DEPARTMENT OF THE NAVY
COMMANDER
NAVY REGIONAL MAINTENANCE CENTER
9170 SECOND STREET, SUITE 245
NORFOLK, VA 23511-2325

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From: Commander, Navy Regional Maintenance Center

Subj: FISCAL YEAR 2027 CH-2 NAVSEA STANDARD ITEMS

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

Encl: (1) Summary of 2024 Changes to FY26 NAVSEA Standard Items.

1. Per references (a) and (b), the Fiscal Year 2027 CH-2 (FY27 CH-2) NAVSEA Standard Items (NSI), are available on the official Specification for Ship Repair and Alteration Committee website at: http://www.navsea.navy.mil/Home/RMC/CNRMC/OurPrograms/SSRAC.aspx

a. The FY27 CH-2 NSIs must be invoked in Chief of Naval Operations (CNO), Continuous Maintenance / Emergent Maintenance availabilities with a start date in FY27.

2. Requests for deviations from this requirement must be submitted via e-mail and routed to Commander, Navy Regional Maintenance Center (CNRMC), Code 200, 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 and the Master Spec Catalog Maintenance Office are responsible for advising users within their command of this notice. CNRMC, Code 400, Contracts Department, is responsible for advising Master Ship Repair Contractors and Agreement for Boat Repair Contractors under their cognizance of the availability of these products.

4. Enclosure (1) was developed but not approved prior to posting FY26 and FY27 NSI's. For this reason, enclosure (1) refers to FY26 NSIs in its title and some paragraphs. Due to the latency in receiving the approved enclosure, this change is only applicable to FY27 NSI's.

J.A. SIMMONS
By direction

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ENCLOSURE 1

Summary of 2024 Changes to FY-26 Standard Item 009-026, "Deck Covering; accomplish" and Associated Technical Rationale for Each Change

The following provides the rationale for the substantive changes incorporated in the FY-26 Standard Item 009-026 on deck covering installation. The specific changes discussed below appear highlighted and in ***bold/italics*** in the attached, final draft, FY-26 Standard Item 009-026. Minor re-numbering changes, other typographical corrections, and minor changes to clarify existing requirements appear in the attached final draft, FY-26 Standard Item 009-026 in ***bold/italics***, but are not addressed below.

1. CHANGE: Universal editorial changes: Included numerous editorial/administrative changes in the FY-26 Standard Item 009-026 with significant modifications including:

a. Updated references listed in Section 2, and throughout the document, to eliminate reference 2.1 to "NAVSEA Standard Items" and to update the numerical naming convention for NAVSEA Standard Items.

b. Replaced all references to MIL-PRF-24667, Type XI peel & stick nonskid requirements with the current MIL-PRF-32704, Type VI peel & stick nonskid requirements.

c. Replaced all references to MIL-PRF-32170, Class 1 halogen-free, wear resistant deck tile with references to the current MIL-PRF-32704, Type II, for halogen-free, wear resistant, deck tile.

RATIONALE: The following provides the rationale for each of the editorial/administrative changes cited above:

a. The FY-25, Change 1, Standard Item 009-26, Section 2.1 included the term "NAVSEA Standard Items" as a "Reference." To eliminate confusion and provide uniformity in the citation of references across all 126 Standard Items, the SSRAC Executive Steering Committee made a universal decision to remove "NAVSEA Standard Items" as a reference in all NAVSEA Standard Items. As such, the reference 2.1 citation to NAVSEA Standard Items was removed from the text in FY-26 Standard Item 009-026, Section 2, paragraphs 4.3 and 4.4, and Attachment G with the text simply retaining citations to "NAVSEA Standard Item 009-032." In addition, current CNRMC editorial/ administrative policy requires that because there are over one hundred Standard Items that all NAVSEA Standard Items be cited using three digits in the format 009-XXX. Thus, the historical citations for "Standard Item 009-26" have been updated in FY-26 to "Standard Item 009-026." In a similar manner the historical citations to "Standard Item 009-32" have been updated to "Standard Item 009-032". Thus, these editorial changes are required to align FY-26 Standard Item 009-026 with current CNRMC editorial/ administrative policy.

b. The MIL-PRF-32704, "Deck Covering Materials, Tile and Sheet Flooring" specification was published in April 2022. This specification included peel & stick nonskid requirements that were previously cited in the liquid nonskid specification as MIL-PRF-24667C, Type XI materials. Inclusion of peel & stick performance requirements in the liquid nonskid specification was cumbersome and these requirements were removed from the current, MIL-PRF-24667D. After being removed from MIL-PRF-24667D, the peel & stick nonskid requirements were included in MIL-PRF-32704, Type VI. Because peel & stick nonskids are currently being qualified to the MIL-PRF-32704, Type VI requirements, and the Qualified Products List (QPL) is being updated, NAVSEA determined that the FY-26 Standard Item 009-026 needs to cite the correct, current MIL-PRF-32704, Type VI requirements throughout the document. As such, the FY-26 Standard Item 009-026 document includes citations to MIL-PRF-32704, Type VI materials wherever peel & stick nonskid requirements had been cited. Thus, the change aligns the FY-26 Standard Item 009-026 requirements with the current MIL-PRF-32794, Type VI, peel & stick material QPL listings on the ASSIST database.

c. The MIL-PRF-32170A specification for halogen-free, wear-resistant deck tiles is inactive and is no longer authorized for use as part of new design. The MIL-PRF-32170A requirements for the halogen-free, wear resistant, deck tiles were included in MIL-PRF-32704, as Type II decking systems. Because the MIL-PRF-32704, Type II QPL is being populated, citations to MIL-PRF-32170A and MIL-PRF-32170, Class I, listed in the current, FY-25, Change 1, Standard Item 009-26, were replaced with citations to MIL-PRF-32704, Type II throughout the updated, FY-26 Standard Item 009-026 document. Thus, the change aligns the FY-26 Standard Item 009-026 requirements with the current MIL-PRF-32704, Type II, halogen-free, wear resistant, decking material QPL listings on the ASSIST database.

2. CHANGE: Removed maximum relative humidity requirement for installation of tile deck coverings: The 75% maximum relative humidity requirement for installation of deck tile in the current, FY-25, Change1, Standard Item 009-26, Attachment B was removed from the FY-26, Standard Item 009-026, Attachment B.

RATIONALE: Historically, the 75% maximum relative humidity requirement appearing in the current FY-25, Change 1, Standard Item 009-26 aligned with the first adhesives used with the halogen-free, wear-resistant, deck tiles in 2008. Due to current standards in the deck tile industry, the 75% relative humidity requirement does not currently align with the relative humidity requirements listed on some deck tile manufacturer's product data sheets (i.e., with some water-based products requiring lower levels of humidity). To avoid confusion on the waterfront regarding the humidity requirements, the citation to 75% relative humidity was removed from the FY-26 Standard Item 009-026, Attachment B. As such, the FY-26 Standard Item 009-026 relative humidity requirements default to the paragraph 3.2.2 requirement to use the manufacturer's product data sheets to ensure that tiles are applied under the appropriate relative humidity conditions. Thus, the proposed change will minimize the potential for

waterfront confusion about relative humidity requirements during deck tile installation.

3. CHANGE: Included Naval Ships' Technical Manual (NSTM), Chapter 634 as a reference for installation of deck drain collars: Added a new, reference 2.3 to "S9086-VG-STM-010/CH-634, Deck Coverings" to FY-26 Standard Item 009-026 and clarified paragraph 3.9.1 requirement for installation of deck drain collars to cite the updated NSTM, Chapter 634 reference.

RATIONALE: During the 2024 SSRAC, SRF-JRMC reported that deck drain collars were not being installed in accordance with the instructions in NSTM Chapter 634 due to an inconsistency between NSTM Chapter 634 and the FY-25, Change 1, Standard Item 009-26 that cited a procedure using a filled epoxy to bond the deck drain collar to the deck, but did not mention welding. By including the reference 2.3 to the NSTM Chapter 634 in paragraph 3.9.1, the collars will be welded to the deck and/or sealed with polysulfide sealant to avoid the risk of cracking during service and corrosion forming under the decking. Thus, the change addresses an archaic requirement (i.e., the epoxy bonded collar requirement appeared in Standard Item 009-26 as far back as SEA 05P2 has records) that resulted in less durable, more corrosion-prone deck collar installations.

4. CHANGE: Clarified requirements for marking where portable electrical grade mats are to be located on the deck: Added additional requirements for coating type, coating color, and coating application to the FY-26, Standard Item 009-026, Attachment D, paragraph 2.A.

RATIONALE: SRF-JRMC staff noted that the current, FY-25, Change 1, Standard Item 009-26, Attachment D, paragraph 2.A requirements for marking where a portable electrical grade mat is to be placed on the deck not include requirements for the size or location of the lines that indicate where the mat is to be applied on the deck. Rather, the current requirements simply described the text that is to be applied to the area where the mat is to be installed. To clarify these requirements, the FY-26 Standard Item 009-026, Attachment D, paragraph 2.A, was updated to include requirements for painting lines and text on the deck to outline of the area that is to be covered by the mat by citing FY-26, Standard Item 009-032 coating requirements. The FY-26 Standard Item 009-26 requires the paint to be a MIL-PRF-24635 qualified, yellow (AMS-STD-595, Color #23655) coating (i.e., with NAVSEA allowing maximum flexibility to use either a silicone alkyd or a polysiloxane coating in the required safety yellow color by simply citing MIL-PRF-24635). The updated requirements also define an allowable range regarding the width of the markings to be between 20 mm (0.8 inch) to 40 mm (1.5 inches) wide. Thus, the requirements that SRF-JRMC requested are clarified in the FY-26 Standard Item 009-026, Attachment D, paragraph 2.A while still providing flexibility in coating selection and workmanship to speed waterfront production.

ENCLOSURE 1

Summary of 2024 Changes to FY-26 NAVSEA Standard Item 009-032, "Cleaning and Painting Requirements; accomplish" and Associated Technical Rationale for Each Change

The following provides the rationale for the substantive changes appearing in the attached, final draft, FY-26, NAVSEA Standard Item 009-032. The specific changes appear in ***bold/italics*** font in the attached. Minor re-numbering changes, typographical corrections, and minor changes to clarify existing requirements appear in the attached FY-26 NAVSEA Standard Item 009-032 in ***bold/italics***, but are not addressed below.

1. CHANGE: Universal editorial changes: The following administrative and editorial changes have been incorporated in the FY-26, NAVSEA Standard Item 009-032:

a. Updated references listed in Section 2 and throughout the document to reflect the Commander, Regional Maintenance Center (CNRMC) recently defined standard practice for referencing "NAVSEA Standard Items" across all Standard Items.

b. Removed Patrol Craft (PCs) from paragraph 3.1.2.1.

c. Defined the acronym "CRES" as "Corrosion Resistant Steel" in paragraph 3.1.4.3.

d. Corrected use of ASTM standard numbering convention in multiple locations starting in paragraph 3.1.5.8.

e. Consistently identified MIL-PRF-24635, Type V and MIL-PRF-24635, Type VI qualified polysiloxane coatings to avoid inconsistency with the first example of such a change appearing in Note (22).

f. Updated Note (74) to address the CNRMC phraseology requirements to use the term "must" instead of the term "shall."

g. Replaced all references to MIL-PRF-23236, Class 17 with recently published, MIL-PRF-23236D, Amendment 1, Class 17a in multiple locations, starting with Table 2, Line 26.

h. Replaced all references to MIL-PRF-24667, Type XI peel & stick nonskid with MIL-PRF-32704, Type VI peel & stick nonskid in multiple locations, starting with paragraph 3.1.27.

