept clear of water tight doors and hatches or be capable of removal in accordance with reference 2.2.3(2) for submarines. Rigging of temporary service leads and hoses will be kept clear of the decks, on temporary trees or brackets. They

shall be arranged to minimize tripping and other safety hazards and to allow ready access through doors, hatches and passageways.

3.18.6 Material Requirements

All material required to be installed or provided as part of an alteration/SC should be assembled by the AIT for each tasked hull. This material includes all material (HCPM and AIT-procured) required by the installation drawings and all logistic support items required to be turned over to the ship (including special tools/test equipment, interim spares, APLs/Preliminary APLs, maintenance plans, Technical Manuals (TMs), test procedures, Planned Maintenance System (PMS) documents, Maintenance Assistance Modules (MAMs), Operating Space Items (OSI), Material Safety Data Sheets (MSDS), etc.). All ILS requirements will be provided by the End of Installation (EOI) or have an approved waiver and an estimated delivery date.

1. When ordering AIT-procured material (other than shop stores-type material) from the Federal Supply System, the AIT Manager shall first contact the Material Item Manager to determine whether or not the supply activity has pre-staged or reserved material for the applicable alteration/SC.
2. For ease of accomplishment and reduced onboard effort, prefabricated material (foundations, cable/harness assemblies, etc.) should be used to the maximum extent possible.
3. All material in SUBSAFE boundary shall be accompanied with a full set of certification documentation, in accordance with reference 2.2.3(10) to expedite alteration/SC accomplishment.
4. All DSS-SOC material shall be accompanied with a full set of certification documentation in accordance with reference 2.2.3(1) to expedite alteration/SC accomplishment.
5. Each FBW SCS SFCC material shall be accompanied with a Certificate of Conformance (COC) document in accordance with reference 2.2.3(35).
6. All material in the SUBSAFE and FBW boundary (e.g., Level I, etc.), which is temporarily removed as part of a submarine alteration, shall be controlled, stored and protected while removed in accordance with references 2.2.3(5), 2.2.3(10), and 2.2.3(35), as applicable, in order to maintain the SUBSAFE and FBW or Level I certification of the material.
7. All DSS-SOC material shall be controlled and protected in accordance with reference 2.2.3(1)

8. to maintain certification of the material.

3.18.7 Incidental Material

For work to be accomplished by the AIT, the AIT will be responsible for supplying all material that is not HCPM, including incidental/expendable (shop stores) material (e.g. tape, solder, welding rods, paint, fasteners, deck covering, insulation, etc.), required to accomplish the alteration/SC. For industrial support by an activity other than the AIT, the activity providing the industrial services shall be responsible for all incidental/expendable material required to accomplish the industrial support.

3.18.8 Installations in Nuclear Powered Ships

References 2.2.3(19) and 2.2.3(33) define the work in nuclear powered ships which must be assigned to nuclear capable activities (e.g. nuclear capable shipyards). Reference 2.2.3(22) defines requirements for the conduct of contract work onboard nuclear powered ships (e.g. the work in nuclear powered ships that need not be assigned to nuclear capable activities). When conducting work in a nuclear powered ship, it may not always be readily apparent that modifications or changes in the nuclear powered ship, affects reactor plant systems, operations, or personnel safety. Therefore, it is of the utmost importance that reference 2.2.3(19) and the associated requirements in reference 2.2.3(22) be reviewed to ensure that work in a nuclear powered ship is in compliance with these requirements. The AIT OSIC is responsible for this review during execution. The NSA and LMA should be requested to assist in review of changes to specifications during execution to ensure requirements are met.

3.18.9 Workmanship

1. Workmanship and work practices shall meet the requirements of all contract specifications, including applicable NAVSEA SIs or Submarine Maintenance Standards, as invoked.
2. AITs and their subcontractors will be required to accomplish work under an accepted QMS in accordance with paragraph 1.5.16(2). Subcontractors that perform small portions of an installation may use the prime AIT contractor's QMS procedures that are applicable when invoked in a subcontract purchase order. The AIT's QMS will include, or make reference to, procedures that will ensure product conformance. An AIT without an accepted QMS will be denied access to the ship. AIT sponsor/NSA (or PY when tasked) will provide oversight for AIT installations and production milestones (critical path), to ensure conformance to ship specifications and that the installation is accomplished in accordance with design. AIT Sponsor/NSA participation will ensure cradle-to-grave conformance to ship standards throughout the entire AIT installation process. When requested in support of NSA spot-checks conducted in their oversight role, the AIT will provide documentation showing the requirements included in Appendix C are met (i.e., welder qualifications, etc.). The AIT is responsible for the quality of the alteration/SC installation, including subcontractor work, and for ensuring subcontractors adhere to the requirements of this specification. The OSIC will ensure the AIT is following its QMS procedures, quality

inspection and Test Plan (TP), applicable safety and environmental compliance requirements and technical instructions. NSA or Ship's Force shall report all noted AIT QA deficiencies to the OSIC in writing.

3.18.10 Work Affecting Critical Systems or Critical System Boundaries

As noted in paragraph 3.5.2, critical systems are defined as SUBSAFE, FBW, Level 1, DSS-SOC, P1 and P3A piping systems, A-1, A-2, A-3 pressure vessels (including boilers), and M-1 machinery systems, as defined in technical guidance documents, references 2.2.3(1), 2.2.3(5), 2.2.3(6), 2.2.3(7), 2.2.3(9), 2.2.3(10), 2.2.3(24), and 2.2.3(35). If the NSA and LMA exercises their option to approve the AIT Manager's assignment of the work on Critical Systems/Critical System Boundaries to a qualified contractor, the AIT Manager shall ensure that the contractor performing the critical work (as defined in paragraph 3.5.2) has an accepted QMS. For critical work performed by an activity not qualified to perform as a NSA, the NSA shall perform QA oversight in accordance with the requirements of references 2.2.2(1), 2.2.3(8), and 2.2.3(25), as applicable, to ensure compliant production processes, personnel and procedure qualifications, and work documentation and certification. For SUBSAFE, DSS-SOC, and FBW work to be contracted, the NSA and LMA will comply with the requirements of references 2.2.3(1), 2.2.3(10), 2.2.3(20), and 2.2.3(35), respectively.

3.18.11 Status Reports and Meetings

3.18.11.1 Task Status Report

The AIT OSIC will ensure that a periodic Task Status Report is submitted to the AIT Manager. AIT Manager will forward copies to the NSA, LMA, SPM, applicable TYCOMs, LCM, as requested. The form and format of Task Status Reports shall be as specified by the AIT Manager or tasking NSA and/or LMA. For AITs with more than one alteration/SC task from the same AIT Manager, the reports may be combined in the same document, but the data shall be segregated by alteration/SC.

3.18.11.2 Periodic Progress Reports

When invoked, AITs are responsible for complying with the reporting requirements for NAVSEA SIs (for updated production schedules and progress reporting). Additional reporting, for the purposes of work de-confliction and schedule integration, may be required when the NSA implements a Work Package Integration specification in accordance with reference 2.2.2(1), volume VI, chapter 43. When a required periodicity for progress reports is not specified, the NSA, LMA and Ship's designated point of contact shall be informed of the progress on a weekly basis.

3.18.11.3 Periodic Meetings

The NSA and/or LMA may require AIT OSIC/AIT Lead to participate in meetings for the purpose of work coordination and/or progress review. These typically take the form of Daily Production meetings, and Weekly Progress reviews, but local practice shall dictate periodicity and attendance requirements. In the event that regular work coordination meetings are not scheduled, AIT work shall be conducted in accordance with the POA&M/production work

schedule presented at the in-brief. It will be the responsibility of the AIT to execute required work around restrictions that may be imposed due to emergent ship's evolutions. Any changes to the work schedule provided at in-brief shall be reported to the NSA, LMA and Ship's designated point of contact as soon as changes are identified.

3.18.12 Final Housekeeping

After completion of all ship work, the AIT will conduct final housekeeping in all areas involved in the alteration/SC accomplishment. With the exception of cryptographic gear, equipment that is removed as part of the alteration/SC and is to be turned-in for accounting purposes shall be the responsibility of the AIT, although removal may require coordination with the NSA's Government Property Manager. Turn-in of cryptographic equipment will be the responsibility of the ship. The NSA and LMA shall be notified by the AIT of their planned departure from the alteration/SC site. All outstanding discrepancies, environmental reports (paint, solvent, adhesive, welding, fuel, abrasives usage report, etc.) and the corrective POA&M shall be indicated in the completion report. All special badges, passes, check-out forms, dosimeters, etc., shall be turned-in, as required, in accordance with local NSA and/or LMA requirements.

3.18.13 AIT Readiness to Start Message for Submarines

At least seven (7) days prior to the scheduled start of the AIT installation, the AIT Manager will release a "Readiness to Start Message" following the format provided in Appendix B. The AIT Manager will address each area identified in the Readiness to Start Message. The message will reference all pertinent scheduling information and coordination, the industrial level skills required, design readiness, ship requirements, effects of the alteration/SC, ships spaces affected, impacts, and any other information.

3.18.13.1 Design Changes During Installation

If installation cannot be accomplished in accordance with the approved SIDs, proposed changes must be documented via LAR. The LAR must be submitted to and approved by the PY before incorporation of the change can be made onboard ship. Minor changes which can be addressed via red lines to the drawing should be brought to the attention of the OSR to ensure the change does not require a LAR. Any changes, via LAR or red line, need to be annotated as a red line on the drawings and incorporated into the final as-installed drawings per paragraph 3.24.4.

3.19 Clear Work Authorization Form (WAF)/Tag-Out

3.19.1 WAF

Once the alteration/SC is completed, the WAF is signed by the repair activity as work completed and forwarded to Ship's Force for clearing of Tag-Out Record Sheet line items in accordance with reference 2.2.2(1) if a tag-out was required. Once the alteration/SC testing (if there is no formal test program) is complete, the WAF is signed by the repair activity. Following completion of testing and setting of appropriate system status (e.g., clear tags and

perform valve line-ups as appropriate for the situation, setting equipment to certain conditions), the WAF is signed by the repair activity as closed out and forwarded to Ship's Force for review.

The WAF process, administration, form, and instructions are contained in reference 2.2.2(1) Volume IV, Chapter 10.

3.19.2 Tag-Out

Once the alteration/SC is completed, remove danger and caution tags immediately when the situation requiring the tag-out has been corrected and clearing of tags has been authorized.

The tag-out process, requirements, training, and instructions can be found in S0400-AD-URM-010/TUM TAG-OUT USERS MANUAL.

3.20 SOVT

3.20.1 SOVT Requirements

The AIT and/or ISEA will conduct SOVT for the alteration/SC and all equipment directly impacted by accomplishment of the alteration/SC in accordance with the QA Workbook Test and Inspection Plan, approved drawings, test procedures, and applicable ship specifications. Systems shall be subjected to appropriate testing to demonstrate operational acceptability including SIGSEC, TEMPEST, EMC, SUBSAFE, FBW, CPS, etc., as applicable. Such tests will be conducted under conditions simulating normal service conditions as closely as possible. The AIT will also conduct inspection and testing of all systems that have had equipment or machinery removed and reinstalled due to interference in accordance with NAVSEA SI 009-23. Systems and equipment requiring permanent modification or relocation to accommodate the alteration/SC are not to be considered interference but part of the alteration/SC design.

When an alteration/SC is to be accomplished during a CNO Availability, testing requirements shall be submitted to the NSA and LMA NLT A-6.5 for discussion during the AIT Conference (for submarines) and for surface ships and carriers the test requirements shall be submitted to the NSA and LMA no later than as specified in reference 2.2.3(14). The test requirements submittal shall include a list of tests to be conducted including the test procedure identification, expected duration of the tests, Ship's Force personnel support requirements, support systems requirements, and any special requirements (rotate and radiate, active sonar, radio transmission, at-sea test, etc.). This will ensure that testing requirements do not conflict with other on-going ship work or present possible personnel or equipment safety hazards. The NSA and LMA shall be notified prior to conducting any shipboard testing. For submarines all tests shall be authorized and listed on the applicable NSA and/or LMA Test Plan prior to accomplishment. The OSIC will keep the NSA and LMA informed of the status of testing.

An individual alteration/SC will not be considered complete until a SOVT and/or appropriate systems integration testing has been successfully accomplished and witnessed by Ship's Force

and the NSA, LMA. The AIT will maintain completed test reports in the QA Workbook during accomplishment of the alteration/SC testing. The OSIC/AIT Manager/ISEA will provide a complete set of test reports to Ship's Force, NSA and the LMA at the completion of the alteration/SC testing.

3.20.2 SOVT Personnel

Personnel involved with SOVT testing shall comply with all local directives for:

1. Scheduling and Conducting SOVT Testing
2. Security Clearance and Access Requirements
3. Safety and PPE
4. Housekeeping Requirements
5. SOVT is not to be confused with EOA/EOU/Production Completion Date (PCD). Installation teams are accountable and directed to deliver ILS at one of these specific times within the process. SOVT is closeout and system operational verification and testing.

3.21 Ship's Force Training

Training for this shipboard system installation shall be provided as outlined in the approved Navy Training Summary Plan (NTSP) and within the corresponding ILS certification for the alteration/SC. Training for shipboard system installations without a Navy approved NTSP will be delivered in accordance with a Program Office approved Installation Training Package. Actual conduct of the training shall be performed by an activity certified by the Program Office to deliver the approved training package and process. The AIT Manager/OSIC will coordinate accomplishment of any prescribed Alteration/SC training, and verify that it is conducted and documented in strict conformance with section 6-4.7 of reference 2.2.3(14). As part of the alteration/SC process the AIT Manager/OSIC shall complete the Training Verification Statement as part of the ACR, Appendix B.

The following five minimum standards are established for all Post-Installation Training:

1. Advanced planning, coordination and scheduling of training in accordance with ship's preferences
2. Identification of targeted crewmembers, pre-qualified for post-installation training in accordance with FLTMPs criteria.
3. Training follows Program Office approved training package with defined objectives and measured achievement.
4. Training delivered by qualified personnel in accordance with Program Office approved process.
5. Training documented in a comprehensive package of metrics documenting all elements of the training delivered.

3.22 Provide CDMD-OA Updates

Upon installation completion the AIT Manager will ensure the final configuration data is provided to the alteration/SC LCM/ISEA. The alteration/SC LCM/ISEA will update CDMD-OA and forward updated workfiles to the CDM for validation. At the end of installation, the AIT OSIC will provide a copy of the marked-up/red lined CDMD-OA workfile(s) (i.e., AIT CDMD-OA Verification Report or equivalent) for all configuration alterations (adds/deletes/modifications) to the designated Ships Force representative, NSA or SPM designated activity. The CDM will conduct the final validation within 30 days of install completion, and will change the Installation Status Code (ISC) in accordance with reference 2.2.2(1).

For Ohio Class Submarines (SSBN/SSGN), AITs will coordinate with the appropriate TRF for OPNAV 4790/CK processing in accordance with reference 2.2.3(29).

3.23 ILS Turnover

The AIT OSIC is responsible for delivery of all ILS products as outlined in ILS certification (i.e. tech manuals, PMS, Red line Drawings, training, etc.) in accordance with reference 2.2.3(14) to the designated recipient (Ship/NSA or Maintenance Support Center (MSC) for CVNs) by EOA/EOI/PCD as appropriate and shall obtain required signatures verifying delivery, noting any ILS deficiencies, as part of the RMMCO Check-out process. The AIT OSIC is responsible for providing an itemized inventory (i.e. DD 1149) for all deliverables to the ship with a signature from the appropriate Department Head or authorized personnel.

3.24 ALT Completion Requirements

Upon completion of each alteration/SC installation, the AIT Manager/OSIC will ensure the provisions of the following paragraphs are met:

3.24.1 NSA and Ship Out-Brief

An out-brief shall be scheduled and coordinated by the AIT OSIC. The out-brief shall be conducted after completion of the alteration/SC and prior to RMMCO Check-out. Normally the AIT OSIC will obtain the required Ship's Force and NSA verification signatures on the ACR at the out-brief. The AIT OSIC must check out of RMMCO with completed/signed ACR and completed SOVT. The TYCOM, NSA, LMA, RMMCO/ NAVSEA 21 PMR, AIT OSIC, Ships Force and the local PY OSRs (Program Representative and CDM) shall be invited to attend all out-briefs.

3.24.2 Alteration Completion Reporting

3.24.2.1 Alteration/SC Completion Report (ACR)

The AIT OSIC/AIT Lead will fill out the Alteration/SC Completion Report (Appendix B) and obtain signatures on all applicable attachments for each alteration/SC installed. The AIT

OSIC will return the signed ACR to the AIT Manager immediately after alteration completion/RMMCO Check-out.

The AIT Manager will forward copies, in the format requested by the recipients, of the completed and signed ACR with all applicable attachments Appendix B to the SPM, PY, LCM, NSA, Ship, TYCOM, Group Commander, Squadron Commander, ship's CDM (if the PY is not the CDM), and ISEA within twenty (20) days of alteration/SC completion. For alterations/SCs to CVN's, a copy shall also be forwarded to the CPA, Code PMS 312C; for submarines, to SUBMEPP (Code 1800); and for surface ships, to the appropriate RMC. PYs will notify the SPM in the event of non-receipt of an ACR within thirty (30) days of the scheduled completion date initially established in accordance with the provisions of this specification.

For installations accomplished by AITs, completion and submission of the ACR in accordance with this TS fulfills the requirements of reference 2.2.3(21).

3.24.2.2 Naval Message Completion Reporting

The AIT Manager/OSIC will provide the draft of the Completion Report Message at the out-brief. Upon completion of the installation, and within seven (7) days of the out-brief, the ship will send a "joint" naval message reporting completion of the effort, any deficiencies, corrective action plan and comments from the ship's CO relative to the installation. The message will indicate any system interface not demonstrated during operational certification/testing and include all known discrepancies assigned to the responsible activity (e.g. the ship, the AIT, TYCOM). An alteration/SC completion message is required in addition to the ACR required in paragraph 3.24.2.1. A sample Naval Message Completion Report format is provided in Appendix B. If there are no reported discrepancies, this is the final completion report. In the event that the Naval Message Completion Report lists installation deficiencies, the ship receiving the installation will send a Naval Message Final Completion Report after all deficiencies have been corrected and the ship has accepted the installation as complete.

