DEPARTMENT OF THE NAVY
COMMANDER
NAVY REGIONAL MAINTENANCE CENTER
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NORFOLK, VA 23511-2325

9000
Ser C200/489
25 Oct 22

From: Commander, Navy Regional Maintenance Center

Subj: FISCAL YEAR 2024 NAVSEA STANDARD ITEMS AND APPENDIX 4-E

Ref: (a) COMUSFLTFORCOMINST 4790.3
(b) NAVSEAINST 9070.1E

Encl: (1) NSIs Summary of Change FY24

1. Per references (a) and (b), the Fiscal Year 2024 (FY-24) NAVSEA Standard Items (NSI) and Volume VII Appendix 4-E, are available on the official SSRAC Web site at: http://www.navsea.navy.mil/Home/RMC/CNRMC/OurPrograms/SSRAC.aspx

a. The FY-24 Standard Items and Standard Phraseology must be invoked in CNO availabilities with an availability start date in FY-24 that have not reached the 100% D Level Maintenance Work Package Lock Milestone and in all other (CMAV and emergent) procurements issued after 1 March 2023.

b. Work items that have been previously planned utilizing FY-23 Standard Items and Standard Phraseology, only need to be updated to reflect the FY-24 requirements if they have not reached the 100% D-Level Maintenance Work Package Lock Milestone.

2. Requests for deviations from this requirement must be submitted via e-mail and routed to Commander, Navy Regional Maintenance Center Technical Director for adjudication and approval. A separate deviation request must be submitted for each availability and must fully explain the reason(s) for the deviation (i.e., why deviation is required, how planning would be affected, how availability would be impacted, etc).

3. Regional Maintenance Center Standards Coordinators are responsible for advising users within their command. Contracts Department. Code 400, is responsible for advising Master Ship Repair (MSR) Contractors and Agreement for Boat Repair (ABR) Contractors under their cognizance of the availability of these products.

4. Point of Contact for further information is Mr. James A. Simmons, Technical Director, 757- 400-0020, james.a.simmons166.civ@us.navy.mil.

E. H. VER HAGE

Distribution:
FDRMC (N100, N100B, N300)
MARMC (C100, C100B, C300, C400)
SERMC (C100, C100B, C300, C400)
SRF-JRMC (C100, C100B, C1200)
SWRMC (C100, C100B, C300, C400)
PSNS&IMF (C100, C101, C400)
PHNSY&IMF (C100, C101, C103, C400)

Summary of Changes to Standard Item 009-04 Quality Management System; provide

1. Change: CP 50 Added Each to 3.11
   a. 3.11 ***Each*** Test and Inspection record must:

Summary of Changes to Standard Item 009-06 Maintaining Protection and Cleanliness from Non-Radioactive Operations; accomplish

1. Change: Merger of 009-08 moved 3.4.3, 3.4.3.1, 3.4.3.2, and 3.4.4 to 009-08

   a. 3.4.3 Vacuum cleaners must be emptied of all debris at the end of each shift at a minimum, on a daily basis.

   b. 3.4.3.1 Use metal canister vacuum cleaners aboard the ship, except those used for regulated and controlled radiological and hazardous waste or hazardous material.

   c. 3.4.3.2 Permanently and legibly mark each vacuum cleaner with a company name or unique identifier.

   d. 3.4.4 Plastic trash cans are prohibited for trash collection onboard in spaces where industrial work is being performed. Plastic trash bags may be used onboard as a liner for metal trash cans.

Summary of Changes to Standard Item 009-07 Confined Space Entry, Certification, Fire Prevention and Housekeeping; accomplish

1. Change: CP 170L Deleted 3.9.4 and 4.7

   a. 3.9.4 Deleted, Comply with additional requirements of NAVSEA Standard Items when accomplishing temporary access cuts. (See note 4.7) and Note 4.7.

2. Change: CP 154L New 3.9 and 3.9.1, renumbered paragraphs

   a. 3.9 ***Maintain the ship's fire zone boundaries to the maximum extent practicable throughout the availability. This includes maintaining the capability of fire insulation where installed, fire-rated penetrations such as multi-cable transits (MCTs) and pipe penetrations, fume-tightness of the boundary, etc.***

   b. ***3.9.1 Degradation of a fire zone boundary must be approved by the SUPERVISOR. Install fire retardant material, such as fire resistant curtains/cloth, at each fire zone boundary degradation for immediate deployment by personnel when securing from work or evacuating the space.***

3. Change: CP 055 New NOTE 4.9

   a. 4.9 ***FRG CID now has a permanent identification number; A-A-60022.***

4. Change: Merge from 009-07 to 009-08

a. 2.6 NAVSEA OP-4, Ammunition and Explosives Safety Afloat

b. 2.7 Underwriter Laboratories (UL) Standard 199, Automatic Sprinklers for Fire-Protection Service

c. 2.8 NFPA Standard 10, Standard for Portable Fire Extinguishers

d. Deleted 3.2 thru 3.18.2. from 009-07 and merge with 009-08.

5. Change: Merge Note 4.4, and 4.5, to 009-08

a. 4.4 Shipboard fixed extinguishing systems such as Halon and CO2 are to be secured or isolated only at the discretion of the ship's Commanding Officer or designated representative. Employees should be trained as required by 2.2 before entering/working in spaces with active shipboard fixed extinguishing systems.

b. 4.5 The term "annual" means once a year, not-to-exceed 12 months.

Summary of Changes to Standard Item 009-08 Shipboard Fire Protection and Fire Prevention; accomplish

1. Change: CP 170L Deleted 3.22 and 4.7

a. 3.22 Deleted, Comply with requirements of 2.1 when temporary services cannot be routed through interior and exterior installed shipboard openings (see note 4.7).

2. Change CP 058 Deleted "EACH from 3.6.4 and 3.6.5, Added two new paragraphs 3.6.5.2 and 3.6.5.3

a. 3.6.4 Primary fire pump***(s)*** must:

b. 3.6.5 Back-up fire pump***(s)*** must:

c. ***3.6.5.2 Be physically separated from the primary fire pump(s) and other back-up fire pump(s) in such a way that damage to or loss of access to fire pump(s) will not result in loss of firefighting water pressure or damage to or loss of access to other fire pump(s).***

d. ***3.6.5.3 Have an operating pressure staggered from the primary fire pump(s) to minimize pump cycling (i.e. if the primary fire pump station starts at 140 psi to restore the system to 150 psi then the back-up fire pump station should be set to start at 130 psi).***

3. Change: CP 060 Updated 3.23

a. 3.23 Submit one legible copy, in hard copy or approved transferrable media, of a consolidated drawing in the format of a damage control diagram, depicting all services entering the ship to the SUPERVISOR ***within two days of services being routed onboard the ship.***

4. Change: CP 152 Updated 3.6.1.4

a. 3.6.1.4 Each Temporary and Permanent hose or hose reel ***subject to damage (i.e. painting, hydro/sand blasting, and hot work)*** must be protected by an enclosure ***or covering.*** The enclosure ***or covering*** must be ***fire retardant,*** red, and must not significantly restrict access to the hose or hose reel for firefighting. ***The use of hook and loop fasteners and doors are acceptable.***

Summary of Changes to Standard Item 009-11 Insulation and Lagging; accomplish

1. Change: CP 65 Deleted from 3.1.1: "and polyphosphazene conforming to MIL-I-24703"

a. 3.1.1 Use of elastomeric foam conforming to MIL-P-15280 is not permitted.

Summary of Changes to Standard Item 009-12 Weld, Fabricate, and Inspect; accomplish

1. Change: CP 66 Added 2.19, 2.20, 3.4.8, and 3.4.9

a. 2.19 S9LCS-BF-SRM-010/LCS-2, Inspection, Testing, Fabrication, and Welding for Structural Repair, Alteration, and Modernization, for LCS-2 Variant Ships

b. 2.20 DM 18-829, Aluminum Welding Requirements for Littoral Combat Ship (LCS), Ships Applicable: LCS Class FREEDOM Variant (LCS-1V)

c. 3.4.8 Accomplish fabrication, aluminum welding and nondestructive testing of aluminum structures for LCS-2 variant ships in accordance with 2.19.

d. 3.4.9 Accomplish fabrication, aluminum welding and nondestructive testing of aluminum structures for LCS-1 variant ships in accordance with 2.20.

2. Change: CP 172 Deleted 2.16 and renumbered paragraphs

a. 2.16 Deleted, 2.16 DM 10-623, SERMC, Quality Assurance Requirements for Welding 5XXX Series Aluminum Structures for CG-47 Class

Summary of Changes to Standard Item 009-18 Mine Warfare Ships Magnetic Material; control

1. Change: CP 070 Deleted 2.1 and 2.2 from 009-18

a. Deleted 2.1 and 2.2 from 009-18. Renumbered 2. . Renumbered 3. As needed.

Summary of Changes to Standard Item 009-23 Interference; remove and install

1. Change: CP 147L Changed 3.1.20 and renumbered paragraphs

a. Changed 3.1.20 to Fiber Optic System (Cables) and renumbered the follow on paragraphs.

Summary of Changes to Standard Item 009-25 Structural Boundary Test; accomplish

1. Change: CP 72 Change 3.1.6.1 and 3.2.7.1

a. 3.1.6.1 Accomplish unobstructed airflow test of air escape and overflow piping in accordance with Section 506h of 2.1.

b. 3.2.7.1 Accomplish unobstructed airflow test of air escape and overflow piping in accordance with Section 506h of 2.1.