RATIONALE: Administrative and editorial changes were incorporated into the FY-26, NAVSEA Standard Item 009-032 to standardize language, align phraseology with SSRAC documentation policy, and update references as follows:

a. In the current, FY-25, Change 1, reference 2.1 to "NAVSEA Standard Items" (i.e., there are currently a total of 125, NAVSEA Standard Items) was removed to eliminate confusion and provide uniformity across all Standard Items (i.e., some Standard Items listed "NAVSEA Standard Items" as a reference while others did not). The Standard Specification for Ship Repair and Alteration Committee (SSRAC) Executive Steering Committee made the universal decision to remove "NAVSEA Standard Items" as a cited reference in Section 2 in all NAVSEA

Standard Items, and instead, specific references to other Standard Items simply appear, as applicable, in the text (e.g., see paragraph 4.5 as an example of such a change). Because this change deleted the first reference appearing in Section 2 of the current, FY-25, Change 1, NAVSEA Standard Item 009-32, the references listed in Section 2 of the FY-26 NAVSEA Standard Item 009-032 were renumbered.

b. All PC 1 Class patrol ships have been transferred to foreign navies or decommissioned and as such do not need to be cited in the FY-26 NAVSEA Standard Item 009-032.

c. In the FY-25 NAVSEA Standard Item 009-32, the acronym "CRES" was not defined and SRF-JRMC requested that acronyms be defined.

d. Multiple ASTM standards are incorrectly listed in the current, FY-25, Change 1, NAVSEA Standard Item 009-32 with a hyphen in the ASTM number of the standard (e.g., ASTM F-21). This is not correct per the official ASTM naming convention does not include the hyphen (e.g., ASTM F21) and these changes have been made throughout the document.

e. Due to the fact that both MIL-PRF-24635, Type V and Type VI coatings are based on polysiloxane chemistry, with the only difference being Volatile Organic Compound (VOC) content, there is no instance in the current, FY-25, Change 1, NAVSEA Standard Item 009-32 where the MIL-PRF-24635, Type V is specified for use that MIL-PRF-24635, Type VI cannot also be used. So, the requirements were updated to consistently cite both Type V and Type VI polysiloxane coatings to provide maximum flexibility and streamline procurement.

f. The current, FY-25, Change 1, NAVSEA Standard Item 009-32 added Note (74), but the note used the term "shall." For the past two years, the SSRAC Subcommittee 4E on "phraseology" has required that Standard Items use the term "must" instead of the term "shall." As such, the change aligns the FY-26 NAVSEA Standard Item 009-032 with current phraseology requirements.

g. MIL-PRF-23236D was amended in March 2023 to divide Class 17 coatings into Class 17a and Class 17b coatings. MIL-PRF-23236D, Amendment 1 defines Class 17b coatings as the subset of coatings with a longer pot life to support coating work by ship's force. Because all MIL-PRF-23326, Amendment 1, qualified Class 17a coatings include the subset of the longer pot life, Class 17b coatings, all refences to MIL-PRF-23236, Class 17 in the current, FY-25, Change 1, NAVSEA Standard Item 009-32 were updated to cite MIL-PRF-23236, Class 17a coatings in the FY-26 NAVSEA Standard Item 009-032.

h. MIL-PRF-32704, "Deck Covering Materials, Tile and Sheet Flooring" was published in April 2022 and included a Type VI for peel & stick nonskid that was previously qualified as MIL-PRF-24667C, Type XI materials. Because the Type XI qualified peel & stick nonskid is no longer include in the current, MIL-PRF-

24667D, this change correctly identifies the specification to which peel & stick nonskid products are qualified and the appropriate Qualified Products List (QPL) from which these qualified products can be identified.

2. CHANGE: Define the Critical Coated Area requirements for preservation of submarines components and parts:
Updated paragraph 3.1.4 to cite paragraph 3.7 that defines Critical Coated Areas (CCAs) as follows; "…If these materials are to be installed in potable water, reserve feedwater, freshwater drain collection tanks, ***or areas listed in 3.7 for submarines,*** they must be blasted and coated at a maximum 50 percent relative humidity…"

RATIONALE: The current, FY-25, Change 1, NAVSEA Standard Item 009-32 does not address the common practice on submarines to remove key parts from tanks or other areas that are intended to be subject to the environmental and quality control requirements for CCAs that are then coated at a shop or shore-side facility. The citation of the paragraph 3.7 list of CCAs in paragraph 3.1.4 ensures that these ship-to-shore components are to be preserved in accordance with the same requirements that apply to the CCAs cited for the tanks and spaces on the submarine. Thus, this requirement ensures consistent coating application and quality control requirements are applied to parts painted in a shop or at shore-side facility that are then installed in a submarine tank or space that is defined in paragraph 3.7 as a CCA.

3. CHANGE: Clarified requirement for use of paints manufactured in accordance with NAVSEA "detail" specification that do not have an associated qualified products list:
Updated paragraph 3.1.13.1 to read, "Coatings listed on the ***applicable*** QPL *or* ***specified herein (e.g., MIL-DTL-15090, MIL-DTL-24607, TT-P-645, or by tradename) must be applied.***"
Added paragraph 3.1.13.2 to say, "***All coatings listed on a QPL must be applied in accordance with a NAVSEA-reviewed ASTM F718 data sheet. Coatings that are not listed on a QPL must be applied in accordance with a manufacturer's commercial data sheet if the NAVSEA-reviewed ASTM F718 data sheet is not available. In the event of a conflict, the application requirements herein take precedence over the requirements in the NAVSEA-reviewed ASTM F718 or commercial data sheet. Copies of the NAVSEA-reviewed ASTM F718 data sheets are available from the Naval Surface Treatment Center (NST Center) website: https://www.nstcenter.biz."***

RATIONALE: The current, FY-25, Change 1, NAVSEA Standard Item 009-32 paragraph 3.1.13.1 states "Unless otherwise specified herein, coatings listed on the QPL must be applied." Although this citation has appeared in NAVSEA Standard Item 009-32 since the FY-14, Change 1 version of the document published in 2013, activities reviewing recent interior coating application job QA/QC records reported confusion because NAVSEA "detail" specifications (e.g., MIL-DTL-15090, TT-P-645, etc.) do not have QPLs, but rather are subject to "first article" test requirements. These detail specifications include the specific formula for the paint and based on historical precedent have never had a QPL. It is important to note that these first article coatings tend to be alkyd type paints used in interior applications that are not subject to a significant corrosion

challenge (i.e., these coatings are rarely associated with corrosion or structural degradation issues on ships or submarines). The change appearing in the FY-26 NAVSEA Standard Item 009-032 paragraph 3.1.13.1 that cites the specific detail specifications clarifies the differentiation between the specifications that have a QPL and those that do not. Furthermore, the change to paragraph 3.1.13.2 acknowledges the fact the one part of the QPL listing requirements is that the coating manufacturers must have a "NAVSEA-reviewed" ASTM F718 data sheet. However, for products without a QPL, the manufacturer is not required to provide the coating data sheet for NAVSEA review. Thus, the change to paragraph 3.1.13.2 acknowledges that there may only be commercial data sheets for the detail specifications (i.e., other products called out by tradename in the document like the FS1 intumescent coating for cables) and authorizes the use of these commercial documents. The change streamlines the waterfront QA/QC data review by authorizing use of the commercial data sheets and SEA 05P2 has discussed preparation of NAVSEA-reviewed ASTM F718 data sheets with the major manufacturers of the detail specification coatings, but because any supplier can manufacture these formula-based coatings, there may still be commercial coating data sheets from manufacturers that SEA 05P2 has not contacted. Thus, the change will avoid QA/QC staff inadvertently rejecting data packages because some coatings manufactured in accordance with NAVSEA requirements in detail specifications do not have QPLs.

4. CHANGE: Clarified requirement for use the SUPERVISOR to approve the use of any paints that were past their shelf life or expiration dates:
Updated Paragraph 3.1.21.1 to state that, "Coatings that are ***not applied prior to*** their ***original*** shelf life / expiration date must not be applied without written authorization from the SUPERVISOR."

RATIONALE: Multiple RMCs reported that after COVID, many paint manufacturers were providing contractors with letter that extended the shelf life (i.e., the expiration date) of a paint or nonskid. Contractors were then applying these expired coatings based on the paint manufacturer's letter without the knowledge or concurrence of the government. During the COVID period of disrupted supply chains, SEA 05P2 worked with numerous RMCs to allow extension of paint shelf life using the DFS process that typically included additional oversight regarding assessment of coating condition in the can and coating mixing. These results were broadly successful and in 2024, NRL completed a Paint Center of Excellence (PCOE) funded project that collected expired polysiloxane topside coatings and epoxy nonskid for testing. The NRL test results showed that using unopened cans of expired coatings (i.e., with one can of paint being 96 months old) posed a LOW risk that the coating would not adhere and perform effectively. In fact, NRL found only one aged sample that had settled/gelled to such a degree that the coatings could not be mixed. As such, the current paragraph 3.1.21.1 requirement for the SUPERVISOR to review any request to extend a coating expiration date is valid and the change to the FY-26 NAVSEA Standard Item 009-032, paragraph 3.1.21. to cite the "original" shelf life or expiration date ensures the government is aware of the use of the expired coatings. Government awareness of the use of expired coatings will allow additional oversight to catch or identify the infrequent cases in which expired coatings cannot be adequately mixed. SEA 05P2 also noted that because the NRL test results showed the frequency of expired coatings

not performing in an acceptable manner was LOW that the appropriate approval authority was at the deck-plate or SUPERVISOR level. SEA 05P2 also has taken action to encourage coating manufacturers to extend their coating shelf life on cans and data sheets whenever possible and an amendment to the MIL-PRF-24667D nonskid specification (i.e., which included a NAVSEA requirement for a 12-month shelf life) is in process of being amended to require all nonskid materials to have a 24-month shelf life. Thus, the change clarifies an existing requirement and will lower cost by allowing timely decisions by the deck-plate SUPERVISOR to use expired coatings, while still providing the SUPERVISOR with the knowledge about when such coatings are being used to facilitate additional QA/QC oversight.