3.24.3 RMMCO Check Out

Following the alteration/SC completion and outbrief, the AIT OSIC or AIT Lead (Government Only) must check out of RMMCO with the General Report, completed SOVT/operational test and signed RMMCO Form. RMMCO will review the supplied documentation and make appropriate entries into the RMMCO website to register the completion status.

When the AIT Sponsor funds more than one government activity to accomplish a specific alteration/SC, each activity must check out with RMMCO for their portion/area of responsibility (e.g. industrial work, system testing, ILS, etc.).

3.24.4 Drawing Updates

3.24.4.1 Planning Yard Developed Drawings

The AIT Manager shall provide a redline mark-up of the drawings, copies of the approved LARs, authorized deviations and/or waivers from approved designs, via transmittal letter to

the PY within 20 days of installation completion. A copy of the final transmittal letter, without enclosure, will be provided to the SPM. Transmittal letter to SPM is not applicable to Carriers).

When funded, the PY will update the SIDS using the red lined drawings and approved LARS to document the as-installed configuration. Unless otherwise agreed to by the SPM and AIT Manager, the SPM will be the only activity to task PY drawing revision efforts. If funded, the PY will distribute final drawings to the ship and AIT Manager within 30 days of receipt of the red lines/LAR package.

3.24.4.2 Non-Planning Yard Developed Drawings

The AIT Manager will ensure the approved design drawings, including all deviations/variances approved by the PY, are revised to indicate the actual "as installed" configuration on the ship. Electronic media copies of the as-installed drawings shall be forwarded to the ship class PY via LAR or transmittal letter, as desired by the PY, no later than 30 days after alteration/SC completion. The PY may request the drawings in AutoCAD, PDF or another designated format. A copy of the final transmittal letter, without enclosure, will be sent to the SPM. Transmittal to SPM is not applicable to Carriers).

3.25 Configuration Validation

In accordance with Section 6 of reference 2.2.3(14), the NSA or SPM designated activity will accomplish a physical site validation of each alteration/SC configuration as reported by LCM/ISEA and update the Installation Status Code (ISC) within 30 days of installation completion. CDMD-OA database records will be processed in accordance with reference 2.1.1(3).

3.26 SPM/PARM Marks NDE-NM Record as Completed

The SPM or a designated representative must enter completion data for SHIPALT type Ship Changes (SCs) in NDE-NM as part of the completion process. PARMs will enter completion data for ECs, FCs, ORDALTs, MAs, PRTs, or SWD in NDE-NM. Submarine PARMs will enter completion data for ECs, FCs, ORDALTs, and SWD in NDE-NM and all but ORDALTs in NTIRA. Submarine TEMPALTs and OPALTs are tracked internally by the SPM and TYCOM and are not entered in NDE-NM.

3.26.1 Alteration/SC Completion Reporting in NDE-NM

Upon installation completion, RMMCO Check out, and issuance of the Completion Report and/or Completion Message from the NSA, the SPM, AIT Manager or PARM, as applicable, will enter an ASC of 'R' (Install complete - ILS not verified) and the completion date in the ship's alteration record in NDE-NM. Once the SPM has received either the Alteration Completion Letter or the NSA Completion Message, the ASC will be updated to "C" - (Complete - ILS verified). For submarines, the SPM will enter the "R" and "C" completion data in NDE-NM from completion reports received.

APPENDIX A

AIT SUPPORT SERVICES REQUEST FORM

AIT SUPPORT SERVICES REQUEST FORM

Alteration/Ship Change Information

Schedule

Ship:

Alt/SC Identifier:

Alt/SC Description:

Support Services Required? Yes No

(If No, complete only Alt/SC, Schedule, and POC sections.)

Production Start Date	
Production Completion Date	
Testing Start Date	
Testing Completion Date	
Work Hours	
Work Week (e.g. Mon-Fri)	

Points of Contact

	<u>Name</u>	<u>Organization/ Company</u>	<u>Phone</u>	<u>Email</u>
Government Sponsor				
Funding POC				
AIT Manager				
AIT OSIC				
AIT Lead				
Test Coordinator (if other than OSIC)				

Support Services

<u>Service</u>	<u>Qty.</u>	<u>Remarks/Additional Info</u>
Crane Services (# of lifts)		Capacity, on-load, off-load, high reach, etc.
Rigger services (# of man days)		Special requirements (HAZMAT, sensitive equipment, etc.)
Conex Storage (sq. ft.)		Include size, temp services required (electrical power, LP air, phones, etc.)
Office Space/Temp Office trailers		Temp services required (phone/FAX lines, office equipment, custodial services, etc.)
Lay-down Area (sq. ft.)		Special requirements (enclosed, environment controls, power, etc)
Material delivery and storage requirements		Number of boxes/pallets, special handling, special stowage, etc.
Labor (# of mandays)		Describe type of labor requested (i.e. hot work authorization, HAZMAT disposal, etc.)
Critical Systems work (# of mandays)		Describe critical systems work requested for the LMA to perform
Access cut requirements		Location and purpose

Welding, Burning, Brazing (# of mandays)		Describe scope of hot work requirements
Firewatch (# of mandays)		
Inspection Support (# of mandays)		Gas-free, Signal Security, TEMPEST, weight tests, NDT, etc.
Forklift (# of lifts) (Max lift 2,500 lb.)		
Insulation/Lagging (# of mandays)		
Sandblasting and Painting (# of mandays)		
Deck tile/Formica (# of mandays)		
Sheet metal services (# of mandays)		
Man-aloft requirements (# of lifts/shifts)		
Diver/cofferdam requirements		Number and location of cofferdams required
Equipment/material disposal requirements		Description and number of pieces of equipment/material to be disposed
Material (\$)		

Work Scope Space (Compartments/Tanks) Impacted
(Insert additional rows in each table as necessary.)
(A 2D Planning Yard Drawing should be attached if possible)

<u>Space Name</u>	<u>Space No.</u>	<u>Remarks/Additional Info</u>

Equipment Removal
(A 2D Planning Yard Drawing should be attached if possible)

<u>Space Name</u>	<u>Space No.</u>	<u>Equipment</u>	<u>Height/Width/Depth</u>	<u>Weight</u>

Equipment Install
(A 2D Planning Yard Drawing should be attached if possible)

<u>Space Name</u>	<u>Space No.</u>	<u>Equipment</u>	<u>Height/Width/Depth</u>	<u>Weight</u>

Compressed Air

<u>Space Name</u>	<u>Space No.</u>	<u>Remarks/Additional Info</u>

Supply and Exhaust Ventilation

<u>Space Name</u>	<u>Space No.</u>	<u>Remarks/Additional Info</u>

Lighting

<u>Space Name</u>	<u>Space No.</u>	<u>Remarks/Additional Info</u>

Electrical Power

<u>Space Name</u>	<u>Space No.</u>	<u>Remarks/Additional Info</u>

Other Requirements

<u>Space Name</u>	<u>Space No.</u>	<u>Remarks/Additional Info</u>

Staging

<u>Space Name</u>	<u>Space No.</u>	<u>Size</u>	<u>Height</u>	<u>Duration</u>	<u>Install Date</u>	<u>Staging Wrap (Y/N)</u>

Rolling Staging

<u>Space Name</u>	<u>Space No.</u>	<u>Width</u>	<u>Depth</u>

Tank Work

<u>Tank No.</u>	<u>Defuel/pump down (Y/N)</u>	<u>Gas-free (Y/N)</u>

Office Space

<u># of Desks</u>	<u># of Parking Spaces</u>	<u>Phone/Data/Fax Requirements</u>

Special Tool Requirements

--

Other Requirements

--

Test Requirements

<u>Item/Requirement</u>	<u>Remarks/Additional Info</u>
Spaces/Compartments Involved	
Prerequisites (Crew Training, Lower-level Tests)	

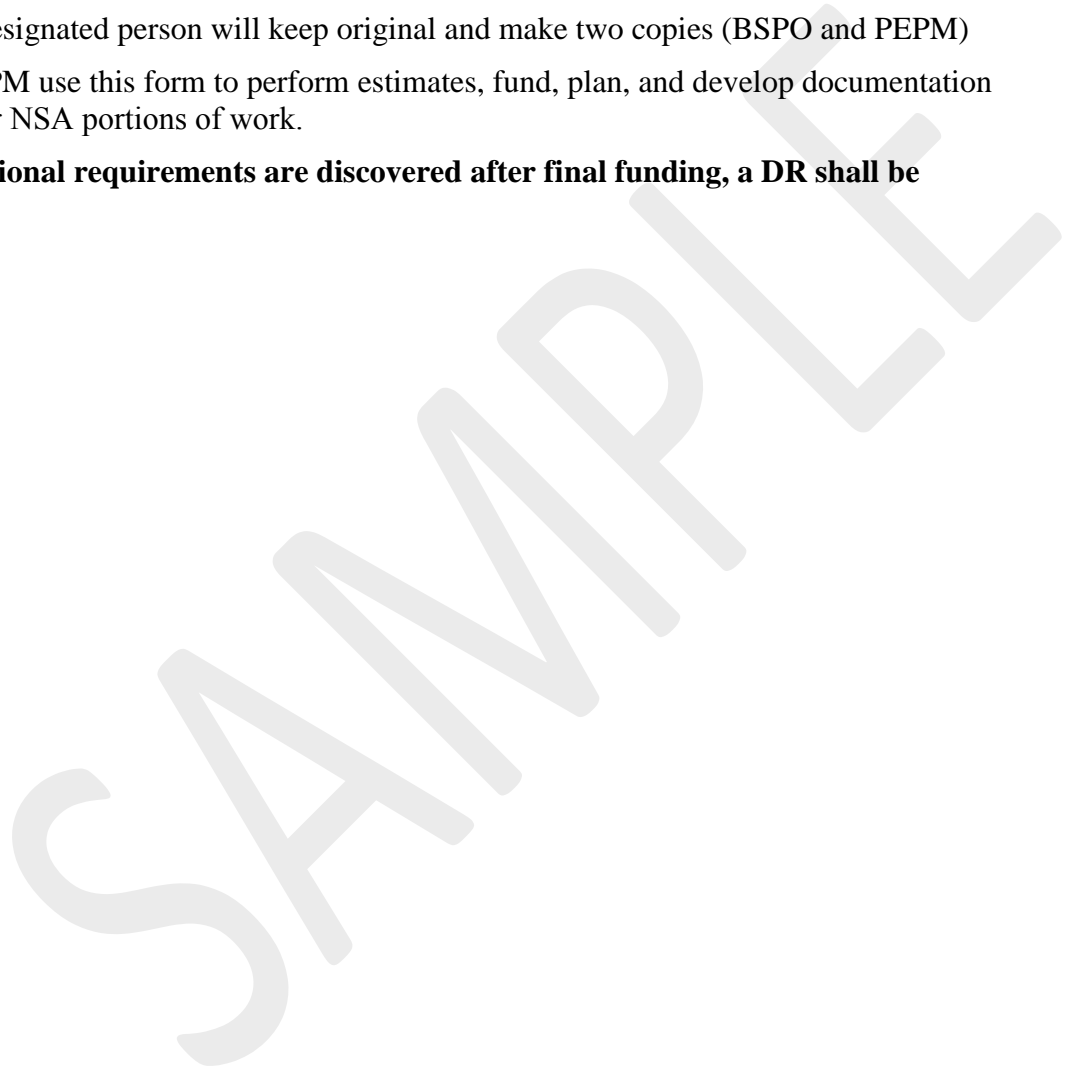
Auxiliary Services (Power, Chill Water, A/C, Dry Air)	
Ship Systems to Support (Radars, SHF)	
External Services (Aircraft, SESEF Range)	
Support Personnel (S/F Operators, MSMO Support)	
Special Conditions (U/W Sea Trials)	
Operational or Safety Limitations (Man Aloft, Launcher Movement, Eng. Plant Configuration)	
Additional Requirements (temporary systems required, etc.)	

Distribution:

AIT Lead or designated person will keep original and make two copies (BSPO and PEPM)

BSPO and PEPM use this form to perform estimates, fund, plan, and develop documentation (e.g. TGI's) for NSA portions of work.

Note: If additional requirements are discovered after final funding, a DR shall be submitted.



APPENDIX B

MESSAGES, CHECKLISTS, & REPORTS

CONTENTS

Suggested Format for Readiness to Start Naval Message (Subs Only)
Suggested Format for PICO Completion Report Naval Message
Suggested Format for Installation Completion Report Naval Message
AIT POA&M Cover Sheet Template
AIT POA&M Task Detail Template
AIT POA&M Schedule Guide (Instructions)
Alteration Completion Report
Attachment (1) General Report
Attachment (2) Training Verification Statement

(SAMPLE)SUGGESTED FORMAT FOR READINESS TO START NAVAL MESSAGE (SUBS ONLY)

ADMINISTRATIVE MESSAGE
ROUTINE
R DTG
FM AIT MANAGER//
TO IMMEDIATE SENIOR IN COMMAND//
SHIP/STATION//
INFO TYPE COMMANDER//N4//
GROUP COMMANDER//
NAVAL SUPERVISING ACTIVITY/AUTHORITY (AS APPLICABLE)//
RMMCO//
PLANNING YARD//
SHIP'S CONFIGURATION DATA MANAGER (IF OTHER THAN PLANNING YARD)//
IN-SERVICE ENGINEERING AGENT (ISEA)//
LIFE CYCLE MANAGER (LCM)//
COMNAVSEASYSKOM WASHINGTON DC//04RP/05/PARM/SPM//
PEO (AS APPLICABLE)//
COMSPAWARSSYSKOM SAN DIEGO CA///
NAVICP MECHANICSBURG PA//
SUBMEPP PORTSMOUTH NH//1814//
UNCLAS //N04720//
MSGID/GENADMIN/SENDER'S PLAD//
SUBJ/SUBS/SHIP/STATION/ALTERATION TITLE READINESS TO START//
REF/ REFERENCE ALL PREVIOUS APPLICABLE SCHEDULING AND COORDINATION
COMMUNICATIONS
POC/NAME/CODE/TELEPHONE/EMAIL//
RMKS/1. ALTERATION INSTALLATION SCHEDULE INFORMATION
2. INDUSTRIAL LEVEL MANPOWER SKILLS AND EQUIPMENT STATUS
3. DESIGN READINESS:
A. ALTERATION/SC APPROVAL DATE: DD MMM YYYY
B. SID APPROVAL DATE: DD MMM YYYY OR ESTIMATED COMPLETION DATES. RED LINE
DRAWINGS TO BE PROVIDED TO PLANNING YARD UPON COMPLETION OF WORK. (IF APPLICABLE)
C. ILS CERT DATE: DD MMM YYYY OR WAIVER INFORMATION
4. SHIP SUPPORT REQUIREMENTS (IF NOT ALREADY PROVIDED IN AIT SERVICES REQUEST):
A. REQUEST A SINGLE POINT OF CONTACT ON SHIP.
B. PRODUCTION WORK IMPACT ON SHIPS SCHEDULE AND ROUTINE:
C. HOT WORK REQUIREMENTS:
D. FIRE WATCH REQUIREMENTS:
E. EQUIPMENT STAGING AREA REQUIREMENTS:
F. SHIPS FORCE REQUIREMENTS WHILE CONDUCTING CHECK POINTS AND DURING POST
INSTALLATION TEST OUT OF EQUIPMENT:
G. SAFETY/ENVIRONMENTAL REQUIREMENTS:
5. ALTERATION DESCRIPTION AND PURPOSE
6. SPACES AFFECTED: LIST SPACES AFFECTED
7. ESTIMATED START DATE: DD MMM YYYY. ESTIMATED COMPLETION DATE: DD MMM YYYY.
8. IN-BRIEF SCHEDULE
9. CLEARANCE INFORMATION AS APPLICABLE
10. IMPACTS IF IDENTIFIED
11. ANY OTHER APPLICABLE INFORMATION
12. NEGREP ONLY.//
BT

(SAMPLE)SUGGESTED FORMAT FOR PICO COMPLETION REPORT NAVAL MESSAGE

ADMINISTRATIVE MESSAGE

ROUTINE

R (DTG)

FM SHIP/STATION

TO ISIC

INFO (AS APPLICABLE) TYPE COMMANDER//N43/N6//

COMNAVNETWARCOM NORFOLK VA//C4/FN/RA/OPS//

GROUP COMMANDER/SQUADRON COMMANDER

PLANNING YARD

NAVAL SUPERVISING ACTIVITY/AUTHORITY (AS APPLICABLE)

SHIP'S CONFIGURATION DATA MANAGER (IF OTHER THAN PLANNING YARD)

IN-SERVICE ENGINEERING AGENT (ISEA)

LIFE CYCLE MANAGER (LCM)

COMNAVSEASYS COM WASHINGTON DC//04M5/05/SPM (PMS400F FOR COMBATANTS, PMS470 FOR AMPHIBS, PMS312 FOR CARRIERS)//

PEO C4I SAN DIEGO CA

COMSPAWARSSYSCOM SAN DIEGO CA

SPAWARSSYSCEN PACIFIC SAN DIEGO CA

SPAWARSSYSCEN ATLANTIC CHARLESTON SC

NAVICP MECHANICSBURG PA//

CLASSRON//SURFACE COORDINATOR// (SURFACE COMBATANTS)

CLASSRON (FOR AMPHIB SHIPS)

SUPSHIPS RMC NEWPORT NEWS VA//1800// (CARRIERS ONLY)

SUBMEPP PORTSMOUTH NH//1800// (SUBMARINE ONLY)

REGIONAL RMMCO OFFICE, AS APPLICABLE

BT

UNCLAS //NO4720//

MSGID/GENADMIN/USS SHIP//

SUBJ/(EQUIPMENT/SYSTEM PRE-INSTALLATION CHECK-OUT ON USS SHIP)

RMKS/

1. THIS IS A JOINT (SHIP)/AIT MESSAGE.

2. (EQUIPMENT/SYSTEM) PRE-INSTALLATION CHECK-OUT (PICO) WAS CONDUCTED ON (COMPLETION DATE) AND ACCEPTED AS OPERATIONAL (WITH/WITHOUT) DISCREPANCIES. (MULTIPLE PICOS CAN BE CONSOLIDATED AND REPORTED IN ONE MESSAGE, AT SHIP'S OPTION.) (LIST ALL KNOWN DISCREPANCIES, RESPONSIBLE ACTIVITY, AND DATE DISCREPANCY WILL BE CORRECTED.)

