JOINT FLEET MAINTENANCE MANUAL

VOLUME VII

CONTRACTED SHIP MAINTENANCE

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LS	Late Start
LWT	Local Work Template
MIL-SPEC	Military Specification
MIL-STD	Military Standard
MMBP	Maintenance and Modernization Business Plan
MOU	Memorandum of Understanding
MSMO	Multi-Ship Multi-Option
MSRA	Master Ship Repair Agreement
MT	Maintenance Team
NAICS	North American Industry Classification System
NAVAIRSYSCOM	Naval Air Systems Command
NAVCOMPT	Navy Comptroller
NAVFAC	Naval Facilities Engineering Command
NAVOSH	Navy Occupational Safety and Health
NAVSEA	Naval Sea Systems Command
NAVSEA 02	NAVSEA Contracts Directorate
NAVSEA 021	NAVSEA Contract Policy Office
NAVSEA 024	Fleet Support Contracts Division
NAVSEA 08	Naval Sea Systems Command Nuclear Propulsion Directorate
NAVSEASYSCOM	Naval Sea Systems Command
NAVSUPSYSCOM	Naval Supply Systems Command
NCH	NAVSEA Contracts Handbook
NDT	Nondestructive Testing
NMCARS	Navy and Marine Corps Acquisition Regulation Supplement
NMD	Navy Maintenance Database
NMP	Navy Modernization Process
NSA	Naval Supervisory Authority
NSI	NAVSEA Standard Item
NSSA	Norfolk Ship Support Activity
NSY	Naval Shipyard
O&MN	Operation and Maintenance, Navy
O&MNR	Operations and Maintenance, Naval Reserve
OB	Operating Budget
ODL	Other Direct Labor
ODLF	Other Direct Labor Factor
OF 336	Optional Form 336
OFPP	Office of Federal Procurement Policy
OH	Overhead
OSH	Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyls
PCD	Production Completion Date
PCN	Project Control Number
PCO	Procuring Contracting Officer
PE	Procedures Evaluation
PEC	Predicted-End-Cost
PEO	Program Executive Office
PMS	Planned Maintenance System

PNS	Portsmouth Naval Shipyard
PQA	Process Quality Audit
PR	Procedure Review
PVI	Product Verification Inspection
PY	Planning Yard
QA	Quality Assurance
QAR	Quality Assurance Representative
QDE	Quality Data Evaluation
QMS	Quality Management System
QPL	Qualified Products Lists
RD&A	Research, Development & Acquisition
REA	Request for Equitable Adjustment
RFS	Readiness for Sea
RMC	Regional Maintenance Center
SARP	Ships' Alteration Repair Package
SC	Ship Change
SCN	Shipbuilding and Conversion, Navy
SF 30	Form SF 30, Amendment of Solicitation/Modification of Contract
SHIPALT	Ship Alteration
SI	Standard Items
SPAWARSYSCOM	Space and Naval Warfare Systems Command
SPD	Ship Project Directive
SPI	Schedule Performance Index
SPM	Shipbuilding Program Manager
SSPC	Society for Protective Coatings
SSR	Ship's Selected Records
SSRAC	Standard Specification for Ship Repair and Alteration Committee
STARS	Standard Accounting and Reporting System
SUPSHIP	Supervisors of Shipbuilding, Conversion and Repair
SWLIN	Ship Work List Item Number
SWT	Standard Work Template
SYSCOM	Systems Command
TAR	Technical Analysis Report
TIP	Test and Inspection Plan
TM	Technical Manuals
TMMP	Technical Manual Management Program
TOB	Technical Operating Budget
TYCOM	Type Commander
USFF	United States Fleet Forces
WPIC	Work Package Integration Conference

P. REMAINING ADVANCE PLANNING AND CONTRACTING MILESTONES

Planning Activity provide AVAILABILITY STATUS REPORT (ASR)

Q. STATUS OF OUTSTANDING CUSTOMER FUNDING REQUIREMENTS

Amount of Funding Required	Customer Responsible for Funding	Funds Required NLT	Remarks

R. UNRESOLVED BID SPEC REVIEW (BSR) REQUIREMENTS

Work Item	Unresolved BSR Requirement/Issue	Action Required	
		NLT	Responsible Activity

S. ASSIGNED ACTION ITEMS AND COMPLETION DATES

Work Item	Responsible Activity	Action Required	Complete NLT

T. WPIC LIST OF ATTENDEES (Provide all attendees a copy) - Attachment (2)

U. TYPE DESK ISSUE WPIC COMPLETION MESSAGE (including outstanding issues/concerns and action items)

WORK PACKAGE INTEGRATION CONFERENCE

KEY EVENT WORKSHEET

USS _____ HULL NO. _____ SSP _____

KEY EVENT/MILESTONE	A + DATE	SCHEDULE DATE
START AVAILABILITY		
COMPLETE INITIAL GAS-FREEING		
DOCKING	NLT 25%	
UNDOCKING	Contractor Provide	
COMPLETE BILGE PRESERVATION (Complete Before PCD)		
CREW MOVE ABOARD		
FUEL SHIP		
PRODUCTION COMPLETION DATE (Machinery Space Turnover)		
START (LOA) TRAINING		
START LIGHT-OFF ASSESSMENT (LOA)		
PROPULSION PLANT LIGHT-OFF		
START DOCK TRIAL		
START FAST CRUISE		
START SEA TRIAL		
AEGIS LIGHT-OFF		
COMBAT SYSTEM LIGHT-OFF		
COMPLETE PIER-SIDE COMBAT SYSTEM TESTING		
COMPLETE AVAILABILITY (CONTRACTOR)		
COMPLETE AVAILABILITY (CNO)		

PORT ENGINEER: _____ DATE _____

SHIP REPRESENTATIVE: _____ DATE _____

PROJECT MANAGER: _____ DATE _____

ADV PLNG MANAGER: _____ DATE _____

Attachment (1)

5.5 ESTIMATING ENVIRONMENT.

5.5.1 Environment Defined. An estimating environment is defined as the estimating system and that collection of facilities, tools, equipment, materials, labor, skills, procedures, environment and other factors that may impact on the cost of performance of the activities estimated. Knowledge of the estimating environment as a frame of reference for the estimator is one of the fundamental prerequisites for estimating. In a NSY, this requirement is met as a natural consequence of the way business is conducted, while in the RMCs the estimator may be estimating for work that will be awarded competitively to a contractor whose identity is not known. Where contracts are sole-sourced, the estimator does have the opportunity to adjust the estimating to match the contractor's estimating environment.

5.5.2 Cost Accounting Standards. Most contractors will prepare cost estimates using an estimating system consistent with the contractor's accounting system. For large commercial contractors subject to the Cost Accounting Standards (CAS), the contractor is required under reference (a) to use an estimating system consistent with the methods used for recording or accounting for costs and to submit a formal CAS Board Disclosure Statement showing the chart of accounts used for all direct and indirect costs and the methods used to account for those costs.

a. Small contractors and those not subject to CAS are required to use an accounting system which meets generally acceptable accounting standards. The Defense Contract Audit Agency (DCAA) periodically audits contractor's records to determine that the actual practices of estimating costs are consistent with the accounting system.

b. Contractor estimates are generally consistent with the contractor's accounting system. In the case of businesses where the company owns two or more contractors, the estimating systems used in all contractors are similar since all use the same accounting system. The charts of accounts used to identify direct and indirect cost centers and accounting practices are essentially the same at all of the company's contractors. However, estimates from one of the contractors may not be valid in any of the other company contractors, since estimating is a function of more than the accounting system. For example, estimating is also a function of facilities, tools and equipment available to the work force for performance. If one contractor uses a state-of-the-art end-prep machine to machine piping joints for welding and another uses a hand grinding tool, the estimates of labor hours required may vary by as much as 400 percent for the exact same scope of work. Likewise, the use of precise numerically controlled machine tools is more efficient than the use of manually operated machine tools. Generally speaking, the use of new, modern facilities improves performance when compared to performance in older, obsolete facilities. In a contractor's accounting system, however, the cost of new, modern facilities and state-of-the-art machinery and tooling will increase the indirect cost factors used to determine the billing rate applied to direct labor hours. No two contractors have the same collection of facilities, tools or equipment available for performance and, therefore, there may be differences in estimates among contractors owned by the same company.

5.5.3 Other Factors Affecting the Contractors' Estimating Environment. Contractor estimating is a function of the labor skills available, the experience of the work force and the workload. Highly skilled employees can perform more efficiently than unskilled employees, but at a higher wage rate. A contractor work force experienced in overhaul of a particular ship class benefits from the learning experience and can perform more efficiently on subsequent ships of the same class. Other considerations, such as the ship repair market and level of work backlog, also play an extremely important role in estimating for competitive procurements. For example, market conditions may dictate a contractor estimate that can be significantly at variance with the estimate of actual costs. If the market is saturated, that is all contractors are at capacity or are operating with a significant backlog of work, the contractor does not need additional work. The addition of more work under these conditions may be very disruptive to ongoing work and the disruptive effects would have to be considered in estimating the costs of more work. Under these conditions, contractors may also seek higher profits to compensate for the added disruption. Therefore, any precise estimate of total costs based on work scope and labor rates would be overridden by an increase to account for the market being at, or in excess of, capacity. Conversely, when there is not enough work to keep all contractors busy, the marketplace becomes more competitive. Under this condition, contractor management will normally undercut well-conceived estimates in order to remain competitive. A basic principle of estimating is that an estimate prepared for any one contractor will not be valid for any other contractor. The estimator must know the estimating environment that is used and estimates must be prepared to reflect the total environment of where the work is to be performed.