5. CHANGE: Clarified the requirement for grease removal prior to coating removal and surface preparation to address welding or other structural work in shipyards:
Updated paragraph 3.1.32 to state, "***Accomplish the requirements of SSPC-SP 1 of 2.4 prior to coating removal. A visual water break test (ASTM F21 or F22) on the surface may be used to validate SSPC-SP 1 and NACE/SSPC-SP WJ-2 of 2.4 and 2.8. For areas prepared to NACE/SSPC-SP WJ-2 of 2.4 and 2.8 with ultra high pressure waterjetting (UHP WJ) equipment, the requirement of initial degreasing/cleaning is waived.***"
Updated paragraph 3.1.32.1 to, "***For areas that require structural repairs or modification, coating removal may be accomplished without invoking the requirements in paragraph 3.1.3, 3.1.4, 3.1.5, 3.1.6, and 3.1.7, until full surface preparation can be accomplished in accordance with the applicable Table and Line.***"

RATIONALE: Historically, NAVSEA Standard Item 009-32 included an allowance for workers to remove coatings to conduct welding, hull cuts, or other structural work without invoking the coating or painting requirements for cleanliness, environmental controls, and QA/QC records. The rationale was that if a coating was removed to allow welding in new structure, the entire area of the weld would need to be prepared for coating after all the welding work was complete and as such invoking coating cleanliness and environmental requirements before the welding increased costs unnecessarily. These requirements currently appear in FY-25, Change 1, NAVSEA Standard Item 009-32. paragraph 3.1.32 that is just before the section of the document on "CLEANING." Waterfront QA/QC staff noted that the current sequence of requirements in FY-25, Change 1, Standard Item 009-32 starts with paragraph 3.1.32 that states, ". . . coating removal may be accomplished prior to starting the repairs without the requirements of 009-32 applying . . ." . and is then the followed by paragraph 3.1.32.1 that requires removal of oil and grease from a coated surface before initiating any form of surface preparation. Such a sequence of requirements allowed personnel like welders (i.e., who may not be familiar with SSPC surface preparation cleanliness standards that all require removal of oil and grease before any subsequent surface preparation process to mitigate the risk of oil and grease being forced into the prepared surface) to simply grind or use a needle gun to remove paint in an oily fuel tank or greasy bilge resulting in contamination of the steel around the weld area with oily residue. Such contaminated steel can be very difficult to clean and if the oily reside remains after surface preparation, subsequent coating adhesion can be compromised. This is why all SSPC surface cleanliness requirements start with

removal of oil and grease in accordance with SSPC-SP 1. To avoid these situations in which untrained workers start removing coatings in an oily tank or bilge, the waterfront QA/QC staff recommended modifying the order of the two paragraph as shown in the FY-26 Standard Item 009-032 such that the updated paragraph 3.1.32 requires surface oil and grease contamination to be removed, before the requirement in paragraph 3.1.32.1 allows work without Standard Item 009-32 cleanliness and environmental controls. Thus, the change does not alter the existing requirements, but rather changes the sequence of the work to mitigate the risk of welders or other worker creating oil/grease contaminated steel before the NAVSEA Standard Item 009-32 requirements are invoked to prepare the surfaces for coatings. The change also avoids the potential expense associated with having to clean, and reclean, surfaces that were inadvertently contaminated by oil/grease to pass the ASTM F21 or F22 water break test that may be invoked to validate the cleanliness of the steel around a weld or mechanical repair.

6. CHANGE: Clarified the visual inspection requirement for touch up areas of six square inches or less to more clearly explain the requirement:
Updated paragraph 3.6.1.6 to be more clear as follows; "For areas of touchup of 6 square inches or less total cumulative area within a tank, ***only*** visual inspection ***in accordance with 3.10.9.2, 3.10.9.3, and 3.10.9.4*** of the touchup area is authorized. All other QA requirements specified in 3.10 are not required."

RATIONALE: Historically, the FY-23, Change 2, NAVSEA Standard Item 009-32, published on 2 May 2022 adopted a SUBMEPP change to the required coating QA inspection practices for very small (i.e., less than 6 square inch) repairs that had been delaying tank close out at Puget Sound Naval Shipyard and other shipyards by adding a new paragraph 3.6.1.6 to FY-23, Change 2, NAVSEA Standard Item 009-32 that only required a visual inspection. As part of the 2022 change discussion, waterfront QA/QC staff reported that coating thickness data collection from small repairs was slowing production because some repairs of chips on the edges of structure were simply too small to allow meaningful thickness measurements. SURFMEPP also noted that precedent for this change had already been established with NAVSEA Ltr 08J:SRV:srv 9190 ser 08J/21-00400 dtd 14 Jan 2021, with the following subject; "SUBJECT: A4W REACTOR PLANT PAINT SCHEDULE- MODIFICATIONS TO QUALITY ASSURANCE MEASUREMENTS FOR TOUCHUP AREAS AND USE OF SOLVENT WIPE-DOWNS FOR NUCLEAR COGNIZANT CRITICAL COATED AREAS; APPROVAL OF."
Based on this background, and the fact that SEA 05P2 has had no reports of coating performance issues with touchup of very small areas using the visual inspection process, the change to FY-26 Standard Item 009-032, paragraph 3.6.1.6 is intended to more clearly define what visual inspection requirements are required by invoking paragraphs 3.10.9.2, 3.10.9.3, and 3.10.9.4. Thus, the change clarifies and existing requirement and will avoid confusions about what types of inspections area required.

7. CHANGE: Clarified requirements for and use of Creditable Cure Time (CCT) to more clearly define that substrate temperatures are used to calculate CCT:
Updated paragraph 3.6.7 to clarify that even though substrate and the ambient temperature are collected, it is substrate temperature that is to be used in calculating

CCT as follows; "Creditable Cure Time (CCT) is defined as the accrued time for which ***substrate temperature*** data shows compliance with environmental requirements collected in accordance with 3.10.1."
Also updated paragraph 3.11.9 to state that: "Nonskid application must begin within 36 hours ***of CCT*** for the final, full primer coat application."

RATIONALE: The current, FY-25, Change 1, NAVSEA Standard Item 009-32 does not include provisions to use CCT in situations like topside coating and nonskid applications in which there is an appreciable risk of variations in ambient and substrate temperatures (i.e., many topside coating and nonskid installation tasks are conducted on decks that are exposed to the weather and as such can experience appreciable changes in substrate and ambient temperature during the installation process. Waterfront QA/QC staff noted that because of these potentially significant variations in substrate and ambient temperatures, there have been cases in which the nonskid primer was not adequately cured based on the current, FY-25, Change 1, NAVSEA Standard Item 009-32, paragraph 3.11.9 requirement that states, "Nonskid application must begin within 36 hours of completion of the final full primer coat or the mist coat application." Such cases can occur when the night time temperature is appreciably lower than the temperature during the day as is frequently the case in San Diego, CA. To address this issue, the Nonskid On-Site Representatives (OSRs) reported they had been using a process of assessing CCT on some jobs, even though the requirement did not appear in the nonskid section of NAVSEA Standard Item 009-32, and as such the change was simply documenting a successful process that has been used in locations like San Diego, CA. One provision of this successful Nonskid OSR was the use of the substrate temperature in calculation of the CCT because the substrate is in direct contact with the coating and as such will have far more influence on cure time than ambient temperature (i.e., a steel deck that was warmed by the sun all day long will retain that warmth even when the ambient air rapidly cools and heat transfer between the steel and the primer is by direct conduction while heat transfer from the air is by convection). Thus, clarifying that the substrate temperature is used to calculate CCT and that CCT can be used during the nonskid installation process improves the efficiency of the work schedules while decreasing the risks associated with inadequate cure of coatings, which in the case of nonskid has resulted in workers damaging the coating by walking on the primer before it is cured enough to support foot traffic.

8. CHANGE: Clarified when in the surface preparation process the acceptance checkpoint is to be conducted:
Updated paragraph 3.10.1.4. to state, "… from the ***final*** surface preparation acceptance checkpoint…"
Also updated paragraph 3.10.1.5 to state, "…must be taken from the ***final*** surface preparation acceptance checkpoint…"

RATIONALE: The current, FY-25, Change 1, Standard Item 009-32 paragraphs 3.10.1.4 and 3.10.1.5 requirements to start collecting environmental data ". . . from the surface preparation acceptance checkpoint. . ." has led to disagreements between the coating application contractors and waterfront QA/QC staff because the current requirements cite a singular, ". . . surface preparation acceptance checkpoint . . ." Unfortunately, there are multiple surface preparation checkpoints and by defining that NAVSEA intends for data collection to begin after the "final" surface preparation checkpoint, in the FY-

26 NAVSEA Standard Item 009-032 paragraphs 3.10.1.4 and 3.10.1.5 requirements, the contractors and waterfront QA/QC personnel do not have to adjudicate when environmental readings for coating application are required to start. Thus, by clarifying that the FY-26 NAVSEA Standard Item 009-032, paragraphs 3.10.1.4 and 3.10.1.5 require that the "final" surface preparation acceptance checkpoint is when the environmental readings are start, no unnecessary readings are taken (e.g., NAVSEA does not require environmental readings to be taken when surfaces are cleaned of oil and grease to accomplish the CLEANLINESS (I) or (I)(G) checkpoint because there is a very LOW risk that adverse environmental conditions would lead to substrate corrosion at this early stage in the surface preparation process).

9. CHANGE: Clarified the required time interval between surface preparation acceptance and coating application must be 4 hours for submarines:
Added a new paragraph 3.10.7.4 that states, "***For submarines, final surface preparation acceptance must be a maximum of 4 hours prior to start of coating application. Document on Naval Shipyard QA Checklist Form Appendix 6, in the comments section."***

RATIONALE: The current, FY-25, Change 1, Standard Item 009-032 does not specify a time interval requirement between the final surface preparation acceptance checkpoint and the beginning of coating application. During the SSRAC meeting, the SEA 05U7/ SUBMEPP team noted that the current Submarine Maintenance Manual (SMS) includes a requirement to start applying coating within 4 hours of the final surface preparation checkpoint and proposed the change is intended to ensure consistency between the two documents. Because shipyards that work on submarines use both the SMS and NAVSEA Standard Item 009-032 when conducting coatings work, ensuring alignment between requirements will avoid confusion. In addition, by requiring that coatings be applied essentially within the same shift as the completion of the final surface preparation checkpoint, the change reduces the risk of flash rusting or contamination degrading coating adhesion. Thus, the change avoids confusion regarding requirements and will reduce the risk that coatings applied over a contaminated or flash rusted surface will exhibit inadequate in-service performance.

10. CHANGE: Clarified requirements for inspection of each coat of paint to be completed after the draft marks have been installed:
Updated paragraph 3.10.9.2 to state, "Accomplish a visual holiday check on each coat of the system***, including draft marks***."

RATIONALE: The current, FY-25, Change 1, Standard Item 009-032 does not mention that draft marks are, or are not, to be considered part of a final coat of paint. Historically, there have been issues with the location of draft marks on aircraft carriers and as such, SUPSHIP HII-NNS requested that the FY-26 NAVSEA Standard Item 009-032 include draft marks in the paragraph 3.10.9.2. The SSRAC Hull and Preservation Subcommittee noted that draft marks do not require film thickness or cleanliness measurements and a as such would be most effectively checked during the visual holiday inspection process required in paragraph 3.10.9.2. So, by including draft marks in the FY-26 NAVSEA Standard Item 009-32, paragraph 3.10.9.2, the SUPSHIP team will be able to validate that the draft marks are correct while also validating the rest of the hull coating is visually accept. Thus, the change clearly

require the contractor to install draft marks as part of the final coating system and allows activities like SUPSHIP to avoid the time and expense associated with multiple trips to the drydock to inspect topcoats and draft marks and the associated confusion with the coating application team.

11. CHANGE: Added epoxy primers for antifouling paints that are not applied in the tacky state to types of coatings allowed to be accepted using wet film thickness QA/QC measurements:

Updated paragraph 3.10.10.1 to state the following, "WFT readings are required in lieu of DFT readings for any coat that must be in a tacky state (as defined in 3.6.3) when the next coat is applied, for non-metallic surfaces, for anti-corrosive and antifouling paint applied over Capastic and sprayable shields, ***for epoxies where the tacky state is waived for application of the first coat of antifouling,*** and when applied over existing coatings."