A. EQUIPMENT/SYSTEM TESTED: (LIST EQUIP/SYSTEM BEING MODIFIED, AND ALTERATION/SCD NUMBER.)

1. WITNESSED BY: (NAME & ACTIVITY)

2. NOTED DISCREPANCIES: (BRIEF DESCRIPTION OF EACH, JOB CONTROL NUMBER (JCN), AND A CASREP NUMBER IF ASSIGNED; OR STATE "NO DISCREPANCIES")

3. ACTIVITY RESPONSIBLE:FOR CORRECTION: (FOR EACH DISCREPANCY)

4. ESTIMATED DATE DISCREPANCY WILL BE CORRECTED: (FOR EACH DISCREPANCY)

B. (FOLLOW FORMAT OF PARA 3.A FOR EACH EQUIP/SYSTEM ON WHICH A PICO WAS CONDUCTED.)

AIT POC (NAME, PHONE NUMBER AND E-MAIL ADDRESS, LIST POCs FOR EACH EQUIP/SYSTEM REPORTED UPON)

COMMANDING OFFICER'S COMMENTS.//

BT

#

NNNN

(SAMPLE)SUGGESTED FORMAT FOR INSTALLATION COMPLETION REPORT NAVAL MESSAGE

ADMINISTRATIVE MESSAGE

ROUTINE

R (DTG)

FM SHIP/STATION

TO ISIC

INFO TYPE COMMANDER//N4/N6//

GROUP COMMANDER

PLANNING YARD

NAVAL SUPERVISING ACTIVITY/AUTHORITY (AS APPLICABLE)

SHIP'S CONFIGURATION DATA MANAGER (IF OTHER THAN PLANNING YARD)

IN-SERVICE ENGINEERING AGENT (ISEA)

LIFE CYCLE MANAGER (LCM)

COMNAVSEASYS COM WASHINGTON DC//04/05 /SPM//

PEO (AS APPLICABLE)

PARM (AS APPLICABLE)

NAVICP MECHANICSBURG PA//

CLASSRON//

RMC (AS APPLICABLE)

SUBMEPP PORTSMOUTH NH//1800//(SUBMARINE ONLY)

BT

UNCLAS //NO4720//

MSGID/GENADMIN//

SUBJ/PRELIMINARY/FINAL (SELECT ONE) (EQUIPMENT/SYSTEM) ALTERATION/SC INSTALLATION
ON USS (SHIP) COMPLETION REPORT//REF/A/RMG/SHIP/STATION/DTG//(PRELIMINARY INSTALLATION COMPLETION MSG RPT) (IF NOT
PRELIMINARY COMPLETION REPORT)REF/B/DOC/DATE/SERIAL// (ALTERATION COMPLETION REPORT)(IF NOT PRELIMINARY
COMPLETION REPORT)

RMKS/

1. THIS IS A JOINT (SHIP)/AIT MESSAGE (PRELIMINARY COMPLETION REPORT ONLY).

1. THIS IS A FINAL COMPLETION REPORT MESSAGE. (ONLY IF PRELIMINARY COMPLETION
REPORT SENT)2. (EQUIPMENT/SYSTEM) WAS (INSTALLED/MODIFIED/REMOVED) ON (COMPLETION DATE) AND
ACCEPTED AS OPERATIONAL WITH THE FOLLOWING DISCREPANCIES:
(LIST ALL KNOWN DISCREPANCIES, RESPONSIBLE ACTIVITY, AND DATE DISCREPANCY WILL BE
COMPLETED.) (IF PRELIMINARY REPORT).2. ALL DISCREPANCIES LISTED IN REFS A AND B CORRECTED/COMPLETED AND RETESTED SAT
(IF PRELIMINARY COMPLETION MESSAGE SENT).

FOLLOWING INFORMATION PROVIDED: (ONLY IF PRELIMINARY REPORT NOT SENT)

A. TYPE INSTALLATION:

B. ALTERATION NUMBER:

C. SYSTEM OPERATION VERIFICATION TESTING (SOVT) CONDUCTED.

D. NO CHANGES TO SIDS ARE REQUIRED / SIDS REQUIRE REVISION.

E. REDLINE DWGS HAVE BEEN PROVIDED TO SHIP (IF APPLICABLE)

F. ALTERATION COMPLETION REPORT COMPLETED AND FORWARDED SEPCOR.

G. EQUIPMENT INSTALLED: NOMENCLATURE.

H. ILS STATUS STATEMENT: (SAT/UNSAT, LIST DISCREPANCIES)

I. SUMMARY OF INSTALLATION:

3. INSTALLATION ACTIVITY POC: (NAME, PHONE NUMBER AND E-MAIL ADDRESS).

4. COMMANDING OFFICER'S COMMENTS:

BT

AIT POA&M COVER SHEET TEMPLATE



AIT POA&M
WorkItem Header Ter

AIT POA&M Task Detail Template



AIT POA&M
Template-2003.mpp

AIT POA&M Scheduling Guide



AIT POA&M
Guidance Ver2.docx

Alteration Completion Report (ACR)

Alteration/Ship Change Information

Alt/SC No.:

Alt/SC Accomplishment Start Date:

Alt/SC Identifier:

Alt/SC Accomplishment End Date:

Alt/SC Brief:

Ship Information

Ship Hull No.

Planning Yard:

Ship Name:

Type Commander:

Ship Class:

Squadron/Group

Points of Contact

	<u>Name</u>	<u>Phone</u>	<u>Email</u>	<u>Activity</u>
Ship Program Manager				
Planning Yard				
PARM/ISEA				
AIT Manager				
NSA				

Signatures

	<u>Signature</u>	<u>Name</u>	<u>Dept./Division/ Company</u>	<u>Phone</u>	<u>Date</u>
Ship					
AIT OSIC					
AIT Lead					

These signatures do not indicate the alteration/SC is complete if there are discrepancies noted in the attachments. The ship will not accept the alteration/SC as complete until all discrepancies noted in the attachments are corrected, at which time the ship will accept the alteration/SC as complete by naval message.

ATTACHMENTS: (Check reports applicable and provided)

- 1. General Report (All Installations)
- 2. Training Verification (All Installations)
- 3. Signed RMMCO Installation Check-In Sheet (All Installations)
- 4. DD1149 (Itemized list of ILS Deliverables)
- 5. List of ILS Discrepancies (as required)
- 6. SIGSEC, TEMPEST Visual Report (if applicable [See NSTISSAM TEMPEST/2-95])
- 7. HF Antenna Installation and Impedance Report (cover sheet, if applicable [See NAVSEA S9AA0-AA-SPN-010/GEN-SPEC, Sec 400])
- 8. CABLE/CABLEWAY INSPECTION REPORT (if applicable [See NAVSEAINST 9304.1(series)])
- 9. CERTIFICATION TEST FINDINGS/REPORT (if applicable [See NAVSEA S9040-AA-GTP-010/SSCR])

Distribution:

Ship

Type Commander

Group Commander

Squadron Commander

PARM

Naval Supervising Activity/Authority (NSA)

Regional Maintenance Center (RMC)

NAVSEA Ship's Program Manager (SPM)

NAVSEA 04

In-Service Engineering Agent (ISEA)

Ship's Configuration Data Manager (CDM)

Planning Yard (PY) (if different than the CDM)

SUBMEPP PORTSMOUTH NH (Code 1800) (Submarines only)

Carrier Planning Activity (PMS312C) (CVNs only)

SURFMEPP Norfolk, VA (Code 21D) (Surface Ships only)

DATE _____

ALTERATION/SC IDENTIFICATION: _____

(TYPE HULL-CLASS-ALTERATION NUMBER)

SHIP: _____ ALTERATION ACCOMPLISHMENT DATE: _____

(HULL NO./NAME)

(FROM - TO)

This report documents the proper installation of the alteration/SC identified above. To ensure conformance with quality standards and installation specifications and procedures, a physical installation ship check was conducted jointly by the NSA, RMC (if applicable), Ship's Force and the Alteration Installation Team (AIT) for completion of the various elements of this report. Non-acceptance of an individual element requires that the Remarks line be filled-in by Ship's Force. The AIT shall provide a Plan of Actions and Milestones (POA&M) for completion or correction of all non-acceptance items within five (5) working days of rejection of the individual element. The POA&M will describe the degree of completion or correction required, lead activity point of contact, and the scheduled completion date. Final completion of discrepancies will be accepted jointly by Ship's Force and the lead Installing Activity (IA).

- 1. Pre-Installation Check-Out (PICO). A PICO was conducted on existing systems/equipment to verify operational status. Testing was conducted by Ship's Force and witnessed by the AIT. A PICO report was provided by Ship's Force representatives within three (3) working days of PICO completion work.

Ship's Force: Yes
 No
 N/A

AIT OSIC: Yes
 No
 N/A

Remarks: _____

- 2. Physical ship check of completed installation. To ensure conformance with quality standards and procedures, the following elements were ship checked after completion of ship work:

- a. Design conformance. Alteration was accomplished in accordance with the approved alteration drawings provided.

Ship's Force: Yes
 No
 N/A

AIT OSIC: Yes
 No
 N/A

NSA: Yes
 No
 N/A

Remarks: _____

- b. Equipment access. Access to new and relocated equipment is acceptable for operation and maintenance of the equipment including access to connectors where practicable.

Ship's Force: Yes
 No
 N/A

AIT OISC: Yes
 No
 N/A

NSA: Yes
 No
 N/A

Remarks: _____

- c. Removal items. In addition to items indicated on removal drawings, piping, cabling, mounts, racks, foundations, pipe/cable hangers, etc., which were made unnecessary or redundant as a result of the accomplishment of the alteration/SC, have been removed and properly discarded.

Ship's Force:	Yes <input type="checkbox"/>	AIT OSIC:	Yes <input type="checkbox"/>	NSA:	Yes <input type="checkbox"/>
	No <input type="checkbox"/>		No <input type="checkbox"/>		No <input type="checkbox"/>
	N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		N/A <input type="checkbox"/>

Remarks: _____

- d. Structural installation. All structural work (deck/bulkhead modifications, foundations, etc.) is satisfactory in terms of workmanship, fit, function, preservation and finish.

Ship's Force:	Yes <input type="checkbox"/>	AIT OSIC:	Yes <input type="checkbox"/>	NSA:	Yes <input type="checkbox"/>
	No <input type="checkbox"/>		No <input type="checkbox"/>		No <input type="checkbox"/>
	N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		N/A <input type="checkbox"/>

Remarks: _____

- e. Piping installation. All piping work (pipe modifications, valves, pipe fittings, etc.) is satisfactory in terms of workmanship, fit, function, preservation and finish.

Ship's Force:	Yes <input type="checkbox"/>	AIT OSIC:	Yes <input type="checkbox"/>	NSA:	Yes <input type="checkbox"/>
	No <input type="checkbox"/>		No <input type="checkbox"/>		No <input type="checkbox"/>
	N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		N/A <input type="checkbox"/>

Remarks: _____

- f. Cabling. Cabling is satisfactory in terms of type, function, workmanship, designation and marking, cable shield grounding, cable entry into equipment, penetrations (including coamings), routing (including avoidance of interferences with equipment or personnel/material movement), acceptable bending radius and finish.

Ship's Force:	Yes <input type="checkbox"/>	AIT OSIC:	Yes <input type="checkbox"/>	NSA:	Yes <input type="checkbox"/>
	No <input type="checkbox"/>		No <input type="checkbox"/>		No <input type="checkbox"/>
	N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		N/A <input type="checkbox"/>

Remarks: _____

- g. Cableways. Cableway work (hangers, supports and trunks) is satisfactory in terms of workmanship, clearances, spacing, and new hanger/support installation (when required), fit and finish. New banding has been applied to all new or disturbed hangers.

Ship's Force:	Yes <input type="checkbox"/>	AIT OSIC:	Yes <input type="checkbox"/>	NSA:	Yes <input type="checkbox"/>
	No <input type="checkbox"/>		No <input type="checkbox"/>		No <input type="checkbox"/>
	N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		N/A <input type="checkbox"/>

Remarks: _____

- h. Wiring. Wiring is satisfactory in terms of workmanship, designation and marking, terminal lug application (proper type, size, and attachment process [crimp/solder]), sufficient wire length, signal shield terminations, and wire routing within equipment.

Ship's Force: Yes No N/A AIT OSIC: Yes No N/A NSA: Yes No N/A

Remarks: _____

- i. Connectors. Connector work is satisfactory in terms of workmanship, connector selection, connector assembly (fully pinned with proper pin type, size, and attachment process [crimp/solder]), sufficient wire length, back shell application (type, assembly, cable shield termination, strain relief, etc.), and accessibility.

Ship's Force: Yes No N/A AIT OSIC: Yes No N/A NSA: Yes No N/A

Remarks: _____

- j. Grounding and bonding. Grounding and bonding requirements for safety, TEMPEST, and Electromagnetic Interference (EMI)/Intermediate Modulation Interference (IMI)/Radio Frequency Interference (RFI) have been observed and properly applied and grounding and bonding is satisfactory in terms of workmanship, fit, function, preservation and finish.

Ship's Force: Yes No N/A AIT OSIC: Yes No N/A NSA: Yes No N/A

Remarks: _____

- k. Labels and label plates. New labels and label plates have been installed where required (piping, valves, equipment, racks, switch/patch boards, panels, connection boxes, etc.). Existing labels and label plates removed or damaged during accomplishment of the alteration and requiring restoration or relocation have been restored. Labels and label plates have been properly applied and are satisfactory in terms of workmanship, type, fit, function and finish.

Ship's Force: Yes No N/A AIT OSIC: Yes No N/A NSA: Yes No N/A

Remarks: _____

- 1. Compartment marking. Compartment marking, which was removed or damaged during accomplishment of the alteration and requires restoration or relocation, has been restored in accordance with NAVSEA S9086-CN-STM-020/CH-79 V2 and NAVSEA S9086-RK-STM-010/CH-505. Compartment marking has been properly applied and is satisfactory in terms of workmanship, type, fit, function, and finish.

Ship's Force: Yes No N/A AIT OSIC: Yes No N/A NSA: Yes No N/A

Remarks: _____

- m. Impacted equipment condition. Equipment installed or relocated as a result of the alteration accomplishment has been tested and demonstrated to be operational and free from defects. Equipment or components removed and re-installed as interferences are in at least an "as-found" condition. Interference items, which were operational prior to removal, have been tested and demonstrated to be operational and free from defects. (See NAVSEA Standard Item 009-23)

Ship's Force: Yes No N/A AIT OSIC: Yes No N/A NSA: Yes No N/A

Remarks: _____

- n. Clean-up. Chips, shavings, refuse, dirt, fluids (including water), and all scrap and other foreign material, including hazardous waste, industrial waste and excess hazardous material produced as a result of the accomplishment of alteration have been removed from spaces and areas impacted by the alteration and properly disposed. Operational spaces, tanks and unoccupied spaces and compartments have been left "broom clean".

Ship's Force: Yes No N/A AIT OISC: Yes No N/A

Remarks: _____

- 3. Correction of Discrepancies (if required). POA&Ms for discrepancies is (are) as follows:

Ship's Force: Yes No N/A AIT OISC: Yes No N/A

Remarks: _____

Ship's Force:

AIT OSIC: _____

NSA _____

Printed
Name/Rank _____

Printed
Name: _____

Printed Name: _____

Signature: _____

Signature: _____

Signature: _____

Date: _____

Date: _____

Date: _____

SAMPLE

TRAINING VERIFICATION STATEMENT

Ship:

Alt/SC Identifier:

Alt/SC Description:

Alt/SC Start Date:

Alt/SC End Date:

Installing Activity:

1. On-the-job operator and maintenance training has been provided to the ship for equipments installed as part of the above alteration/SC as follows:

Operator Training

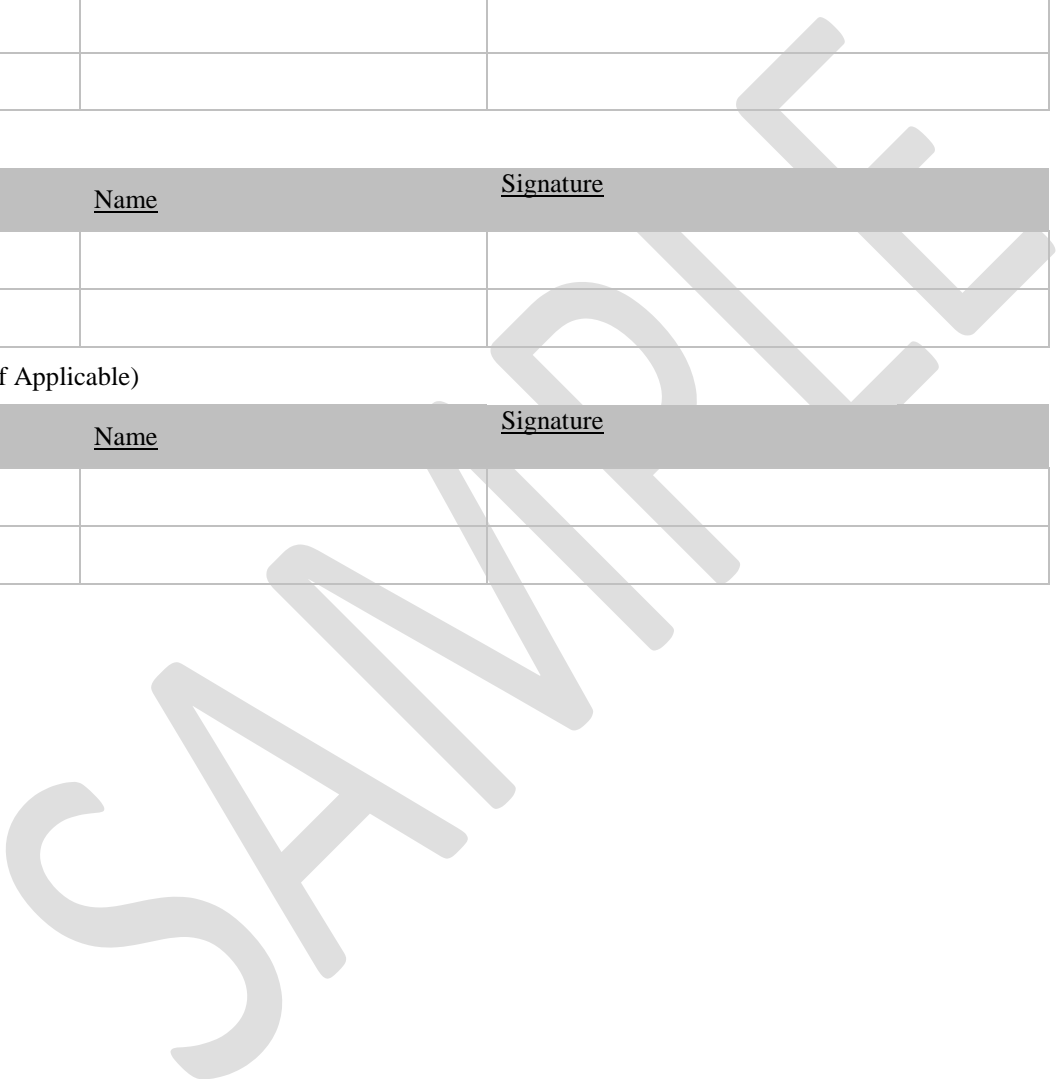
<u>Equipment</u>	<u>Name</u>	<u>Signature</u>

Maintenance Training

<u>Equipment</u>	<u>Name</u>	<u>Signature</u>

Ship Integration Training (If Applicable)

<u>Equipment</u>	<u>Name</u>	<u>Signature</u>



APPENDIX C

ALTERATION INSTALLATION TEAM (AIT) QUALITY MANAGEMENT SYSTEM REQUIREMENTS

ALTERATION INSTALLATION TEAM (AIT) QUALITY MANAGEMENT SYSTEM REQUIREMENTS

The AIT shall provide to NAVSEA 04 and maintain a documented Quality Management System (QMS) to ensure product conformance to contractual/task requirements. The system shall be accepted by NAVSEA 04 and, as a minimum, comply with the requirements of NAVSEA Standard Item (SI) 009-04 and all additional contract/task requirements.