5.5.4 Regional Maintenance Center Estimating Instructions. For each contractor actively performing a Master Agreement Job Order, the Administrative Contracting Officer (ACO) will identify to RMC estimators the set of direct labor categories to be estimated. No other estimates for labor will be provided. Indirect labor costs (overhead) and all other direct labor required for performance will be accounted for in the labor rate to be applied. The ACO/Procuring Contracting Officer (PCO) will determine through understandings with contractors, and as audited by DCAA, the appropriate rates and factors to be applied to ensure that Government estimates and rates are consistent with the contractor's accounting and estimating system. To the maximum extent possible, RMC estimates will be prepared using Appendix A. Where changes in the labor categories to be estimated are required, the ACO will provide written direction as to the changes to be made. Once the changes are made, all estimates for changes with that contractor will be made using the modified Appendix A. No other direct labor will be estimated. In all cases, independent Government estimates for changes will be prepared by consistently estimating direct labor only for the direct labor categories identified by the ACO/PCO. All other labor required for performance will be accounted for as a subcontracted effort or in the labor rate overhead applied to the direct labor cost estimate. Individual estimators are not authorized to change the labor categories on the Cost Estimate Sheet except as directed by the ACO/PCO.

a. For those contractors who do not establish an understanding with the ACO about the contractor's estimating system, the ACO will establish appropriate rates and factors for use in Standard Estimating. If time and resources are available, this can be achieved by RMC examinations of the contractor's chart of accounts to identify hard-core and other direct labor categories, and then requesting audit by DCAA to establish the other direct labor factor as addressed earlier and in reference (a).

b. If audit resources are not readily available, the ACO will establish in advance, from the contractor's chart of accounts, a listing of all hard-core and other direct labor categories as defined earlier. The ACO may request the contractor to prepare accounting records detailing the actual man hour expenditures in specific direct and other direct labor categories to support DCAA audits. Accounting records may be requested for periods not less than the preceding six months nor greater than the preceding three years. From this data, DCAA will compute and recommend to the ACO an appropriate ODLF. Labor rates used for pricing changes must be consistent with the factors determined.

c. The contractor's estimating system must provide for reaching work scope understandings with the RMC when required. The parties must have a common understanding of the work requirements in order that the contractor's estimates and subsequent analysis by RMC will be made on the same basis. That portion of the estimating system dealing with the definition of work scope should cover the disposition of material made obsolete or excess as the result of the change.

d. The understanding to be reached with the contractor must include provisions for the contractor to submit proposed revisions to procedures and practices which involve an understanding previously reached, in order that they may be evaluated and a new understanding reached. Periodic reviews will be made by the ACO and the audit office to see that the contractor's written procedures and practices are current.

e. Any deviation from the estimating system must be clearly supported. Any estimate based on standards is designed to give reasonable figures on the average. To argue in any given case that a standard results in too many or too few man hours will probably open up arguments on other standards or other cases. There is one important exception to the need for consistency; if actual costs, hours, overhead, etc. are known, they must be used.

f. The contractor's estimating system should provide for periodic adjustments in the labor and overhead rates to be applied in establishing estimated costs. The system should also provide a means for the contractor and the ACO to reach an understanding on the rates to be applied for work performed or to be performed during specified periods. Such rate understandings and the consistent use of the rates by the contractor in preparing change proposals will expedite proposal evaluations and negotiations.

g. In establishing rates, factors and percentages to be used in estimating systems, it is essential to remember that the mix of overhead and direct labor skills will change with different kinds of work. Contractors that perform a variety of work for the Navy may require that multiple rates, factors and

6.4.1.2 Operation and Maintenance, Naval Reserve. This appropriation is for expenses, not otherwise provided for, necessary for the operation and maintenance of the Navy Reserve Fleet, as authorized by law. Equipment purchases under this appropriation are limited to a unit price of less than $250,000. Operation and maintenance funds are authorized on an annual basis.

6.4.1.3 Shipbuilding and Conversion, Navy. The funds finance the construction of new ships and conversion of existing ships, including all hull, mechanical and electrical equipment, electronics, guns, torpedo and missile launching systems and communications systems. This appropriation is a multiyear appropriation and normally remains available for obligation for five fiscal years.

6.4.1.4 Weapons Procurement, Navy. Weapons Procurement, Navy is used to finance the procurement of missiles, torpedoes, guns, munitions and the installation of modernization equipment. This appropriation is a multiyear appropriation and remains available for new obligations for three fiscal years.

6.4.1.5 Other Procurement, Navy. Other Procurement, Navy finances the procurement, production and modernization of equipment not otherwise provided for. Such equipment ranges from the latest electronic sensors to training equipment and spare parts. The unit price of this equipment must be in excess of $250,000. This appropriation is a multiyear appropriation and remains available for obligation for three fiscal years.

6.4.1.6 Research, Development, Test and Evaluation. Is used for expenses necessary for basic and applied research, development, test and evaluation, including maintenance, rehabilitation, lease and operation of facilities and equipment as authorized by law. This appropriation is a multiyear appropriation and remains available for obligation for two fiscal years.

6.4.1.7 Foreign Military Sales. Foreign Military Sales provides military assistance through the sale of defense articles and services to eligible foreign Governments and international organizations. The United States normally receives full reimbursement for costs associated with these sales.

6.4.2 General Classifications of Funds Transactions. All expenditures must be preceded by an authorization to expend from the available funds. In theory, every transaction progresses through the following four stages:

a. Initiations. An administrative action that identifies funds set aside (reserved) for planning purposes before establishment of commitments or obligations related to the purpose of the reservation. Initiations will not be maintained as a part of the official fiscal records.

b. Commitment. A firm administrative reservation of funds based on solid procurement directives, orders, requisitions, authorizations to issue travel orders or requests which authorize the recipient to create obligations without further recourse to the official responsible for certifying the availability of funds. A commitment is generally recorded when the comptroller signs the document to certify that the funds are available and properly cited for the effort. This is mandatory in the Standard Accounting and Reporting System (STARS) per reference (p).

c. Obligation. Incurred when an order is placed, contract is awarded, service is received, orders are issued directing travel and similar transactions are entered into during a given period requiring future payment of money in an agreed amount. By law, obligations must be supported by documentary evidence of a mutual agreement in writing. Each individual transaction must meet the test of the following principles:

    (1) A determination that the specific goods, supplies or services required according to contracts entered into or orders placed obligating an annual appropriation are intended to meet a bona fide need of the fiscal year charged.

    (2) Contracts entered into or orders placed for goods, supplies or services will be executed only with a bona fide intent that the performing activity will commence work and perform the contract without unnecessary delay.

d. Disbursement. Made when the bill is paid. This, plus accounts payable transactions processed by the RMC or disbursing office, as applicable, result in a reflection of expenditures.

6.4.3 Repair Funds.

a. The Fleet Commanders budget, (based mostly on the ship's Maintenance Team proposed annual Maintenance and Modernization Business Plan), and fund repairs from O&MN and Operation and Maintenance, Naval Reserve (O&MNR) appropriations, as applicable. The funds are normally

provided to the RMC for specific use by the Type Commanders (TYCOM). These funds pay for contractual costs of authorized repairs and modernization of ships and for the incidental costs which include:

(1) Naval Supervisory Authority material.

(2) Travel and salary cost for overseas ship check.

(3) Ship Change and preparation of drawings or sketches to be contracted out.

(4) Sustainment Type One or Sustainment Type Two Fleet or Program Ship Changes on installed equipment.

b. Repair funds are received by the RMC from Fleet Commands (FLTCOM) on reference (q) based on quarterly or monthly phasing plans approved by the TYCOMs. An Operating Budget (OB) is subject to the statutory limitations of reference (e). OBs pass funds for the execution of centrally managed procurement programs. Details on ship repair and modernization funds, including current year and prior year availabilities, may be found in reference (r).

6.4.4 Navy Modernization Process Funds. This program is covered in detail in Volume VI, Chapter 36 of this manual. Effective in Fiscal Year 90, the Navy Modernization Process was transferred from the O&MN and O&MNR appropriations to the Other Procurement, Navy appropriation. The transfer shifted the emphasis from ship alteration to equipment orientation. Installation of equipment is now funded with the same appropriation and fiscal year funds that procured the Government Furnished Equipment. Naval Sea Systems Command (NAVSEA) provides Project Directives for the accomplishment of Program and Fleet Alterations (Ship Changes). This funding covers expenses incidental to the accomplishment of alterations such as:

a. Preparation and reproduction of alteration drawings contracted out.

b. Travel costs, other than local, for overseas ship checks of alterations.

6.4.5 Berthing and Messing Funds. FLTCOMs provide berthing and messing funds using an Operating Budget Form, reference (q), to the Project Manager. In addition, NAVSEA may provide funds for this purpose through project directives. Fleet Commander's directives concerning the berthing and messing of crews undergoing scheduled availabilities should be reviewed.