RATIONALE: The practice of applying the first coat of ablative antifouling paint over the last coat of epoxy primer, while that coat is still in the tacky state (i.e., colloquially called "thumbprint tacky") has been the standard practice for underwater hull coatings since at least the FY-01 NAVSEA Standard Item 009-32 published in 1999. Because this last layer of epoxy primer was required to be tacky when the first coat of antifouling was applied, the only QA/QC requirement for the application of this epoxy coating was a visual check and the use of Wet Film Thickness (WFT) data to validate adequate coating thickness. WFT data are collected by the coating applicators and as such do not slow the coating application process or required a separate worker to execute a QA/QC checkpoint. The touch tacky primer requirement was a key technical requirement for the antifouling coating system because the ablative antifouling topcoats inherently do not bond effectively with the epoxy primers. As such, the epoxy primer needed to be less than fully cured when the ablative topcoat was applied to allow solvent diffusion from the antifouling topcoat into the epoxy to produce an adequate bond between the epoxy and ablative layers. Even though this touch tacky requirement has been in place for more than 25 years, every few years, NAVSEA would receive reports of antifouling topcoats flaking off of the primers and if the primer showed no color transfer from the antifouling topcoat, the root cause of the delamination would be that the primer was not touch tacky (i.e., was too hard and fully cured) when the antifouling topcoat was applied. To reduce the risk of these periodic delamination issues, coating manufacturers worked to develop epoxy primers that contained small amounts of vinyl or other solvent-soluble compounds that would ensure bonding with the antifouling topcoat, even when the coating was fully hard. NAVSEA qualified these primers that did not have to be touch tacky to the MIL-PRF-24647 requirements and demonstrated effective in-service performance and the FY-23, Change 2, NAVSEA Standard Item 009-32, published in 2022, authorized use of epoxy primers that did not have to be in the tacky state by waiving the touch tacky requirement based on the manufacturer's NAVSEA-reviewed ASTM F718 data sheet. Recently, contractors and paint manufacturers reported that because these new primers could fully cure before overcoating, the waterfront QA/QC staff were requiring a complete set of Dry Film Thickness (DFT) data from these recently qualified primers. Collecting these DFT data takes a considerable amount of time comparted with the original process of applying the antifouling topcoat based on WFT data as soon as the

coating was touch-tacky. Thus, contractors were unwilling to adopt the recently qualified primers because of the waterfront QA/QC checkpoint slowed production and increased the labor costs to collect the DFT data, even though such primers reduce the risk to the government of ablative antifouling topcoats delaminating from the last coat of epoxy primer. SEA 05P2 reviewed records of antifouling coating performance issues and could not find any cases where inadequate or excessive thickness of the final coat of epoxy primer resulted in degraded system performance (i.e., as would be the case if the WFT data collection process was ineffective) and as such assessed the risk of allowing WFT data to be used, even for the second coat of primer that can dry hard, adversely affecting the performance of the antifouling coating system as being LOW. As such, the change in the FY-26 NAVSEA Standard Item 009-032, paragraph 3.10.10.1 to allow the use of the WFT measurement data, regardless of the type of primer used, will speed production by eliminating the need to for a separate QA/QC checkpoint to collect DFT data and will reduce the risk of antifouling topcoats being applied over a primer that is no longer touch tacky. Thus, the change will reduce the time required to apply the antifouling coating system to the same time required to apply the older touch tacky primer, while simultaneously reducing the risk to the government of inadequate antifouling coating adhesion.

12. CHANGE: Clarified requirement for recording of environmental conditions during nonskid installation:
Updated paragraph 3.11.2.1 to read, "Record ambient, substrate surface, and dew point temperatures and the relative humidity at one-hour intervals before ***and during*** nonskid system installation…"

RATIONALE: The Nonskid OSRs noted that the current text in FY-25, Change 1, Standard Item 009-32 paragraph 3.11.2.1, that was just added, had led to confusion on the waterfront because contractors argued that the requirement to record data, "at one-hour intervals before nonskid system installation" was unclear and did not require them to continue recording data during nonskid installation. SEA 05P2 clarified that there are Appendices and other data sheet requirements associated with recording environmental data during nonskid installation, but to streamline production and avoid confusion at the waterfront, the FY-26 NAVSEA Standard Item 009-032, paragraph 3.11.2.1 was modified to require environmental data to be recorded, intervals before ***and during*** nonskid system installation…" This change simply clarifies existing environmental data recording requirements and should not result in any increase in nonskid installation job costs.

13. CHANGE: Updated requirements for nonskid mist coat application to simply require second coat of primer instead of a mist coat when nonskid overcoat windows are missed:
Updated paragraph 3.11.9.2 to eliminate the current requirement to apply a ". . . mist coat (one to 2 mils) . . . " and instead required a full second primer coat as follows, "If nonskid application begins within 3 to 7 days after completion of final full primer coat application, the primer coat must be solvent wiped with solvent required by the NAVSEA-reviewed ASTM F718, then lightly abraded, solvent wiped again, ***and a***

second coat of primer must be applied. The second primer coat must not exceed the maximum DFT for two full primer coats."

RATIONALE: The Nonskid OSRs noted that the current text in FY-25, Change 1, Standard Item 009-32 paragraph 3.11.9.2, that requires a mist coat was added to FY-12, Change 1, NAVSEA Standard Item 009-32 that was published on 31 Jan 2011 and that over the years the level of Volatile Organic Compounds (VOCs) in MIL-PRF-24667 qualified nonskid primers has been reduced. Because coatings with lower VOCs inherently apply in thicker layers, current nonskid contractors have been struggling with applying the mist coat, at the required thickness of less than 2 mils. Over this same period, NAVSEA also added requirements for two coats of primer to extend overall nonskid system service life and as such workers have more experience applying a second full coat of nonskid primer. Based on these two trends, the Nonskid OSRs recommended simply eliminating the mist coat requirements and requiring a second full coat of primer to allow contractors to more efficiently apply a full second coat of primer, which will help extend nonskid system service life, rather than struggling to apply the required mist coat.

14. CHANGE: Clarified that touch-up procedure requirements for submarine dampening and acoustic tiles must not allow power tool cleaning to bare metal:
Updated paragraph 3.12 to not invoke the paragraph 3.1.6 requirements that allow SSPC-SP 11, "power tool cleaning to bare metal," instead of abrasive blasting in small areas as follows; "…All exterior tiles and tiles inside tanks must be installed over a surface prepared to NACE 2/SSPC-SP 10 and painted with the preservation system indicated in Table 8, ***and the requirements of 3.1.6 do not apply***."

RATIONALE: SEA 05U7S noted that FY-25, Change 1, Standard Item 009-32 does allow the use of power tools in paragraph 3.1.6 instead of the typically required abrasive blasting in the smaller areas associated with touch up and disturbed surfaces. Historically, these requirements allowing power tool cleaning in small areas of touchup of otherwise abrasive blasted surfaces were included in the FY-01 Standard Item 009-32 published in 1999 and as such have been part of successful tank, bilge, and hull coating processes for over 25 years. However, in-service issues with adhesion of acoustic damping tiles has shown that a sharp, angular surface profile produced by abrasive blasting to an SSPC-SP 10, near white metal level of cleanliness is required to ensure long-term tile adhesion. Because even limited loss of tile can increase signatures, the submarine technical community determined that minimizing the risk of tile delamination was essential. The change to FY-26 Standard Item 009-032 to preclude the use of power tools, even in smaller areas associated with touch-up and disturbed surface was achieved by adding the following clause, ". . . ***and the requirements of 3.1.6 do not apply.***" The change will ensure that even small areas prepared for damping tile application will be abrasive blasted. This change also aligns the FY-26 NAVSEA Standard Item 009-032 with current SMS practices. Thus, the proposed change will streamline production by avoiding confusion about the use of power tools when conducting even small damping tile repairs and will reduce the in-service risk of repaired damping tile delaminating prematurely.

15. CHANGE: Updated references to the term "tie coat" for underwater hull coatings to avoid confusion regarding requirements:

Replaced all references to "tie coat" in Attachment C with the term "***second coat***" and replaced the term, "One AF Tie Coat" in Table One, Lines 2, 4, 14, 17 with "***One Foul Release Tie Coat***"

RATIONALE: The Engineering Manager for Antifouling Coatings noted that the current, FY-25, Change 1, NAVSEA 009-32 used the term "tie coat" in some cases to refer to the second epoxy primer coat that is applied before the first coat of a MIL-PRF-24647 qualified, ablative antifouling coating system and in other cases to refer to a specialized epoxy/silicone hybrid coating intended to bond to an epoxy primer and a silicone-based topic. By avoiding the use of the term "tie coat" for simply a second coat of epoxy primer, the risk of mis-use of such coatings is reduced. Thus, the proposed change reduces the risk of waterfront confusion without altering any other requirements.

16. CHANGE: Updated Attachment E, paragraph 3 to clarify requirements for preservation around DDG 51 Class Anodes:

Added a new line 3a for DDG 51 Class that states, "***For DDG 51 Class, abrasive blast the shield area to SSPC-SP 5 to within 10 to 12 inches of all anode edges. Feather the transition between the retained Capastic around the anode to the abrasive blasted steel by uniformly tapering the Capastic from the thickness adjacent to the anode to the bare steel.***"

RATIONALE: In accordance with the NAVSEA Drawing 633-6567062 that defines requirements for DDG 51 Class anodes, Capastic must extend a minimum of 10 inches out from the edge of the anode. However, due to the rectangular shape of the DDG 51 Class anodes, the current FY-25, Change 1, NAVSEA Standard Item 009-32 Attachment E-3 requirement for, "a 10 inch diameter ring of Capastic around the anode" is unclear (i.e., the term "ring" is unclear regarding the edge around a rectangular shape). So, the change in the FY-26 NAVSEA Standard Item 009-032 to require surface preparation, ". . . ***to within 10 to 12 inches of all anode edges***" will clarify that the minimum 10 inch requirement is achieved even around a rectangular anode. The requirements for feathering the transition between bare steel and the anode that require gradually tapering the Capastic from the height of the anode to the bare steel in one smooth transition are also applied to the new Line 3a for DDG 51 Class ships. Thus, the proposed change clarifies the intent of the NAVSEA Drawing 633-6567062 for the specialized case of DDG 51 Class anodes and will avoid waterfront confusion.

17. CHANGE: Added Note (39) to address the color and gloss requirements for interior bridge coatings:

FY-26 NAVSEA Standard Item 009-032 repurposed Note (39) that had been "Intentionally Left Blank" to create new requirements for the interior color in the bridge and pilot house as follows: "***For aircraft carriers and surface combatants, paint overheads and bulkheads of bridges, pilot houses, and wheelhouses with 2 coats MIL-PRF-24635, Type II or III, Class 3, color no. 37038, 2-4 mils/coat.***"

RATIONALE: Historically, a best practice for surface ship bridge watch team members has been to maintain a "darken ship" condition on the bridge to preserve individual watch team member's night vision during nighttime steaming. Painting the pilot house/bridge bulkheads and overheads flat black directly supports effective implementation of this best practice. In 2022, SEA 05D3 issued a fleet message to paint pilot houses and

bridges flat black to support achieving a darken ship condition. Unfortunately, the message did not include the specific requirements for an appropriate flat black paint and did not mention that NSTM Chapter 631 already had a requirement to use a MIL-DTL-24607, chlorinated alkyd in a flat, dark "insignia blue", color # 35044 in combat information centers overheads. Thus, the message led to confusion about which dark, flat coatings were required, and SEA 05P2 worked with SEA 05D3 to develop processes and coatings to achieve the darken ship condition. For example, NAVSEA 05D3 found that the insignia blue was not as effective as a flat black silicone alkyd. Based on these cooperative efforts, the new text was added to Note (39) to use a flat black, MIL-PRF-24635 Type II or Type III coating. The new Note (39) then appears in Table 3 in multiple lines that address interior coating requirements. Thus, the proposed change will directly support achieving a darken ship condition in a cost-effective manner using a coating that can be produced to the current MIL-PRF-24635 Type II or Type III requirements.