Note: This will provide for the same level of quality assurance required for private sector industrial facilities under Master Ship Repair Agreements (MSRA) and Agreement for Boat Repairs (ABR).

1. General. The AIT shall maintain a QMS that will assure that all supplies, services and workmanship are provided for the accomplishment of alterations/SCs to ships conform to contract or task requirements whether manufactured or provided by the AIT, or procured from contractors or vendors. The QMS shall apply to supplies, services and workmanship provided for the accomplishment of alteration/SC to ships whether the alteration/SC is a permanent change to the ship, an equipment alteration/legacy alteration or a Temporary Alteration (TEMPALT)/Non-Permanent Change (TEMPALT/NPC). The AIT shall perform, or have performed, the inspections and tests required to substantiate product conformance to approved design drawings, specifications, and contract or task requirements and shall also perform, or have performed, all inspections and tests otherwise required by applicable alteration/SC records, installation drawings, contract or tasking documentation. Inspection and Test Plans and records shall be made available upon request by the NSA.

The QMS shall include the following additional requirements, clarifications, and processes:

1.1. Master Test Plans (MTPs). MTPs describe test objectives, the inspections, and tests to be conducted to verify compliance with specifications and operating requirements to verify proper operation of impacted systems, equipment and interfaces after completion of ship work. MTPs shall include or reference Inspection and Test Plans developed to substantiate product conformance to design drawings, specifications, alteration/SC requirements, installation drawings and contractual or task requirements. A MTP shall be prepared for each alteration/SC (permanent or temporary), shall be prescribed by clear, complete and current instructions and shall be developed in conjunction with the Planning Yard (PY), the system/equipment Life Cycle Manager (LCM) and the responsible In-Service Engineering Activity (ISEA). During accomplishment of an alteration/SC, associated MTPs shall be provided to the ship, and designated NSA.

1.2. Test Procedures (TPs). Equipment-unique Inspection and Test Plans shall be obtained from the system/equipment LCM or the responsible ISEA and shall cover in detail the procedures for accomplishment of each of the equipment unique tests required to demonstrate the proper operation of all equipment impacted by accomplishment of the alteration/SC. This includes all equipment that was modified or relocated as a result of the accomplishment of the alteration/SC including testing of all system/components that were removed and reinstalled by the AIT as interference in accordance with NAVSEA SI 009-23. Testing will be adequate to demonstrate compliance with applicable installation certification requirements Signal Security [SIGSEC], TEMPEST, Radiation Hazard [RADHAZ]/Electromagnetic Interference [EMI]/Electromagnetic Compatibility [EMC], SUBSAFE, Submarine FBW, etc.).

1.3. Process Controls. Process control procedures shall be an integral part of the QMS. In addition to process controls that may be required by the alteration/SC record, installation drawing, or contract or tasking documentation, the AIT will provide and maintain such process controls as are necessary to assure the quality of ship work. Process controls shall include the following as applicable:

1.3.1. Design product control procedures. When tasked for design development, the AIT's design product control procedures shall cover:

- a. Assignment of responsibility for detailed examination, review, and internal approval authority for AIT design products.
- b. Required qualifications of personnel performing detailed examination, review, and approval of AIT design products.
- c. Procedural flow of design drawings and other associated documentation.
- d. Checklists to be used in the detailed examination and review of design products. The checklists shall specify each examination to be performed to verify conformance of products to the applicable specifications.
- e. Method of safeguarding classified information.
- f. Methods providing for the prevention and ready detection of discrepancies and for timely and positive corrective action.
- g. Method of safe storage of Master File Drawings, reference drawings, and other ship design documentation.
- h. Methods providing for controlled issue of design drawing copies, both reproducible and non-reproducible.
- i. Method for ensuring that listing of training and personnel qualifications/certifications is maintained and made available upon request by the NSA.

1.3.2. Installation process control procedures. Instructions shall be developed which identify requirements necessary to preclude damage to the ship or injury to personnel during the accomplishment of ship work and technical work documents shall be developed to ensure that the installation is accomplished in accordance with the drawings and other applicable technical specifications. These instructions shall include, but are not limited to:

- a. Control of magnetic material
- b. Material storage at the work site
- c. Storage and use of hazardous materials
- d. Fire prevention
- e. Sight and hearing protection
- f. Material for staging and screening temporary covers and shelters
- g. Installation of cofferdams, patches, and shaft wraps

- h. Hotwork – Requires the following QQE at check in: NAVSEA approved welding/brazing procedures (approval letters) and NAVSEA approved Non-Destructive Testing (NDT) procedures (approval letters)
- i. Uncrating/unpacking of equipment
- j. Storage and use of tools and test equipment
- k. Protection of pipes, cables, and equipment during ship work
- l. System or equipment de-activation/reactivation
- m. Control of connector fabrication
- n. Critical Systems
- o. Workmanship, which includes cleanliness of the ship

1.3.3. NOTES.

- a. AITs are required to use a certified marine chemist for entry into confined spaces.
- b. NAVSEA 04/RMC acceptance of the quality manual/plan does not constitute approval of individual welding, brazing and NDT procedures. The approval requirements for these procedures are specified in NAVSEA S9074-AQ-GIB-010/248 (Requirements for Welding and Brazing Procedure and Performance Qualification) or NAVSEA T9074-AS-GIB-010/271 (Requirements for Non-Destructive Testing Methods).
- c. Submittal of procedures and Process Control Procedures (NAVSEA SI 009-09) invoked by NAVSEA SIs, MIL-STDs, drawings, technical publications, and specifications, although an integral part of the QMS, are to be submitted and approved by the SUPERVISOR independent of the documented QMS submittal.
- d. Procedures required to control processes in the Safety and Environmental area, are not required to be submitted as part of the written QMS, but upon request will be submitted to the NSA or LMA Safety Office for review.

1.4. Personnel Certifications. Procedures shall be maintained to assure personnel certifications that may be required to perform ship work, depending on the work to be accomplished. These certifications include, but are not limited to, the following:

- a. Hot work.
 - (1) Competent Person
 - (2) Firewatch personnel
 - (3) Tank cleaning personnel
 - (4) Persons performing hot work
 - (5) Test personnel qualification
- b. Insulation work
- c. Fluorocarbon use

- d. Electrical/Electronic Connector and Fiber Optic Work
 - (1) Electrical/Fiber Optic Connector Fabricators
 - (2) Electrical/Fiber Optic Connector Fabricator Supervisors
 - (3) Electrical/Fiber Optic Connector Fabrication QA Inspector(s)
- e. Accomplishment of Nondestructive Testing (NDT)
- f. Painting of Critical Surfaces
- g. Entry into Confined Spaces
- h. SUBSAFE work
- i. Electrostatic Discharge (ESD) Work
- j. PCMS Work
- k. FBW Work
- l. Cable/Wireway Inspector

1.5. Headquarters Centrally Procured Material (HCPM).

1.5.1. Receipt of HCPM. Provide for receipt of HCPM as follows:

- a. When the HCPM is received directly, one signed copy of the Shipping Document (DD Form 1348-1) and one signed copy of the Government Bill of Lading (GBL) shall be retained by the AIT.
- b. The HCPM shall be inspected immediately upon receipt to verify conformance with description and requirements, verify quantity and check for possible damage.
- c. Notify the shipping activity of any damage immediately after inspection. The Headquarters equipment manager and the SPM shall be notified if the damage is more than superficial.
- d. If the HCPM is electronics equipment, the AIT shall provide testing and calibration of the equipment to verify that the equipment meets operational specifications.

1.5.2. Records of HCPM. Records of the receipt and disposition of each HCPM item shall be maintained.

1.6. Configuration Status Accounting. Depending on the program, the AIT may be tasked to maintain configuration records of equipment and software so that the ship and equipment managers can maintain configuration control. If configuration status accounting is tasked, the material control process shall provide the following:

1.7. Equipment accounting. For each piece of HCPM equipment (not material), which is intended to be installed aboard ship, that is received, ordered, or fabricated by the AIT, a computerized index of purchase orders, modifications accomplished and final disposition shall be maintained.

1.7.1. Software accounting. For each software item, which is to be installed in shipboard equipment, a computerized index of purchase orders, modifications accomplished and final disposition shall be provided and maintained.

1.7.2. Weight Accounting. Depending on the program and the ship class, the AIT may be tasked to maintain a written record of equipment and material removed (weight and installed location) which are not indicated on removal drawings to allow the ship and equipment managers to maintain an accounting of weight changes on weight critical ships. Generally this includes the removal of unused or dead-ended cables, the removal of unused foundations or the removal of unused equipment with associated cables and foundations when such removal is authorized by the ship and designated NSA and approved by the SPM. The material control process shall provide procedures for weight accounting and reporting to the PY when required.

1.8. Problem Resolution Process Procedures shall be maintained that allow for documentation of actions to resolve any quality problems with installation or work control. The necessary documentation shall be made available to the AIT Manager and applicable NSA.

APPENDIX D

AIT Manager's Quality Assurance Program (AMQAP)

LISTING OF ATTACHMENTS.

- (1) Corrective Action Request
- (2) Quality Oversight Schedule and Surveillance Plans (Samples Only)
- (3) AIT Sponsor/Manager's Annual Quality Assessment Report of AIT Performance (Sample Only)

1. PURPOSE. This Appendix establishes basic guidance for assisting AIT Manager's role in performing Tasking/Contract Administration Quality functions to ensure AIT product quality. The quality program elements are structured to facilitate an AIT Manager's oversight role for processes associated with shipboard alterations accomplished by AITs. This Appendix supports QA oversight requirements set forth by FAR Part 46 – Quality Assurance. The five elements of the AIT Manager Quality Assurance Program (AMQAP) are designed to provide a systematic and uniform program approach for ensuring AIT compliance with requirements. The AMQAP program elements are:

1. AIT Document/Procedure Review
2. Process Surveillance and Product Inspections
3. Quality System Audits
4. Corrective Action
5. Quality Data Evaluation

The AIT Manager and/or designated On-Site Installation Coordinator (OSIC) will develop, apply and maintain an effective program for performing Government Contract QA actions consistent with AMQAP.

2. PROGRAM DIRECTION AND CONTROL.

2.1. AIT Responsibilities. The AIT carries out the obligations as set forth in the terms and conditions of the contract/tasking and in accordance with applicable specifications. The AIT is responsible for controlling product quality, offering for acceptance only those supplies and services that conform to contract requirements and, when required, for maintaining and furnishing objective evidence of this conformance.

2.2. AIT Sponsor Responsibilities. The AIT Sponsor is responsible for ensuring AIT installations are funded to the level necessary to ensure all quality system requirements are met, including AIT Manager/OSIC execution of AMQAP and NSA, LMA quality oversight. Data analysis and metrics resulting from the Quality Data Evaluation element of the AMQAP will support the Sponsor's annual quality trend analysis of sponsored AITs. Submit annual quality assessment reports of FY data, to NAVSEA 04XQ and NAVSEA 04RP by the February following the end of the FY. Attachment C provides a sample form for providing an annual quality assessment report of an AIT's performance.

2.3. AIT Manager / On-Site Installation Coordinator Responsibilities. The AIT Manager/OSIC will determine the type and extent of AMQAP actions to ensure AIT compliance and shall as a minimum implement the requirements of Section 3 of this Appendix. When OSIC functions will be performed by a different organization than the AIT Manager, the AIT Manager shall ensure that the scope of authority assigned to the activity performing the OSIC's functions is

documented via the MOA. The AIT Manager may also task and fund QA program responsibilities to the NSA. This scope of authority shall be documented in the MOA

2.4. Naval Supervising Activity/Authority (NSA) responsibilities. The NSA is the single naval activity responsible for the oversight and verification of work accomplished by all activities working within the assigned availability and is responsible for integrating the planning and execution of work by all involved activities. The NSA is responsible for monitoring the effectiveness of the AIT Manager/OSIC's execution of their QA Program responsibilities. Significant issues and quality trends with AIT quality performance and/or AIT Manager/OSIC's AMQAP monitoring shall be documented. Attachment on page D9 provides an AIT Manager/OSIC's QA Program Action Requests Form for NSA use to document issues with the AIT Manager/OSIC's execution of their AMQAP.

2.5. Compliance. The Government determines if the AIT's performance of work complies with the requirements of the tasking/contract. The tasking/contractual documents must provide the authority to require the AIT to maintain a QMS adequate for the work. To implement this, cognizant Government personnel will determine the effectiveness of the AIT's quality effort, as well as perform the product inspections necessary to ensure AIT's conformance to the specification.

2.6. Personnel Capability Requirements. The AIT Manager/OSIC will ensure the required skills are available to determine acceptability of products produced and services rendered by the AIT. Training must be provided to ensure personnel have the skills, techniques and knowledge necessary to comply with the requirements of this document.

3. ELEMENTS OF AN AIT MANAGER QUALITY ASSURANCE PROGRAM (AMQAP).

3.1. Document/Procedure Review. Document Review is the AMQAP element for verifying that the AIT's documented procedures and technical data comply with contractual/tasking requirements, including latest applicable version of invoked NAVSEA SIs. The AIT Manager/OSIC must review the AIT's procedures in a timely manner and not delay the AIT's performance. This review shall ensure that AIT has developed a specific QA Workbook that identifies installation plan and all applicable inspections and tests needed to ensure product/process quality. When the AIT does not develop required written procedures or fails to correct inadequate procedures previously reported to the AIT, the AIT Manager/OSIC shall initiate corrective action.

3.1.1. The AIT QA Workbook shall be made available to the applicable NSA and/or LMA.

3.2. Process Surveillances and Product Inspections. Process surveillance inspections verify that the AIT is compliant with written quality procedures and that procedures are accomplishing the intended purpose of controlling product/process quality. Product inspections validate product compliance with drawing and specification requirements.

3.2.1. AIT Managers/AIT OSICs are required to develop quality overview plans for use during AIT work performance to ensure AIT compliance with established requirements. The surveillance and inspection plan shall include Government (G) notification points, critical inspection points and those areas to be monitored.

3.2.1.1. Process surveillance inspections shall be scheduled and accomplished frequently by the AIT OSIC to ensure the AIT is compliant with their QMS processes and procedures for accomplishing work. Process surveillance inspection plans shall be developed using process

specific attribute checklists where AIT Manager/OSIC intends to verify compliance. These inspection plans also serve as an inspection record when completed. The attachment on page D-13 provides examples of a surveillance oversight plan and attributes used when conducting surveillances and inspections.

3.2.1.2. Product inspections shall be periodically conducted to verify that the AITs processes and procedures are accomplishing the intended purpose of controlling product/process quality. Product inspections will be performed for critical dimensions and/or attributes requiring additional oversight and are usually defined as a Government inspection point (G point) for AIT contractor work. AIT Managers/OSICs should work with the AIT during the planning phase to identify (via attribute sampling) product characteristics that need verification by the AIT Manager/OSIC to validate product offered by the AIT for acceptance, conforms to contract/tasking technical requirements. Records for documenting product inspections may be part of the AIT inspection and Test Plan or can be developed internally by the AIT Manager/OSIC. The scope and depth of these inspections depend on the complexity and size of the alteration/SC.

3.2.1.3. Flexibility for adjusting frequency of surveillances and inspections will depend on nonconformity rates and problem areas identified, based on AIT's quality history. As a minimum AIT Manager/AIT OSIC surveillance and inspection frequency shall be established for each AIT installation and be identified in the AIT Manager/OSIC's oversight plan.

3.2.1.4. Process and product surveillance and inspection results shall be made available to the applicable NSA/ when requested.

3.3. Quality System Audits Quality system audits are designed to examine and evaluate procedures and processes to determine compliance and measure the effectiveness of the AIT's QMS. The "QMS audit" may be conducted as a single audit or may be combinations of several audits that ensure all major elements of QMS are audited. AIT Managers should conduct quality system audits when selecting new AITs or when quality issues are identified that indicate a breakdown in AIT compliance with quality system requirements.

3.3.1 Documentation of audit results for AIT installs shall be made available to the applicable NSA when requested.

3.4. Corrective Actions. Effective corrective action is one of the most important AMQAP elements as it serves to define methods for requesting action by AIT to act to correct nonconformities and address unplanned events. To achieve systematic assurance of compliance throughout all phases of the AIT's operation, the basic causes of nonconformities must be identified and prompt corrective action taken to correct assignable conditions in order to preclude future nonconformities. The AIT shall be required not only to correct specific nonconformities but also to initiate preventive action to identify and eliminate cause of nonconformities. The AIT Manager/OSIC's use of a Corrective Action Request (CAR) is designed to ensure that AITs address actions needed to support effective corrective and preventive actions. The AIT Manager/OSIC must evaluate effectiveness of an AIT's preventive action to eliminate cause of nonconformities by performing follow-up actions after process change has been implemented. The AIT Manager/OSIC may need to increase oversight inspections until there is assurance that the AIT's corrective action is satisfactory.