6.4.6 Commercial Industrial Services Contracts. The Commercial Industrial Services Program, when utilized and funded, provides work or services to ships by use of Indefinite Delivery Indefinite Quantity Contracts, likewise there are also standalone Indefinite Delivery Indefinite Quality Contracts for selected service or productive capabilities awarded by a Fleet Logistics Center or the RMC Contracts Department. Orders are placed for repair of individual items for a predetermined price and performance period. The TYCOM authorizes the repairs to be included in these contracts. O&MN and O&MNR funding is provided to RMCs on OBs.

6.4.7 Environmental Compliance Oversight. This function is funded by FLTCOMS and NAVSEA (travel and training) and includes hazardous waste and shore environmental protection. This section is addressed further in Chapter 10 of this volume.

6.5 LEGISLATED RESPONSIBILITIES FOR CONTROL OF PUBLIC FUNDS.

6.5.1 Commanding Officer Responsibility. Reference (g) provides that the CO of an activity is solely responsible, per reference (e), for the administration of all authorizations of funds granted to the CO. The responsibility cannot be delegated in whole or in part within the Command. The CO will be held personally responsible for any act or an act of a subordinate within the activity that causes an over-commitment, over-obligation or over-expenditure of an authorization of funds. COs shall take all necessary action to establish accountability and enhance the administrative control of funds, including:

a. Establish and maintain adequate fiscal controls to prevent the over-authorization, over-commitment, over-obligation or over-expenditure of funds made available to the activity.

b. Issue an activity instruction providing for the authority, responsibility and procedures required in the administrative control of funds.

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CHAPTER 8

TESTING, TRIALS, REDELIVERY AND GUARANTEES

REFERENCES.

(a) NAVSEAINST 3960.4 - Implementation of Total Ship Test Program for Ship Production
(b) NAVSEAINST 3960.5 - Policy on Ship Testing
(c) NAVSEA S9095-AD-TRQ-010/TSTP - Total Ship Test Program Manual
(d) DFARS 222.101 - Labor Relations
(e) NAVSEAINST 4790.14 - Ship Departure and Alteration Completion Reports
(f) NAVSEAINST 4700.6 - Guarantee Engineer and Industrial Availability Quality Assessment
(g) OPNAVINST 4700.7 - Maintenance Policy for U.S. Naval Ships

LISTING OF APPENDICES.

A Work Item Completion Report

8.1 PURPOSE. To provide an overview of the processes and requirements that are to be used in the final phases of the performance period in validating satisfactory completion of all work items through post production testing and trials in preparation for the Naval Supervisory Authority (NSA) to certify completion and redelivery of the ship to the Fleet following a maintenance or modernization availability.

8.2 SCOPE. This chapter provides general guidance and identifies processes, testing and trials plans and specific events and meetings that are the responsibility of the NSA as contract administrator to use in validating that the terms and conditions of the contract have been complied with and certifying completion of the contract. The discussion centers on actions to ensure that the contractors work performance is demonstrated during production acceptance testing and trials. Guarantees are required following preliminary acceptance of the work to offset the cost of any premature failures resulting from poor performance that could not be determined before the ship was redelivered to the Fleet.

8.3 APPLICATION OF TOTAL SHIP TEST PROGRAM TO MODERNIZATION AND REPAIR WORK.

8.3.1 Introduction. Production acceptance testing is required by references (a) and (b). Volume I, Chapter 4 and Volume V, Part I, Chapter 7 of this manual contain additional guidance on Tests and Inspections that may apply to significant modernization availabilities or overhauls.

a. Depending upon the complexity and duration of the Chief of Naval Operations (CNO) availability, the NSA will ensure that test program management and testing is accomplished in accordance with reference (c). The objectives of the Total Ship Test Program principles are to provide a test program that will effectively and efficiently assure that the work performed by all organizations was properly completed and to assess the ship's readiness to perform its mission at the completion of the industrial period.

b. The technical and inspection requirements to be met by the contractor are detailed in the work item specifications. Normally, both the work specification and the Naval Sea Systems Command (NAVSEA) Standard Items (or other requirements) referenced in the work item must be used to determine the complete technical requirements, check points and other testing to be satisfied by the contractor.

c. The extent of system testing required will be determined by an engineering analysis performed by the NAVSEA designated Ship Systems Test Development Director or Combat Systems Test Development Director and will be specified in the Integrated Test Package. The Total Ship Integrated Test Package will be provided according to milestones established by the Regional Maintenance Center (RMC) Project Manager or Supervisor of Shipbuilding Advanced Planning Manager or by the Type Commander (TYCOM) or the ship's Maintenance Team.

d. Reference (c) contains a detailed description of test methodology, development, organizations, processing, witnessing and test problem reporting.

8.3.2 Ship System Testing (Hull, Mechanical and Electrical). The primary assessment agent for Light Off Assessments will be determined by the Immediate Superior In Command. For major availabilities, a Fleet Engineering Mobile Assessment Team may visit as necessary to conduct inspections onboard the ship prior to the Light Off Assessment so corrective action can be identified and written into the work package, as required.

8.3.3 Combat System Testing. Requirements are invoked in the specifications by appropriate work items based on the NAVSEA standard work item 009-67. Work Item 009-67 tasks the contractor to prepare and manage a comprehensive test plan in accordance with general specifications for overhaul. The Lead Maintenance Activity will develop a test plan, generate test sequence networks, arrange for temporary services to support testing and manage the testing to ensure an orderly and timely completion. Combat system testing normally occurs during the last weeks of the availability. Current NAVSEA guidance has established the following criteria:

a. For short availabilities, normally less than 120 days, Stage 3 (equipment tests) and Stage 4 (intra-system tests) of the Total Ship Test Program will be scheduled only for equipment and systems modified, overhauled or repaired. Selected additional Stage 4 and Stage 5 through Stage 7 testing will be specified in the Integrated Test Package to check interfaces disconnected or changed during the availability. Except for testing associated with Ship Changes, testing requirements for shorter availabilities is a TYCOM/RMC decision.

b. Testing requirements will increase proportionally with the length and complexity of the combat system work. Longer availabilities require Stage 3 testing of all equipment, Stage 4 intra-system and Stage 5 through Stage 7 testing of all systems to demonstrate overall combat system operability readiness. Lower level testing of equipment modified, overhauled or repaired will be accomplished by the activity screened to perform the work item.

c. The industrial activity should accomplish the higher level intersystem testing (Stage 5 and above).

d. If assigned, the Combat Systems Project Engineer will assist with integration of the work package and develop the Combat Systems Test Sequence Network as an input to the Integrated Total Ship Test Plan. Working with Ship's Force, the In-Service Engineering Activity and Alteration Installation Teams, the Combat Systems Project Engineer is responsible for all applicable stage testing requirements and will confirm that at availability completion, the Combat Systems are ready to commence training.

8.4 TRIALS FOR OVERHAUL AND REPAIR AVAILABILITIES.

8.4.1 General. The Master Ship Repair Agreement (MSRA) discussed in Chapter 3 of this volume requires that if dock trials or sea trials are required by the NSA, the trials will be specified in the job order. Accordingly, the specifications will include requirements for such trials if the trials are considered necessary. For a commissioned ship, the ship is operated by Ship's Force and the contractor normally provides a specified number of personnel by trades to ride the ship. The NSA will provide the ship with the list of personnel who will be onboard for the trial. The Naval Ships Technical Manual contains further information on dock and sea trials. The requirement for these trials will specify a scheduled number of days before the completion of work, usually from four to seven days to allow for adequate adjustment and correction of defects found during the trial. The dock trial should be scheduled from two to four days prior to the sea trial for similar reasons.

8.4.2 Post Repair Trials. When required by the specifications, dock trials and post-repair sea trials are conducted before the completion of modernization and extensive repair availabilities primarily to determine satisfactory work performance by the contractor. The ship's Commanding Officer, in coordination with NSA and Repair Yard, is responsible for the scheduling and conduct of trials, preparation of the trial agenda and arrangement of necessary services.

8.4.2.1 Dock Trials. The primary purpose of this trial is to conduct preliminary checks and tests necessary to ensure the ship is ready for operations at sea. Operation of all equipment during dock trials will be attended by NSA and contractor personnel. In addition to tests of the propulsion and damage control systems, special attention should be given to the electrical, electronic and mechanical equipment required for safe navigation at sea.

8.4.2.2 Fast Cruise. The purpose of this evaluation is for Ship's Force to operate the ship while still secured to the pier, as if the ship were at sea. NSA Representatives may be present to witness the operation of certain equipment whose condition was suspect during dock trials. Special attention is given to operation of the combat systems and casualty control drills during this period.

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CHAPTER 11

CONTRACT ADMINISTRATION QUALITY ASSURANCE PROGRAM

REFERENCES.