18. CHANGE: Updated Note (68) to clarify which substrate materials require only two coats of epoxy anticorrosive on the interior surfaces of coupling covers:
Updated Note (68) to more clearly indicate that Glass Reinforced Plastic (GRP) and metallic coupling interior surfaces do not require antifouling topcoats as follows, "For interior surfaces of stern tubes and extensions, strut barrels, fairwater interiors, shaft flanges (not exposed to seawater), and ***GRP and metallic*** coupling covers, only apply 2 coats of anti-corrosive."

RATIONALE: Waterfront work planners indicated that there were questions about whether GRP coupling covers required interior coatings because GRP does not corrode. SEA 05P2 noted that even though GRP does not corrode, GRP parts subject to seawater immersion service are usually painted with an epoxy coating to seal the outer layer and protect the GRP from damage when the parts are exposed to the sun before installation. The interior of metallic coupling covers, which are frequently fabricated from copper/nickel alloys are also required to be coated to minimize the risk that a large copper/nickel areas inside of the cover would serve as a large cathode that could potentially drive corrosion of exposed steel in the strut barrel or shaft areas. Thus, painting the inside of a metallic coupling cover decreases the risk of localized galvanic corrosion. By updating the FY-26 NAVSEA Standard Item 009-032, Note (68) text to clarify that both "GRP and metallic" coupling covers require two coats of epoxy anticorrosive coating on the interior surfaces, delays associated with contractors requesting clarification of requirements are reduced and the risk GRP material degradation when exposed to the sun and galvanic corrosion are also reduced.

19. CHANGE: Updated Note (16A) to define requirements for preservation of lead (Pb) bins that are not to be repacked:
Added "***For lead bins where lead is being removed and not reinstalled, the structure must be prepared and preserved the same as the surrounding area.***" to Note 16A.

RATIONALE: The submarine technical community reported that there regularly reoccurring cases of submarines that have taken specific lead bins out of service. As such, the normal coating and lining requirements for lead bins were no longer required. Maintenance Standard 7650-081-091, Submarine Structural Inspection and Repairs, step 1.f.(5) states, "Bins from which all lead has been removed and which will not be reloaded

must be stripped of all lining and visually inspected. Repairs must be in accordance with Step 1.f.(4) and re-preserved the same as the surrounding area in accordance with Step 1.e.(8). No lining must be installed." This is a submarine structural requirement that has been normally followed within the submarine community and predates when submarine preservation requirements were pulled into Standard Item 009-32. In order to align the requirements of Standard Item 009-32 and Submarine Maintenance Standard 6310-081-015, Submarine Preservation, SEA 05U7S proposed that FY-26 NAVSEA Standard Item 009-032 define requirements that lead bins that will not be repacked are to be coated following the established requirements of the space that the bin resides ". . . ***must be prepared and preserved the same as the surrounding area***." Such an approach streamlines production and ensures that lead bins that will not be repacked with lead are still coated with the same, effective coating system used on the surrounding structure.

20. CHANGE: Updated Table One to define requirements for applying the recently qualified MIL-PRF-24647, Type IV antifouling coatings that are based on silicone foul-release coating technology, but that include a biocide:

FY-26, NAVSEA Standard Item 009-032 Table One, Lines 4A, 11A, and 17A were added to define requirements for applying silicone-based, biocide boosted foul release coating as follows, "***MIL-PRF-24647, TYPE IV, CLASSES 1, 2, AND 3,GRADE A, APPLICATION 2***,"coatings and as a result of this change, all of the Table One, Lines 2, 4, and 4A, 11A, and 17A, Column G were also updated to cite the technically required, "***WHITE COMMERCIAL SILICONE FOUL RELEASE COATING***"

RATIONALE: Since 1985, NAVSEA has actively updated the MIL-PRF-24647 antifouling coating specification to include requirements for the latest, high-performance antifouling coating systems developed by the commercial industry that satisfy applicable environmental and worker health and safety regulations. As part of this process, NAVSEA qualified the new, high-performance, silicone-based, biocide boosted, Hempel, Hempaguard X7 coating as NAVSEA's first MIL-PRF-24647E, Type IV qualified coating system. NAVSEA testing showed that the biocide boosted silicone coating systems performed effectively, and due to the recent decision by Janssen PMP to cease sales of their ECONEA biocide (i.e., that is used in all current MIL-PRF-24647E qualified, Type I, copper-free ablative antifouling coatings), the LCS 2 Class ships with aluminum hulls (i.e., copper-bearing antifouling coatings can cause deposition corrosion of aluminum hulls) needed additional options for controlling underwater hull fouling. Thus, the proposed change to the FY-26, NAVSEA Standard Item 009-032 Table One to cite MIL-PRF-24647, TYPE IV, CLASSES 1, 2, AND 3,GRADE A, APPLICATION 2 coatings will provide the Fleet with options to address the potential loss of Type I qualified coating supplies over the next few years. As part of this update process, SEA 05P2 noted that the current requirements for draft markings on underwater hull coatings were inadequate. Specifically, since 1999 Standard Item 009-32, NAVSEA has required use of either MIL-PRF-24635 exterior topcoats, or a "commercial" white antifouling for draft marks. These requirements were simply retained when the silicone-based "Intersleek" system (i.e., which was originally qualified as a MIL-PRF-24647, Type III coating system in 2000) was added to the FY-04, NAVSEA Standard Item 009-32 that was published on 2 Aug 2002. At that time, the simple term "Same As Line One" was used to reference the requirements

for the draft marks using MIL-PRF-24635 or commercial coatings. Unfortunately, neither MIL-PRF-24635, nor most commercial, white antifouling coatings will adhere to the silicone-based Type III or Type IV coatings (i.e., these silicone-based coatings are designed to prevent marine organisms from adhering to the surface and are much like the silicone seal that one might have in the home – no other paints stick to silicone seal). So, the requirements for draft marks on silicone-based coatings have been technically unclear since 2002. SEA 05P2 cannot explain why this issue was not raised by an application contractor in the past, but to ensure that draft marks will adhere to the silicone-based Type III and Type IV coatings, the FY-26 NAVSEA Standard Item 009-032 includes one option to apply a "***WHITE COMMERCIAL SILICONE FOUL RELEASE COATING"*** that will adhere effectively to the silicone-based underwater hull coating that extends up to the boottop.

21. CHANGE: Updated Table 2 to remove all references to "Minimum Service Life" of flight deck nonskid:

Terms similar to "MINIMUM 3 YEARS SERVICE LIFE" appear in multiple locations in FY-25, Change 1, NAVSEA Standard Item 009-32 such as Table 2, Lines 9-20 and 55-59 and the proposed change eliminates these citations.

RATIONALE: The minimum service life terms for nonskid were added to the FY-10 NAVSEA Standard Item 009-32 that was published on 1 Aug 2008 to explain the MIL-PRF-24667C nonskid specification requirements that were included Type I nonskids that were qualified for a minimum of 1 year on a CVN flight deck and Type V nonskids that were qualified as a minimum of 3 years on a CVN flight deck. NAVSEA included these minimum service life citations in the FY-10 Standard Item 009-32 to inform work planners who were selecting between the different nonskid "Types" defined in MIL-PRF-24667C by the minimum service life. Given that background, current work planners have had 15 years of experience with the MIL-PRF-24667C nonskid "Types" and as such there is no longer a need to cite the minimum nonskid service life in the FY-26 Standard Item 009-032. In addition, the Nonskid OSRs also noted that many waterfront work planners were using the minimum nonskid service life to plan nonskid replacement tasks instead of relying on nonskid condition assessments as is required in NSTM, Chapter 634 on Deck Coverings. As a result of work planners simply using the minimum nonskid service life cited in Standard Item 009-32 life to arbitrarily to plan nonskid replacement, Nonskid OSRs found themselves arguing with the work planners that intact, adherent nonskid did not require replacement. Thus, by removing the minimum service life terms from the FY-26, NAVSEA Standard Item 009-032, NAVSEA will be able to reduce the costs and time associated with contractors removing and replacing intact, adherent nonskid simply because waterfront work planners chose to use the minimum nonskid service life to plan nonskid instead of basing work planning on the nonskid condition.

22. CHANGE: Corrected Table 3, Lines 4, 13, 20, and 34 to require abrasive blasting or power tool cleaning to bare metal as the required surface preparation for rapid-cure, single-coat ultrahigh solids coatings:

Removed the FY-25, Change 1, NAVSEA Standard Item 009-32 citation to "SSPC-SP3" in Table 3, Lines 4, 13, 20, and 34, Column A and replaced the term with "***SSPC-SP 11***" that requires power tool cleaning to bare metal.

RATIONALE: Historically, NAVSEA Standard Item 009-32 included requirements for coating wet spaces, sculleries, water closets, and showers that included SSPC-SP 11, "power tool cleaning to bare metal" for the base or deck in these spaces and the SSPC-SP 3, "power tool cleaning" (i.e., that only requires removal of "loose paint" and "non-adherent rust") for the bulkheads and overheads. Surfaces prepared to these requirements were then overcoated with solvent-based coatings, or surface tolerant ultrahigh solids coatings. Such surface preparation and coatings performed effectively in these spaces and represented a technically appropriate set of requirements. However, in the FY-17 NAVSEA Standard Item 009-32, published on 12 May 2016, NAVSEA included an option for rapid-cure, single-coat, ultrahigh solids coatings in these spaces. Although SEA 05P2 has had no reports of MIL-PRF-23236, Type VII, Class X/18 rapid-cure, single-coat, ultrahigh solids coatings performing ineffectively over the limited SSPC-SP 3 surface preparation, at the 2024 SSRAC, the Hull and Preservation Subcommittee agreed that applying a premium priced, high-performance rapid-cure, single-coat, ultrahigh solids coating, over a surface that could still contain adherent rust, increased the risk of premature coating delamination or blistering. Sherwin-Williams staff concurred that the rapid-cure, single-coat, ultrahigh solids coatings were not designed to be applied over retained rust and as such SSPC-SP 11 was the technically correct surface preparation for all surfaces that will be coated with of MIL-PRF-23236, Type VII, Class X/18 systems. Thus, the proposed change will maximize the service life of the premium priced, rapid-cure, single-coat, ultrahigh solids coatings and streamlines production by avoiding confusion between the surface preparation requirements in NAVSEA Standard Item 009-032 and those appearing on manufacturer's NAVSEA-reviewed ASTM F718 data sheets.