2. Change: CP 73 Change 3.7, 3.7.1, 3.7.2, 3.7.3

a. 3.7 Prior to strength or compartment test, accomplish a chalk test of each knife edge ***or mating surface*** and gasket on watertight doors, hatches, and scuttles.

b. 3.7.1 Apply chalk to the bearing surface of the ***each*** knife edge ***or mating surface*** and close the door, hatch or scuttle by normal procedure.

c. 3.7.2 When the door, hatch or scuttle is opened, the chalk from the ***each*** knife edge ***or mating surface*** must have been transferred to the gasket.

d. 3.7.3 The chalk imprint must be in the center 3/5 of the width of the gasket with 100 percent continuous contact of knife edge to gasket. ***The chalk imprint for each structural closure with no knife edge must have 100 percent continuous contact of mating surface to gasket.***

Summary of Changes to Standard Item 009-37 General Procedure for Woodwork; accomplish

1. Change: CP 93 3.10.7

a. 3.10.7 Deleted, “conforming to MIL-S-24340, Type I, or marine glue MIL G 413”

Summary of Changes to Standard Item 009-38 Boiler, Catapult Accumulator and Reboiler Dry Lay up; accomplish

1. Change: CP 94 Deleted 3.3.1, 3.3.2, 3.3.3, Added 3.3.1.1, Mod 3.3.2

a. 3.3.1 Deleted, Open manway access, conduct feed water wash down of the tube bundle and internal areas of the shell with high pressure water lance in accordance with Chapter 3 of 2.5.

b. 3.3.2 Deleted, Dry out and remove standing water.

c. 3.3.3 Deleted, Manufacture and install a plexiglass cover to seal the manway opening, using details 10-E through 15-E of 2.3 for guidance. Cover must have a 4.0 inch hole in the middle to allow penetration of air vent duct (supply) and 4 each 0.75 inch holes for air exhaust points in accordance with Chapter 3 of 2.5.

d. 3.3.2 ***Manufacture and install a plexiglass cover to seal the manway opening, using details 10-E through 15-E of 2.3 for guidance.***

e. 3.3.5 Mod, Install vent ducting hose (supply) and align system in accordance with Chapter 3 of 2.5.

Summary of Changes to Standard Item 009-54 Bolted Bonnet, Globe, Globe Angle, and Globe Stop Check Valve In-Line Repair; accomplish

1. Change: CP 95 Updated 3.4.2

a. 3.4.2 Updated, MIL-P-24392, type B to ***MIL-P-24396, type B***

Summary of Changes to Standard Item 009-60 Schedule and Associated Reports for CNO Availabilities; provide and manage

1. Change: CP 96 Table 1

a. Table 1 Added ***"individual tank"*** to the location line item in table one

b. 3.1.2.1 Assign each Work Activity with the appropriate predecessor and successor relationships within the contractor's scheduling software that establish the logic relationship between schedule Work Activities. Each activity must have at least one predecessor and one successor, with the exception of the Key Event Start Availability (which may have no predecessors) and the Key Event Complete Availability (which may have no successors). Each Event and Activity may have more than one predecessor and more than one successor. ***The majority of relationships within the detailed schedule should be Finish-Start however, work that is concurrent or in parallel should be scheduled as start-start or finish-finish accordingly.*** The use of scheduling Lags and Leads must be minimized.

2. Change: CP 98 3.1.2

b. 3.1.2 Schedule each Work Item to the Work Activity level, listing the planned start and planned completion dates, and durations ***in full days*** for each Work Activity.

3. Change: CP 101 3.5.4.1

c. 3.5.4.1 The weekly progress report must indicate the total hours, ***within the 3.5.1 Manpower Loading Curve, which are*** attributed to work pending descope and pending growth RCCs. This must not include unallocated LOE to completion.

4. Change: CP 102 Delete 4.3

a. 4.3 Delete, The IPS data element export required by 3.1.8 may be used to support the development of the Master Requirements List (MRL) and Event Readiness List (ERL) of 009-04 of 2.1 and/or locally invoked certification requirements. Renumbered follow on paragraphs.

Summary of Changes to Standard Item 009-72 Physical Security at a Private Contractor Facility; accomplish

1. Change: CP 104 3.1, 3.2.6,

a. 3.1 Renumbered paragraphs in sentence and added ***3.2.10 to paragraph.***

b. 3.2.6 Under Force Protection Condition ***(FPCON)*** NORMAL, ***one step above FPCON ALPHA.*** Establish and maintain physical security…..

c. 3.2.7 Corrected paragraph number called out in sentence, 3.2***.6***

d. 3.2.8 Corrected paragraph number called out in sentence, 3.2.***7***

e. 3.2.9 Corrected paragraph number called out in sentence, 3.2.6-3.2.***8***

Summary of Changes to Standard Item 009-73 Shipboard Electrical/Electronic Cable Procedure; inspect, test, install, remove, and repair

1. Change: CP 105 Added 2.12 and updated 3.3.3

a. 2.12 ***New; ANSI/TIA/EIA-568-B.2 – Commercial Building Telecommunications Cabling Standard – Part 2: Balanced Twisted-Pair Cabling Components***

b**.** 3.3.3 Test each cable for conductor continuity, complete circuit, all swept electrical parameters, and bandwidth ***per 2.12*** using a SCAT 4465 cable tester. Ensure cable connectors are tight.

Summary of Changes to Standard Item 009-74 Occupational, Safety and Health Plan; accomplish

1. Change: Merge from 009-74 to 009-08

a. 2.4 46 CFR 164.009, Noncombustible Materials for Merchant Vessels

b. Merge 3.8 thru 3.11.4.1to 009-08

c. 3.17 Crimping or pinching of fuel gas/oxygen/compressed gas hoses, air hoses, or hoses carrying hazardous/toxic/flammable materials is prohibited. All hoses must be disconnected at the manufacturer's fittings. Prior to disconnecting hoses from equipment/tool, pressure must be released by disconnecting the hose from the source, e.g., manifold or gas cylinder.

d. Deleted the word "Fire" from 3.20, 3.20.2

e. Merge 3.22 thru 3.23 to 009-08

f. Merge 3.27 thru 3.27.1 to 009-08

g. Merge Note 4.8 to 009-08

Summary of Changes to Standard Item 009-84 Threaded Fastener Requirements; accomplish

1. Change: CP 163L Added Reference Updated 3.1.4.1

a. 2.4 ***802-5959353, MIL-STD-777D Modified for DDG-51 Class Schedule of Piping, Valves, Fittings, and Associated Piping Components for Naval Surface Ships***

b. 3.1.4.1 Utilize table one, 2.2 ***through*** 2.***4***, to select each replacement fastener when necessary.

Summary of Changes to Standard Item 009-89 Contractor Furnished Anode Purchase and Inspection; accomplish

1. Change: CP 113 DELETED 009-89

    a. 009-89 ***DELETED***

Summary of Changes to Standard Item 009-100 Ship's Stability; maintain

1. Change: CP 115 Rewrite of 009-100

    a. Invoking guidance in 4E Changes to "Invoke For all Ships"

Summary of Changes to Standard Item 009-103 Weight and Moment Change Data; provide

1. Change: CP 116 Update Reference

    a. Updated reference 2.1 ***S9086-C6-STM-010/CH-096, Weights and Stability***

Summary of Changes to Standard Item 009-111 Schedule and Associated Reports for non-CNO Availabilities; provide and manage

1. Change: CP 146L Added New 3.1.5 and 3.1.6

    a. ***3.1.5 Descope activities must remain in the schedule until settlement of the associated change. Corresponding hours and schedule logic may be removed and/or updated accordingly.***

    b. ***3.1.6 In execution of the availability, the contractor may allow dates to exceed the contract period of performance. This does not constitute government approval of a change to the end of availability.***

Summary of Changes to Standard Item 009-112 Prevention of Radiographic-Inspection Ionizing-Radiation Hazard; accomplish

1. Change: CP 118 updated B. 3 and 4, of ATTACHMENT A

RADIOGRAPHY OPERATIONS PLANNING WORK SHEET

    a. B, 3. Collimator Serial Number ***(If Applicable)***

    b. B, 4. Half Value ***Layers /*** Thickness:

Summary of Changes to Standard Item 009-117 Combat Systems, Light-Off Support; provide

1. Change: CP 120 Updated 3.2.3.2

    a. 3.2.3.2 The joint inspection team must document the discrepancies and determine if the scope and nature of work to correct the discrepancies will impede

uninterrupted testing. This inspection ***may be conducted in conjunction with*** 009-81 of 2.1.

2. Change: CP 120 Delete sentence in 3.2 in 009-81 Compartment Closeout; accomplish

b. 3.2 "This inspection is not required for each compartment covered by 009-117 of 2.1."

Summary of Changes to Standard Item 009-120 Fact Finding and Critique of Unplanned Event; manage

1. Change: CP 123 3.1

a. 3.1 Deleted "Commanding Officer of"

2. 3.2.5.1 Deleted last sentence "Authorization for conducting of a Critique must be approved by the Commanding Officer of the SUPERVISOR."

Summary of Changes to Standard Item 009-123 Fiber Optic Component; inspect, install, repair, remove, and test

1. Change: CP 125 3.3.9

a. 3.3.9 Updated 3.3.9 Accomplish the tube seal verification test in accordance with Method 6J1 of 2.3 for BOF cables after installation of connectors, ***when required per 5.3.2 of 2.3,*** and for unused BOF tubes within BOF cables. Accomplish the ball bearing test in accordance with Method 6H1 of 2.3 for unused BOF tubes within BOF cables.