(a) Federal Acquisition Regulation - Part 46 - Quality Assurance
(b) NAVSEA S9086-VD-STM-010 - NSTM Chapter 631 V3 (Preservation of Ships In-Service - General)
(c) NAVSEA MS 6310-081-015 - Submarine Preservation
(d) MIL-STD-1330 - Standard Practice for Precision Cleaning and Testing of Shipboard Oxygen, Helium, Helium-Oxygen, Nitrogen and Hydrogen Systems
(e) NAVSEAINST 9304.1 - Shipboard Electrical Cable and Cableway Inspection and Reporting Procedures
(f) NAVSEA T9074-AS-GIB-010/271 - Requirements for Nondestructive Testing Methods
(g) NAVSEA 0900-LP-001-7000 - Fabrication and Inspection of Brazed Piping Systems
(h) NAVSEAINST 4355.7 - Nondestructive Test (NDT) Examiner Qualification and Requalification
(i) NAVSEA 250-1500-1 - Welding Standard
(j) NSTR-99 - Qualification Examination Requirements for Nondestructive Test Personnel
(k) NAVSEA SI 009-04 - Quality Management System
(l) CNRMCINST 4700.9 - Availability Quality Maintenance Plan (QMP) Standard Operating Procedure (SOP)
(m) NAVSEAINST 4700.17 - Preparation and Review of Trouble Reports
(n) NAVSEAINST 9210.31 - Government Procurement Quality Assurance Source Inspection Actions for Shipyard Procedured Material Under the Cognizance of NAVSEA 08

LISTING OF APPENDICES.

A Preservation Departures from Specifications Process Decision Tree
B Corrective Action Request
C Letter of Delegation (Example Only)

11.1 PURPOSE. This chapter establishes the basic provisions for the Regional Maintenance Center (RMC) repair Contract Administration Quality Assurance Program (CAQAP) for hardware and technical data. This chapter includes provisions for tailoring the implementation of these programs to the particular need, based on contractual requirements. There are seven elements of the CAQAP that are designed to provide a systematic program for ensuring contractor compliance with contract requirements. These elements, which are based on the deliverable product and contractual requirements, are Planning, Document Review/Procedure Review (PR), Procedures Evaluation (PE), Product Verification Inspection (PVI), Quality Audits, Corrective Action and Quality Data Evaluation (QDE). The RMC will develop, apply and maintain an effective program for performing Government Quality Assurance (QA) actions consistent with the CAQAP. The elements of the CAQAP will be described by operating procedures that provide RMC personnel with specific direction in applying these to the local contracting environment. This chapter also includes the QA oversight requirements set forth by reference (a). Data related to PE, PVI, Quality Audits, and Corrective Action elements should relate to each individual availability to support Contractor Performance Appraisal Reporting System.

11.1.1 Scope. This chapter establishes the CAQAP requirements for repair and overhaul contracts and applies to all nuclear and non-nuclear areas, except as otherwise indicated.

11.1.2 Applicability. This chapter is applicable to repair and overhaul contracts administered by RMC activities.

11.1.3 Quality Assurance Directives. Fleet instructions, directives and policy letters not included in this chapter containing mandatory QA requirements will be incorporated into each CAQAP. Naval Sea Systems Command (NAVSEA) instructions, directives and policy letters not included in this chapter containing mandatory QA requirements will be incorporated into each CAQAP as directed in writing by the Fleet.

11.1.4 NAVSEA Evaluations. NAVSEA will conduct product-oriented evaluations of contractors and associated RMC contract administration activities as considered necessary. The purpose of these evaluations is to determine contractor conformance to specification requirements and RMC contract administration conformance to QA functions and responsibilities.

11.2 PROGRAM DIRECTION AND CONTROL.

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

11.2.2 Government Responsibilities. Government will determine the type and extent of CAQAP actions required based upon the particular procurement. These actions will include as a minimum:

a. Inspection of the product or process.

b. Adequacy Reviews and Audits of the contractor's Quality Management System (QMS) or of any other means employed by the contractor to control quality and to comply with contract requirements.

c. Teaming with the contractor to establish and improve the QMS and associated processes.

d. Maintenance of Government records to include:

(1) The number of observations/inspections made and the number and type of nonconformities detected.

(2) Corrective Action Requests (CAR).

(3) Records described in paragraph 11.2.4 of this chapter.

e. Final acceptance of product, when required.

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

11.2.2.2 Quality. Government personnel shall be responsible to ensure that the contractor resolves quality issues and improves quality processes. Government personnel shall not serve as a replacement for the contractor's own QMS, nor shall Government personnel be used by the contractor as a progressive inspection device to determine end product acceptability.

11.2.2.3 Verification. If the product is repetitively not ready for inspection after Government services have been requested or items accepted by the contractor are found to be nonconforming during Government inspection, the Government representative will notify the contractor that contractual requirements have not been met. In addition, the Government representative shall discontinue verification actions and initiate corrective action identifying the specific nonconformities.

11.2.2.4 Evaluation. While evaluating the contractor's performance of work on a specific product, the Government representative shall require the contractor only meet those requirements set forth in the contractual documents. The Government representative will not require higher quality work than that set forth in the specifications. Doing so provides the contractor with grounds for requesting an increase in price to cover the higher costs of performance. The Government representative shall not accept lower quality work or work of a lesser scope than specified in the contractual documents. Work performed will only be accepted when the work conforms to the contractual documents and changes.

11.2.2.5 Preservation Oversight of Critical Coated Areas. The RMC is considered to be the third party inspector and shall be responsible for providing a qualified coating inspector in accordance with reference (b). The RMC third party qualified inspector is responsible for ensuring compliance with the requirements of references (b) and (c) before signing acceptance/witness for all Hold points, including (G) points in NAVSEA Standard Items (NSI)

during execution of the preservation process. The third party inspector may either perform the inspection or witness, by personal observation, a qualified contractor individual performing the required measurements. Hold points, including (G) points in NSIs (or key checkpoints) which the third party inspector must sign, are at a minimum, those items identified in reference (b), table 631-11-1 indicated by note 2. The RMC shall also provide for the retention of required preservation records. Any out-of-specification condition found is to be mitigated in accordance with Appendix A of this chapter and in accordance with Volume V, Part I, Chapter 8 of this manual.

11.2.3 Specification Review. Planning Activities, Executing Activities and contractors prepare and issue work specifications. Executing Activities will review these work specifications for adequate quality requirements and inclusion of all technical requirements. Modifications or sequences that are written to the original work specifications will also be reviewed for adequate quality and technical requirements. Specification review will include, as a minimum:

a. The location of (I), (V) and (G) points are consistent with the procedure referenced in Chapter 4, Appendix E of this volume.

b. There is adequate, written description of the technical requirements.

c. Accept or reject criteria for inspections and tests is clearly stated and includes appropriate tolerances.

d. The use of references in work specifications should be avoided unless the material is too extensive to quote or paraphrase.

e. An (I), (V) and (G) point is not invoked in the work specification before a paragraph which references an NSI which invokes the same (I), (V) and (G) points.

Government will establish and maintain a feedback and corrective action process that formally reports specification problems and nonconformities to the preparing Government and/or contractor activity.

11.2.4 Retention and Disposal of Inspection Records. Quality inspection records (i.e., inspections, qualifications/training, assessments, evaluations, audits, CARs, PVI and critical coat paint preservation) and other quality assurance documents are part of the contract administration office contract file per Federal Acquisition Regulations, subpart 4.803. As such, these records must be retained for six years and three months after final contract payment for contracts exceeding the simplified acquisition threshold per Federal Acquisition Regulations, subpart 4.805 and SSIC 4200.1.b.(1) of SECNAV M-5210.1, Records Management Manual. Per Defense Federal Acquisition Regulation Supplement, subpart 204.805, the records should be kept for 12 months following contract completion by the office responsible for maintaining them at which time the records may be sent to the local records holding area or to a Federal Records Center until they are eligible for disposal. These records may be destroyed at the completion of the retention period unless legal action is pending with contractors for which these records pertain. Specialty inspection records, such as SUBSAFE, nuclear, Level I, etc., should be retained as specified in Volume V, Part I, Chapter 10, Paragraph 10.2.2 of this manual.

11.3 PERSONNEL CAPABILITY REQUIREMENTS.

11.3.1 Quality Assurance Manager/Department Head.

a. Is responsible for determining needed personnel requirements, initiating action necessary to obtain the required personnel and providing training necessary to ensure the skills are available for the performance of QA functions.

b. Will ensure that the required skills are available to determine acceptability of products produced and services rendered by the contractor. Training must be provided to ensure personnel have the skills, techniques and knowledge necessary to comply with the requirements of this chapter. QA training opportunities must be extended to all appropriate personnel engaged in performing quality related functions. A training plan/matrix will be established and maintained current.

11.3.2 Training.

a. Personnel providing in-process oversight of the contractors shall complete introduction/overview training of CAQAP elements internally prepared by the QA Manager. Personnel performing contractor QMS Audits shall receive both introduction/overview training of CAQAP elements internally prepared by the QA Manager and also introduction/overview of International Organization for Standardization (ISO) 9001 training as a minimum and may be internally prepared by an experienced auditor.

b. Personnel performing quality audits of the contractor must satisfactorily complete ISO 9001 Internal Auditor training or equivalent (trained by a Lead Auditor) as a minimum. This training is optional if Lead Auditor training has been received.

c. Personnel assigned as Lead Auditor/Audit Team Leader must satisfactorily complete ISO 9001 Lead Auditor training as a minimum.