23. CHANGE: <u>Consolidated peak tank coating requirements into the existing Lines 17 - 19 in Table 4 for non-floodable voids and paint lockers:</u>
To reduce the overall length of the FY-26 NAVSEA Standard Item 009-032, the current, FY-25, Change 1, NAVSEA Standard Item 009-32, Table 4, Lines 21 – 23 requirements to coat "***PEAK TANKS***" were removed and included in the FY-26 NAVSEA Standard Item 009-032, Table 4, Lines 17 – 19 as follows:
"***NON-FLOODABLE VOIDS, CHAIN LOCKERS, PEAK TANKS***."
The change resulted in removal of Table 4, Lines 20-24A, and required renumbering of all subsequent Table 4 lines accordingly

RATIONALE: The proposed change consolidates the technically identical requirements for coating peak tanks with the requirements for coating non-floodable voids and chain lockers to reduce the overall length of the FY-26 NAVSEA Standard Item 009-32. Such a change is consistent with the CNRMC Technical Director's stated goal of reducing duplication and the overall length of all Standard Items. However, in addition to simple consolidation of requirements the change also allows implementation of the SSPC-SP 18, "partial blast" process in peak tanks, along with non-floodable voids and chain lockers. The "partial blast" process for invoking SSPC-SP 18 was included in the FY-23, Change 2, NAVSEA Standard Item 009-32 published on 5 May 2022 to leverage successful demonstration of the streamlined approach to surface preparation by multiple National Shipbuilding Research Program (NSRP) projects over the years that showed excellent corrosion control performance from tanks that were prepared by abrasive blasting retained ultrahigh solids coatings to an SSPC-SP 10, "near white

metal" level of cleanliness in areas with corrosion, but that allowed adherent, intact paint (i.e., the retained paint roughened by abrasive blasting provides an effective substrate for subsequent overcoating) to be retained. This partial blast process is currently key to waterfront work planning because complete removal of ultrahigh solids coatings is a slow process. In fact, SEA 05P2 (Ingle) had to testify in a Federal trial in 2023 in which a contractor claimed that ultrahigh solids coatings were too adherent and too difficult to remove by abrasive blasting and as such they deserved additional compensation for working in such tanks. Thus, the proposed change consolidates requirements in accordance with CNRMC Technical Director goals and will leverage the efficiencies associated with partial blast process to speed tank recoating processes in peak tanks, chain lockers and non-floodable voids on the waterfront.

24. CHANGE: Added Table 5, Lines 23A and 24A to include requirements for fluidized bed powder coating for additional parts and components that can be removed from the ship for coating:

Added Table 5, Line 23A that includes the following requirements:
Column A: "***NEAR WHITE METAL BLAST, NACE 2/SSPC-SP 10***"
Column B: "***ONE COAT MIL-PRF-23236, TYPE VIIIA, APPLIED BY FLUIDIZED BED METHOD ONLY, 10 MILS MINIMUM***"
Column C: "***ONE COAT MIL-PRF-24712, TGIC POLYESTER, TOTAL SYSTEM 15 – 30 MILS***"
Added Table 5, Line 24A
Column A: "***NEAR WHITE METAL BLAST, NACE 2/SSPC-SP 10***"
Column B: "***ONE COAT MIL-PRF-23236, TYPE VIIIA, APPLIED BY FLUIDIZED BED METHOD ONLY, 10 MILS MINIMUM***"

RATIONALE: Historically, NAVSEA adopted the fluidized bed powder coating process, in which heated parts are immersed in a bed of powder coating to ensure coverage of even the most complex geometries, in the FY-12 NAVSEA Standard Item 009-32, that was published on 30 July 2010, for use on the inherently complex geometry DDG 51 Class gas turbine intake louvers. The fluidized bed process has been extremely successful over the past 20 years with some of the demonstration louver ship sets (i.e., those that were used to prove the technology and justify the FY-12 NAVSEA Standard Item 009-32 requirements) having been shown to provide more than 18 years of effective service. Over the years, the fluidized bed process has also proven ideal for coating the inherently complex geometry of watertight doors and hatches, and the process itself has become more available in the United States due to construction of three new fluidized bed systems in the US. To leverage this technology on a wider range of piece-parts that can be coated in a ship-to-shore mode, SEA 05P2 concurred with CNRMC that expanding opportunities to use fluidized bed powder coating processes would enhance the corrosion-control performance of such parts on Navy ships. Thus, by adding Lines 23A and 24A in Table 4, the waterfront work planners will be able to require a wide range of piece-parts to be fluidized bed powder coated. With these new lines, the work planners would be responsible for ensuring the fluidized bed powder coating tasks are developed for applicable parts and would ensure such parts are appropriately cleaned, gaskets or other polymeric materials that could be damaged by the heating process inherent in applying fluidized bed powder coatings are removed,

and that the part geometries will fit into the available fluidized bed apparatus (e.g., SWRMC currently has a fluidized bed powder coating system that can handle parts that are no larger than the size of watertight door or small hatch and MARMC is still working on installing a similar system). Thus, the proposed change will allow NAVSEA to further leverage fluidized bed powder coatings to enhance the corrosion-control performance of parts coated using the process without increasing the time or cost associated with the fluidized bed coating task as compared with the hand-work required to coat the same part with conventional, liquid coatings (i.e., because of speed of the fluidized bed coating process in which the parts are coated in a matter of minutes and fit for service as soon as they cool, and the fact that there is practically no hand-work associated with the coating, a SEA 05P2 analysis in the early 2000s indicated that fluidized bed coating of DDG 51 Class louvers cost slightly less than coating the louvers with liquid paints).

25. CHANGE: Established Appendix 3A to create a documentation requirement for required 20 percent abrasive blast surface preparation on flight decks.
Created new QA Appendix 3A, with the title, "QA INSPECTION FORM – 20 PERCENT ABRASIVE BLAST SURFACE PROFILE / PREPARATION & CLEANLINESS LOG"

RATIONALE: The current, FY-25, Change 1, NAVSEA Standard Item 009-32, paragraph 3.11.6.2 requires that each flight deck nonskid replacement task include a requirement to abrasive blast a minimum of 20 percent of each area to an SSPC-SP 10, level of cleanliness. The 20 percent abrasive blast requirement was originally included the FY-18 update to Standard Item 009-32 that was published on 7 Mar 2017 and intended to enhance nonskid performance by abrasive blasting areas of decks that experienced corrosion (i.e., corrosion under nonskid degrades the profile of the steel, inhibiting adhesion of subsequent primer layers). Since 2017, SEA 05P2 has had no reports of flight deck nonskid delaminating due to inadequate surface profile. Given that background, the Nonskid OSRs have reported that there have been challenges with the QA/QC documentation for areas of the flight decks that have received the 20 percent abrasive blast surface preparation. To clarify that QA/QC documentation is required to allow validation of the areas of flight decks that were abrasive blasted, a new Appendix 3A was established to record the specific area(s) that receive the SSPC-SP 10 surface preparation. Thus, the change streamlines production by clarifying that accurate records regarding which area(s) received the SSPC-SP 10 surface preparation, and ensures that the successful requirement to abrasive blast 20 percent of the flight deck areas are completed on each flight deck nonskid replacement task.

ENCLOSURE 1

Summary of 2024 Changes to FY-26, Standard Item 009-124, "Thermal Spray Nonskid Application; accomplish" and Associated Technical Rationale for Each Change

The following provides the rationale for the substantive FY-26 Standard Item 009-124 changes. The specific changes discussed below appear highlighted and in ***bold/italics*** in the attached, final draft, FY-26 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-26 Standard Item 009-124 in ***bold/italics***, and are not addressed below.

1. CHANGE: Universal editorial changes. Numerous administrative changes incorporated in the FY-26 Standard Item 009-124.

a. General grammatical and editorial changes.

b. Updated references listed in Section 2 and throughout the FY-26 Standard Item 009-124 to reflect updated CNRMC standard practice for referencing "NAVSEA Standard Items" across all NAVSEA Standard Items.

c. Changed sections 3.2.5 and 3.2.6 to remove the archaic term "NACE International Coating Inspector Program (CIP) Level One" and replace that with the technical equivalent, current "AMPP Basic Coating Inspector;" with an analogous update from "SSPC Thermal Spray Inspector Training" to "AMPP Thermal Spray Inspector Training."

d. Updated paragraph 3.14.1 to reference MIL-PRF-22262, Type I, Class 3 qualified abrasive blast media and paragraph 3.18.2.3 and Table One to cite TT-P-28 qualified color topping.

e. Reformatting of QA Appendix B to conform with CNRMC requirements for QA documentation that can be completed electronically (i.e., PDFs that allow direct entry of data).

RATIONALE: The following provides the rationale for each of the universal editorial changes cited above.

a. General grammatical and editorial changes to address typographical errors in the FY-25 NAVSEA Standard Item 009-124 are incorporated throughout the document. Such changes improve clarity and avoid questions from the waterfront about the requirements.

b. Historically, and through the FY-25, Change 1, NAVSEA Standard Items, "NAVSEA Standard Items" was cited as a reference in Section 2. However in July 2024, the SSRAC Executive Steering Committee made a universal decision to remove "NAVSEA Standard Items" as references from all NAVSEA Standard Items. The change was intended to clarify requirements and provide uniformity and across all Standard Items. As such, the FY-26 Standard Item 009-124, Section 2 was updated to no longer cite "NAVSEA Standard Items" as Reference 2.1 and this results in the FY-26 Standard Item 009-124 having renumbered references. As part of this change, the specific references to other Standard Items simply appear in the paragraph text. For example, paragraph 3.18.4 references ". . . 009-032 of NAVSEA Standard

Items." Please note that the use of three digits to define the Standard Item (i.e., "032" as compared with the historically cited two digits "32") is also based on a CNRMC policy change. Specifically, because there are over a hundred Standard Items, all FY-26 Standard Items will be defined using three digits after the "009." Thus, these changes are required by evolving editorial requirements.

c. In 2021, NACE International and SSPC merged to form the Association for Materials Protection and Performance (AMPP). The merger eliminated SSPC and NACE as separate entities and altered the titles of some equivalent AMPP training credentials cited in FY-25, Change 1, Standard Item 009-124, Sections 3.2.5 and 3.2.6. It is important to note that many well-established requirements like "SSPC-SP 5" that appear throughout FY-26 Standard Item 009-124 were retained by AMPP (i.e., the SSPC term was retained by AMPP to address the myriad citations to these requirements in commercial and government contracts). Thus, the changes appearing in the FY-26 Standard Item 009-124 reflect the current AMPP policy for defining their standards and credentials. Such changes ensure that current, updated requirements are cited and will avoid confusion on the waterfront.

d. MIL-PRF-22262C was published in August 2023 and included a new "Type I, Class 3" for the aluminum oxide blast media that was required to be used to prepare surfaces for Thermal Spray Nonskid (TSN) installation ever since Standard Item 009-124 was first published in 2018. Because no aluminum oxide abrasive blast media vendor has qualified their media to MIL-PRF-22262C, FY-25, Change 1, Standard Item 009-124 citations to commercial requirements for such media (e.g., SSPC-AB 1) were retained in the FY-26 Standard Item 009-124 and a reference to MIL-PRF-22262, Type I, Class 3 was added as an option. Once NAVSEA has a MIL-PRF-22262C, Type I, Class 3, qualified aluminum oxide media, a future Standard Item 009-124 will be updated to require use of the qualified media.