2. Change: CP 126 Updated Att "A" Note 3

a. Att "A" Note [3]STANDARD COLORS: BLUE, ORANGE, GREEN, BROWN, ***SLATE, WHITE, RED, BLACK, YELLOW, ROSE, AQUA***

b. Att "C" [2]STANDARD COLORS: BLUE, ORANGE, GREEN, BROWN, SLATE, ***WHITE, RED, BLACK, YELLOW, VIOLET, ROSE, AQUA***

3. Change: CP 127 Clarified NOTE

a. Att "A" Clarified Note 6 [6]FOR MULTIMODE FIBER LINKS ***ONLY*** IAW METHOD 6C1 OR 6C2 OF REFERENCE 2.3.

4. Change: CP128 Att "A" Update

a. Att "A" Updated column 9 and 10 to reflect (6C1/6C2) to ***(6C1/6C2)[6]***

5. Change: CP129 Att "C" Update

a. Att"C" Update Column 8 to read, FORWARD FOCT END-TO-END RETURN LOSS RESULT (dB) 4 ***(6L1)***

SEA 05P BRIEF SHEET

Mark Ingle
Ser 05P/275b
14 Sep 22

Subject: **CONCURRENCE WITH RELEASE OF THE FY-24 STANDARD ITEM 009-32 UPDATE TO CNRMC FOR PUBLICATION**

Purpose: To request SEA 05P concurrence with issuing the enclosed FY-24 update to Standard Item 009-32 to CNRMC for publication.

Background: The FY-24, Standard Item 009-32 update was generated following the established Standard Specification for Ship Repair and Alteration Committee (SSRAC) process managed by CNRMC. The SSRAC process objective is to streamline coating and nonskid installation requirements and to improve overall ship affordability. SSRAC allows shipyards, ship repair associations, contractors, Fleet customers, and NAVSEA to propose Standard Item updates that are then discussed at a public meeting, adjudicated by NAVSEA, and published by CNRMC. During the 21–23 Jun 2022 public meeting, 58% of the 43 proposed Standard Item 009-32 changes were adopted and incorporated in the attached FY-24, Standard Item 009-32.

Discussion: The SEA 05P brief sheet package includes enclosure (1) that provides the technical rationale for the FY-24 updates to Standard Item 009-32 and explains how each change will reduce overall ship life-cycle costs and/or streamline waterfront production. The package also includes the FY-24, Standard Item 009-32 concurrence OQE, the final draft FY-24, Standard Item 009-32 showing all changes in **bold** text, and the current, FY-23, Change 2, Standard Item 009-32 that is in use on the waterfront by RMCs/shipyards as the universal coatings/nonskid requirements document. Key FY-24, Standard Item 009-32 updates include: (1) incorporation of the A-A-60016 non-metallic abrasive recycling system in Standard Item 009-32 to reduce abrasive grit disposal costs by approximately 38%; (2) expanding the acceptable abrasive grits for use on aluminum substrates to include 10X, nickel slag, and all other qualified MIL-A-22262 abrasives (i.e., but excluding coal slag media that can cause pitting of aluminum); (3) defining the process to remove conventional nonskid from the interface area with Thermal Spray Nonskid (TSN) to avoid damaging the TSN. With SEA 05P concurrence, SEA 05P2 will forward the updated document to CNRMC for publication on the SSRAC website as FY-24, Standard Item 009-32 in September 2022.

Recommendation: Concur with the enclosed FY-24, Standard Item 009-32 update and SEA 05P2 will forward the package to CNRMC for publication on the SSRAC website.

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MARK W. INGLE
Technical Warrant Holder, Coatings and Corrosion Control (SEA 05P2)

ENCLOSRE (1)

Summary of 2022 Changes to Standard Item 009-32, "Cleaning and Painting Requirements; accomplish" for FY-24 and Associated Technical Rationale for Each Change

The following provides the rationale for the substantive FY-24, Standard Item 009-32 updates and changes. The specific changes discussed below appear highlighted and in ***bold/italics*** in the attached final draft, FY-24, Standard Item 009-32. Minor re-numbering changes, other typographical corrections, and minor changes to clarify existing requirements appear in the attached final draft, FY-24 Standard Item 009-32 in ***bold/italics***, but are not addressed below.

1. CHANGE: Universal editorial changes: Numerous administrative and editorial changes incorporated in the FY-24 Standard Item 009-32 include the following:

a. Added "defined as stainless steel shot, stainless steel grit;" to paragraph 3.1.3.5.

b. Added "non-metallic" to "recycled abrasive blast media" in paragraph 3.1.3.9.

c. Removed "prior to coating application" in paragraphs 3.6.1.1 and 3.6.1.3.

d. Added hyperlink to paragraph 3.7.1.2 stating, "QA Checklist Form Appendices of 2.1 are available at http://www.nstcenter.biz."

e. Added "Mist" to paragraph 3.10.9.1 to be consistent with terms in paragraph 3.11.9.2.

RATIONALE: Administrative and editorial changes were incorporated into the FY-24, Standard Item 009-32 to standardize language, align phraseology with SSRAC documentation policy, and update references as summarized below.

a. To address widespread use of stainless steel media on LCS 2 Class ships, the terms for stainless steel media were updated to include both stainless steel shot (i.e., a rounded media frequently formed from cut stainless steel wire) and stainless steel grit (i.e., brittle fragments of martensitic stainless steel). These terms align with the same carbon steel shot and grit media terms in the same paragraph and allows activities conducting surface preparation on steel or aluminum substrates to select a blend of stainless steel shot and grit to create the required surface profile.

b. FY-23, Change 2, Standard Item 009-32 included a new paragraph 3.1.3.9 that defined requirements for use of the NRL developed, CID A-A-60016 non-metallic media recycling system that was successfully demonstrated using aluminum oxide media on the USS ESSEX (LHD 2) in 2018. The proposed change aligns the terminology in the FY-24, Standard Item 009-32 paragraph 3.1.3.9 with the terminology in CID A-A-60016.

c. The change clarifies that required (I) inspections (i.e., inspections required to be conducted and documented by a separate individual, other than the individual doing the work, but not the government representative) are in-process requirements and as such cannot be performed prior to coating application. As such, the change simply clarifies the existing requirement by removing confounding terminology.

d. The change clarifies where the QA Checklist Form Appendices required throughout Standard Item 009-32 can be found on the internet.

e. The change adds the term "mist" to the inspection requirements of paragraph 3.10.9.1 to avoid ambiguity regarding the requirement to inspect the mist coat. The change aligns the requirements in 3.10.9.1 for inspecting mist coats in tanks or other areas with the existing nonskid primer, mist coat inspection requirement in paragraph 3.11.9.2.

2. CHANGE: Defined the composition of stainless steel media used in abrasive blasting:
Added a second sentence to paragraph 3.1.3.1 stating, "Stainless steel media shall contain a minimum of 10.5 percent chromium."

RATIONALE: The SSPC-SP 17, Thorough Abrasive Blast Cleaning of Non-Ferrous Metals commercial, consensus requirements document was published in 2019 and is cited in multiple FY-23, Change 2, Standard Item 009-32 Tables and Lines for preparing aluminum surfaces, including paragraph 3.1.4 for aluminum plate and shapes. SSPC-SP 17 is currently invoked when preparing aluminum LCS 2 Class flight decks for nonskid application and a common option to prepare aluminum decks is to use stainless steel media. However, there are no commercial, consensus, or military standards that define the requirements for stainless steel media (i.e., what makes a stainless steel stainless, or what limits claims that a carbon steel media is actually stainless steel?). SEA 05P2 contacted Ervin Industries (i.e., a large supplier of stainless steel abrasives) to request a standard for stainless steel media composition and they reported that Ervin supplied the stainless steel shot or grit media in accordance with an SAE size range and provided compositions for their stainless steel shot and grit to the purchasing activity. To ensure that only stainless steel media was used on aluminum structures, SEA 05P2 challenged industry to define some form of requirement for the FY-24, Standard Item 009-32 that would differentiate stainless steel media from carbon steel media and Sherwin-Williams noted that there is commercial precedent for setting a minimum chromium level of 10.5% as a lower bound for a stainless steel material suitable for use in abrasive blasting aluminum. The 10.5% chromium level for a stainless steel also aligns with Appendix 2 of SSPC SP-17 and creates consistency between the Standard Item 009-32 requirements and the referenced standard. The change was incorporated into paragraph 3.1.3.1 where other commercial, consensus, and military requirements for abrasive blasting media composition or material are cited. The change will reduce the risk of corrosion caused by use of a steel media with inadequate levels of chromium adversely affecting aluminum surfaces like those on the LCS 2 Class flight deck.

3. CHANGE: Expanded applicability of Note (56) to include all ships that have helicopter hangar bay doors:
Altered Note (56) to state, "Nonskid must be applied to within 3.5 – 4.0 inches of the exterior and interior helicopter hangar door seal edges."

RATIONALE: Because the current FY-23, Change 2, Standard Item 009-32, Note (56) specifically references DDG 51 Class Flight IIa hangar door seal, COMNAVSURFPAC N43 Nonskid On-Site Representatives (OSRs) correctly noted that Note (56) should not

appear in Table 2 citations for aluminum substrates because the flight decks on DDG 51 Class, Flight IIa ships are steel. As such, many current Table 2 citations for Note (56) in Lines for applying nonskid on aluminum decks are inherently unclear. In addition, CNSP N43 OSRs noted that the door seals on some LCS 2 Class ships were wearing prematurely due to contact with nonskid that was applied too close to the door seal. To address these two issues, SEA 05P2 engaged with the SEA 05Z44 staff responsible for hangar doors and ship design mangers for combatant ships to revise Note (56) to apply to all ships that have helicopter hangar bay door seal edges. The resulting change addresses input from SEA 05Z44 and SEA 05D5 and is applicable to all ship classes with helicopter hangar doors. Thus, the change will reduce the costs and schedule delays associated with "churn" on the waterfront to address the current, unclear requirement, and will avoid premature wear on helicopter hangar door seals associated with incorrect location of the nonskid.