3.4.1. For significant ship problems (e.g., problems that affect ship safety, cause significant damage to the ship or its equipment, delay ship deployment or incur substantial cost increase or involve severe personnel injury), AIT Manager/OSIC shall require a critique be conducted inviting participation by the applicable NSA and LMA and a Trouble Report issued, if applicable. Trouble Reports shall be prepared and distributed in accordance with reference 2.2.3(17) Trouble Reports should also identify systemic problems and issues that constitute significant lessons learned for other activities.

3.4.2. CARs should be discussed with AIT management/AIT prior to issuance. An effective follow-up system will be maintained by AIT Manager/OSIC on all CARs to ensure acceptable resolution. Nonconformities shall be assigned one of three levels of severity (Minor, Major and Critical) to distinguish those problems that have the most impact on an activity in accomplishing its mission. Severity levels also help ensure appropriate resources are focused on the most significant problems. When corrective action by an AIT is required, one of the following methods will be implemented by the AIT Manager/OSIC:

3.4.2.1. Minor Nonconformities (Method A). A minor nonconformity is a defect or flaw that will probably not impair the performance or life of a product or result in unsafe conditions for the user. Generally, a minor nonconformity is administrative in nature or can be corrected on the spot; at most, the AIT can be reasonably expected to correct it within one day. Examples of minor nonconformities are nondocking related late reports, repeated housekeeping violations, potential safety discrepancies such as a hot work chit not posted on-site, minor repetitive administrative discrepancies with submittals of work specifications, Process Control Procedures, reports, etc., minor Objective Quality Evidence discrepancies and G-Points called out during normal working hours that are not ready for inspection at the designated time. These minor nonconformities shall be presented to responsible AIT personnel verbally or in writing for correction. Each minor nonconformity will be described in sufficient detail to allow the AIT to understand what contractual/tasking requirement is violated and to take appropriate corrective action. While the AIT is not required to provide a written response, the internal AIT Manager/OSIC's process shall ensure that minor nonconformities are documented, corrected and date verified/cleared. While causal analysis or long term action is not required, the AIT Manager/OSIC shall evaluate Minor nonconformities for trend analysis.

3.4.2.2 Major Nonconformities (Method B). A major nonconformity is a nonconformance that judgment and experience indicate could impair the performance or life of a product or result in hazardous or unsafe conditions for the user. Examples of major nonconformities are late dry-dock related reports, repeated Method A nonconformities in the same area, safety discrepancies that pose an immediate threat or danger, serious injuries to personnel, damage to government property or ship's systems that impact the product or performance, AIT's actions that result in the issuance of a Trouble Report and technical authority violations such as unauthorized substitution of materials or unauthorized changes to ship's systems.

Major quality problems must be investigated to determine scope of the problem, to identify root causes and to take action to correct the assignable causes. When major nonconformities are detected or a trend of recurring minor nonconformities is noted, a CAR shall be initiated citing the specific tasking/contract, specification or AIT procedural requirement violated and a description of the nonconformity, clearly indicating how the requirement was violated. Additionally, the CAR shall include pertinent control information such as: contract or tasking number/job order, ship, appropriate references, originator name and signature, unique serial

number, AIT's corrective action response and preventive action(s) taken to eliminate the causes of potential nonconformities in order to prevent their occurrence, and AIT Manager/OSIC indication of acceptability and signature. An example of a CAR form is provided herein. The CAR shall be forwarded to the appropriate level of the AIT's management for action. The actual time frame for completion of AIT corrective action may vary; however, a prompt response to CARs is required. An interim reply may be acceptable pending AIT's completion of corrective actions. The AIT Manager/OSIC shall review and accept AITs corrective and preventive action.

3.4.2.3. Systemic/Critical Nonconformities (Method C). When the previous methods fail to obtain satisfactory results; or when the severity of the situation warrants, a Method C letter shall be issued from the Quality Assurance Officer/Director/Manager or the appropriate Department Head notifying the AIT's appropriate level of management that a critical or systemic problem exists and immediate management action must be taken to comply with the provisions of the contract/tasking. These problems must be investigated to determine and correct the causes. In addition, when a Method C letter fails to obtain satisfactory results or when the severity of the situation warrants, a second letter (Method D) shall be issued by the CO or the Contracting Officer notifying the AIT's top level of management that a systemic or critical problem exists and that immediate management action must be taken to comply with the provisions of the contract. An electronic or hard copy of each Method C or D letter shall be furnished to the CO and/or Contracting Officer.

3.4.2.4 Systemic/Critical Nonconformities (Method D). When a Method C letter fails to obtain satisfactory results or when the severity of the situation warrants, a Method D letter shall be issued by the CO or the Contracting Officer notifying the AIT's top level of management that a systemic or critical problem exists and that immediate management action must be taken to comply with the provisions of the contract. An electronic or hard copy of each Method D letter shall be furnished to the CO and/or Contracting Officer.

3.5 Quality Data Evaluation. Quality Data Evaluation is the AMQAP element that provides for the collection, evaluation and use of AIT, AIT Manager/OSIC and customer quality data. Quality Data analysis shall be done at least annually using the following quality data:

- a. Casualty Reports
- b. Trouble Reports
- c. CARs
- d. AIT Performance Assessment Report data
- e. Process and Product Surveillance Inspection results
- f. NSA and/or LMA Surveillance Inspection results
- g. Quality System Audit results

3.5.1 The results of quality data analysis provide evidence of an AIT's quality performance and assist in determining the effectiveness of an AITs QMS. The AIT Manager/OSIC shall use the results of quality data analysis to adjust the intensity of application of basic elements of the AMQAP.

3.5.2 The results of AIT Manager/OSIC's Quality Data Evaluation will be used for metrics that support the AIT Sponsors' annual AIT quality trend analysis submittal.

3.6 Quality Assurance (QA) Program for Field Activities having AIT Manager/OSIC Responsibilities. Naval activities having AIT Manager responsibilities shall establish an internal audit program that audits AIT Manager/OSIC actions and responsibilities as identified in TS 9090.310 to determine if internal departments are in compliance with this instruction and internal quality related directives and procedures. The Audit shall normally be conducted every 12 months. However, audit periodicity may be extended to 24 months based on satisfactory performance.

4. NAVSEA EVALUATIONS

NAVSEA, at its discretion, will perform periodic evaluations/audits of AIT Sponsors, AIT Managers and AIT OSICs to assess and determine conformance to QA functions and responsibilities.

To: (AIT Activity Name and POC)	From: (AIT Manager/OSIC Activity Name and POC)
SHIP/HULL NUMBER:	REFERENCES:
PROBLEM SEVERITY LEVEL: <input type="checkbox"/> Critical <input type="checkbox"/> Major <input type="checkbox"/> Minor	
CONTRACT/TASKING NUMBER (if applicable):	
SERIAL NUMBER:	
STATEMENT OF NONCONFORMANCE (INCLUDE CONTRACT/SPECIFICATION REQUIREMENTS):	
_____	_____
SIGNATURE OF AIT MANAGER/OSIC	DATE
AIT CORRECTIVE ACTION TAKEN TO CORRECT NONCONFORMANCE:	
IDENTIFICATION OF ROOT CAUSE:	
PREVENTIVE ACTIONS TAKEN TO CORRECT ROOT CAUSE:	
_____	_____
SIGNATURE OF AIT	DATE
VERIFICATION OF AIT'S RESPONSE: <input type="checkbox"/> SATISFACTORY <input type="checkbox"/> UNSATISFACTORY	
COMMENTS:	
_____	_____
SIGNATURE OF OSIC	DATE
FOLLOW UP REQUIRED: <input type="checkbox"/> YES <input type="checkbox"/> NO	
RESULTS OF FOLLOW-UP <input type="checkbox"/> SATISFACTORY <input type="checkbox"/> UNSATISFACTORY	
_____	_____
SIGNATURE OF AIT MANAGER	DATE

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AIT MANAGER/OSIC QA PROGRAM ACTION REQUEST

(AIT MANAGER/OSIC Activity Name and POC)	(NSA Activity Name and POC)
SERIAL NUMBER AND DATE: (e.g. AIT MANAGER Name – Sequential Number)	REFERENCES:
ITEM CATEGORY: <input type="checkbox"/> Non-Conformance <input type="checkbox"/> Process Improvement	
SHIP/HULL NUMBER:	
NSA STATEMENT OF NONCONFORMANCE / PROCESS IMPROVEMENT:	
AIT MANAGER/OSIC CORRECTIVE ACTION(S) TAKEN TO CORRECT NONCONFORMANCE/PROCESS IMPROVEMENT:	
IDENTIFICATION OF ROOT CAUSE (NONCONFORMANCE ITEMS ONLY) :	
PREVENTIVE ACTIONS TAKEN TO CORRECT ROOT CAUSE (NONCONFORMANCE ITEMS ONLY):	
_____ SIGNATURE OF AIT or AIT MANAGER/OSIC REPRESENTATIVE	_____ DATE
VERIFICATION OF AIT MANAGER/OSIC'S RESPONSE: <input type="checkbox"/> SATISFACTORY <input type="checkbox"/> UNSATISFACTORY COMMENTS: _____ _____	
_____ SIGNATURE OF REPRESENTATIVE	_____ DATE
FOLLOW UP REQUIRED: <input type="checkbox"/> YES <input type="checkbox"/> NO	
RESULTS OF FOLLOW-UP <input type="checkbox"/> SATISFACTORY <input type="checkbox"/> UNSATISFACTORY	
_____ SIGNATURE OF AIT MANAGER/OSIC	_____ DATE

*(provide copy to SEA 04XQ marion.b.hall@navy.mil)

(Sample)

- I. Introduction: This Quality Oversight Plan is for AIT Manager or AIT Name oversight actions during installation of alterations/SCs #(_____).
- II. References:
 - a) NAVSEA 0902-018-2010; General Overhaul Specification for Deep Diving Submarines
 - b) NAVSEA S9073-AM-SBV-010/020; Noise Monitoring of SSN/SSBN Auxiliary Machinery
 - c) NAVSEA Technical Specification (NSTS) 9090-310(Series)
- III. Enclosures:
 1. AIT OSIC QA Surveillance Oversight Plan
 2. Surveillance Checklist
 3. In-Progress Monitoring
 4. Work Package Review Record Sheet
 5. Housekeeping Record Sheet
 6. AIT QA Plan Audit Record
 7. Annual Quality Assessment Report of AIT Performance
- IV. The AIT Manager (insert name) Government On-Site Installation Coordinator (OSIC) will be responsible for the conduct of the installation and ensuring:
 1. The AIT workmanship and work practices meet the requirements of all installation drawings and contract specifications including applicable NAVSEA SI and Submarine Maintenance Standards as invoked/applicable.
 2. The AIT performs general housekeeping, including the proper disposal of any hazardous waste, industrial waste or excess hazardous material, in all impacted areas as an on-going part of the alteration accomplishment.
 3. After completion of all ship work, the AIT will conduct final housekeeping in all areas involved in the alteration accomplishment.
 4. The AIT Team Lead insures that all hoses, welding leads, temporary ventilation trunks, and other material and services shall be kept clear of water tight doors and hatches or be capable of being removed.
 5. The AIT shall ensure all removed equipment and associated material is properly disposed of. Additionally, the AIT OSIC/AIT Lead will be responsible for protecting equipment from contamination during the alteration installation process. NAVSEA SI 009-06.
 6. Provide on site installation oversight and management for respective installs to include spot-check and surveillance inspections of ongoing and completed work. Establish, witness, and sign-off on government "G" point inspection points in the Test and Inspection Plan. The Quality Overview Schedule provides details on planned audit and surveillance tasks and includes forms used for documentation.

- A. Provide copies of completed surveillances to the NSA when requested.
- 7. Ensure all members of the AIT comply with all requirements specified in the Tag-out User's Manual (TUM).
- 8. Ensure tag-out notification is submitted in a timely manner so that tag-outs can be accomplished as required by NAVSEA Instruction S0400-AD-URM-010/TUM(Series), Tag-out Users Manual (TUM). Notification shall be made at least forty-eight (48) hours prior to required deactivation to ensure proper coordination with other on-going work.
- 9. Act as the central point-of-contact with the ship, NSA, LMA and AIT.
- 10. Ensure AIT adherence to safety, environmental, quality, and technical requirements.
- V. Mitigate AIT issues, particularly those relating to a stop work order.
- VI. Testing
 - 1. Ensure the NSA and LMA are notified prior to all testing events
 - 2. Maintain completed test reports during accomplishment of the alteration/SC
 - 3. Provide completed test reports to the NSA, LMA and Ship's Force.
- VII. Attend NSA and/or LMA availability production and coordination meetings and all other appropriate meetings, as required.
- VIII. Monitor the progress of work against the installation POA&M and provide updated installation progress.
- IX. Ensure delivery of all documentation, test reports, ILS products.
 - 1. Upon completion of the alteration, ensure any required on-the-job training of assigned members of the ship's crew is conducted by the AIT.
 - 2. Training will include both operation and maintenance of all new and modified equipment.
- X. Resolve quality discrepancies.
- XI. Ensure that AIT work responsibilities that involve SUBSAFE work is performed only by a NAVSEA Note 5000 activity.
- XII. Ensure that AIT work responsibilities that involve Fly-By-Wire (FBW) is performed in accordance with reference 2.2.3(35).
- XIII. Ensure adherence to schedule requirements.
- XIV. Ensure the following actions have been completed for alteration/SC #(_____):
 - 1. AC Plant tested in accordance with Section 9590 of reference (a) per alteration/SC instructions.
 - 2. Validate all new equipment meets noise requirements specified in the alteration/SC.
 - 3. Validate Structure Borne Noise Testing is completed for all modified equipment during operations per reference (b).

4. Validate Isolation System Survey and Housekeeping portion of Topside and Housekeeping Survey for affected areas upon alteration/SC completion per Section 9400-1 of reference (a).
5. Validate completion of Airborne Noise Survey of the affected areas upon alteration/SC completion per Section 9400-1 of reference (a).

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AIT OSIC QA SURVEILLANCE OVERSIGHT PLAN (EXAMPLE)

(Sample)

SURVEILLANCE TASK	PERIODICITY	RESPONSIBILITY	ACTIONS
Conduct random spot check of an AIT employee performing work on board the ship. Use the Work In-Progress Monitoring surveillance checklist to evaluate process.	Twice per week, for each shift in which work is performed.	AIT Manager, On-Site Installation Coordinator (OSIC) or OSIC Designated Government Employee	Complete surveillance checklist; retain forms on site as OQE; make copies available to LMA or NSA, upon request.
Spot check AIT work packages to ensure scope of work is identified, individual is working within work scope, package contains details of work being performed, current process procedures are being utilized and QA checkpoints incorporated into the process. Use Work Package Review surveillance checklist to evaluate process.	Twice per week rotating through each SHIPALT	AIT Manager, OSIC or OSIC Designated Government Employee	Complete surveillance checklist; retain forms on site as OQE; make copies available to LMA or NSA, upon request.
Conduct random spot check of on board or off-hull AIT work areas for cleanliness, stowage and general housekeeping. Use housekeeping surveillance checklist to evaluate process.	Twice per week	AIT Manager, OSIC or OSIC Designated Government Employee	Complete surveillance checklist; retain forms on site as OQE; make copies available to LMA or NSA, upon request.
Conduct an audit of AIT'S audit and surveillance plan to ensure compliance. Use AIT QA Audit/Surveillance checklist to evaluate process.	Bi-weekly	AIT Manager, OSIC or OSIC Designated Government Employee	Complete surveillance checklist; retain forms on site as OQE; make copies available to LMA or NSA, upon request.
OSIC conduct an audit of completed AIT work packages. Complete work Package Audit Form.	All work packages as they are completed	AIT Manager, OSIC or OSIC Designated Government Employee	Complete surveillance checklist; retain forms on site as OQE; make copies available to LMA or NSA, upon request.

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EXAMPLE OF SURVEILLANCE CHECKLIST

Ship Alt Number:	SHIP:	Date:	AIT:	AIT Manager/OSIC:	
Attributes: STRUCTURAL WELDING		SAT	UNSAT	N/A	Remarks/Correct Action Required
1. Is the welder currently qualified for: a. Process being used? b. Position? c. Electrode and material type?					
2. Does Weld Procedure correspond with work being accomplished?					
3. Has the Weld Procedure been approved by NAVSEA/SUPSHIP or their authorized representative?					
4. Is the Process Control Procedure at the worksite, when required (e.g. critical aluminum welding)?					
5. Does welder have the correct filler material type and size required by procedure?					
6. Does welder have more than one filler material type in his possession that could lead to material mix-up?					
7. Are moisture sensitive covered electrodes (e.g., Mil types 9018, 10018, 11018, 12018, 10018-N1, 410NiMo and E2209-15/16) placed in holding ovens (225-300 degrees) after hermetically sealed container is opened? a. Are returned exposed electrodes exceeding time limit (more than 5 hours) re-baked or placed in holding ovens for at least 8 hours? b. Is the holding oven for other Low Hydrogen covered electrodes maintained at 150-300 Degrees?					
9. Where applicable, did welder ensure that confined space was certified gas free prior to welding?					
10. Did welder ensure that equipment was protected prior to welding?					
11. Was a fire watch in position during welding operations?					
12. Did welder check pre-heat and interpass temperatures for correct temperature required by weld procedure? 13. Does welder have correct temperature sticks or other devices to check base material temperature?					