11.3.2.1 Coating Inspection. Specialized training and certification in Coating Inspection is required for each individual performing verification of contractor coating processes on critical surfaces. Training, certification and recertification must be accomplished through a NAVSEA approved course (e.g., NACE International Coating Inspector Program Level 1 or higher, NAVSEA Basic Paint Inspector or Society for Protective Coatings (SSPC) Protective Coating Inspector Program). Requirements for critical surfaces are defined in reference (b).

11.3.2.2 Oxygen Cleanliness. Specialized training and certification in Oxygen Cleanliness is required for each individual performing verification of contractor cleaning, assembly or packaging of certified oxygen clean systems and components. Training and certification must be administered by a NAVSEA approved Certified Oxygen Clean Instructor in accordance with reference (d). Recertification of personnel is required every three years.

11.3.2.3 Electrical Cableway. Personnel performing inspection or acceptance of electrical cableway work on Navy ships shall be trained and qualified to reference (e).

11.3.3 Nondestructive Test Personnel Requirements. Specialized training, experience and certification in the applicable Nondestructive Testing (NDT) method is required for each individual performing PR, PE, PVI, Process Quality Audits (PQA) and actual accomplishment of the NDT method. Unless otherwise specified herein, NDT personnel shall be qualified and certified in accordance with references (f) and (g), as applicable.

11.3.3.1 Training/Qualification. Training programs may be developed by the RMC or attained from Portsmouth Naval Shipyard (PNS), other Naval Activities, Navy technical schools, chapters of the American Society for Nondestructive Testing or from private industry. Work-time-experience required as a qualification prerequisite for NDT inspector candidates shall be obtained by actual hands-on experience and performance of PR, PE, PVI and PQAs of a contractor's inspection functions in the applicable NDT method under the guidance of a certified Level II (Inspector) or Level III (Examiner). Formal classroom training and qualification testing shall be in accordance with reference (f) or (g), as applicable. Work-time-experience may be considered sufficient when the inspector candidate's experience is such that the qualification requirements as defined in paragraph 11.3.3.2 of this chapter are met.

11.3.3.2 Qualification. NDT qualifications are:

a. NDT LEVEL II (Inspector): An individual qualified to set up and calibrate equipment and to interpret and evaluate results with respect to applicable codes, standards and specifications. The Inspector shall be thoroughly familiar with the scope and limitations of the methods for which the individual is qualified, exercise assigned responsibility for on-the-job training and guidance of trainees and prepare written instructions, and document/report NDT results.

b. NDT LEVEL III (Examiner): An Examiner will be capable of establishing techniques and procedures; interpreting codes, standards, specifications and procedures; and designing the particular test methods, techniques and procedures to be used. The Examiner will be responsible for the NDT operations for which qualified and to which assigned and will be capable of interpreting and evaluating results in terms of existing codes, standards and specifications. The Examiner will have sufficient practical background in applicable materials, fabrication and product technology to establish techniques and to assist in establishing acceptance criteria where none are otherwise available. The Examiner will have general familiarity with other appropriate NDT methods and will be qualified to train and examine Inspector personnel for certification.

NOTE: RMC ACTIVITIES REQUESTING EXAMINER CERTIFICATION MUST PROVIDE EVIDENCE TO THE CERTIFYING ACTIVITY AS TO THE NEED TO FUNCTION AT THIS LEVEL AND THAT FACILITIES AND EQUIPMENT ARE AVAILABLE.

11.3.3.3 Certification. RMC Inspectors shall be certified or recertified at their activity under a program administered by a reference (h) certified Examiner or by PNS. Reference (h) provides the reference (f) and (g) Test

Examiner certification requirements for all government-employed civilian and military personnel who are attached to Naval activities. Inspector certification is restricted to the oversight of contractor performed NDT and not for product acceptance inspections. Product acceptance inspections shall be performed by inspection personnel qualified in accordance with the applicable fabrication document and is not within the scope of this chapter. PNS can certify Inspector and/or Examiner personnel in any or all of the following methods:

a. Visual Test (VT) Inspection.

b. Magnetic Particle Test (MT)Inspection.

c. Liquid Penetrant Test (PT) Inspection.

d. Radiographic Test (RT) Inspection (Structural, Castings and Piping).

e. Ultrasonic Test (UT) Inspection.

f. Welds, Thickness and Silver Braze; Inspector personnel may obtain individual certification.

g Special Purpose Lead; Inspector certification only.

h. Eddy Current Test (ET) Inspection (Welds and Base Material).

11.3.3.4 Certification Maintenance. Examiners are to recertify at the intervals specified in reference (h). Inspectors will recertify and perform documented verification of use of the applicable NDT method at intervals specified in reference (f) and/or (g). The required periodic maintenance of certification for Inspectors may consist of actual performance of the applicable NDT method, or by performance of a documented PR, PE, PVI or by a PQA in the applicable NDT method.

11.3.3.5 Inspector Oversight. The oversight and oversight periodicity of inspection personnel shall be clearly described in the activity's Written Practice. If so employed, oversight shall be conducted through a NAVSEA NDT Examiner. Otherwise, oversight of inspection personnel shall be conducted through normal supervisory managed controls (e.g., supervisor performs deck oversight or by way of a supervisory managed peer review program) to ensure inspection personnel remain proficient and active in the performance of contractor oversight duties. Inspectors failing to maintain proficiency shall be disqualified. Requalification shall be conducted as described herein. Records of inspector oversight shall be maintained.

11.3.3.6 Nuclear Nondestructive Testing Qualifications. RMC personnel performing Nuclear NDT Examiner duties are to be certified or recertified as specified in reference (h). Nuclear NDT Inspectors are to be certified or recertified by the RMC activity's Nuclear Examiner in accordance with references (i) and (j).

11.3.4 Ship's Force Quality Assurance Interface. Although the RMC is the Contract Administration Activity and the authority for acceptance of accomplished work in accordance with the contractual agreement, the ships Commanding Officer should be satisfied that the work performed on the ship is satisfactory. The Commanding Officer should normally assign members of the Ship's Force to inspect work performed on the ship. If a ship's inspector is dissatisfied with the quality of the contractor's work on an individual item, the ship's inspector will not attempt to require contractor personnel to redo or otherwise amend the work performed. Rather, the ship's inspector will relay the findings to the cognizant RMC representative who will then take appropriate action. Ship's Force inspectors should also participate in conferences held to determine progress of work and to discuss any problems with quality of the work or services provided to the ship. In addition, Ship's Force personnel may be provided training and/or assigned QA functions under the responsibility of the RMC Contract Administration Activity in accordance with a Memorandum of Understanding negotiated between the Commanding Officer of the ship and the Commanding Officer of the RMC Contract Administration Activity. (Aircraft Carriers only) For any space which is tracked by Corrosion Control Information Management System, accomplish a joint inspection with the Supervisor and the Commanding Officer's designated representative (i.e., Ship's Force personnel or a Type Commander National Association of Corrosion Engineers Inspector) upon completion, inspection and acceptance, by the contractor, of the work within each compartment. This joint inspection is essential for the integrity of the Corrosion Control Information Management System database and future availability preservation planning.

11.4 SURVEYS AND CONFERENCES.

11.4.1 Bidders' Conference. A bidders' conference provides an opportunity for discussion of the contract quality requirements to ensure all bidders understand the extent and level of QA required.

11.4.2 Pre-Award Surveys. Prior to the award of a contract, the prospective contractor shall be evaluated for quality organization, practices, procedures and/or quality history to determine capability for the type of work for which the contractor is being considered. The Contracting Officer and the Quality Manager will determine the method of evaluation. In addition, the scope of the pre-award survey will include a discussion of the contractual QA requirements to confirm the contractor's understanding of these requirements and how the contractor intends to implement the requirements. The QA participant in the pre-award survey is a member of the overall survey team headed by the team coordinator. When possible, the survey will be a joint team effort. When this is not possible, QA actions will be coordinated with the team coordinator. The QA report and recommendations are considered by the Pre-Award Survey Review Board in making the ultimate recommendation to the Procuring Contracting Officer who considers the recommendation in award of the contract.

11.4.3 Post-Award Conference. When it is determined after contract award that the contractor does not or may not have a clear understanding of the scope of the contract, the technical requirements or the rights and obligations of the parties, the Administrative Contracting Officer must initiate post-award orientation action to clarify contract requirements and resolve misunderstandings. A conference of all RMC participants should be held before conferring with the contractor to ensure that the RMC position on all matters is established.

11.4.4 Arrival Conference. An Arrival Conference must be held to discuss the conduct of the repair availability and the interface between Ship's Force, contractor, other Government activities and RMC personnel and the responsibilities and interface of each in performing quality related functions.