4. CHANGE: <u>Updated Note (46) as a Technical Authority directed change to address removal of conventional nonskid in the tie in area between conventional nonskid and thermal spray nonskid (TSN):</u>

Updated Note (46) that was "intentionally left blank" in the FY-23, Change 2, Standard Item 009-32 to state, "Note (46) - As directed by the SUPERVISOR, remove nonskid within 18 inches of any visible Thermal Spray Nonskid (TSN) using High Pressure Waterjet Cleaning (HP WJ) with an initial operating pressure of 10,000 PSI. Increase HP WJ operating pressure by increments of up to 2,000 PSI until the HP WJ process removes nonskid without damage to the underlying TSN. Conduct six passes over the work zone at the operating pressure that removes nonskid, but does not damage the underlying TSN, to remove the nonskid. HP WJ operating pressure must not exceed 25,000 PSI."

RATIONALE: Currently, contractors tasked to remove and replace conventional nonskid (i.e., nonskid based on epoxy or polysiloxane resin systems) around zones of visible TSN have, in some cases, used waterjet pressures that were so high as to damage or remove the TSN that is under the conventional nonskid within 18 inches of the visible edge or boundary between TSN and conventional nonskid. The attached Figure 1 shows the interface between TSN and conventional nonskid and addresses key provisions of the required conventional nonskid removal process. SEA 05P2 determined that a Technical Authority directed change was required to address this issue because the Change Proposal 089 that was adopted as modified at the 2022 SSRAC meeting (i.e., the change addressed drying time of TSN after waterjet removal of conventional nonskid) was illogical given that there was no requirement in the current, FY-23, Change 2, Standard Item 009-32 to remove conventional nonskid from the TSN tie in area. It is interesting to note that SEA 05P2 discussed the issue of conventional nonskid removal from the TSN tie in area at the 2021 and 2022 Mega Rust meetings, but the technical community did not propose a new Standard Item 009-32 requirement to address the issue and as such, the proposed Technical Authority directed change was required to close out the issue.

The new Note (46) requirement was based on recent input from three NAVSEA-approved Technical Representatives (i.e., in accordance with Standard Item 009-124 on TSN installation and repair) that have overseen deck plate TSN installation and maintenance processes for the past decade. The technical rationale for the change is

that ultrahigh pressure waterjet systems (e.g., above 30,000 PSI) are capable of stripping TSN off of the steel deck and as shown in Standard Item 009-124 on TSN installation and repair such waterjet stripping processes are standard practice for repairs larger than 20 square feet. However, if TSN is intact and adherent, and it is only the conventional nonskid around the visible area of TSN that has to be removed, retaining the TSN under the perimeter of the visible TSN area on the deck is essential to tie the two nonskid systems together. SEA 05P2 has worked with the waterfront teams on two ships to address use the >30,000 PSI waterjet process that did remove conventional nonskid, but also damaged the underlying TSN. Thus, the new Note (46) requirements are based on use of lower waterjet operating pressures that have been shown to not cause damage the TSN under the conventional nonskid. The requirements allow for increasing waterjet operating pressures by 2,000 PSI increments during the process to improve process efficiency (i.e., higher operating pressures remove conventional nonskid more rapidly). The Note (46) acknowledges that multiple passes of the waterjet cleaning system are required to remove the conventional nonskid and the six passes cited have been used successfully to remove the conventional nonskid.

In summary, the new Note (46) defines requirements that will allow contractors tasked to remove and replace conventional nonskid on decks with intact, adherent TSN to remove the conventional nonskid in the TSN tie in zone without damaging the TSN that is under the conventional nonskid. As such, the new requirements will avoid delays and added costs associated with inadvertent damage to the TSN, while still preparing the retained TSN for overcoating with a new layer of conventional nonskid.

Figure 1 - Technical Authority Directed Change to Note (46)
New Requirements to Remove Conventional Nonskid Applied Over Thermal Spray Nonskid

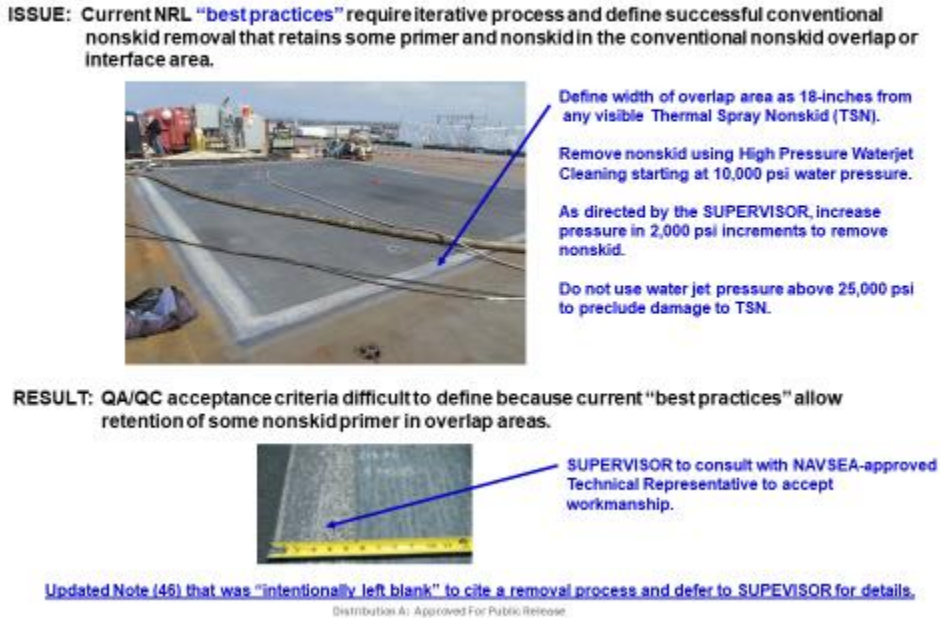

Figure - 1 (Continued)
New Requirements to Remove Conventional Nonskid Applied Over Thermal Spray Nonskid

RESULT: Updated Note (46) that was "intentionally left blank" in FY-23, Change 2, Standard Item 009-32 to include new requirements for conventional nonskid removal around visible Thermal Spray Nonskid (TSN) to avoid damage to TSN that is under the conventional nonskid.

New FY-24, Standard Item 009-32 Note (46) to read as follows:

"Note (46) As directed by the SUPERVISOR, remove nonskid within 18 inches of any visible Thermal Spray Nonskid (TSN) using High Pressure Waterjet Cleaning (HP WJ) with an initial operating pressure of 10,000 PSI. Increase HP WJ operating pressure by increments of up to 2,000 PSI until the HP WJ process removes nonskid without damage to the underlying TSN. Conduct six passes over the work zone at the operating pressure that removes nonskid, but does not damage the underlying TSN, to remove the nonskid. HP WJ operating pressure must not exceed 25,000 PSI.

- The updated Note (46) will appear in Table 2, Lines 17 – 20 that define requirements for nonskid work on LHA, LHD, LPD, and LSD class ships.
- The updated Note (46) will rely on the SUPERVISOR to consult with NAVSEA-approved Technical Representative to avoid damage to the TSN and accept workmanship.

Note: Nonskid removal will take multiple passes and this image was four passes at 20,000 PSI. Note that nonskid "removal" will still result in some remnants remaining and the SUPERVISOR would need to know to accept such a condition, ideally after consultation with the NAVSEA-approved Technical Representative.

Updated Note (46) that was "intentionally left blank" to cite the nonskid removal process and defer to SUPEVISOR for details.

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5. CHANGE: <u>Updated Note (49) to define requirements for allowing TSN in the tie in zone after conventional nonskid removal to dry before application of conventional nonskid primer.</u>

Updated Note (49) that was "intentionally left blank" in the FY-23, Change 2, Standard Item 009-32 to state, "As directed by the SUPERVISOR, verify that Thermal Spray Nonskid (TSN) substrate has dried following any water cleaning, water jet preparation, or other exposure to water before MIL-PRF-24667 nonskid primer is applied to the TSN tie in zone."

RATIONALE: Currently, contractors tasked to remove and replace conventional nonskid around zones of visible TSN (i.e., using the process that included in the FY-24, Standard Item 009-32, Note (46) as discussed Change 4 shown above) will subject the retained TSN to waterjet cleaning at pressures above 10,000 PSI. At such high waterjet operating pressures, the TSN layer, that is inherently porous (i.e., review Standard Item 009-124 TSN application requirements that use a polysiloxane sealer to fill in this inherent porosity to maximize overall TSN system corrosion resistance) will be wet both on the surface and in the pores. There is a risk that application of conventional nonskid primer over TSN that still has moisture in the pores may be a contributing factor to nonskid delamination or cracking. Currently, one hypothesis regarding the inadequate conventional nonskid system performance (i.e., the nonskid system is being removed after just one year of service) on the USS BATAAN (LHD 5) is that there was in advertent deck wetting during the primer installation. The NAVSEA-approved Technical Representative that submitted the 2022 SSRAC Change Proposal noted that without a requirement to verify that the moisture in the pores had enough time to

evaporate, the conventional nonskid application contractor can simply start applying primer as soon as the visible water on the TSN surface dries (i.e., without accounting for the additional time required for the water in the pores to evaporate). To address this issue, the proposed change requires the SUPERVISOR to validate that the surface is dry. By simply requiring the SUPERVISOR to ensure the surface is dry, the additional review will build more drying time into the process. The SUPERVISOR will ideally have some experience working with the NAVSEA-approved Technical Representatives on TSN in the past and will apply sound engineering judgment regarding drying times. Thus, the change will inherently reduce the risk of conventional nonskid primer being applied over TSN with water trapped in the pores and avoid the delays and costs associated with having to replace conventional nonskid prematurely. Because anything that degrades the adhesion of the conventional nonskid primer to the TSN substrate can also lead to delamination and particle formation, the change will also reduce the risk of delaminating conventional nonskid causing aircraft engine Foreign Object Damage (FOD).