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EXAMPLE OF SURVEILLANCE CHECKLIST

Ship Alt Number:	SHIP:	Date:	AIT:		AIT Manager/OSIC:
Attributes: STRUCTURAL WELDING		SAT	UNSAT	N/A	Remarks/Correct Action Required
14. Does welder clean base material to ensure weld is not contaminated with foreign material?					
15. Did welder perform Visual Inspection (VT) of welds? a. Has welder been training to perform workmanship inspection per MIL-STD-1689A?					
16. Were All NDT inspections required by Drawing or Fabrication Specification performed?					
17. Was the NDT inspector qualified for NDT inspections performed?					
18. Was welding and NDT performed documented on a Weld Joint record?					
Note: Source requirements: S9074-AQ-GIB-010/248, and MIL-STD-1689A					

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EXAMPLE OF SURVEILLANCE CHECKLIST

Ship Alt Number:	SHIP:	Date:	AIT:	AIT Manager/OSIC:		
Attributes: PIPE WELDING			SAT	UNSAT	N/A	Remarks/Correct Action Required
1. Is the Work Authorization Form (WAF) at the worksite?						
2. Is the Process Control Procedure, when required, at the worksite?						
3. Is correct Welding Technique Sheet at worksite for materials being welded?						
4. Is correct filler type material and size being used for weld per Weld Technique Sheet?						
5. Is welder 5X visual inspector qualified?						
6. Is welder qualified for weld procedure?						
7. Has the diametrical clearance been checked (P1 maximum clearance .065")?						
8. Has the socket pipe end clearance (1/16" to 1/8" for new and 1/32" to 1/16" existing been checked? (evidence of a scribe line being used to measure)						
9. Have the items been preheated per the Welding Technique Sheet?						
10. Have Interpass temperatures been taken for multiple pass welds per Weld Technique Sheet? (Check temperature at site of operation before starting the next pass)						
11. When required, has the item been post weld heat treated per the Welding Technique Sheet?						
12. Is pipe socket fillet weld the correct size for Piping Nominal Wall Thickness (Tp)? (Weld size =Tp x 1 3/4 Tp)						
13. Are there any visual discrepancies such as weld spatter, weld undercut and weld slag?						
14. Was NDT performed as required by drawing?						
15. Was the NDT inspector qualified for NDT inspections performed?						
16. Was welding and NDT performed documented on a Weld Joint record?						
Note: Source requirements: S9074-AQ-GIB-010/248, and S9074-AR-GIB-010/278						

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EXAMPLE OF SURVEILLANCE CHECKLIST

Ship Alt Number:	SHIP:	Date:	AIT:	AIT Manager/OSIC:	
Attributes: WORK AUTHORIZATION FORM (WAF) and QA Workbook		SAT	UNSAT	N/A	Remarks/Correct Action Required
1. Is WAF placed in the work authorization signed by Ships Force and other appropriate personnel at worksite?					
2. Did the AIT present proposed tag-out for work on system equipment? a. Are all tags posted properly? b. Does the equipment tagged appear to be in the position indicated on the tag?					
3. Is the work being performed within the scope of WAF?					
4. Are any revisions to WAF reviewed and signed by appropriate personnel?					
5. Is QA workbook on-site and being used to perform work?					
6. Does AIT have correct drawing and revision level for performing the work?					
7. Are in-process steps being followed and appropriate signatures annotated as specified in inspection and test plan?					
8. Has OSIC been notified by AIT for Government G-point inspections in QA Workbook?					
9. Is the AIT worker qualified to perform work and is his qualifications in the QA workbook?					
10. If HAZMAT is being used, is it properly labeled?					
11. Is the worker following safety requirements specified in the work package?					
12. Is the worker observing cautions, warnings and notes, as applicable?					
13. Has the AIT supervisor visited the work site during the shift?					
14. Is the mechanic using good work practices?					
15. Is the mechanic using calibrated measuring and test equipment for product inspections?					
16. Have test requirements to certify work been identified in QA Workbook?					
17. Does the AIT have required test equipment to test work being accomplished? a. Are the test gage ranges appropriate (middle ¾ range of gage) of test pressure being applied? b. Are test gages calibrated?					
18. Do test procedures require that equipment or system be protected from over-pressurization?					
19. Is system tested prior to closing out WAF?					

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EXAMPLE OF SURVEILLANCE CHECKLIST

Ship Alt Number:	SHIP:	Date:	AIT:	AIT Manager/OSIC:	
Attributes: ELECTRICAL SAFETY and TAG-OUT		SAT	UNSAT	N/A	Remarks/Correct Action Required
1. Have all required circuits have been electrically isolated?					
2. Have circuit breakers been locked and tagged out?					
3. Was a voltage tester/voltmeter used to validate equipment was de-energized?					
4. Was ship's duty officer's permission obtained prior to start work?					
5. Are all unused openings in cabinets, boxes, and fittings effectively covered, covers closed, exposed power supplying conducted ends taped, and all conductors protected from contamination?					
6. Are any loose wires properly insulated and identified?					
7. Are electrical storage devices discharged prior to commencing work?					
8. Are metal hand held tools properly covered with electrical insulating material when working near energized circuits?					
9. Are electrical workers wearing appropriate personal protective equipment (safety glasses and electrical hazard safety shoes, etc) ?					
10. Are non-qualified personnel and other personnel not involved with the work are kept a minimum of three feet from the energized circuit?					

SPONSOR SUMMARY PAGE

Date: _____

Assessment Period Dates _____

AIT Manager { Government Activity, include POC Name/Title } _____

Sponsor Overall Assessment of AIT (include basis for assessment)

(Name and CAGE Code)

Below Average Average Above Average

Comments: _____

(Name and CAGE Code)

Below Average Average Above Average

Comments: _____

(Name and CAGE Code)

Below Average Average Above Average

Comments: _____

AIT Manager's Oversight Assessments are provided by Enclosures:

Signature: _____

Name, Organization/Code, Title:

MANAGER SUMMARY PAGE

AIT Manager { Government Activity, include POC Name/Title} _____

Assessment Period Dates _____

AIT Assessed _____

Scope of Work (optional)

Affected Platforms / Class (optional)

Manager' Assessment of AIT	<input type="checkbox"/> Below Average	<input type="checkbox"/> Average	<input type="checkbox"/> Above Average
- Address			
<input type="checkbox"/> Program Weaknesses and Actions Taken to address			
<input type="checkbox"/> Systemic Problems / Concerns			
<input type="checkbox"/> Significant Production Delays Caused By AIT (e.g., rework, material not ordered properly, or staged when required, lack of personnel assigned for work to be accomplished, unqualified personnel or procedures)			

Considerations in Developing Assessments

❖ MOA	
<input type="checkbox"/> NSA and/or LMA – QA Support Services Requested in accordance with requirements? <input type="checkbox"/> YES <input type="checkbox"/> NO	
<input type="checkbox"/> Agreements Obtained Prior to Installation Start Date? <input type="checkbox"/> YES <input type="checkbox"/> NO	
DETAILS:	_____

❖ Analysis of Deficiency Data Collected	
➤ Departures / Waivers	<input type="checkbox"/> YES <input type="checkbox"/> NO
DETAILS:	_____
➤ Significant Critiques / Trouble Reports	<input type="checkbox"/> YES <input type="checkbox"/> NO
DETAILS:	_____
➤ Customer Surveys/Feedback	<input type="checkbox"/> Below Average <input type="checkbox"/> Average <input type="checkbox"/> Above Average
DETAILS:	_____
➤ Significant Audit Findings	<input type="checkbox"/> YES <input type="checkbox"/> NO
DETAILS:	_____

Signature: _____

Name, Organization/Code, Title:

APPENDIX E

AIT IN-BRIEF

AIT IN-BRIEF

Purpose: The purpose of a AIT in-brief is to provide an overview and objectives of the alteration/SC to be accomplished. The in-brief shall outline PICO deficiencies, work to be performed, review the schedule of accomplishment and identify impacts on the ship, confirm arrangements for requested/required services, establish responsibilities and points of contact, review planned ship's evolutions, and review Integrated Logistics Support (ILS) products and training to be provided.

1. Alteration/Ship Change Overview: The overview provides a description of the alteration/SC purpose and the expected improvements to be provided, areas of the ship impacted by the alteration/SC and additional areas affected by the accomplishment of the alteration/SC and the impact on ship's services.
2. PICO deficiency corrections:
 - A. The AIT OSIC, Ships Force, NSA and LMA shall discuss and agree who is responsible for correction of each reported PICO deficiency to prevent delays during the installation and the SOVT test procedure.
3. Work to be accomplished::
 - A. Review of installation drawings
 - (1) Arrangement drawing(s) indicating equipment to be removed and locations of new, modified, and relocated equipment
 - (2) System drawing(s) indicating system interconnections and interfaces with ship system interfaces including power and ventilation
 - (3) Cable and/or pipe runs
 - B. Review of equipment and materials to be used
 - (1) Review of equipment and material to be installed
 - (2) Review of equipment and material to be removed
 - (3) Review of hazardous materials to be used or removed and handling and disposal procedures
 - C. Review of ship's systems impacted during alteration/SC accomplishment and duration of impact
 - D. Review of areas that may have restricted access during alteration/SC accomplishment
 - (1) Areas where welding is to be accomplished
 - (2) Areas where hazardous material is to be used or handled
 - E. Review of applicable process control procedures to be used for fire prevention, hot work, sight and hearing protection, protection of pipes, cables, and equipment during ship work, system or equipment deactivation/reactivation, material storage

at the work site, storage, use and disposal of hazardous materials (including excess and partially used hazardous material and hazardous material removed as part of the accomplishment of the alteration/SC, material for staging and screening, temporary covers and shelters, uncrating/unpacking of equipment, cleanliness of the ship and workmanship.

- F. Review of personnel qualification/certifications for work requiring specific qualifications.
4. Schedule of events/Milestones: A detailed review of schedule-of-work and Test Plan (TP) and/or SOVT agenda of all functional items shall be provided during the briefing. Key event checkpoints (e.g. piping flush, hydrostatic testing, cableway and compartment closeout) and system operational testing of all functional items will be provided for Ship's Force witnessing. The material deliveries, required compartment accesses, security requirements, and shift schedules will also be discussed at this time. The schedule information shall include projected start and finish dates, planned shift start time(s), planned testing periods, planned training dates and planned ILS turnover.
5. Planned ship's evolutions: Any special restrictions due to ship's evolutions during the availability (weapon/ordnance loading, ship's receiver/transmitter testing, emergent requirements, other alterations/SCs being accomplished, etc.), which could impact or be impacted by work being performed by the AIT, will also be discussed at this time. It will be the responsibility of the AIT to perform required shipboard work around these restrictions. If restrictions exist which cannot be accommodated by the AIT without jeopardizing scheduled completion date of the alteration/SC or the scheduled departure date of the ship, the AIT will make arrangements with the Naval Supervising Activity/Authority (NSA) for accomplishment of the alteration/SC during a subsequent availability and withdraw from the ship.
6. Confirmation of services: AIT arrangements for crane and/or welding services, special test requirements, fire watches, etc., will also be confirmed at this time. For alterations/SCs being accomplished during CNO Availability, arrangements and associated funding for services included in the contract (if the alteration/SC is to be accomplished at a private activity) (crane services, welding services, special test requirements, fire watches, NSA disposal of turned-in equipment/material, etc.) will also be confirmed at this time.
7. Points-of-contact: The AIT OSIC/AIT Lead shall request the ship to provide a list of all points of-contact for accomplishment of the alteration(s)/SC(s). The points-of contact list will include those technical personnel assigned to work with the AIT and witness testing, the names of those people authorized to sign off the ACR, and the names of personnel authorized to accept delivery of computer tapes and ILS items. For alterations/SCs being accomplished during CNO Availability, the NSA representatives, PY On-Site Representatives (Program Representative and Configuration Data Manager [CDM]), and the Lead Ship Availability Manager from the industrial activity will also be identified. For alterations/SCs being accomplished during a CNO Availability, the AIT OSIC will also identify which AIT member(s) will attend daily progress meetings.
8. Responsibilities: The AIT OSIC will be identified as being responsible for the conduct of the AIT and the person to be contacted in regard to work deficiencies, scheduling problems, or

problems with AIT members. The AIT OSIC shall be accessible to Ship's Force throughout the period(s) the AIT is on board and is responsible for the resolution of identified deficiencies or issues associated with accomplishment of the assigned alteration(s)/SC(s). When work is being accomplished during a CNO Availability, the AIT OSIC shall also be accessible to the NSA and the Lead Ship Availability Manager at all times during period(s) the AIT is on board the ship. The AIT OSIC shall be responsible for reporting any changes in schedule and providing notification to the ship and NSA of upcoming key event checkpoints and testing evolutions. Additionally, if multiple-shift work is to be accomplished, the AIT OSIC(s) for each shift shall be identified.

9. ILS and training to be provided: The AIT Lead/OSIC will review all ILS products and provide a current, approved ILS Certification as well as all training to be provided at the time of installation. All applicable ILS elements listed in the ILS portion of the ACR and any known ILS deficiencies shall be addressed.

APPENDIX F

LIST OF ACRONYMS

LIST OF ACRONYMS

3M	Maintenance and Material Management
A&I	Alteration and Improvement
ABR	Agreement for Boat Repair
ACN	Advanced Change Notice
ACR	Alteration Completion Report
AER	Alteration Equivalent to Repair
AIM-NT	Advanced Industrial Management – Network Technology
AIT	Alteration Installation Team
AIT OSIC	AIT On-Site Installation Coordinator
ALT	Alteration (or change/modification)
AMPP	Advance Modernization Planning Package (Submarines)
AMPS	Afloat Master Planning System
AMQAP	AIT Manager’s Quality Assurance Program
AQS	Accepted Quality System
ASC	Alteration Status Code
AWP	Availability Work Package
BOM	Bill of Material
C4I	Command, Control, Communications, Computers, Intelligence
C5IMP	Command & Control, Communications, Computers, Combat Systems Installation Master Plan
C5ISR	Command & Control, Communications, Computers, Combat Systems, Surveillance, Reconnaissance
CAR	Completion Alteration Report / Corrective Action Request
CCB	Configuration Control Board
CDM	Configuration Data Manager
CDMD-OA	Configuration Data Manager Database-Open Architecture
CM	Configuration Management
CMAV	Continuous Maintenance Availability
CNO	Chief of Naval Operations
CO	Commanding Officer
COC	Certificate of Conformance
COH	Complex Overhaul
COMFLTFORCOM	Commander, U.S. Fleet Forces Command
COMNAVSEASYSKOM	Commander Naval Sea Systems Command
COMPACFLT	Commander U.S. Pacific Fleet
CONOPS	Concept of Operations
COP	COSAL Overhaul Planning
CP	Computer Program
CPA	Carrier Planning Activity

CPM	Centrally Provided Material
CSSQT	Combat System Ship Qualification Trial
CU	Component Unit
CUI	Component Unit Identifier
DC	Design Change
DFS	Departure From Specification
DIRSSP	Director, Strategic Systems Programs
DMP	Depot Modernization Period
DPIA	Docking Planned Incremental Availability
DPMA	Docking Phased Maintenance Availability
DSA	Design Service Allocation
DSRA	Docking Selected Restricted Availability
DSS	Deep Submergence System
DSS-SOC	Deep Submergence System - Scope of Certification
DT/OT	Development Test/Operational Test
EA	Equipment Alteration
EC	Engineering Change
ECP	Engineering Change Proposal
EDSRA	Extended Dry-Docking Selected Restricted Availability
EMC	Electromagnetic Compatibility
EMI	Electromagnetic Interference
EMP	Electromagnetic Pulse
EOA	End of Availability
EOH	Engineered Overhaul
EOI	End Of Installation
EPA	Environmental Protection Agency
EPDA	Extended Post Delivery Availability
ERP	Enterprise Resource Planning
ESD	Electrostatic Discharge
ESOH	Environmental, Safety, and Occupational Health
ESRA	Extended Selected Restricted Availability
FBW	Fly-By-Wire
FBW SCS	Fly-By-Wire Ship Control System
FC	Field Change
FCB	Field Change Bulletin
FMA	Fleet Maintenance Activity
FOA	Follow-on Availability
FOCP	Fiber Optic Cable Plant
G	Government

GBL	Government Bill of Lading
GPETE	General Purpose Electronic Test Equipment
HAZMAT	Hazardous/Toxic Material
HCPM	Headquarters Centrally Procured Material
HM	Hazardous Material
HM&E	Hull, Mechanical and Electrical
HMP	Hull Modernization Plan
HSC	Headquarters Systems Command, Hardware Systems Command
HW	Hazardous Waste
HVAC	Heating, Ventilating, and Air Conditioning
IA	Installation Activity / Industrial Activity
ICP	Inventory Control Point
IDEA	Integrated Design and Engineering Activity
ILS	Integrated Logistics Support
IMA	Intermediate Maintenance Activity
IMF	Intermediate Maintenance Facility
INCO	Installation and Checkout
IPDA	Industrial Post Delivery Availability
IR	Installation Report
ISC	Installation Status Code
ISEA	In-Service Engineering Agent
ISRA	Incremental Selected Restricted Availability
ISIC	Immediate Superior In Command
JCN	Job Control Number
JFMM	Joint Fleet Maintenance Manual
LACR	Legacy Alteration Change Request
LAN	Local Area Network
LAR	Liaison Action Record
LAR	Liaison Action Request
LCM	Life Cycle Manager
LMA	Lead Maintenance Activity
LOA	Letter of Authorization
LSI	Local Standard Item
MACHALT	Machinery Alteration
MAM	Maintenance Assistance Module
MFR	Memorandum For Record
MILR	Modernization in Lieu of Repair
MOA	Memorandum of Agreement

MOI	Method of Installation
MPMP	Maintenance Program Master Plan
MPP	Modernization Project Plan
MRA	Modernization Readiness Assessment
MSC	Maintenance Support Center
MSDS	Material Safety Data Sheet
MSR	Master Ship Repair
MSRA	Master Ship Repair Agreement
MTA	Modernization Through Attrition
MTP	Master Test Plan
MW	Modernization Window
NAVAIR	Naval Air Systems Command
NAVCERT	Navigation Certification
NAVSEA	Naval Sea Systems Command
NAVSUP	Naval Supply
NDE	Navy Data Environment
NDE-NM	Navy Data Environment-Navy Modernization
NDT	Non-Destructive Testing
NMP	Navy Modernization Process
NMPT	Navy Modernization Process Team
NMP-MOM	Navy Modernization Process-Management and Operations Manual
NPC	Non-Permanent Change
NPES	Non-Propulsion Electronic System
NSA	Naval Supervising Authority/Activity
NSLC	Naval Sea Logistics Center
NSN	Navy Stock Number
NSSA	Norfolk Ship Support Authority/Activity
NSTS	NAVSEA Technical Specification
NSY	Naval Shipyard
NTIRA	Navy Tool for Interoperability Risk Assessment
NTSP	Navy Training Summary Plan
OPCON	Operational Control
OQE	Objective Quality Evidence
ORDALT	Ordnance Alteration
ORM	Operational Risk Management
OSHA	Occupational Safety and Health Administration
OSIC	On- Site Installation Coordinator
OSR	On -Site Representative
OWLD	Obligating Work Limiting Date
PARM	Participating Acquisition Resource Manager