11.5 ELEMENTS OF THE CONTRACT ADMINISTRATION QUALITY ASSURANCE PROGRAM.

11.5.1 Planning. Planning the actions required to determine the contractor's compliance with the contract requirements will be systematic and consider the contractual requirements and relative importance of the product. This planning is to take into account all the factors involved in deciding how RMC personnel can most effectively and economically perform the CAQAP function. As a minimum, the planning for all products will include:

a. Appropriate distribution of Government effort between inspection of products and evaluation of the contractor's QMS.

b. Provisions for review of the contract package including specifications and related documents to determine completeness, continuity and responsibilities for ensuring contractor's performance of technical and quality requirements.

c. For each availability, the activities shall have a specific quality oversight plan based on QDE evaluation to identify high risk areas and provide direction for targeted PVI/PE/PQA.

d. For non Chief of Naval Operations maintenance, activities shall have a general quality oversight plan based on QDE evaluation to identify high risk areas and provide direction for targeted PVI/PE/PQA.

e. Provisions for PR and/or approval of contractor's written procedures and technical data to ensure adequacy and timely release of the procedures.

f. Provisions for PE of the contractor's written procedures to ensure the contractor accomplishes the intended purpose of controlling product/process quality.

g Provisions for the development of detailed PVI checklists and for the actual inspection or verification of products to determine conformance to the requirements of the contract.

h. Provisions for applying corrective action when a breakdown or other inadequacy is noted in the contractor's quality.

i. Provisions for the collection, evaluation and use of quality data.

j. Provisions for accomplishing quality audits.

k. Provisions for review of the contractor's quality history.

11.5.2 Document Review. Document Review is the CAQAP element for verifying that the contractor's documented procedures and technical data comply with contractual requirements.

11.5.2.1 Procedure Review Criteria. When a contractual requirement exists for a contractor to develop written procedures, the RMC will identify those procedures necessary for review based on the degree of risk. Each identified procedure will be reviewed for conformance to the administrative and technical requirements contained in the contract. The RMC representative must review the contractor's procedures in a timely manner and not delay the contractor's contract performance. This review may be accomplished in increments, is not limited to newly developed procedures and includes subsequent revisions and changes. When the contractor does not develop required written procedures or fails to correct inadequate procedures previously reported to the contractor, the RMC shall initiate corrective action.

11.5.2.2 Technical Data Review Criteria. Data review and evaluation will be performed on all deliverable technical data. Review of technical data means the detailed examination or review with the application of engineering judgment by engineers or technicians to determine if the data content and format conform to contract requirements. The RMC may use any local means of selecting characteristics or attributes of this technical data.

11.5.2.3 Acceptance of the Contractor's Documented Quality Management System. The collection of documents describing the contractor's policy and methods of implementing the specific requirements of reference (k) constitutes the contractor's documented QMS. The RMC will conduct an adequacy review and furnish the contractor written notice of the acceptability of the documented QMS.

11.5.2.4 Approval of Procedures. Approval of the written quality procedures will be based on full compliance with the contract provisions. When these written procedures are contractually required the contractor will be notified promptly on approval/disapproval.

11.5.2.5 Documentation. Documentation will include the identification number and title of the document(s), revision date, date reviewed, acceptability or unacceptability, the printed name and signature of the individual who accomplished the review.

11.5.3 Procedure Evaluation. PE is the CAQAP element that verifies that the contractor is compliant with contractually required quality procedures and that procedures are accomplishing the intended purpose of controlling product/process quality.

11.5.3.1 Conduct of Procedure Evaluation. PEs should be conducted utilizing the QA plan, checklists or an attribute system. Flexibility for adjustments in the frequency of inspections will depend on nonconformity rates and problem areas that develop based on contractor quality history. PQAs may be used in lieu of PEs.

11.5.3.2 Documentation. Documentation for PE/PQA will include:

a. Developed checklists/attribute system for PE/PQA.

b. PE/PQA results will include observations and nonconformities.

11.5.4 Product Verification Inspection. PVI (surveillance) is the CAQAP element that verifies that the product being produced by the contractor conforms to contract requirements. PVI is accomplished by the cognizant RMC representative by in-process inspections in the form of physical examination, verification, testing, concurrent witnessing or monitoring of critical aspects of the repair or overhaul process. Provide results to the QA manager.

NOTE WHEN GOVERNMENT (G) NOTIFICATION POINTS ARE NOT PERFORMED/WITNESSED, THE REASON WHY (E.G. CONFIDENCE IN THE CONTRACTOR'S INSPECTION, OVERTIME NOT AUTHORIZED, INADEQUATE MANPOWER, ETC.) SHALL BE DOCUMENTED IN THE COMMENTS SECTION OF THE (G) POINT LOG.

11.5.4.1 Conduct of Product Verification Inspection. PVIs should be conducted utilizing the QA plan, checklists or an attribute system. These checklists or attribute lists shall include Government (G) notification points, critical inspection points and those areas that may be concealed from further inspection. Flexibility for adjustments in the frequency of inspections will depend on nonconformity rates and problem areas that develop based on contractor quality history.

11.5.4.2 Documentation. Documentation for PVI will include:

a. The reason why Government (G) notification points were not performed/witnessed.

b. PVI results including observations/inspections and nonconformities.

11.5.5 Quality Audits. Quality audit is the CAQAP element that examines and evaluates products, procedures/processes, services, systems and elements thereof.

11.5.5.1 External Audit. External audits such as QMS audits (functional audit), and horizontal or vertical product quality audits are conducted to determine the effectiveness of the contractors QMS, analysis of the process and assessment of product conformance. The QMS audit may be conducted as a single audit or may be a combination of several audits. Targeted Process and Product Quality Audits shall be scheduled at least once every 12 to 18 months for each contractor, provided a complete QMS audit is performed every five years. Attributes for the accomplishment of the QMS audit shall be derived based on contractor performance and do not necessarily encompass the entire ISO checklist but will target specific areas. Process and product quality audits are encouraged for detailed root cause analysis. Process and product quality audits may be prompted by significant changes in the contractor's QMS, processes or product quality.

11.5.5.2 Internal Audit. Internal audits shall be conducted to determine RMC contract oversight compliance by internal departments with quality related directives and operating procedures/processes. The RMC will schedule and conduct the following audits at least once every 12 to 18 months at a minimum:

a. Contract Administrative Quality Assurance Program (CAQAP).

(1) Planning.

(2) Documents Review/PR.

(3) PE.

(4) PVI.

(5) Quality Audits.

(6) Corrective Actions.

(7) QDE.

(8) Work Specification Review:

(a) Location of (I), (V) and (G) points is consistent with the procedure referenced in Chapter 4, Appendix E of this volume.

(b) There is adequate, written description of the technical requirements.

(c) Accept or reject criteria for inspections and tests are clearly stated and include the appropriate tolerances.

(d) The use of references in work specifications should be avoided unless the material is too extensive to quote or paraphrase.

(e) An (I), (V) and (G) point is not invoked in the work specification before a paragraph which references an NSI which invokes the same (I), (V) and (G) points.

(9) Training:

(a) Personnel providing in-process oversight of the contractors shall complete introduction/overview training of CAQAP elements.

(b) Personnel performing contractor Quality Management System Audits shall receive both introduction/overview training of CAQAP elements and also introduction/overview of ISO 9001 training.

(c) Personnel performing quality audits of the contractor must satisfactorily complete ISO 9001 Internal Auditor or Lead Auditor training or equivalent.

(d) Personnel assigned as Lead Auditor/Audit Team Leader must satisfactorily complete ISO 9001 Lead Auditor training as a minimum.

b. Availability Quality Management Plans for Chief of Naval Operations (CNO) Availabilities and Continuous Maintenance Availabilities (CMAV) requiring certification, reference (l).

(1) Navy Maintenance Database (G)-Point Tracking - G-Point completion recording is current with work progression and consistent with the contractor's Test and Inspection Plan (TIP).

(2) Population of Contractor's TIP - Is consistent with the corresponding (I), (V) and (G)-Points required by the individual work items and the associated NSIs.

(3) Maintenance of Contractor's TIP - Work progression is up to date and completed tests and inspections are in accordance with NSI 009-04 and 009-67.

(4) Objective Quality Evidence documents are captured and complete.

(5) Closeout processing of completed Expanded Process Control Procedures.

c. Additional items for internal audit consideration. Reports for CNO/CMAV availability certification.

(1) Required Reports:

(a) Submission.

(b) Compliance to content dictated by the Work Specification.

(c) Appropriate RMC routing and technical parameter review via Engineering Support Request (ESR).

(d) Appropriate response with technical direction via ESR.

(e) Contractual incorporation into the work package of resultant technical direction.

(2) Condition Reports (growth):

(a) Appropriate RMC routing and technical parameter review via ESR.

(b) Appropriate response with technical direction via ESR.

(c) Contractual incorporation into the work package of resultant technical direction.

d. Additional items for internal audit consideration. Certification Process/Execution for CNO/CMAV availabilities.

(1) Undocking (if applicable).

(2) Production Completion Date.

(3) Combat Systems Production Completion Date (AEGIS Light-off for AEGIS Ships).

(4) Dock Trials.

(5) Fast Cruise.

(6) Sea Trials.

e. Expanded Process Control Procedures program review.

f. Total Ship Readiness Assessment program review.

11.5.5.3 Documentation. Documentation will include:

a. Audit schedule, including the identification of the lead auditor/team leader.

b. Audit reports including results/resolutions and follow-up actions.