6. CHANGE: Removed color requirement for second coat of MIL-PRF-24647 anti-corrosive primer on the underwater hull:

Altered FY-23, Change 2, Standard Item 009-32, Table One, Line 1, Column B and all subsequent, relevant lines to remove the "GRAY" color requirement for the second coat of MIL-PRF-24647 anti-corrosive primer.

RATIONALE: Anticorrosive primers qualified to MIL-PRF-24647, for which the tacky state is waived for overcoating, were incorporated into the FY-23, Change 2, Standard Item 009-32 for use in the underwater hull coatings system (i.e., for all applications in Table One, based on the paragraph 3.1.20.1 requirements). However, as the proposal submitting activity, Sherwin-Williams, pointed out in the Change Proposal 168, these anticorrosive primers are not produced in standardized colors across all manufacturers of MIL-PRF-24647 qualified nonskid systems. By waiving the color requirement of the second coat, these primers (i.e., which allow for a longer overcoat window that supports contractors applying the antifouling coating system in larger, more efficient zones) can be leveraged, regardless of available color. It is important to note that paragraph 3.1.19 of Standard Item 009-32 requires contrasting colors for the successive coats of anti-corrosive primer, so there is negligible risk that allowing other colors will interfere with the government's ability to inspect each coat of the primer system. Thus, the proposed change will reduce the risk of delays or disruption associated with waterfront discussions about acceptable primer colors, streamlining production and avoiding the non-value-added preparation of a Departure from Specification (DFS) to document the use of an alternative color.

7. CHANGE: Clarified and standardized blast media allowed for abrasive blasting surface preparation for aluminum surfaces:

Updated the FY-23, Change 2, Standard Item 009-32, Table One, Line 11, Column A, and all subsequent, relevant lines in all Tables for aluminum and nonferrous substrates to state "THOROUGH ABRASIVE BLAST CLEANING OF NON-FERROUS METALS, SSPC-SP 17 USING MIL-A-22262 QUALIFIED MEDIA (EXCLUDING COAL SLAG) OR ALUMINUM OXIDE" or "THOROUGH ABRASIVE BLAST CLEANING OF NON-FERROUS METALS, SSPC-SP 17 USING MIL-A-22262

QUALIFIED MEDIA (EXCLUDING COAL SLAG), ALUMINUM OXIDE, OR STAINLESS STEEL MEDIA" as applicable to the substrate."

RATIONALE: The FY-23, Change 2, Standard Item 009-32 incorporated the use SSPC-SP 17 Thorough Abrasive Blast Cleaning of Non-Ferrous Metals into paragraph 3.1.4 and the relevant Tables and Lines for the surface preparation of aluminum substrates. When the requirements were adopted, the FY-23, Change 2, Standard Item 009-32 cited specific types of abrasive blast media that are known to be compatible with aluminum substrates (e.g., garnet, crushed glass, aluminum oxide). The precedent for the Standard Item 009-32 abrasive media selection requirements is based on the NSTM 631 policy prohibiting the use of coal slag media on aluminum substrates, and the known issues with carbon steel media that can leave residue on aluminum surfaces that result in localized corrosion. For example, use of coal slag media on aluminum substrates can leave embedded carbonaceous residue that is electrochemically more noble than aluminum and can lead to localized aluminum pitting. Similarly, carbon steel media were found to leave iron residue embedded in aluminum surfaces and such residue leads to localized corrosion. Historically, since the FY-01 Standard Item 009-32 published on 23 Sep 1999, the aluminum surface preparation requirements have focused on the specific garnet and aluminum oxide media known to perform effectively on aluminum substrates without generating pitting or corrosion concerns. However, over the past two years, SEA 05P2 processed DFSs for use of alternative abrasive blasting media like nickel slag and amorphous metal oxide media for use on aluminum structures like LCS 2 Class underwater hull. These DFSs noted supply chain issues with the required abrasives and reported improvements in productivity associated with use of some of these alternative media. SEA 05P2 reviewed the technical data on these alternative abrasives related to aluminum substrates and concluded the use of these media posed a LOW risk of adversely affecting the aluminum substrate. Based on these findings, and to allow contractors to use abrasive media that maximize their productivity while still producing the required surface cleanliness and profile, the FY-24, Standard Item 009-32 requirements for abrasive blasting media for use on aluminum substrates were updated simply to exclude the coal slag media (i.e., as is consistent with NSTM 631 and good coatings practice). Such a change allows a broad range of media to be used on aluminum substrates and avoids future SSRAC Change Proposals, like the proposal from Green Diamond Performance Materials, LLC to include their specific nickel slag media in the list of approved media for aluminum substrates.

Thus, the proposed change expands the options for abrasive blasting media that can be used on aluminum substrates (i.e., potentially reducing media costs by expanded completion) which should help alleviate ongoing supply chain issues, and may allow improved abrasive blasting productivity based on the advertised performance of some recent qualified media.

8. CHANGE: Updated terminology in the tables for "EXTERIOR SURFACES ABOVE BOOTTOP, WITH EXCEPTION OF AREAS RECEIVING NONSKID" for aluminum surfaces to include LCS 2 Class amah tunnels:

Updated Table 2, Lines 53 and 54 to include LCS 2 Class amah tunnels as follows: "EXTERIOR SURFACES ABOVE BOOTTOP, INCLUDING AMAH TUNNELS, WITH EXCEPTION OF AREAS RECEIVING NONSKID." An associated change with each of the Column E, "HORIZONTAL SURFACES DECKS & FITTINGS" entries for the amah tunnels on Lines 53 and 54 as follows;

Line 53 - "AMAH TUNNEL, ONE COAT HAZE GRAY MIL-PRF-24635, TYPE V OR VI, CLASS 2, GRADE B OR C, COMPOSITION 2, 5 - 8 MILS

Line 54 – "AMAH TUNNEL, ONE COAT HAZE GRAY MIL-PRF-24635, TYPE V OR VI, CLASS 2, GRADE B OR C, COMPOSITION 1, 2 - 3 MILS"

RATIONALE: LCS 2 Class ships are generally unpainted above the waterline. However, SURFMEPP noted in their Change Proposal that amah tunnels are an ambiguous, exterior area in that they are not defined as a specific location in the FY-23, Change 2, Standard Item 009-32 and are actually painted during new construction. Figure 2 shows the proposed change and identifies the amah tunnel areas. The new construction requirements cite a commercial haze gray epoxy primer and a silicone alkyd topcoat for application in the tunnels and SURMEPP noted that the coatings in these areas have been worn/damaged to such a degree as to require recoating on in-service ships. Because the majority of the exterior areas, above the boottop, on LCS 2 Class ships are unpainted, the SURFMEPP Change Proposal defines the area that requires coating. However, because the specific locations of the areas that will, and will not, need to be coated on the forward part of the central hull are defined by both frame number and "knuckles," SURFMEPP will prepare a Class Standard Work Template (CSWT) to provide all the details required to defines the specific locations for the coating. In addition, because Standard Item 009-32 completely eliminated citations for exterior, haze gray, silicone alkyd coatings in 2018 (i.e., since 2018, all exterior haze gray coatings are required to be the high performance, MIL-PRF-24635, Type V/VI qualified polysiloxane coatings), the Change Proposal requires application of high performance, haze gray polysiloxane coatings in the amah tunnels instead of the less durable silicone alkyd coating used during new construction. Specifically, Line 53 requires use of the two component polysiloxane coatings while Line 54 requires use of a MIL-PRF-23236 or MIL-PRF-24647 qualified epoxy primer and the single component polysiloxane coating.

Thus, the change aligns the requirements for coating the area above boottop in the amah "tunnels" with high performance polysiloxane coatings in these areas to retard corrosion and align the maintenance coating requirements for LCS 2 Class ships with new construction coating application processes.

Figure 2
Require Topside Coating to be Applied in Amah Tunnels on LCS 2 Class

ISSUE: Current, FY-23, Change 2, Standard Item 009-32, Table 2 is silent about the area on the LCS 2 Class that is above the boottop, and between the central hull and the amah outriggers.

BACKGROUND: The LCS 2 Class trimaran hull is coated with topside coating system during new construction above the boottop on all vertical, angled, and horizontal surfaces of the "tunnels" between the central hull and the amah outriggers.

- Spray from high speed operations would cause aluminum corrosion above boot-top on tunnel vertical/horizontal surfaces.
- New construction ships delivered with epoxy primer and haze gray silicone alkyd topside coating system in tunnels.
- Silicone alkyd coating system degraded by high speed spray requires replacement.