PC	Permanent Change
PCB	Poly Chlorinated Biphenyl
PCD	Production Completion Date
PCMS	Passive Countermeasure System
PDT&T	Post Delivery Test and Trials
PEO	Program Executive Office, Officer
PIA	Planned Incremental Availability
PICO	Pre-Installation Check Out
PM	Program Manager
PMA	Phased Maintenance Availability
PMAPT	PEO SUBS Modernization Advance Planning Team
PMR	Program Manager Representative
POA&M	Plan of Actions and Milestones
PMS	Planned Maintenance System
PPE	Personal Protective Equipment
PPL	Provisioning Parts List
PRAV	Pierside Restricted Availability
PSA	Post Shakedown Availability
PSAWP	Post Shakedown Availability Work Package
PY	Planning Yard
QA	Quality Assurance
QMS	Quality Management System
QRA	Quick Reaction Alteration
RADHAZ	Radiation Hazard
RAV	Restricted Availability
RCS	Radar Cross Section
RCS	Resource Constraint Schedule
RCOH	Refueling Complex Overhaul
RF	Radio Frequency
RFI	Radio Frequency Interference
RMAIS	Regional Maintenance Automated Information System
RMC	Regional Maintenance Center
RMMCO	Regional Maintenance and Modernization Coordination Office
ROH	Refueling Overhaul
SAR	Ship Alteration Record
SAS	Submarine Acquisition and Support
SC	Ship Change
SCD	Ship Change Document
SCLSIS	Ship Configuration and Logistic Support Information System
SCN	Shipbuilding and Conversion, Navy

SCO	Service Craft Overhaul
SCS	Ship Control System
SECDEF	Secretary of Defense
SECNAV	Secretary of the Navy
SESEF	Shipboard Electronics Systems Evaluation Facility
SFI	Strike Force Interoperability
SHAPM	Ship Acquisition Program Manager
SHIPALT	Ship Alteration
SI	Standard Item
SID	SHIPALT/Ship Change Installation Drawing
SIGSEC	Signal Security (electromagnetic/ RF)
SMART	Submarine Modernization and Alteration Requirements Tool
SME	Subject Matter Expert
SOA	Start of Availability
SOC	Scope of Certification
SOM	Supervisor of Shipbuilding, Conversion and Repair Operations Manual
SOVT	System Operational Verification Testing
SOW	Statement of Work
SPALT	Strategic Systems Program Alteration
SPAWAR	Space and Naval Warfare Systems Command
SPM	Ship Program Manager
SRA	Selected Restricted Availability
SRD	Selected Record Drawing
SRF	Ship Repair Facility
SSBN	Ship, Submersible, Ballistic, Nuclear (submarine)
SSCR	Shipboard Systems Certification Requirements
SSGN	Submersible, Ship, Guided, Nuclear (nuclear powered cruise missile submarine)
SSR	Ship Selected Record
SSRD	Ship Selected Record Drawing
ST	Sustainment Type
SUBMEPP	Submarine Maintenance, Engineering, Planning, and Procurement
SUBSAFE	Submarine Safety
SUPPO	Supply Officer
SUPSHIP	Supervisor of Shipbuilding, Conversion and Repair
SW	Software
SWD	Software Delivery
SWFTS	Submarine Warfare Federated Tactical System (US Navy)
SYSCOM	System Command
T&E	Test and Evaluation
T&I	Test and Inspection
TAMS	TYCOM Alteration Management System
TAV	Technical Availability

TCD	Target Configuration Date
TDC	TYCOM Discretionary Change
TDP	Technical Data Package
TEMPALT	Temporary Alteration
TGI	Task Group Instruction
TM	Technical Manual
TEMPEST	Telecommunications and Electrical Machinery Protected from Emanations Security (electric compatibility)
TOA	Type Commander Opportunity Availability
TP	Test Plan / Training Plan
TRF	Trident Refit Facility
TS	Technical Specification
TUM	Tag-out User's Manual
TWD	Technical Work Document
TYCOM	Type Commander
TYCOMALT	Type Commander Alteration
UIPI	Uniform Industrial Process Instruction
UNNPI	Unclassified Naval Nuclear Propulsion Information
USFFC	United States Fleet Forces Command
VR	Voyage Repair
WAF	Work Authorization Form
WBS	Work Breakdown Structure
WG	Working Group
WOO	Window of Opportunity
WPER	Work Package Execution Review
WPI	Work Package Integration
WPIC	Work Package Integration Conference
WSF	Weapons System File
XO	Executive Officer

APPENDIX G

DEFINITIONS

1. **Accomplishing Activity.** A required field for proper scheduling of alterations/SCs in NDE-NM. The Accomplishing Activity should reflect either the responsible headquarters command or the actual Installing Activity (IA). NDE-NM has activities broken into types. The list of Accomplishing Activity Types is:

- ISEA
- SHIP
- SHIPYARD
- SUPSHIP

The ISEA type is the preferred list of activities and includes government and contractor activities. Any activity missing from the list can be added with a request to the NDE Helpdesk.

2. **Advanced Industrial Management – Network Technology (AIM-NT).** A corporately developed software application specifically tailored to performing AIM planning and execution processes on a large-scale shipyard projects such as ship availabilities. AIM-NT is provided to the Shipyard for use on local Citrix (“legacy”) servers featuring Microsoft® Network Technologies. The principal Technical Work Document (TWD) products generated by this software are the Long Form Task Group Instruction (TGI) and the Short Form TGI.**Alteration.** Any change in the hull, machinery, equipment, fittings, computer program and/or interface to external equipment, regardless of whether it involves a change in design, materials, number, location or relationship of an assemblies component parts whether it is undertaken separately from, incidental to or in conjunction with repairs.

3. **Alteration Approval, Technical.** A certification that all requirements necessary for successful alteration installation, operation and support have been met. Requirements include such items as SAR, SIDs, installation funding, removal and system restoration funding (TEMPALTs only), etc. The SPM is the technical approval authority for all Title K, K-P, D and F alterations, Surface Ship NPCs and equipment alterations that may affect ship’s power, weight or air conditioning requirements and all Alteration and Improvement (A&I) items. All other types of equipment alterations normally require approval of the PARM.

4. **Alteration Authorization (Legacy FMP).** Authorization that is required prior to the accomplishment of any alteration. Chief of Naval Operations (CNO) authorization is required before military improvement type K-Alts may be installed. The Ship Program Manager (SPM) approves and either the CFFC or TYCOM may authorize or program Title D or F Ship Alteration (SHIPALTs), equipment alterations and A&I items. Alteration Equivalent to Repair (AERs) require that the designated system command, Program Executive Office (PEO) or SPM who exercises technical authority over the affected article approve them for accomplishment. All Command, Control, Communications, Computer, Intelligence and Combat System alterations (C5I) and alterations impacting interoperability must be authorized in accordance with the D-30 process, by the CFFC, before they can be installed, regardless of the type of alteration.

Note: The D30 process only applies to availabilities for those submarines in a Battle Group. All other submarine availabilities are exempt from this D30 process.

5. **Alteration/SC Completion Report.** A mandatory report certifying an alteration’s/SC’s accomplishment. The cover-page, report distribution requirements and report enclosures are

contained in Appendix B to this specification. This report provides detailed information for use in process improvement design, AIT performance measurement, alteration/SC deficiency tracking, etc.

6. **Alteration Equivalent to a Repair (Legacy FMP).**

- a. An AER is a technical alteration, which has one or more of the following attributes:
 - (1) The use of different material, which has been approved for like or similar use, and such materials are available from standard stock.
 - (2) The replacement of obsolete, worn-out or damaged parts, assemblies, or equipment, requiring renewal by a more efficient design previously approved by the System Command (SYSCOM), Program Executive Office (PEO) or Ship Program Manager (SPM); providing such replacement does not cause a change to the existing system design and does not affect a change to the systems or equipment normally associated with the military characteristics of the ship. All requirements for ILS will be adhered to for AERs affecting ships configuration and or technical documentation.
 - (3) The strengthening of parts requires repair or replacement in order to improve the reliability of the parts and unit provided that no other change in design is involved.
 - (4) Minor modifications involving no significant changes in design or functioning of equipment but considered essential to prevent recurrence of unsatisfactory conditions.
 - (5) The replacement of parts, assemblies, or equipment with like items of later or more efficient design where it can be demonstrated that the cost of installation and maintenance of the new parts, assemblies or components is less than the cost of maintaining the installed parts, assemblies, or components; and such replacement does not cause a change to the existing system design or impact any external interfaces to the system and does not affect a change to the system or equipment normally associated with the military characteristics of the ship.
- b. Only the SYSCOM, PEO or SPM exercising technical control over the article, or the authority to which such technical control has been delegated by that command, shall designate an alteration as a Alteration Equivalent to Repair (AER) and approve it for accomplishment.
- c. An AER is approved for accomplishment by a Title "D" or "F" alteration, A&I, Alteration Request (AR) or Letter AER depending on the scope and effects of the change. Such AERs must be approved by NAVSEA and funded for accomplishment by the TYCOM.

7. **Alteration Installation Team (AIT).** A unit (military, government activity or contractor) under the direction of an AIT Manager or designated agent (ISEA, military or government civilian) of the AIT Manager that is trained and equipped to accomplish specific alterations/SCs on specified ships.

8. **Alteration Installation Team (AIT) Activity or AIT Manager.** The government activity, In Service Engineering Agent (ISEA), military person or government civilian tasked and funded by the AIT Sponsor to initiate, plan, coordinate, schedule, manage and oversee the successful accomplishment of the alteration/SC in accordance with legacy FMP/NMP policy and procedures. The AIT Manager will coordinate with the NSA to ensure satisfactory completion

of the Ship Alteration (SHIPALT)/SC installation during CNO availabilities. This coordination does not relieve the AIT manager of any of his/her responsibilities.

9. **Alteration Installation Team Lead.** Senior member of the AIT.

10. **Alteration Installation Team On-Site Installation Coordinator (OSIC).** The AIT OSIC is a government or military employee designated by and acting with the authority of, the AIT Manager. The AIT OSIC is responsible for the conduct of the entire alteration/SC installation and will be the point-of-contact with the ship, AIT Manager and the NSA. The AIT OSIC shall be knowledgeable of and responsible for AIT adherence to all invoked requirements including safety, quality plan, technical instructions and, when applicable, the SUPSHIP Operations Manual (SOM), Appendix 4-E or NSA/AIT Manager MOAs. AITs that do not have an assigned AIT OSIC (or documented approval from the SPM that an AIT OSIC is not required) shall not attempt to accomplish alterations/SCs to ships and will be denied access to ships.

11. **Alteration Installation Team (AIT) Sponsor.** The Systems Command Naval Air (NAVAIR), Naval Supply (NAVSUP), Naval Sea (NAVSEA) or Space and Naval Warfare (SPAWAR), Program Executive Officer (PEO), (including PARM or SPM, Commander Pacific Fleet (COMPACFLT), Commander Submarine Force (COMSUBFOR), TYCOM, Chief of Naval Operations (CNO) or other government activity that tasks and funds the AIT Manager/AIT.

12. **Alteration/Ship Change, Mature.** An alteration/SC that has a reasonable expectation of successful installation, operation, maintenance and interoperability and is fully supported logistically. A mature alteration has a JCF, SAR, SIDs and an approved Integrated Logistics Support (ILS) Certification.

13. **Alteration, Permanent.** Any logistically supported alteration, which is intended to remain on board the ship for more than 1 year or more than 1 operational deployment. These alterations are accomplished as Ship Alterations (SHIPALTs), AERs, TYCOM alterations and other System Commands (SYSCOMs) and TYCOM alterations (e.g. Field Changes [FCs], Engineering Changes [ECs]). For Surface Ships and Carriers, SCs by category of Program or Fleet applies.

14. **Alteration Scheduling.** The act of slating an alteration for installation on a given ship in a specific time-frame. Ship Program Manager (SPMs) schedule all alterations for installation during all Chief of Naval Operations (CNO) Availabilities via the SPM's Availability Advance Planning and Authorization Letters except for Title D and F alterations and AERs and Fleet SCs, which are scheduled by the TYCOM and except for ECs/FCs/SW which are scheduled by the PARMs.

15. **Alteration, Temporary (TEMPALT) (Legacy FMP).** Any alteration that provides given capabilities on a temporary basis (not to exceed one (1) year or one (1) operational deployment in duration). TEMPALTs support Research, Development, Test and Evaluation (RDT&E), exercise or mission requirements. TEMPALTs are reviewed, technically approved by the Ship Program Manager (SPM) and authorized and scheduled for accomplishment by the TYCOM. All TEMPALTs impacting Battle Force interoperability or that are Command, Control, Communications, Computer, Intelligence (C4I) or Combat System related, need to be approved by the CFFC in accordance with the D-30 process, before they can be installed. The Ship Program Manager (SPM) review considers logistic support, safety, technical adequacy, impact on ship stability, operational characteristics, damage control, ship structure, ship services, ship

interfaces and habitability. Integrated Logistics Support (ILS) (final or preliminary) needs to be identified on the TEMPALT authorization letter and provided at time of installation. Alterations which are intended to be installed for a period in excess of one year or for more than one operational deployment are permanent changes to a ship's configuration and shall be accomplished accordingly (see "Alteration, Permanent"). After completion of testing requirements, mission or exercise support requirements or one year, whichever comes first, TEMPALTs must be removed and the ship restored to its previous configuration. The activity sponsoring the accomplishment of the TEMPALT shall be responsible for funding the removal of the TEMPALT and the restoration of the ship.

16. **As-Built.** Drawings prepared or developed by an AIT, approved by the Planning Yard (PY), used for installation, and revised to indicate the actual, as installed, configuration on the ship.

17. **Battle Force Baseline Configuration Alterations/Ship Changes.** All Command, Control, Communications, Computer, Intelligence (C4I) and Combat System Alterations/SCs and alterations/SCs impacting Interoperability, that have been approved by the CFFC for a specific ship in a specific Battle Force, in accordance with the D-30 process. These alterations/SCs should be technically approved by the Ship Program Manager (SPM) and coordinated with the Naval Supervising Activities/Authorities (NSAs), in accordance with this document.

Note: The D30 process only applies to availabilities for those submarines in a Battle Group. All other submarine availabilities are exempt from this D30 process.

18. **Completion Report, Final.** A message report from the ship receiving the alteration/SC identifying that all discrepancies, noted in the Installation Completion Report, have been satisfactorily resolved. This message report is not required if the Installation Completion Report message also served as the Final Completion Report.

19. **Completion Report, Installation.** A mandatory message report from the ship receiving the alteration/SC identifies the successful accomplishment of the alteration/SC. This message will be drafted by the AIT and provided to the ship for concurrence prior to the AIT's final departure. The ship will ensure that all known discrepancies associated with the alteration/SC are fully documented, along with the activity responsible for resolution of each discrepancy and the estimated date of resolution. If no discrepancies exist, this report will also serve as the Final Completion Report.

20. **Cost Benefit Analysis (CBA) (NMP only).** CBA is a systematic quantitative method to compare the costs of implementing a specific project or course of action with the benefits to be gained from implementation. In the NMP process the CBA is used to compare the Investment Cost of an item to the potential savings or cost avoidance that that same item may provide. It is used in conjunction with the AFOM to provide the Decision Makers with criteria that will help them to decide the relative priority of one ship change with respect to all other ship changes being evaluated.

21. **CU Phase.** A CU Phase is the fundamental or "core" unit of work for AIM processes. Each CU Phase is a distinct job that is usually only one of a group of jobs needed to accomplish the work goal(s) set forth in a job summary. Each CU Phase is further broken down into one or more shop tasks needed to accomplish the job. All production work (and other service work) for a project is tracked, managed, and certified at the CU Phase level. The focus on attention for work is always a CU or (CU assembly), and the type of work done on the CU is a described by a

standard work phase. Thus, a unique identification for any job can be created by combining a Component Unit Identifier (CUI) with a standard work item.

22. **Emergent Change (NMP only).** Emergent Ship Changes are those items that require immediate installation (30 days or less) and/or reprioritization of tasking and reallocation of resources to support accelerated development and installation. The emergent change process is only applicable to the following Ship Change criteria:

- Proposed emergent change is funded in the year of execution or offset has been identified and already approved
- Modernization changes to resolve identified safety items
- Need for mission critical capability
- Need to correct critical software, firmware or other deficiencies that degrade designed capability

23. **Equipment Alteration.** Any modification, other than a ship alteration, to the configuration of an equipment or system (including embedded equipment, computer programs and expendable ordnance) after establishment of the product baseline. An Equipment Alteration involves a change in design, type of material, quantity, installed location, logistics, supportability or the relationship of the component parts of an assembly within the ship. Equipment Alterations include the addition, deletion, rework or replacement of parts, assemblies or equipment; or changes in assembly procedures. Alterations to associated computer programs include the incorporation of different computer program versions and approved modifications or corrections to both operational test and maintenance programs. Equipment Alterations are initiated by approved Class I Engineering Change Proposals (ECPs) or Ship Change Document (SCD). Equipment Alterations apply equally to changes installed in delivered systems and equipment, and changes installed in systems and equipment in production to identify differences from an established product baseline. Equipment Alterations may be initiated to correct a design defect, to change equipment operational capability, to eliminate safety hazards, to update obsolete components to change an external interface, or for any combination of these reasons. There are 6 types of Equipment Alterations:

- a. **Machinery Alteration (MACHALT).** A planned change, modification or alteration of any in-service Hull, Mechanical and Electrical (HM&E) equipment when it has been determined by the MACHALT Configuration Control Board that the alteration or modification meets all of the following conditions:
 - (1) Can be accomplished without changing an interface external to the equipment or system.
 - (2) Are modifications made within the equipment boundary or are a direct replacement of the original equipment system.
 - (3) Can be accomplished without the ship being in an industrial activity.
 - (4) Will be accomplished individually and not conjunctive with an alteration or other MACHALT.

If power, weight or air conditioning requirements are modified, the modification must be discussed with the appropriate Ship Program Manager (SPM), who will decide whether to proceed with the modification as a MACHALT or a alteration.