11.5.6 Corrective Action. Corrective action is the CAQAP element that defines the methods for requesting the contractor to act to correct nonconformities. To achieve systematic assurance of compliance throughout all phases of the contractor's operation, the basic causes of nonconformities must be identified and the contractor must initiate prompt corrective action to correct assignable conditions that have resulted in generating nonconformities. The correction of the nonconformity alone does not satisfy this goal. Corrective action as described in this section employs the "closed loop" concept (i.e., appropriate measures must be taken to identify the cause and prevent the recurrence of nonconformities and the corrective and preventive measures must be accepted by the government). The contractor will be required not only to correct specific nonconformities but also to initiate preventive action to

eliminate cause of nonconformities. RMC must determine the effectiveness of the contractor's action and will also determine the necessity for tighter control until ensured that the contractor's corrective action is satisfactory. In addition to the CAR, Appendix B, a Trouble Report shall also be prepared and distributed in accordance with reference (m) for all significant problems encountered in the construction, repair and maintenance of Naval ships. Significant problems are those 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. Trouble Reports should also identify systemic problems and issues that constitute significant lessons learned for other activities.

11.5.6.1 Corrective Action Request. When corrective action by the contractor is required, one of the following methods will be requested:

a. Minor Nonconformities (Method A)

(1) 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 contractor can be reasonably expected to correct it within one day. Examples of minor nonconformities are non-docking 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.

(2) Minor nonconformities shall be presented to responsible contractor's personnel in writing for correction. Each minor nonconformity will be described in sufficient detail to allow the contractor to understand what contractual requirement is violated and to take appropriate corrective action. The RMC representative should not require contractor written response, however, the internal RMC process shall ensure that minor nonconformities are documented, corrected and date verified/cleared.

b. Major Nonconformities (Method B)

(1) 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, contractor'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.

(2) When major nonconformities are detected or a trend of recurring minor nonconformities are noted, a CAR will be initiated citing the specific contract, specification or contractor's procedural requirement and a description of the nonconformity, clearly indicating how the contract, specification or contractor's procedural requirement was violated. Additionally, the CAR shall include contract number/job order, ship, appropriate references, originator's signature, unique serial number, contractor's corrective action response and preventive action(s) taken to eliminate the causes of potential nonconformities in order to prevent their occurrence and the RMC representative's indication of acceptability and signature. Appendix B provides an example of a CAR form that may be used. The CAR should be forwarded to the appropriate level of the contractor's management for action. The actual time frame for completion of contractor corrective action may vary, however, prompt response to CARs is required. An interim reply may be acceptable, pending contractor's completion of corrective actions.

c. Systemic/Critical Nonconformities (Method C or Method D)

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 contractor's appropriate level of management that a systemic or critical problem exists and immediate management action must be taken to comply with the provisions of the contract.

In addition, 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 Commanding Officer or the Contracting Officer notifying the contractor's top level of management that a systemic or critical problem exists and 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 Contracting Officer.

11.5.6.2 Requesting Corrective Action. CARs will be used for requesting correction of quality-related nonconformities, elimination of the causes of the nonconformities and identification of preventive actions to eliminate the causes of potential nonconformities in order to prevent their occurrence. The CAR may also be used to request correction of non-quality related nonconformities (e.g., safety, environmental or management), elimination of the causes of the nonconformities and identification of preventive actions to eliminate the causes of potential nonconformities in order to prevent their occurrence provided the CARs can be readily segregated.

11.5.6.3 Documentation. Documentation of the corrective action element will include:

a. Records of all Trouble Reports.

b. Records of all CARs.

c. Status of all CARs.

11.5.7 Quality Data Evaluation. QDE is the CAQAP element that provides for the collection, evaluation and use of contractor, RMC, NAVSEA Logistics Center and customer quality data. Operating procedures will be established to describe the system to be used for collecting, evaluating, maintaining and using the data. Quality data should include:

a. Trouble Reports.

b. Contractor Performance Assessment Report data.

c. Critiques.

d. PR, PE and PVI results.

e. Audit results.

f. CARs.

11.5.7.1 Data Evaluation. Evaluate the quality data individually or collectively at established periodic intervals for the purpose of:

a. Adjusting the intensity of application of basic elements of the CAQAP.

b. Providing a basis for acceptance or rejection of products or services.

c. Determining effectiveness of contractor's QMS.

d. Providing a basis for recommending process improvement initiatives to the contractor.

e. Providing a basis for decisions related to the reallocation of personnel.

f. Producing a metric for contractor quality history.

11.5.7.2 Documentation. Documentation will include a Quarterly Report indicating contractor QDE results and forwarded to codes 100, 200, 300 and 400.

11.6 GOVERNMENT CONTRACT QUALITY ASSURANCE ACTIONS AT SOURCE.

11.6.1 General. The prime contractor is responsible for controlling the quality of materials, items and services provided by its subcontractors. Government Contract Quality Assurance (GCQA) on subcontracted supplies or services shall be performed only when required in the Government's interest. The primary purpose is to assist the RMC in determining if the prime contractor is ensuring the conformance of subcontracted supplies or services with

contract requirements. GCQA at source, previously referred to as Government Source Inspection, does not relieve the prime contractor of any responsibilities of the contract and GCQA does not establish a contractual relationship between the Government and the subcontractor. Requests for GCQA shall be held to a minimum based on quality performance history.

11.6.2 Exception. This part does not apply to procurements under the technical responsibility of the Deputy Commander, Nuclear Power Directorate, NAVSEA 08. Reference (n) provides guidance for procurement of products under NAVSEA 08 cognizance.

11.6.3 Requesting Government Contract Quality Assurance at Source. RMCs will establish a process for invoking GCQA on subcontracted supplies and for preparation and issue of GCQA instructions to the Defense Contract Management Agency (DCMA) Contract Management Office. RMCs may elect to use prime contractor source inspection in lieu of those aspects normally requiring Government oversight provided the prime contractor performs each aspect of the inspection to be verified by the Government. When source inspection is used in lieu of GCQA the RMC shall have alternative evaluation methods (e.g., process evaluation, audits, QDE, etc.) to ensure conformance of subcontracted products or services with contractual requirements.

11.6.3.1 Government Contract Quality Assurance Criteria. Government inspection during contract performance is essential. Complex items have quality characteristics, not wholly visible in the end item, for which contractual conformance must be established progressively through precise measurements, tests and controls applied during purchasing, manufacturing, performance, assembly and functional operation either as an individual item or in conjunction with other items. GCQA is to be invoked based on the following criteria in reference (a):

a. Mandatory GCQA actions imposed on the RMC that can be accomplished only at the subcontractor's location.

b. Performance at any other place would require uneconomical disassembly, destructive testing or special required instruments, gauges or facilities available only at the subcontractor location.

c. Performance at any other place would destroy or require the replacement of costly special packing and packaging.

d. Considerable loss would result from the manufacture and shipment of unacceptable supplies or from the delay in making necessary corrections.

e. Government inspection during contract performance is essential.

f. The contract specifies that certain quality assurance functions, which can be performed only at the subcontractor's plant, are to be performed by the Government.

g. A (G) POINT (see reference (k)) is invoked in purchase orders for inspections and tests to be performed which are outside a 50 mile radius of the contractor's plant nearest to place of performance of the contract.

h. It is determined for other reasons to be in the Government's interest. Supplies or services for which a certificate, records, reports or similar evidence of quality must be at the subcontractor location.

i. The item is to be shipped from the subcontractor's plant to the using activity and inspection at source is required.

11.6.3.2 Purchase Order Clause. When subcontract GCQA actions are determined to be necessary, the prime contractor will be requested to add the following Government notification and access clause to the purchase order:

> "Government inspection is required prior to shipment from your plant. Upon receipt of this order, promptly notify and furnish a copy to the Government representative who normally services your plant so that appropriate planning for Government inspection can be accomplished. In the event the Government representative or office cannot be located, our purchasing agent shall be notified immediately."

11.6.3.3 Amending Subcontract After Release. When the decision to request GCQA actions at subcontract level is made after the subcontract is released, the contractor will be requested to amend the subcontract to include the appropriate requirement for GCQA action at source.

11.6.3.4 Letter of Delegation. When a condition stated in paragraph 11.6.3.1 of this chapter exists, a Letter of Delegation (LOD) (Appendix C of this chapter or similar) will be prepared. The RMC representative will define the necessary GCQA actions to be taken and the documentation to be provided by the Government representative at the subcontractor's plant. Defined actions should indicate specific quality characteristics, processes or procedures to be verified, tests to be witnessed, sampling plans to be used, or records, reports and certifications to be evaluated. All written statements, contract terms and conditions relating to GCQA actions at the subcontractor level shall be worded so as not to:

a. Affect the contractual relationship between the prime contractor and the Government, or between the prime contractor and the subcontractor.

b. Establish a contractual relationship between the Government and the subcontractor.

c. Constitute a waiver of the Government's right to accept or reject the supplies or services.

11.6.3.5 Distribution of Letters of Delegation. The LOD, with copies of the purchase order, will be furnished to the cognizant Contract Management Office, as designated in the Federal Directory of Contract Administration Services (CAS) Components List, and to the Government representative at the subcontractor's facility. The Federal Directory of CAS Components List is available at http://home.dcma.mil, then click on CAS Directory. The Quality Assurance Representative (QAR) will acknowledge receipt of delegation, by returning a receipted copy of the "DCMA ACKNOWLEDGMENT", identified in Appendix C, which will be included in the Government LOD. Changes to the purchasing document will be processed similarly.