RESULT: SURMEPP proposed change was adopted to require coating of LCS 2 Class amah tunnels by updating FY-24, Standard Item 009-32 to require coating in Table 2, Lines 53 and 54 to cite:
"EXTERIOR SURFACES ABOVE BOOTTOP, INCLUDING AMAH TUNNELS, WITH EXCEPTION OF AREAS RECEIVING NONSKID."
Column E to add following: "AMAH TUNNEL, ONE COAT HAZE GRAY MIL-PRF-24635, TYPE V OR VI, CLASS 2, GRADE B OR C, COMPOSITION 1, 2 - 3 MILS"

- Class Standard Work Template (CWST) to provide drawing/details for locating forward edge of coating system using knuckles and frame numbers.
- Standard Item 009-06, "Maintaining Protection and Cleanliness from Non-Radioactive Contaminate-Producing Operations; accomplish" defines requirements for masking to prevent coating overspray on central hull, amah, and transom.

Change requires use of high performance polysiloxane coating system in amah tunnel to increase coating system service life and reduce life-cycle corrosion risk in these areas.

Controlled Unclassified Information (CUI): Not Approved For Public Release

9. CHANGE: Included options to allow MIL-PRF-24635, topside coatings to be applied in vent plenums and clean and dirty side of combustion air intakes/exhaust trunks:
Updated the FY-23, Change 2, Standard Item 009-32 to add four new lines to FY-24, Standard Item 009-32, Table 3 (i.e., Lines 16A, 19A, 41A, and 46A) to cite in Columns D or E the use of MIL-PRF-24635, Type V/VI polysiloxane coating as a topcoat in "VENT PLENUMS" and "CLEAN AND DIRTY SIDE OF COMBUSTION AIR INTAKES/EXHAUST TRUNKS."

RATIONALE: Historically, Standard Item 009-32 included vent plenums and the clean and dirty side of combustion air intakes/exhaust Trunks in the Table 3 requirements for interior spaces. Because vent plenums and the clean and dirty side of combustion air intakes/exhaust trunks are corrosion prone areas that trap moisture and debris, the coatings required in these areas were the same high performance MIL-PRF-23236, Type VII, ultrahigh solids, edge retentive, coatings required for use in tanks and bilges. All of these tank and bilge coatings are based on epoxy chemistry. Recently, NSWC-CD, Code 613 completed multiple ship inspections that showed how sunlight entering the vent plenums and the clean and dirty side of combustion air intakes/exhaust trunks was degrading the epoxy coating in these spaces. Sunlight causes epoxy coatings to rapidly lose gloss, chalk, fade, and eventually require replacement. Because corrosion staining is difficult to remove from a chalked epoxy coating, and because chalking will eventually lead to coating breakdown, NSWC-CD, Code 613 submitted the Change Proposal to allow work planners the option of coating vent plenums and intakes/exhaust trunks with the high performance, MIL-PRF-23236, Type VII qualified coatings, but then topcoating these areas with MIL-PRF-24635,

Type V/VI, qualified polysiloxane topside coatings. With a polysiloxane coating in the plenums and intakes/exhausts trunks, ships' force can more easily clean and maintain these spaces. Finally, the NSWC-CD, Code 613 Change Proposal was supported by Carrier Planning Activity staff during the 2022 SSRAC meeting discussions.

Thus, the change provides options that, if invoked by work planners, will decrease the overall ship's force maintenance burden associated with cleaning and preservation of vent plenums and intake/exhaust trunks and will inherently extend the life of the coating systems in these spaces.

10. CHANGE: Updated aluminum tank and void coating requirements to include potable water tanks and structural water mist storage tanks:

Replaced the term "TANKS AND VOIDS" in the FY-23, Change 2, Standard Item 009-32, Table 4, Line 27 with the following, "POTABLE WATER TANKS AND STRUCTURAL WATER MIST EXTINGUISHING STORAGE TANKS" in FY-24 Standard Item 009-32

RATIONALE: LCS 2 Class ships include aluminum structural tanks that are required to be coated to prevent aluminum substrate corrosion or to ensure the fluid in the tanks was not contaminated with corrosion products. Because Standard Item 009-32, Table 4 historically directed work planners dealing with aluminum tanks to the requirements for specific coatings in steel tanks in similar fluid service, the aluminum tank coating requirements were all historically defined by one line for "TANKS AND VOIDS." The one line for aluminum tanks and voids referred the reader back to the requirements for steel tanks in similar service. These requirements were modified in the FY-20, Standard Item 009-32 to create a new set of Lines 28 and 29 for LCS 2 Class ship's fuel storage and service tanks (i.e., see the discussion of Change 11 below). Unfortunately, the 2022 SURFMEPP Change Proposal noted that waterfront work planners frequently seek clarification regarding which steel tank requirements relate to which specific tanks on LCS 2 Class ships. Because some aluminum tanks and all voids on LCS 2 Class ships are not coated, the SURFMEPP Change Proposal is intended to simplify requirements by defining only the aluminum tanks that do require coating. By updating the FY-24, Standard Item 009-32, Line 27 to cite, "Potable Water and Structural Water Mist Extinguishing Storage Tanks," there is no longer ambiguity about voids or other tank types that has led to work planners contacting SURFMEPP to prepare work packages.

Thus, the proposed change will streamline the waterfront work planning process for LCS 2 Class ships and avoid the delays associated with work planners having to contact SURFMEPP to clarify the existing requirements.

11. CHANGE: Updated Aluminum LCS 2 Class fuel service and storage tanks to include JP-5 tanks:

Updated the FY-23, Change 2, Standard Item 009-32, Table 4, Lines 28 and 29 to include "JP-5 TANKS" in the FY-24, Standard Item 009-32.

RATIONALE: LCS 2 Class ships include aluminum structural tanks that are required to be coated to prevent aluminum substrate corrosion or to ensure the cleanliness of the fluid in the tanks. Because Standard Item 009-32, Table 4 historically directed work planners dealing with aluminum tanks to the requirements for specific coatings in steel tanks in similar fluid service, the aluminum tank coating requirements were all historically

defined by one line for "TANKS AND VOIDS." However, in FY-20, SEA 05D5 reported that measurable pitting on tank bottoms had been observed on the inherently thin aluminum structure of the LCS 2 and LCS 4. These tanks were not coated during new construction and were not required to be coated by Standard Item 009-32 requirements for steel tanks. In addition, eLAR LCS10 - 0001 - 17 was approved for the entire LCS 2 Class and noted that the most effective means of mitigating the risk of pitting in these aluminum tanks leading to costly plate replacement was to coat the tanks. Given that background, the SURMEPP Change Proposal noted that there was confusion on the waterfront associated with having to refer back to steel tank requirements for coating the JP-5 tanks that on LCS 2 Class were coated at new construction. Note that the new construction JP-5 tank coating requirements are based on NAVAIR requirements for a high level of purity in JP-5 and because some aviation fuels contain additives that can be corrosive, steel and aluminum JP-5 tanks need to be coated to avoid corrosion of the aluminum and contamination of the fuel with aluminum corrosion products. By including the term "JP-5 TANKS" in the FY-24, Standard Item 009-32, Table 4, Lines 28 and 29, SURFMEPP will avoid having to work with waterfront work planners to clarify how the steel requirements needed to be invoked on the aluminum JP-5 tanks.

Thus, the proposed change clarifies an existing requirement, but also will reduce the time SURFMEPP and waterfront work planners need to spend defining the coating requirements for JP-5 tanks on LCS 2 Class ships.

12. CHANGE: Updated topcoat requirements for galvanized steel:

Updated the FY-23, Change 2, Standard Item 009-32, Table 5, Lines 13 and 14 requirements for coating galvanized steel used on interior and exterior surfaces by removing "Topcoat to match surrounding area" from Column D in FY-24 Standard Item 009-32.

RATIONALE: The coatings applied to interior and exterior galvanized surfaces, as shown in FY-23, Change 2, Standard Item 009-32, Table 5, Lines 13 and 14 Column C are acrylic topcoats. Sherwin-Williams noted in their FY-22 SSRAC Change Proposal that because current Standard Item 009-32 requirements cite MIL-PRF-24635, Type V/VI polysiloxane coatings for use on exterior surfaces, that the current requirements would result in a polysiloxane coating being applied over an acrylic. Unfortunately, because the acrylic coatings are inherently more flexible than the polysiloxanes, such an application would result in cracking and flaking over time. In addition, the requirement in Table 13 for application of an interior coating "to match surroundings" could also results in MIL-DTL-24607 chlorinated alkyds being applied over the MIL-PRF-24596 interior coating. By simply removing the coating requirements in Column D, the required acrylic topcoats are applied and the work planner can still specify coating colors to match the surroundings (i.e., both topcoats listed in Column C for both Lines 13 and 14 are available in all relevant colors and should not need to be topcoated if the color matched the surroundings).

Thus, the proposed change eliminates a coat of paint that was not required to ensure effective coating system performance (i.e., reducing costs and time to complete the coating task) and avoids the risk of incompatible coatings being applied to coated galvanized substrates leading to premature topcoat cracking/flaking.

13. CHANGE: Updated topcoat requirements for exterior galvanized steel:
Updated FY-23, Change 2, Standard Item 009-32, Table 5, Line 14 by adding "--OR-- ONE COAT MIL-PRF-24635, TYPE V OR VI, CLASS 1, GRADE A, 5 – 8 MILS" to the FY-24 Standard Item 009-32.