- b. Ordnance Alteration (ORDALT). An ORDALT is a change made to ordnance equipment or their associated computer programs by the addition, deletion, rework or replacement of parts, assemblies or equipment, or by a change in assembly procedures. Computer Program changes are any changes to maintenance or operational software.
- c. Field Change (FC). A mechanical, electronic or electrical change, modification or alteration made to electronic equipment after delivery to the government or installation on-board ship. It includes software changes, which does not impact interfaces to other equipment within the ship, change the footprint, form or fit or change power, weight or air conditioning requirements. If power, weight or air conditioning requirements are modified, the modification must be discussed with the appropriate SPM, who will decide whether to proceed with the modification as a field change or alteration. Field Changes are initiated and approved by the Systems Command and are implemented by Field Change Bulletin (FCB). AIT or Ship's Force can accomplish FCs. For these specific types of alterations, the SPM shall be notified of the approved changes affecting their respective platforms. The SPM shall be periodically advised of installation status and shall be notified of any logistics upgrades, which have been completed as a result of the alteration.
- d. Engineering Change (EC). A modification, usually to Under-Sea Warfare (USW) equipment or systems or other equipment groups as designated by the Systems Command, Program Manager (PM), Participating Acquisition Resource Manager (PARM) or Configuration Control Board (CCB).
- e. Alteration & Improvement (A&I) Item. (Submarines only) Tests, inspections, and minor alterations to submarines and submarine tenders. No significant Integrated Logistics Support (ILS) impact or significant material is required. A&I items are approved by Naval Sea Systems Command (NAVSEA) and authorized by the TYCOM.

- (1) Software Delivery (SWD) Alteration/Ship Change. Any Operational Computer Program change that is not an ORDALT or FC. These programs must satisfy all platform and system certification requirements before they can be installed, or must have interim authority to be used if they have not passed appropriate software certification criteria. Provisioning Parts List (PPL) certification is required if the software is to run on the IT-21 Local Area Network (LAN).

24. **Hardware Systems Commands (HSC)**. Commander Naval Sea Systems Command (COMNAVSEASYSKOM) is the lead hardware systems commander for the life cycle management of ships. Commander Naval Air Systems Command (COMNAVVAIRSYSKOM) and Commander Space and Naval Warfare Systems Command (COMSPAWARSYSKOM) are also hardware systems commands. They must coordinate with COMNAVSEASYSKOM in the development of technical requirements essential to performing quality maintenance. The HSC provides Naval Supply (NAVSUP) with sufficient, accurate, up-to-date technical information to ensure consistent procurement and control of material that fulfills all technical requirements.

25. **Hull Modernization Plan (HMP) (NMP only).** The HMP is the sole, time-phased planning document for hull-specific Modernization requirements; it is the authoritative input to the Maintenance and Modernization Business Plan (MMBP), SPM Letter(s) of Authorization and the TYCOM Quarterly Installation Scheduling Message(s) for each affected hull; it is available as a report from NDE-NM. The HMP is used to create the hull specific A-360 Critical Milestone LOA, and subsequent change letters at A-180 and A-120 as well as any follow-on change messages. It is also used to develop the TYCOM Quarterly Installation Scheduling Message for installations planned in other than CNO Availabilities. It is the single, authoritative document for final authorization status for all modernization actions aboard any surface ship or aircraft carrier.

26. **Industrial Activity (IA).** An IA is an activity capable of performing all aspects of work on ships. These activities generally include Naval Bases, Naval Ship Repair Facilities (NSRFs), Fleet Maintenance Activities, Trident Refit Facilities (TRFs), public (Naval) shipyards, and private shipyards, which hold Agreements for Boat Repair (ABR) or Master Ship Repair Agreements (MSRAs) in accordance with the Naval Sea Systems Command (NAVSEA) Supervisor of Shipbuilding, Conversion and Repair (SUPSHIP), USN Operations Manual.

27. **Initiator (NMP only).** Any authorized user of NDE. Provides the initial data input in an SCD or Legacy Alteration Change Request (LACR).

28. **Integrated Logistics Support (ILS) Certification.**

The process by which the SPM validates and certifies that the proper logistics support is in place to support a specific alteration planned for installation. SPM ILS Certification is required as part of the Alteration Approval process, unless a risk impact assessment is approved allowing the installation to precede after the determination is made that not all ILS products will be available at the time of installation.

- a. **NMP.** The ILS Certification process is specified in Section 6-2.2.2 of reference 2.2.3(14).
- b. **Legacy FMP.** The ILS Certification process for legacy alterations (applicable to K, F and A&I alterations) is specified Section 8-1.3.2 and Section 8 Exhibit II of reference 2.2.3(15).

29. **Integrated Logistics Support (ILS) Products.** Configuration and logistics items that impact a ship as a result of the installation of an Alteration/Ship Change (SC). These items include, but are not limited to, an alteration's/SC's ILS Certification, APLs, TMs, OBRPs, MAMs, MIPs/MRCs, CDMD-OA work file, support and test equipment requirements, and training requirements.

30. **Maintenance Program Master Plan (MPMP).** The MPMP provides a general overview of the Program Executive Offices (PEOs) and/or Ship Program Manager's (SPM's) maintenance plan for the ship class. It specifies key elements such as depot-level availability intervals and duration, frequency of intermediate-level availabilities and any special maintenance, maintenance support or infrastructure requirements.

31. **Maintenance Support Center (MSC).** CVN Ship force work center in which ILS products get checked-in and tracked inside and outside CNO availabilities.

32. **Method of Install (MOI)**. A required field for properly scheduling of alterations/SCs In NDE-NM.

The list of MOI is as follows:

- TBD-To Be Determined
- IND-Industrial
- AT-AIT Industrial
- AP-AIT Pierside
- MO-Mail Out

Proper use is as follows:

- TBD is the system default setting and needs to be changed to reflect the actual method of installation.
- IND is set by the system when an alteration/SC is programmed in the Program/Execution Module to be installed in a CNO availability by the shipyard or SUPSHIP.
- AT is to be used when an installation is being executed by an Alteration Installation Team (AIT) during a CNO availability
- AP is to be used when an installation is being executed by an AIT during a TYCOM controlled availability (WOO, CMAV etc.)
- MO is to be used when an activity is sending an alteration/SC via mail including electronic delivery methods. The associated accomplishing activity should reflect the sending activity or responsible headquarters command not the ship that is expected to do the installation.
- For those installations that are identified as IND it is recommended that the alteration/SC be programmed first and then scheduled so that the MOI stays as IND.

33. **Modernization Through Attrition/Modernization in Lieu of Repair (MTA/MILR)**. (NMP only). Fleet SCs used to facilitate Modernization through Attrition (i.e. SCDs which need to be installed only on an “MTA/MILR” basis, but do involve a change in ship configuration). Approval of the SCD will be based on the technical merit, ROI, AFOM, and total cost of the SC. Installation will be determined by the TYCOM during the execution year.

34. **Naval Supervising Activity/Authority (NSA)**. The single Naval Activity charged with the responsibility of oversight of work being accomplished on U.S. Naval ships during any type of availability. The NSA has overall responsibility for integrating the planning and execution of work on Naval Ships by all involved activities. Implementation of an integrated planning, schedule, work control, and ship certification process is essential to a project’s success. Effective coordination and oversight must be provided to ensure that all work performed during any availability will allow the NSA to meet the overall project schedule, cost, and quality requirements. NSAs have the authority and responsibility to preclude and/or stop AITs from performing work when they are found to be in non-compliance with this or other invoked specifications.

35. New Construction: The period of time from Sail-away to the Obligating Work Limiting Date (OWLD) for a Shipbuilding and Conversion, Navy (SCN) surface ship.

36. Non-Permanent Change (NPC) (NMP only). A NPC is defined as a change that will be installed for Test & Evaluation (T&E) purposes and to demonstrate a new or improved capability for the fleet. A NPC may be installed on a specific hull per class, CSG, or ESG. The testing criteria is normally carried out during an at-sea exercise or during an acquisition program's technology demonstration for further development in pursuit of a Permanent Change fielding if the NPC reaches maturity. In some cases, for NPCs installed and demonstrated during a previous exercise, the systems/equipment may need to be installed and additional testing conducted during another exercise to meet the overall criteria for a new capability. Additionally, NPCs can be used to provide an interim capability to support operational and training requirements for Platform TYCOMs, NETWARCOM, Operational Commanders, ISICs, or CFFC when formal justification and approval is provided.

37. Post Shakedown Availability (PSA). An availability assigned to newly built, activated, or converted ships upon completion of post-delivery shakedown. PSAs will be scheduled to complete no later than the end of the Shipbuilding and Conversion Navy (SCN) obligation work limiting date, which is the date upon which SCN funding and work authority terminates. Work performed shall normally include correction of defects noted during shakedown, correction of deficiencies remaining from the acceptance trials, and performance of class modifications remaining from the new construction activation or conversion period.

38. Quality Management System (QMS). A documented set of rules and procedures, which will assure that all provided supplies and services conform to a prescribed level of quality. For alterations/SCs accomplished on ships, the minimum prescribed level of quality shall be that specified in MSRAs and Agreements for Boat Repair (ABRs) as outlined in Naval Sea Systems Command (NAVSEA) Standard Item 009-04, and Appendix C of this TS.

39. Quick Reaction Alteration (QRA) (Legacy FMP). Alterations that are driven by an emergent requirement that requires rapid entry of high priority Secretary of Defense (SECDEF), Secretary of the Navy (SECNAV), Chief of Naval Operations (CNO), national interest items or vital technical changes into Quick Reaction Alterations necessitate rapid Ship Alteration (SHIPALT) development and close coordination between Operations Navy (OPNAV) Resource Sponsors and the Hardware System Command (HSCs).

40. Red Lines or Red Lined Installation Drawings. Planning Yard (PY) approved SIDs that have been revised manually (preferably in red ink) by the AIT to reflect all approved deviations and variances of the completed installation.

41. Regional Maintenance and Modernization Coordination Office (RMMCO). A Regional Maintenance Center-aligned; Fleet-chartered organization that serves as the primary point of entry for all waterfront related SC and maintenance activities. The RMMCO will serve as the office for AIT check-in and check-out, where applicable. The RMMCO's AIT Check-In/Check-Out application located at <https://rmmco.navy.mil> provides the AIT OSIC/AIT Lead with a means to initiate the check-in procedures required for the installation of a alteration/SC aboard ship. It also provides a means to measure performance of these installations.

42. **Scheduled/Non-Scheduled Chief of Naval Operations (CNO) Availabilities.** CNO Scheduled availability is a depot level maintenance window that is scheduled by CNO in accordance with the Maintenance Program Master Plan (MPMP) for the ship.

- a. CNO Scheduled Maintenance Availabilities greater than 6 months in duration are:
 - (1) Overhaul. Availability scheduled for accomplishment of industrial maintenance and modernization. Types of Availabilities include:
 - Regular Overhaul
 - Complex Overhaul (COH)
 - Engineered Overhaul (EOH)
 - Refueling Overhaul (ROH)
 - Refueling Complex Overhaul (RCOH)
 - Engineered Refueling Overhaul (ERO)
 - (2) Other Availabilities. Availability scheduled primarily for industrial maintenance and installation of major, high priority alterations/SCs. Types of these include:
 - Depot Modernization Period (DMP)
 - Planned Incremental Availability (PIA)
 - Docking Planned Incremental Availability (DPIA)
- b. CNO Scheduled Maintenance Availabilities less than six months in duration are short, labor-intensive availabilities scheduled for accomplishment of industrial maintenance and modernization. Types of these availabilities include:
 - Selected Restricted Availability (SRA)
 - Docking SRA (DSRA)
 - Phased Maintenance Availability (PMA)
 - Docking Phased Maintenance Availability (DPMA)
 - Service Craft Overhaul (SCO)
 - Extended SRA (ESRA)
 - Extended Dry-Docking SRA (EDSRA)
 - Incremental SRA (ISRA)
 - Extended Refit Period
- c. Non-CNO Scheduled Availability. Availability that is not scheduled by CNO. The CFFC/TYCOMs assign and schedule Restricted Availabilities (RAVs), Technical Availabilities (TAVs), TYCOM Opportunity Availability (TOA), Voyage Repair (VR) Availabilities, Continuous Maintenance Availabilities (CMAVs), unscheduled CMAVs, 'Z' availabilities and Emergent availabilities.

43. Ship Acquisition Program Manager (SHAPM). The Naval Activity charged with the programmatic responsibility, accountability, and authority for the configuration of new construction ships. Prior to a New Construction Ship's OWLD, the SHAPM (or SHAPM representative) assumes many of the roles and responsibilities fulfilled by other activities during CNO and Non-CNO Availabilities for Active Fleet Units. These responsibilities may include, but are not limited to:

- a. Serve as RMMCO Gatekeeper/Production controller, or provide additional support to the FLTCDR RMMCO to help meet additional requirements unique to managing installations aboard SCN ships.
- b. Act as the NSA during ship availabilities, within the limits discussed elsewhere in this document.
- c. Act as the TYCOM or SPM to determine alterations/SC authorization for installation and promulgate authorization documentation (e.g., TYCOM Authorization message, SPM LOA).
- d. Act as the SPM for all FMP/NMP funded C51SR installations and make recommendations to the FLTCDR. Participate in C5IMP and other NCMC related meetings as applicable. Manage C5ISR configuration status for SCN ships via the NDE-AMPS database.

44. **Ship Alteration (SHIPALT)**. Approved permanent change to the configuration of a ship, which is documented as a SAR or SCD, and implemented through the legacy FMP Process. SHIPALTs are classified by the following titles:

- a. **Title "D" SHIPALT**. A Title "D" SHIPALT is an "alteration equivalent to a repair" that is formally approved by Naval Sea Systems Command (NAVSEA) in the form of a SAR. It may require Centrally Provided Material (CPM) and is programmed and funded by the TYCOM. It does not require Headquarters Centrally Provided Material (HCPM). A Title "D" SHIPALT may specify whether it should be accomplished only by a depot level maintenance facility, or if it is within the capabilities of ship's force or Intermediate Maintenance Activity (IMA) to accomplish. A Title "D" SHIPALT shall be issued for all non-Nuclear Alteration Equivalent to Repair (AERs) that require changes to the equipment or system Integrated Logistics Support (ILS).
- b. **Title "F" SHIPALT**. A Title "F" SHIPALT is an "alteration equivalent to a repair" that is formally approved by NAVSEA in the form of a SAR. It does not require CPM and is programmed and funded by the TYCOM. Ship's force or an Intermediate Maintenance Activity (IMA) can accomplish a Title "F" SHIPALT. It is usually limited to the equipment removals or relocations or minor wiring, piping or ducting modifications.
- c. **Title "K" SHIPALT**. A permanent alteration to provide a military characteristic, upgrade existing systems or provide additional capability not previously held by a ship, which affects configuration controlled areas or systems of a ship or which otherwise requires the installation of HCPM. These SHIPALTs are approved for development and authorized for accomplishment by the Chief of Naval Operations (CNO) (military improvements) or the Hardware System Command (HSCs) (non-military improvements). Commander Naval Sea Systems Command (COMNAVSEASYS COM) provides the technical approval for Title "K" SHIPALTs.

- d. Title “K-P” SHIPALT. A Title “K” SHIPALT that is within forces afloat or AIT capability for accomplishment and for which required special program and centrally provided materials are provided as a package by the HSC.
45. Ship Change (SC) A Ship Change (SC) (**NMP only**) is a modernization action documented by a Ship Change Document (SCD). There are only two types of Ship Changes (SCs) in the NMP: Program changes and Fleet changes.
- Program changes are programmed for installation by SYSCOMs or PEOs, as well as funded for accomplishment by the SYSCOMs, PEOs or other organizations as agreed upon.
 - Fleet changes are programmed for installation by the Fleet (TYCOM), as well as funded for accomplishment by the Fleet or other organizations as agreed upon.
46. Ship Program Manager (SPM). The Naval Sea Systems Command (NAVSEA) organization responsible for management of ships’ acquisition, overhauls, or repairs.
47. Submitter (NMP only). Submitter is responsible and accountable for the all phases of the SCD. They will be the primary point of contact for questions or clarification throughout the process. Subsequent approvals, disapprovals, and notification to complete the next phase of the SCD will be forwarded to this point of contact.
48. Sustainment Change (NMP only). Sustainment consists of all efforts required to correct or maintain a system’s design capability, maintainability or reparability through internal equipment modifications that do not impact shipboard distributed systems. There are two types of sustainment:
- Sustainment Type 1 (ST 1). An internal equipment modification that is a configuration change that provides new functionality, but has no impact on ship distributed systems.
 - Sustainment Type 2 (ST 2). An internal equipment modification that is a configuration change that provides no new functionality and has no impact on ship distributed systems. For example:
 - System repair action that resolves a reliability issue
 - Corrective maintenance (repair) that results in a requirement to back fit all systems
49. Task. A task in common usage is usually construed as a way of referring to a job; however, for AIM processes, a Task has a more carefully defined meaning. (For this reason it may be beneficial to refer to AIM Tasks with a capital “T”.) An AIM Task is a portion of the work within one CU Phase that requires a specific trade skill. There are usually multiple Tasks (i.e., a Task Group) developed for a CU Phase. See also Work Breakdown Structure (WBS).
- It is interrupted by any other planned work.
 - It is associated with a physical location, test boundary, zone, and a single system.
 - It supports completion of a distinct phase of work.
 - It has its own budget allocation.

50. **Trouble Report.** The trouble report is the vehicle for reporting significant problems to NAVSEA and other activities involved in work performed on Naval ships, carriers and submarines for use in training and improving the weaknesses identified as a result of the problems. NAVSEA Instruction 4700.17(Series) provides requirements for preparing and submitting trouble reports. The AIT Manager should use UIPI 0900-453, Critique and Problem Analysis Matrix Processes; Problem Identification and Investigation or equivalent process when preparing trouble reports.

51. **Type Commander Alterations (TYCOMALTs)/SCD Fleet Change.** TYCOMs are authorized to approve temporary changes to compartments of ships, other than nuclear support facilities or compartments adjacent to ship nuclear support facilities, through use of TYCOMALTs subject to the requirements laid out in COMUSFLTFORCOMINST 4790.3 (Series).

52. **Work Authorization Form (WAF).** A WAF is required to authorize the start of work on all ship systems and equipment by activities other than Ship's Force. Work includes all maintenance repairs or modifications and installation of existing and new systems or removal of temporary support systems and equipment. Additional information is contained in COMUSFLTFORCOMINST 4790.3.