   In an analogous change, TT-P-28J was published in July 2021 with requirements for a Type I, Class 4, flat finish, heat resistant coating specifically for use as a TSN color topping. In early 2024, products were qualified to TT-P-28, Type I, Class 4 and added to the Qualified Products List (QPL). As such, FY-26 Standard Item 009-124, paragraph 3.18.2.3 and Table One are updated to show that the cited "color topping" is a TT-P-28, Type I, Class 4 qualified coating. Thus, these changes will streamline procurement of the required abrasive media and color topping required to install TSN by cited qualified products and NAVSEA requirements.

e. Historically, the QA Appendix B and Appendix A contained redundant information and were reported by waterfront personnel to be cumbersome and duplicative. To eliminate redundancy and clarify reporting requirements for QA data, and to align with the CNRMC to require all QA Appendices to be completed electronically (i.e., PDFs that allow direct entry of data). Thus, the changes will reduce the time required for waterfront personnel to complete the QA appendices (i.e., by avoiding the need for duplicative data entry) and align the requirements with CNRMC policy for forms that can be completed electronically.

2. CHANGE: Reduced lower thickness measurement limit for TSN film thickness (FT) measurement equipment to address measurement of the FT of the first TSN layer or coat.
Reduced the lower thickness measurement limit for TSN FT measurement equipment in paragraph 3.6 from the current lower limit of 25 mils to one mil.

RATIONALE: Since 2018 and through to the current, FY-25, Change 1, Standard Item 009-124, the film thickness measurement equipment was required to measure aluminum layer thickness from 25 mils to 150 mils. However, the current requirement for FT in Table One is that the but the first layer of coat of TSN is required to be a minimum of 25 mils for the deck and a maximum of 15 mils for the first layer of TSN applied to the Recovery Assist Securing and Traversing (RAST) track (i.e., as discussed in Change 13 below). As such, the waterfront QA staff have found over the years that any low FT in the first coat (i.e., below 25 mils) cannot be accurately measured with the FY-25, CH-1 Standard Item 009-124 required FT measurement equipment. To address this observed misalignment between the FT equipment measurement capability and the actual thickness of the first TSN coat or layer, the FY-26 Standard Item 009-124, paragraph 3.6 requirement for FT measurement equipment was updated to require the FT measurement equipment to be able to measure thicknesses as low as 1.0 mil. SEA 05P2 validated that such equipment is available from DeFelsko and Elcometer. Thus, the proposed change ensures accurate data collection and avoids QA staff confusion regarding low FT readings for the first TSN coat or layer.

3. CHANGE: Clarified the masking requirements for TSN application around deck protrusions.
Revised the masking requirement in FY-26 Standard Item 009-124, paragraph 3.9.1 to require masking to extend 2-3 inches from deck protrusions and hardware as compared to the 1-2 inches cited in Standard Item 009-124 since publication in 2018.

RATIONALE: Since 2018 and through to the current, FY-25, Change 1, Standard Item 009-124, masking was required to be installed to within 1-2 inches of tie-downs, recessed flight deck lights, deck fittings, and other deck hardware. However, waterfront QA staff report that because Standard Item 009-32 (i.e., since 2009) has required nonskid coating to be applied to within 2-3 inches of ". . . 2-3 inches of deck fittings and protrusions," there was confusion when the tie-downs or deck fittings were being coated by a contractor working to Standard Item 009-32. Specifically, if the TSN was within 1-2 inches of a deck fitting, and the Standard Item 009-32 requirement was to apply conventional coatings to within 2-3 inches of the deck fittings, the contractors have become confused about applying conventional nonskid color topping over TSN. Because contracting for TSN installations have evolved over the years with contractors that normally apply conventional epoxy or polysiloxane being tasked to support TSN installations, the proposed change speeds production by aligning the requirements for applying TSN around deck fittings to match the requirements for applying conventional nonskid color topping around deck fittings. Thus, the proposed change speeds waterfront production by avoiding delays to address questions from the coating application contractor about the spacing around deck protrusions that will receive conventional nonskid color topping. The change also reduces the risk of contractors using ultrahigh pressure waterjet systems to prepare the areas around deck protrusions and inadvertently damaging TSN that was as close as 1-2 inches of the deck fittings or protrusions.

4. CHANGE: Removed the (I)(G) dust tape test and updated the surface preparation checkpoint to become the (G) point for acceptance of the surface preparation.
Removed Paragraph 3.14.8 that had required the (I)(G) dust tape checkpoint and defined the paragraph 3.14.6 requirement to verify secondary surface preparation prior to TSN application as the (I)(G) point.

RATIONALE: Since 2018 and through to the current, FY-25, Change 1, Standard Item 009-124, the ISO 8502-3 dust tape test was required before TSN installation and was cited as a government (I)(G) checkpoint. Over the years, the NAVSEA-approved Technical Representatives have observed that the air flow from the TSN application equipment (i.e., the aluminum liquified in the twin-wire area is blown onto the deck using a steady stream of high-pressure air) is effective at removing any residual dust from the surface preparation process. In addition, the NAVSEA-approved Technical Representatives also observed that considerable aluminum oxide dust is inherently formed from the TSN installation process and this dust is also blown out of the way by the TSN installation system air flow. To address these observations, and streamline production by completely eliminating the dust test and associated (I)(G) point, the FY-26 Standard Item 009-124 no longer cites the ISO 8502-3 dust tape test and the historical dust tape test requirements appearing in paragraph 3.14.8 were eliminated. However, because it is still essential to have a white metal level of cleanliness on the deck before the TSN is installed (i.e., and the dust tape test did require verification of deck cleanliness), the FY-26 Standard Item 009-124 updated the deck cleanliness verification requirements in paragraph 3.14.6 to be the government or (I)(G) checkpoint to verify deck cleanliness prior to the TSN application.

5. CHANGE: Clarified that the as-applied TSN layer must be uniform and consistent.
Added language to the FY-26, Standard Item 009-124, paragraph 3.15.6 to state, "The TSN must be uniform in appearance."

RATIONALE: Historically, the NAVSEA-approved Technical Representatives have worked with the waterfront personnel to ensure that the TSN layers are uniform and free of thin areas, smooth areas, or other irregularities that could compromise nonskid performance. However, as more TSN installation work is being conducted with hand-spray equipment, and the four-head TSN installation robots have aged, the NAVSEA-approved Technical Representatives have observed more irregular, inconsistent surfaces. By clarifying that NAVSEA requires a unform TSN surface, waterfront QA/QC staff will be able to more effectively address irregularities in the TSN application that could compromise in-service TSN performance. Such an approach is also consistent with established requirements in Standard Item 009-32 for uniform, consistent liquid coating application requirements.

6. CHANGE: Combined all Attachments for TSN repair into one new Attachment B.
Combined the Attachments B, C, and D that had defined requirements for different tools to be used for different sized repairs since Standard Item 009-124 was first published in 2018 into a single new Attachment B to allow a broad range of TSN repair methods for different sizes of repair areas. By consolidating repair requirements into the new, FY-26 Standard Item 009-124, Attachment B, the change also required Table One, Line 2 to be updated to cite TSN repairs on "AREAS LESS THAN 800

SQUARE FEET and for Table One, Lines 3 and 4 to be removed. The change also required that Note (6) that had referenced Attachment D be modified to cite the new Figure One for RAST track TSN coatings discussed in Change 13 shown below.

RATIONALE: Since 2018 and through to the current, FY-25, Change 1, Standard Item 009-124, TSN repairs were performed using specific types of equipment to remove damaged or undercut TSN and to re-apply TSN in accordance with Attachments B - D and the equipment that NRL had required for each size repair. For example, hand spray TSN was cited only for the smallest repair areas while larger repair areas required use of the four-head, robotic thermal spray equipment. Over the years, the NAVSEA-approved Technical Representatives have observed that TSN repairs vary in size on a given deck and that because of the limited supply of four-head, robotic TSN installation systems, that hand spray TSN repairs have been authorized on larger areas. For example, based on experience during the COVID pandemic with limited access to the four-head, robotic TSN installation systems, The FY-24 Standard Item 009-124 published in 2022 was updated to allow hand spray TSN repair on areas up to 800 square feet. These larger TSN hand spray repairs have performed effectively over the years and as such combining all options for TSN removal, surface preparation, and TSN installation equipment requirements into one new, updated Attachment B in FY-26 Standard Item 009-124 will streamline waterfront TSN repair contracting and avoid debate between the TSN repair team and the QA staff about which specific TSN repair equipment and procedures are required on which specific areas on the deck. This change was supported by both the NAVSEA-approved Technical Representatives and the CNSP N43 conventional nonskid On-Site Representatives (OSRs) that have supported repairs and contracting for the wide range of processes. Thus, the proposed change provides TSN repair contractors with the maximum flexibility in selecting equipment and processes to repair TSN.

7. CHANGE: <u>Updated requirement for Low Pressure Water Cleaning (LP WC) cleaned area dry time to be assessed by the SUPERVISOR or allowed to dry in accordance with the requirements.</u>

Updated the paragraph 3.16.4 requirements for dry time of areas after LP WC cleaning to include an option for the SUPERVISOR to determine an area is dry by adding, "or as directed by the SUPERVISOR" to paragraph 3.16.4.

RATIONALE: Since Standard Item 009-124 was first published in 2018, the issue of allowing the slightly porous TSN layer to dry before application of sealers or color toppings has been a challenge (i.e., presence or absence of water in the TSN pores is difficult to assess or evaluate) and as such paragraph 3.16.4 included proscriptive requirements for drying time and humidity that stated the TSN layer must "dry for a minimum of 12 hours." However, over the years of installing TSN repairs in areas like San Diego, CA and Norfolk, VA, the NAVSEA-approved Technical Representatives have observed that the decks dry much faster in hot dry weather. Because a deck in the sun in the summer in San Diego will dry much more rapidly than the 12 hours cited in the historical Standard Item 009-124 requirements, the objective of the change was to speed production by allowing the SUPERVISOR (i.e., with support from the NAVSEA-approved Technical Representatives) to make the decision that a deck has dried in less than 12 hours. Thus, the change to paragraph 3.16.4 in FY-26 Standard Item 009-124 that gives the SUPERVISOR the ability to decide that the area is

sufficiently dry prior to the 12 hours will speed production and avoid the waterfront team arbitrarily waiting for 12 hours for the deck to dry.

8. CHANGE: Removed requirements that VLA markings were not to be applied on top of TSN that is already color topped with dark gray polysiloxane.

Deleted FY-25, Change 1, Standard Item 009-124, paragraph 3.18.4.1 and removed requirement from paragraph 3.18.5.1 that required separate masked areas for Visual Landing Aid (VLA) markings during TSN color top application. Revised paragraph 3.18.4 to remove the last sentence that states: "VLA markings are not to be applied over dark gray color topping." Revised paragraph 3.18.5.3 that also included a reference to the masking to support VLA marking installation by removing the last sentence that states: "Remove masking in areas that will receive VLA markings." Deleted the entire paragraph 3.18.4 that calls on NAVAIR to locate the VLA markings before the dark gray color topping is applied. Also updated paragraphs in section 3.19 to cite 3.19.4.1 instead of 3.19.5.1. Finally, also deleted the paragraph 3.19.3 requirements that also related to the TSN masking before the dark gray color topping application.