RATIONALE: Currently, FY-23, Change 2, Standard Item 009-32 requires use of the acrylic latex MIL-PRF-24763 coating on exterior galvanized surfaces because these coatings will adhere to a zinc substrate. Historically, the MIL-PRF-24635, Type III, silicone-alkyd exterior topside coatings applied over galvanized surfaces would experience saponification at the metal/coating interface forming a zinc-based soap that would then solubilize as water permeated through the coating. The solubilized layer weakened the coating interface leading to delamination. Delamination of alkyd coatings from galvanized surfaces is a common root cause for peeling paint observed on on highway guardrails and sound walls. Given that background, the current MIL-PRF-24635, Type V or VI, polysiloxane based topside coatings do not experience saponification when applied on galvanized surfaces and are applied commercially to such substrates. Addition of MIL-PRF-24635, Type V or VI qualified polysiloxane coatings to the options in FY-24, Standard Item 009-32, Table 5, Line 14 increases the options for exterior coatings that can be applied to galvanized surfaces and will avoid the production delays associated with switching from the polysiloxane coating being applied to the entire topside area to an acrylic for just the galvanized surfaces. In addition, the activity that submitted the proposal, Sherwin-Williams, noted that the MIL-PRF-24635, Type V or VI, qualified polysiloxanes that are regularly applied over entire topside areas will crack and peel when applied to a MIL-PRF-24763 acrylic coating and as such simplifying application requirements to apply only polysiloxane coatings to steel, aluminum, and galvanized surfaces inherently decreases the risk of adhesion issues with the polysiloxane coating.
Thus, the change will streamline production by avoiding the need to use two different chemistry coatings on the topsides (i.e., in general areas and on galvanized surfaces) and will also reduce the risk of premature coating delamination.

14. CHANGE: Updated Table One, Lines 20 and 22 as a Technical Authority directed change to eliminate the citation to the specific Amercoat 3258 product:
Updated the FY-23, Change 2, Standard Item 009-32, Table One, Lines 20 and 22, Column B, "PRIMER" requirements for multiple coats of the tradename specific, Amercoat 3258 coating to remove the tradename and rather cite "MIL-DTL-24441, TYPE IV" in the FY-24 update to Standard Item 009-32.

RATIONALE: Currently, the FY-23, Change 2, Standard Item 009-32, Table One, Lines 20 and 22 require three full coats and two stripe coats of Amercoat 3258 on minesweeper appendages and sonar transducers. The Amercoat 3258 requirements were first included in the FY-06, Standard Item 009-32, Table One, Line 43 for "UNDERWATER HULL APPENDAGES ON MINESWEEPERS ONLY" as a means of reducing hull current demand from the cathodic protection system. The tradename specific coating was selected because of delamination issues and was the result of a laboratory study regarding the adhesion of MIL-DTL-24441 coatings from different manufacturers. The study found Ameron, Amercoat 3258 (i.e., a PPG/Ameron tradename specific product based on the MIL-DTL-24441 polyamide chemistry) exhibited the highest adhesion and resistance to cathodic disbondment. As such, SEA

05P2 determined the Amercoat 3258 was most likely to adhere to the inherently difficult to coat, noble metal surfaces, like those on minesweepers and the requirement was added to the FY-06, Standard Item 009-32. Over the years, maintenance teams found the Amercoat 3258 increasingly difficult to obtain, even as a special order coating. In fact, since 2008, SEA 05P2 has addressed multiple DFSs from RMCs that could not locate Amercoat 3258 and in 2018 SEA 05P2 addressed an issue of high levels of volatile organic compounds in a batch of Amercoat 3258. Finally, on 4 Aug 2022, PPG/Ameron confirmed to SEA 05P2 they are no longer manufacturing Amercoat 3258 and as such SRF-JRMC requested technical guidance from SEA 05P2 for a DFS. Historically, SEA 05P2 adjudicated all of the DFSs by allowing application of available stocks of MIL-DTL-24441, Type IV coatings from other manufacturers. To date, SEA 05P2 has not had any reports from the minesweeper community about inadequate adhesion of these other MIL-DTL-24441, Type IV coatings. SEA 05P2 provided this history to SRF-JRMC and they are preparing a DFS to use available MIL-DTL-24441, Type IV coatings.

Thus, the risk of inadequate performance from MIL-DTL-24441, Type IV coatings on minesweeper appendages and transducers is LOW and the proposed change will avoid the delays and paperwork associated with processing DFSs to address the fact that PPG/Ameron will no longer manufacture the Amercoat 3258 coating system.

SEA 05P BRIEF SHEET

Mark Ingle
Ser 05P/276b
14 Sep 22

Subject: CONCURRENCE WITH RELEASE OF THE FY-24 STANDARD ITEM 009-124 UPDATE TO CNRMC FOR PUBLICATION

Purpose. To request SEA 05P concurrence with issuing the enclosed FY-24 update to Standard Item 009-124 on Thermal Spray Nonskid (TSN) installation and repair to CNRMC for publication.

Background. The subject FY-24, Standard Item 009-124 update was generated following the established Standard Specification for Ship Repair and Alteration Committee (SSRAC) process managed by CNRMC. The SSRAC process objective is to streamline TSN installation requirements and to reduce the risk of nonskid chips/flakes causing aircraft engine Foreign Object Damage (FOD). SSRAC allows shipyards, ship repair associations, contractors, Fleet customers, and NAVSEA to propose Standard Item updates that are then discussed at a public meeting held in Newport News, VA, adjudicated by NAVSEA, and published by CNRMC.

Discussion. Enclosure (1) provides the technical rationale for each of the FY-24 changes to Standard Item 009-124. Many of the changes are editorial but substantive changes to reduce paperwork and streamline TSN production include; (1) Modified the Attachment B requirements for large (i.e., >200 square foot) TSN repairs that must be conducted with the robotic TSN installation system to be conducted using hand TSN spray processes because NAVSEA has processed three MAJOR DFSs over the past four years to use hand TSN spray on these larger repairs and all such repairs are still intact and adherent; (2) Condensed two paragraphs into one to define companion panel requirements for color topping application to follow standard procedures from Standard Item 009-32 on coatings; and (3) Clarified that the SUPERVISOR must approve all TSN deck plate repair workmanship, but that the NAVSEA-approved Technical Representative must be on-site to define which specific areas must be repaired using the developmental NRL infrared inspection equipment and the mechanical "sounding" of the TSN layer to accurately locate the size/shape of TSN delaminations. Implementation of these changes in the FY-24 Standard Item 009-124 will reduce the number of TSN repair DFSs submitted to NAVSEA and minimize the risk of inadequate TSN repairs leading to delaminations that can cause aircraft engine FOD.

Recommendation. Concur with the enclosed Standard Item 009-124 update and SEA 05P2 will forward the package to the CNRMC Technical Director,(Simmons) for publication on the SSRAC website.

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ENCLOSURE 1

Summary of Changes to FY-24 Standard Item 009-124, "Thermal Spray Nonskid Application; accomplish" for and Associated Technical Rationale for Each Change

The following provides the technical rationale for the substantive, FY-24, Standard Item 009-124 changes. The specific changes discussed below appear highlighted and in ***bold/italics*** in the attached final draft, FY-24 Standard Item 009-124. Minor re-numbering changes, other typographical corrections, and minor changes to clarify existing requirements appear in the attached final draft, FY-24 Standard Item 009-124 in ***bold/italics***, but are not addressed below.

1. CHANGE: Universal editorial changes: Numerous editorial issues associated with administrative changes were incorporated in the FY-24 Standard Item 009-124 and include the following:

a. Added "For thermal spray masking, use material" as the first clause in the second sentence of paragraph 3.9.

b. Changed "Method D" to "Method B" in paragraphs 3.14.7.2 and 3.15.3.2.

c. Changed referenced paragraphs in paragraph 3.15.1 to cite paragraphs "3.14.6 and 3.14.8."

d. Modified paragraph 3.15.7.3 to remove the reference to paragraph 3.14.6 and rather begin the paragraph with "Verify surface cleanliness."

e. Removed the term "Repair" from the title of Appendix A throughout the document.

RATIONALE: The administrative changes incorporated in FY-24 Standard Item 009-124 are intended to ensure consistent terminology throughout the document, align phraseology with Navy documentation policy, and update to cite the correct references as follows:

a. The wording of FY-23, Change 2, Standard Item 009-124, paragraph 3.9 cited both blasting and thermal spray applicability for the DeWAL Industries Inc. DW501 masking materials. NAVSEA-approved Technical Representatives and NRL has learned that the DeWAL Industries Inc. DW501 thermal spray masking material is not effective and too costly to use during abrasive blasting, and as such the reference to abrasive blasting masking material was removed from the FY-24 Standard Item 009-124, paragraph 3.9. Thus, blasting contractors will select their preferred masking materials and the tradenames specific thermal spray masking material is only required during thermal spraying.

b. The current, FY-23, Change 2, Standard Item 009-124 citations in paragraphs 3.14.7.2 and 3.1.5.3.2 for profile measurement by "Method D" of reference 2.9 (i.e., ASTM D4417) represented a typographical error and the correct citation is "Method B." Method B defines the procedure for using an electronic gage that measures profile by placing a fine pointed

probe in contact with the surface at multiple points over the profile that is used to verify profile before Thermal Spray Nonskid (TSN) application. Thus, the change corrects a typographical error by citing the correct reference paragraphs in the FY-24, Standard Item 009-124.

d. The change corrects a typographic error in that the current, FY-24, Change 2, Standard Item 009-124, paragraph 3.15.7.3 that defined requirements for applying additional TSN in areas found to have low film thickness using either robotic or hand spray and it is important to note that this process does not require a surface profile verification (i.e., as is required by paragraph 3.14.6) and rather only requires that the surface be clean and free of dust and other contaminants. Thus, the change more clearly reflects the kind of inspection required before additional TSN is applied to already applied TSN to achieve the required minimum film thickness.

e. The current Appendix A in the FY-23, Change 2, Standard Item 009-124 has the title "Appendix A - Thermal Spray QA Checklist Form" and in many locations in the document, the term "Repair QA Checklist Form, Appendix A" is cited. Thus, the Appendix A citations in the document using the term "repair" do not align with the title of Appendix A and by striking the term "repair" throughout the Appendix A citations in FY-24, Standard Item 009-124, the terminology is now consistent.