11.6.3.6 Letter of Delegation Follow-up System. Maintain a follow-up system to ensure that the LOD was received, that the DCMA component will perform the inspection as stated, notification of the completion of all GCQA actions have been completed and that copies of the DCMA records will be provided or a certificate will be furnished stating that records are on file. Direct communications between the RMC and the DCMA component is encouraged.

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APPENDIX A

PRESERVATION DEPARTURES FROM SPECIFICATIONS PROCESS DECISION TREE

NOTE: THIS DECISION TREE DOES NOT CHANGE ANY TECHNICAL REQUIREMENTS. THE LEVEL OF AUTHORITY REQUIRED INDICATES AT WHAT LEVEL AN OUT-OF-SPECIFICATION CONDITION CAN BE APPROVED WHEN PROPERLY DOCUMENTED AND WITH AN ACKNOWLEDGED INCREASE IN THE RISK OF PREMATURE FAILURE. THIS DOES NOT MEAN THAT THE OUT-OF-SPECIFICATION CONDITION WILL NECESSARILY BE ACCEPTED. THE DECISION TO ACCEPT OR REJECT WORK WILL BE MADE BASED ON THE APPLICABLE REQUIREMENTS AND OTHER CONSIDERATIONS.

General Usage of the Table

A. This decision tree does not change any technical requirements. The "Level of Authority Required" indicates at what level an out-of-specification condition can be approved. Mitigation guidance on out-of-specification requirements does not imply that a particular out-of-specification condition will be accepted. The decision to accept or reject an out-of-specification requirement will be made at the level indicted in the table.

B. Minor out-of-specification conditions as described in the columns for "Mitigation Only" and "Local Chief Engineer (CHENG)" in this table represent a low risk of premature coating failure as long as required mitigation actions are taken and the out-of-specification condition is limited with respect to the area being worked. More significant out-of-specification conditions require a formal Waiver/Deviation (Departure from Specification (DFS)) for adjudication of the condition.

C. The "Mitigation Only" category must be adjudicated by the local Technical Authority (shipyard, Regional Maintenance Center and TRIDENT Refit Facilities) at the first occurrence of an out-of-specification condition during a particular work item after which the government Quality Assurance (QA) activity/representative can apply the same mitigation guidance for the specified requirement. Recurrences of a previously mitigated condition require documentation at each occurrence (see J, below).

D. All DFSs (minor or major, temporary or permanent) must be adjudicated in accordance with Naval Sea Systems Command (NAVSEA) 5400.95 Enclosure 2.

E. Unless otherwise specified, this table applies only to critical-coated areas.

F. This table does not apply to NAVSEA 08 cognizant spaces as described in NAVSEA Instruction C9210.4, which specifically includes potable water tanks and reserve feed tanks.

G. When using this decision tree for submarine preservation, the local technical authority is required to evaluate the nonconformance in accordance with the appropriate Unrestricted Operation/Maintenance Requirement Card requirements.

H. Repeated waiving of the same out-of-specification requirements shall be cause for the applicator, with the assistance of the local Technical Authority (shipyard or Regional Maintenance Center engineering code), to determine and eliminate the root cause of the noncompliance. If it is determined that the applicator cannot meet the stated requirements, notify NAVSEA accordingly.

I. The local Technical Authority shall decide when multiple out-of-specification conditions or repeated (same) out-of-specification conditions on the same work item warrant a minor or major DFS. In particular, if multiple out-of-specification "Mitigation Only" and/or "Local CHENG" conditions exist and/or affect an area in excess of 0.3% of the total surface area of a work item, the local Technical Authority will submit a minor or major DFS, depending on the severity/risk of the cumulative out-of-specification conditions.

J. Unless otherwise specified, action to "document" an out-of-specification condition requires submittal of the NSI 009-32 QA inspection forms (included in the appendices of 009-32). These forms become part of the Objective Quality Evidence and shall be retained.

PRESERVATION DEPARTURES FROM SPECIFICATIONS PROCESS DECISION TREE

TABLE A

Surface Preparation					
		Level of Authority Required			
		NAVSEA		Local CHENG	
QA Element	Requirement	Major DFS	DFS	DL/DR/ESR/etc.	Mitigation Only
A. Surface Profile					
1. Critical-Coated Areas					
a. Average (mils)	2≤ profile ≤4	<2(2)	>6	5≤ profile ≤6	4 < profile <5
b. Individual gage readings (mils)	1≤ gage reading ≤5	<0.6(2)	>6	0.6≤ profile <1 and 5< profile ≤6	n/a
2. Nonskid (flight deck, hangar bay and weather decks only)					
a. Average (mils)	3≤ profile ≤6	<3	>7.5	6< profile ≤7.5	n/a
b. Individual gage readings (mils)	2.5≤gage reading≤7	<2	>8	7< profile ≤8	n/a
3. QA Readings	(1)	≥10% missing	5%< missing <10%	0%< missing <5%	n/a

Notes:

1. Documentation Requirement: See NAVSEA Standard Item 009-32 for detailed documentation requirements.

2. Only when discovered during a record review; otherwise the condition should be corrected as it represents extremely high risk.

PRESERVATION DEPARTURES FROM SPECIFICATIONS PROCESS DECISION TREE

Surface Preparation

Rationale for Allowing Departure:

- ***Staining:*** Paragraph 5.4.7.3 of NSTM 631 states in part that SSPC-SP-6 (which allows 33% random staining) will result in a degree of cleaning that is adequate for the majority of conventional coating systems under normal exposure conditions. The current requirement for dry abrasive blasted areas is SSPC-SP 10 (which allows 5% random staining) - allowing up to 15% staining with adjudication and mitigation at the local level does not represent a high risk.
- ***Staining and Productivity:*** If a small area of out-of-specification cleanliness is discovered prior to complete cleaning of the tank or area, the inspector or local engineering code normally direct further blasting. If the condition is discovered after completion of the final cleaning, reblasting would normally involve the loss of two to three production days (as much as 60% of the original production blasting cost) to reblast and reclean the area. The cost of reblasting and recleaning generally is not cost effective since the small amount of surface prepared to SSPC-SP-6 is not expected to impact the coating performance.
- ***Tightly Adherent Coating:*** Paragraph 7.2.4.4 of NSTM 631 states in part, "Brush-off blasting (SSPC-SP-7) may be used instead of blasting to bare metal in those instances where an epoxy coating is in good condition and has been applied over a well-prepared surface. This method should result in a surface retaining all paint films, but free from all corrosion products, scale, and foreign matter". SSPC-SP-7 is considered an adequate surface preparation method when the remaining coating is in good condition.
- ***Excessive Flash Rust:*** During preparation of a large area with wet abrasive or Ultra high pressure, some of the adjoining area will flash to "M" or "H". Recovery from flash rusting often requires an effort equivalent to the initial preparation of the surface. In cases where a small area has excessive flash rust bloom adjoining a larger area of acceptable surface, the rework to recover the required surface condition will result in contamination of the adjoining surface with water, "mud" from the removed surface corrosion, grit and dust if an abrasive is used. Once an area is contaminated, the potential to leave some contaminant on the surface is increased, regardless of the recovery actions to clean the surface. The allowance above requires the area to be generally within specification with small areas of flash rusting in excess of "L", resulting in a very low risk of coating failure.

Mitigation:

- ***Tightly Adherent Coating*:** Mitigation of this condition consists of: 1) documenting the size and general location of remaining coating, 2) ensuring that the remaining coating is truly "tightly adherent" as defined by SSPC-SP 7, 3) ensuring remaining coating has a visible profile, and 4) ensuring that the estimates of size and percent area covered are as accurate as possible.
- ***Excessive Staining:*** Documentation of the extent of staining.
- ***Excessive Flash Rust:*** Flash rust must be minimized in areas that are prone to coating failure, e.g., edges, beneath overboard discharges, weld beads, etc. Document extent and location of flash rust.

PRESERVATION DEPARTURES FROM SPECIFICATIONS PROCESS DECISION TREE

TABLE C

Surface Preparation					
		Level of Authority Required			
		NAVSEA		Local CHENG	
QA Element	Requirement	Major DFS	DFS	DL/DR/ESR/etc.	Mitigation Only
A. Surface Contamination					
1. Conductivity					
a. All Immersed Areas	<30µS/cm	>35µS/cm	30µS/cm < conductivity ≤35µS/cm	n/a	n/a
b. Flight Decks, Weather Decks, Hangar Bay and All Other Areas	<70µS/cm	>85µS/cm	70µS/cm conductivity ≤85µS/cm	n/a	n/a
2. Hydrocarbons					
a. SSPS-SP 1 (before and after surface preparation)	none visible	when mitigation efforts fail and area contaminated >0.03%	when mitigation efforts fail and area contaminated ≤0.03%	n/a	n/a
3. Dust (ISO 8502-3)	dust quantity ≤2 dust particle size ≤2	dust quantity >3 dust particle >3	n/a	2< dust quantity <3 2< dust particle <3	n/a
4. QA Readings	(1)	missing >25%	10%≤ missing ≤25%	missing ≤10%	

Notes:

1. Documentation requirement for conductivity: five (5) readings for each 1000ft^2 of surface being prepared. Documentation requirement for dust test: three (3) tapes for the first 1000ft^2, one (1) tape per 1000ft^2 thereafter, minimum of three (3) tapes per area being preserved.