RATIONALE: Since 2018 and through to the current, FY-25, Change 1, Standard Item 009-124, TSN color topping requirements were based on the premise that build-up of color topping over the inherently limited macro-roughness of the TSN coating could reduce the coefficient of friction on the deck. Over this same period, SEA 05P2 has had to process multiple Deviation from Specification (DFS) requests because contractors could not manage the two-step masking process in the time allotted. In fact, the entire flight deck on the USS TRIPOLI (LHA 7) was delivered with the white and yellow VLA markings applied over the entire deck that had been coated with dark gray color topping (i.e., as compared with the required process in which the VLA markings were applied directly to the sealed deck, and then masking was applied over the markings, and then the remainder of the deck was color topped with dark gray TT-P-28J heat resistant paint). To date, NAVSEA has had no reports of locally degraded coefficient of friction issues or personnel slipping associated with any subtle decrease in coefficient of friction associated with installing the white/yellow color topping over the dark gray coated deck. By modifying FY-26 Standard Item 009-124 to simply require the entire TSN area to be coated with dark gray color topping, and then allowing NAVAIR to visit the deck one time to locate the VLA markings, the overall efficiency of the TSN production process is enhanced.

9. CHANGE: Clarified the use of MIL-PRF-24667 traditional nonskid color topping inside TSN application areas.

Clarified requirements in paragraph 3.20 to note that application of MIL-PRF-24667 nonskid color topping in areas and around deck protrusions was to include ". . . including those within the TSN installation areas, in accordance with 009-032 of NAVSEA Standard Items."

RATIONALE: Since 2018 and through to the current, FY-25, Change 1, Standard Item 009-124, the process of coating the "slick deck" areas that do not normally receive TSN or conventional nonskid was simply referred to Standard Item 009-032. Over the years, the NAVSEA-approved Technical Representatives have observed that the TSN installation process is relying more and more on separate contractors to apply the TSN

and other contractors to install the conventional coatings and color toppings on the slick deck areas. However, this division of responsibility for coating the slick deck areas with conventional nonskid color toppings was not clear with some conventional nonskid installation contractors being uncomfortable working within a TSN coated zone. As such, the change clarifies that the conventional nonskid contractors are required to work both inside and outside of the TSN installation areas. Thus, the change avoids waterfront confusion between the multiple contractors that may be associated with an overall TSN installation task.

10. CHANGE: Clarified and separated the responsibilities of the NAVSEA-approved Technical Representative and the SUPERVISOR.
Updated paragraph 4.1.4 to clarify that the NAVSEA-approved Technical Representative designates TSN repairs areas and the SUPERVISOR approves the designated repair area. Also updated Note (1) of Table One to reflect the paragraph 4.1.4 requirement.

RATIONALE: Because the FY-23, Change 2, Standard Item 009-124, published on 6 May 2022, required that the NAVSEA-approved Technical Representatives be associated with all TSN repair and installation tasks to ensure that such experts are involved in work planning and repair task execution. As noted in 2022, TSN is a unique process developed by NRL for NAVSEA and as such there is still a degree of "art" associated with the "science" of installing the TSN. The NAVSEA-approved Technical Representatives bring their expertise to all repair tasks to ensure timely, successful TSN installation. The NAVSEA-approved Technical Representatives are now supporting all TSN repair and installation tasks and there has been reported TSN installation contractor confusion on the waterfront regarding the role of the NAVSEA-approved Technical Representative and the SUPERVISOR. Because the NAVSEA-approved Technical Representative does not have contractual authority, the text added to FY-26 Standard Item 009-124 paragraph 4.1.4 and Note (1) clarifies that even though the NAVSEA-approved Technical Representative is involved in the repair and TSN work planning, it is the SUPERVISOR that has the contractual authority to direct the contractor to conduct the TSN repair and installation tasks. Thus, the proposed change clarifies specific waterfront responsibilities and will streamline production by avoiding contractor confusion regarding which individuals can direct their work.

11. CHANGE: Clarified that fewer than ten high pressure waterjet (HP WJ) passes can be required to remove TSN.
Updated the text in the new Attachment B, paragraph 5b to say modify the current requirement to remove TSN using ten HP WJ to acknowledge the option to remove TSN using "up to ten passes" of the HP WJ system to remove the TSN.

RATIONALE: TSN is a metallic coating that exhibits a high level of adhesion to the steel deck and as such, removal of intact, adherent (TSN (i.e., as might be required around a TSN repair area) is challenging and time consuming. As part of a major update to the FY-21, Change 1, Standard Item 009-124 that was published on 14 Jan 2020, NAVSEA defined the requirements to use HP WJ to remove TSN in repair areas using steel masking plates to protect the surrounding material. NAVSEA required the HP WJ of between 22,000 and 25,000 psi to balance successful removal of TSN and to avoid ultrahigh pressure waterjet (i.e., above 25,000 psi operating pressures) resulting in

delamination or undercutting of the TSN around the repair areas. For example, conventional nonskid contractors regularly use ultrahigh pressure waterjet (UHP WJ) systems to strip conventional nonskid off the deck and inadvertent use of these systems on TSN cause the TSN to delaminate within a few inches of the cut edge. Because the HP WJ does not cut through the TSN as effectively as UHP WJ, NAVSEA required the TSN repair contractor to plan or bid to conduct ten passes of the HP WJ to remove the TSN. Over time, the NAVSEA-approved Technical Representatives have found that some contractors conduct all ten passes even if the TSN is removed in fewer passes. Such an approach delays production for no reasons and as such the FY-26 Standard Item 009-124, Section 5b clarifies that the contractor must: "Conduct up to ten HP WJ passes over the entire repair area to ensure complete TSN removal." The change allows the TSN repair contractor to understand that ten passes may be required to remove the TSN, but clarifies that the SUPERVISOR has the authority to accept fewer HP WJ passes if the TSN is adequately removed. Thus, the process will speed TSN repair tasks by allowing the SUPERVISOR to approve TSN removal, regardless of the number of HP WJ passes.

12. CHANGE: Clarified that TSN sealer must be installed to TSN in less than 24 hours.
Added a new paragraph 15b to the new Attachment B, that states: "When containment is removed or not present, apply sealer within 24 hours of TSN application."

RATIONALE: As applied TSN is an inherently porous material that is formed by liquid aluminum droplets stacking up on a surface. When NRL developed the TSN system in the early 2010s, one key challenge was to identify heat-resistant sealers that would penetrate into the pores and cure to preclude water from entering the pores and causing corrosion. The current TSN sealer is a very low viscosity, single pack, clear, polysiloxane fluid that, when applied to TSN, effectively penetrates into the pores. When the polysiloxane sealer cures, water can no longer penetrate into the pores and cause corrosion. Over time, the NAVSEA-approved Technical Representatives have found that some contractors have removed containment from an applied TSN layer and allowed rain or condensation to form on the TSN surface before sealing. If water penetrates the TSN before the sealer, the overall system will be more vulnerable to corrosion/degradation throughout the system service life. To reduce the risk of exposing the TSN to rain or condensate before the sealer is applied, the new paragraph 15b was added to Attachment B that requires: "When containment is removed or not present, apply sealer within 24 hours of TSN application." Adding this time-based requirement for sealer application will speed production and minimize the risk of the TSN being exposed to rain or condensate before sealant application (i.e., resulting in degraded service life of the TSN due to premature corrosion).

13. CHANGE: Included requirement to apply TSN to RAST track plates:
Added a new Table One, Line 5 to define requirements for applying TSN to RAST track plates. Also updated Notes (4) and (5) to reflect specific requirements for RAST plates. Also replaced the text in Note (6) with text citing Figure One from FY-25, Change 1, Standard Item 009-32, to define where the TSN is to be installed on each RAST track plate. Updated the Figure One to use the term "TSN" instead of the term "nonskid." And finally, added a new Table One, Line 5 for RAST track plates and cited the updated Note (6) in Table One, Line 5.

RATIONALE: NRL has worked to expand TSN applications to multiple areas on ships beyond the flight deck and one of the most successful applications to date has been to RAST track plates on DDG 51 and CG 47 Class ships. These RAST track cover plates are currently coated with conventional epoxy nonskid in accordance with requirements in Standard Item 009-032 and as part of a PCOE project, NRL demonstrated the TSN on the starboard track of the USS MICHAEL MURPHY (DDG 112) in 2022. The TSN coated RAST track cover plates have performed effectively and NRL reports considerable interest from the Fleet in the TSN coated RAST track cover plates.
To transition these requirements to FY-26 Standard Item 009-124, the following were key document updates:

1. Updated Table One, Line 5 to provide requirements for TSN installation on RAST track cover plates. The requirements are analogous to those for applying TSN to the flight deck, but do allow, in Note (5) that is cited in Table One, Line 5 that: "SSPC-SP 10/M (WAB)/NACE WAB-2/M is an acceptable substitute for primary surface preparation NACE/SSPC-SPWJ-2L." NRL found that on the relatively small (i.e., as compared to a flight deck) RAST track cover plates did not require the "L" or low level of flash rust required on the deck because the abrasive blasting process to prepare the surface for TSN would completely remove all flash rust.
2. Update the Note (6) to include the following text: "For flight decks equipped with RAST tracks, see Figure One for guidance regarding the locations for TSN application." The current Figure One from the FY-25, Change 1, Standard Item 009-32 was simply cut-and-pasted into FY-26 Standard Item 009-124 below the new Note (6). Figure One shows where the TSN would be applied and ensures that the TSN is not installed in the areas where the RAST rollers travel during system operations. There are multiple changes to Figure One (i.e., that has been used successfully since 2009 in Standard Item 009-32 to define where conventional epoxy nonskid is required to be installed on RAST track cover plates) required to include the figure in the FY-26 Standard Item 009-124 was to replace the term "nonskid" with the term "TSN," to still require the outer plates to be coated with conventional nonskid in accordance with Standard Item 009-032, require masking using silicone plugs of holes before the second TSN coat is applied, and required a maximum coating thickness in Table One, Line 5, Column C to be applied to the entire plate (i.e., too thick a first TSN layer will impede system operations and potentially socket wrench access in some of the holes). Such changes will ensure TSN is applied using the same process demonstrated on the DDG 122 to other ship sets of RAST track plates moving forward.
3. Added the new Note (6) to the first column in FY-26, Standard Item 009-124, Table One, Line 5 to ensure that the contractor addresses Figure One in their work planning.

Thus, these cumulative changes effectively transition the NRL efforts to develop TSN application processed for RAST track cover plates from a laboratory demonstration project to requirements that the Fleet can invoke to extend the service life of RAST track plate nonskid by a factor of three or four.

14. CHANGE: <u>Removed requirement for additional coats of color topping for hiding in Table One, Column H.</u>

Removed the term "IF REQUIRED FOR HIDING, ONE ADDITIONAL COAT MUST BE APPLIED" from Table One, Column H that defines requirements for the application of white/yellow VLA markings.

RATIONALE: As noted in the discussion of Change 8 shown above, the updated FY-26 Standard Item 009-124 no longer requires the white/yellow VLA markings to be applied directly to the TSN and rather requires the white/yellow VLA markings to be applied over the dark gray color topping. As noted in the Change 8 discussion, this process has been used on multiple LHA/LHD Class ships using a DFS and was the as-applied color topping system on the LHA 7. Also as discussed in Change 8, the risk of adding too many color topping layers is that multiple layers will fill in the limited macro-profile of the TSN and locally degrade the coefficient of friction. To reduce this risk, the term "IF REQUIRED FOR HIDING, ONE ADDITIONAL COAT MUST BE APPLIED" was removed from Table One, Column H that defines requirements for the white/yellow VLA markings. By not applying additional coats of white/yellow color topping, the risk of such coatings degrading the coefficient of friction is reduced. In addition, NRL reports that the recently qualified TT-P-28J Type I, Class 4 white/yellow color toppings have adequate hiding power in a single coat, when applied over the dark gray color topping, to provide the level of visual contrast required by NAVAIR for VLA markings.