2. CHANGE: Clarified quantity of companion panels required when repairing TSN:

Altered the FY-23, Change 2, paragraph 3.18.2.3 to read, "For sealed TSN that will be coated with the dark gray color topping, two companion panels are required for the first 1,000 square feet, and one panel is required for each additional 1,000 square feet or less. Orient the companion panels such that color topping will be applied to the hand sanded surface. The panels must be secured to tie down fittings or the deck such that they will not be dislodged during color topping spray and roller application. Space the companion panels uniformly across the color topping application area so that the panels are coated with color topping simultaneously with the coating of the sealed TSN on the surrounding deck." and deleted paragraph 3.18.2.4 on companion panels.

RATIONALE: The current FY-23, Change 2, Standard Item 009-124 paragraphs 3.18.2.3 and 3.18.2.4 addressed requirements for companion panels for both sealed TSN and color topped TSN and were determined to be confusing by the NAVSEA-approved Technical Representatives conducting TSN installations and repairs. As such, the FY-24, Standard Item 009-124, paragraph 3.18.2.3 was altered to more clearly define the requirements for producing companion panels when replacing TSN. These new requirements are area-based and utilize language already well established for measuring coating thicknesses in Standard Item 009-32 on coatings. Thus, the change will streamline waterfront production by utilizing familiar language for defining the companion panel requirements and eliminating an entire paragraph (i.e., 3.18.2.4) to more clearly define the companion panel requirements for TSN installation/repairs on all area sizes.

3. CHANGE: Expanded the maximum size TSN repair that can use a TSN hand spray process and limited the TSN hand spray repair areas to less than 800 square feet: Updated the FY-23, Change 2, Standard Item 009-124, Attachment B for TSN repairs on areas larger than 200 square feet to include, "and Hand" in the title and updated Attachment B, paragraph 9 to include a sentence limiting hand spray repair areas to no larger than 800 square feet as follows: "Hand spray applications must not exceed 800 square feet in any single repair area."

RATIONALE: The FY-23, Change 2, Standard Item 009-124, Attachment B covers TSN repair areas larger than 200 square feet. Because the current robotic TSN installation equipment applies approximately 150 square feet of TSN per location (i.e., one "footprint" of TSN and decks are covered by overlapping multiple footprints over the deck), the FY-23, Change 2, Standard Item 009-124, Attachment B required the use of the robotic TSN installation equipment. Robotic TSN installation is preferred because the robotic process inherently minimizes the risk of hand spray workmanship degrading TSN service life. Given that technical rationale for robotic spray, NAVSEA has learned that the current, limited number of TSN application robots are either in use installing TSN on new construction ships, in the shop for repair, or being used on a repair job and as such, NAVSEA has processed three MAJOR DFSs over the past four years to authorize use hand TSN spray on areas larger than 200 square feet on the USS AMERICA (LHA 6), USS BATAAN (LHD 5) and USS MAKIN ISLAND (LHD 8). All of these repairs are still intact and adherent with the repairs on LHA 6 that were conducted in 2019 demonstrating a three year service life. Based on the excellent performance of these larger hand spray applied TSN repairs, the risk of allowing such repairs to be conducted without a DFS leading to TSN delamination is LOW. Furthermore, as the area of TSN applied in the Fleet expands, the need for repair will increase and without resources to procure additional TSN application robots, the lower cost, more "scalable" hand spray processes will be required to be used more frequently. The limitation on 800 square feet for the largest TSN hand spray repair areas is based on the sizes of the repairs on the LHA 6, LHD 5, and LHD 8 and also the productivity of TSN hand spray processes. Because the TSN application robot includes four TSN hand spray units on an automated carriage, the area of TSN repairs that can be accomplished in a given time period by the hand spray processes is roughly one quarter that of the area that can be applied by the robot in the same amount of time. So, attempting to apply areas larger than 800 square feet by hand spray processes could result in exceeding the available time for the TSN repairs. Thus, the proposed change will limit the need for NAVSEA to process MAJOR DFSs while leveraging the successful hand spray TSN application process to support the ever expanding amount of TSN in the Fleet, while simultaneously ensuring that the TSN repairs are conducted in a timely manner.

4. CHANGE: Updated all Attachments to clearly state that the SUPERVISOR must define specific requirements for TSN repair:
Updated the current, FY-23, Change 2, Standard Item 009-32, Attachment D that required the NAVSEA-approved Technical Representative to actually use power and hand tools to remove delaminated TSN to now require the contractor to use such tools and includes the clause, "As directed by the SUPERVISOR" (i.e., with similar updates to process requirements being added in Attachments B and C).

RATIONALE: Since Standard Item 009-124 was first published in 2018, Attachment D required the NAVSEA-approved Technical Representative to use their "hands on" understanding of the TSN repair processes to actually use power and hand tools to remove delaminating TSN from repair areas that were less than 20 square feet. However, over the years, the NAVSEA-approved Technical Representatives have evolved their role to direct contractors about how to use the power and hand tools to facilitate timely TSN repair processes in multiple locations on the deck. Unfortunately, from a contractual perspective, the NAVSEA-approved Technical Representative is not authorized to direct contractor work and as such the FY-24, Standard Item 009-124 requirements had to be modified to align with CNRMC contracting policies. Because the only individual in the Standard Items that is authorized to direct the contractor is the "SUPERVISOR," there are multiple changes in the FY-24 Standard Item 009-124, Attachments B, C, and D that now include the clause, "As directed by the SUPERVISOR." In addition to citing the SUPERVISOR, the requirement for the NAVSEA-approved Technical Representative to actually use tools to remove TSN delaminations was removed from the FY-24, Standard Item 009-124, Attachment D. Thus, the change was required to align actual deck plate work practices with CNRMC contracting policy and avoid the risk of additional charges by the contractor to the government. Because the SUPERVISOR does not have the expertise with the "hands on" work associated with the TSN repair processes, all TSN repair attachments were also updated to require the NAVSEA-approved Technical Representative to locate and lay out the TSN repairs on the deck. Thus, the SEA 05P2 goal is that after the TSN repair areas are defined, the NAVSEA-approved Technical Representative will be available to assist the SUPERVISOR in directing the contractor to successfully conduct the repairs.

5. CHANGE: Changing TSN thickness requirement from a maximum value to a minimum value in Table One
The current, FY-23, Change 2, Standard Item 009-124, Table One, Line 3, Column D included requirements for a "Maximum" film thickness of 45 mils that was changed to the term "Minimum" in the FY-24, Standard Item 009-124, Table One, Line 3, Column D.

RATIONALE: The process for TSN repairs and the capabilities of those performing hand spray the repairs have improved since the original Standard Item 009-124 was published in 2018. Historically, CNSP N42 senior staff noted that the TSN repair areas exhibited a significant "lip" or edge around the perimeter of the

repairs that lead to localized TSN cracking and ship's force expressing concern about delaminated TSN based on the appearance of the repair (i.e., the repair appeared as a pronounced recess or divot in the coating). To reduce the formation of the lip/edge around the repairs leading to cracking, the Table One, Line 3, Column D requirements set a "maximum" TSN film thickness of 45 mils because such a thin layer would have minimal shrinkage stress (i.e., mitigating the cracking risk) and would reduce the appearance as a divot in the coating. Over the past four years, NAVSEA-approved Technical Representatives working for NRL developed repair processes that use masking plates to minimize the formation of the lip/edge and these processes were included in Standard Item 009-124 in 2020. The success of the current repair processes at avoiding formation of a lip or edge around the repair areas eliminates the need to limit the maximum TSN thickness and in fact, installing thicker layers of TSN in repair areas without a lip/edge provides a final repair appearance that is preferred by ship's force (i.e., the repair appears to be less of a divot). Thus, by changing the "maximum" thickness requirement to a "minimum" thickness requirement, the current, effective repair processes are being leveraged and the ship's force report the repairs are easier to inspect because of a more uniform TSN layer appearance.

6. CHANGE: Updated Appendix B for reporting clarity and to properly align with changes made allowing hand spray TSN repair:
Updated the FY-23, Change 2, Standard Item 009-124, Appendix B to cite both waterjet cleaning an hand tool cleaning in the Appendix B job records by including the following revised sentence in the form: "Indicate and Verify Primary Surface Preparation: WJ-2 (22,000 – 25,000 PSI) / Power and Hand Tool: Results of TSN Removal: SAT / UNSAT"

RATIONALE: The FY-23, Change 2, Standard Item 009-124, Appendix B only included an option for reporting on whether or not TSN removal by water jet cleaning processes was satisfactory "SAT" or unsatisfactory "USAT." The modification of the water jet cleaning citation to include power and hand tool cleaning in the FY-24, Standard Item 009-124, Appendix B is more clear to users when conducting TSN repairs on areas less than 20 square feet that only require use of hand and power tools to remove the TSN. The waterjet pressure requirements found in Step 3 of Attachment B and C were also added to the updated Appendix B to create continuity between the two parts of the document. Thus, the change to include both water jet and power/hand tools as being acceptable methods to remove TSN in repair areas of different sizes clarifies that the Appendix B form is applicable to all TSN repairs, regardless of size and the change will avoid waterfront confusion regarding how the form is to be filled out for different size repair areas.