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

9000
C200/ 205
1 May 22

From: Commander, Navy Regional Maintenance Center (CNRMC)
To: Distribution List

Subj: FISCAL YEAR 2023 NAVSEA STANDARD ITEMS CHANGE 2

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

Encl: (1): Summary of Change FY23 CH-2

1. Per references (a) and (b), the Fiscal Year 2023 CH-2 (FY23 CH-2) NAVSEA Standard Items (NSI) are available on the SSRAC website at:
http://www.navsea.navy.mil/Home/RMC/CNRMC/OurPrograms/SSRAC.aspx

2. The ***FY-23 CH-2*** NSIs are effective for availabilities in which FY-23 Standard Items are invoked. FY-23 availabilities that are not at the 100% of D Level Maintenance Work Package Lock Milestone must be planned to incorporate ***FY-23 CH-2*** NSIs listed. ***FY-23 CH-2*** NSIs must supersede all related MSWTs, CSWTs, SWTs, and LWTs. Changes that are listed as administrative in nature DO NOT require re-planning.

FY-23 CH-2 NSIs affected are shown below and a summary of changes is provided in enclosure (1).

a. 009-32 Cleaning and Painting Requirements; accomplish

b. 009-124 Thermal Spray NonSkid Application; accomplish

c. 009-125 Boats Less Than 65 Feet Long; accomplish

d. 009-16 Electronic Equipment; repair (administrative changes only)

e. 009-73 Shipboard Electrical/Electronic Cable Procedure; inspect, test, install, remove, and repair (administrative changes only)

f. 009-99 Ship Departure Report; provide (administrative changes only)

3. Requests for deviations from this requirement must be submitted via e-mail and routed to CNRMC 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).

4. RMC Standards Coordinators are responsible for advising users within their command of this notice. Code 400 Contracts Department is responsible for advising Master Ship Repair (MSR) Contractors and Agreement for Boat Repair (ABR) Contractors under their cognizance of the availability of these products.

5. The requirements of this letter do not authorize any change in terms, conditions, delivery schedule, price, or amount of any Government contract. In the event you consider the requirements represent a change for which an equitable adjustment is in order, you are to advise the Contracting Officer of the particular technical or contractual requirements regarded as changed, and take no action with regard to such changed requirements until notified in writing of the Contracting Officer's response.

6. Point of Contact for further information is Mr. James A. Simmons, Technical Director, 757-400-0020, james.a.simmons3@navy.mil.

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D. G. BEVINGTON
Executive Director
Acting

Distribution:
FDRMC (N100, N100B, N300, C400)
MARMC (C100, C100B, C300, C400)
SERMC (C100, C100B, C300, C400)
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PSNS&IMF (C100, C101, C400)
PHNSY&IMF (C100, C101, C104, C400)
SRF-JRMC (C100, C100B, C1200)

Summary of Change FY23 CH-2

Summary of Changes to Standard Item 009-16 Electronic Equipment; repair

1. Change: Updated reference missed from FY23 SSRAC

a. 2.7 CNSSAM TEMPEST/01-13, (U) RED/BLACK Installation Guidance

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

1. Change: Updated reference missed from FY23 SSRAC

a. 2.11 CNSSAM TEMPEST/01-13, (U) RED/BLACK Installation Guidance

Summary of Changes to Standard Item 009-99 Ship Departure Report; provide

1. Change: Updated to delete FOUO

a. 4.1 Updated to delete FOUO from Attachments and remind to mark attachments with CUI when needed.

b. 4.6 Added (See 4.1)

c. Attachment B deleted, FOUO. FOR OFFICIAL USE ONLY. THIS REPORT CONTAINS BUSINESS SENSITIVE INFORMATION. Added, (See NOTES 4.1 of 009-99)

d. Attachment C deleted, FOUO. FOR OFFICIAL USE ONLY. THIS REPORT CONTAINS BUSINESS SENSITIVE INFORMATION. Added, (See NOTES 4.1 of 009-99)

Summary of Changes to Standard Item 009-124 Thermal Spray NonSkid Application; accomplish

1. Change: Attachment B Changed who marked the repair area

a. The repair area must be designated and marked by the (SUPERVISOR) to NAVSEA-approved Technical Representative.

2. Change: Attachment C Changed

a. The repair area must be designated by the (SUPERVISOR) (TO:) NAVSEA-approved Technical Representative.

b. Per Table One, Line 3, Column A, remove TSN within the repair area with HP WJ and maintain pressure between 22,000 and 25,000 PSI. Conduct ten HP WJ passes over entire repair area to ensure complete TSN removal as approved by the (SUPERVISOR) (TO:) NAVSEA-approved Technical Representative.

3. Change: New: Appendix A - Thermal Spray QA Checklist Form

4. Change: New: Appendix B - Thermal Spray Repair QA Checklist Form

Summary of Changes to Standard Item 009-125 Boats Less Than 65 Feet Long; accomplish

1. Change: 3.1.2 National Association of Corrosion Engineers (NACE) Changed to, Association for Materials Protection and Performance (AMPP).

2. Change: 3.2.5 Society for Protective Coatings (SPC), deleted and updated to, SSPC-QP 1.

3. Change: Added New Paragraphs

a. 3.3.1 Reports must contain the following information:

(1) 3.3.1.2 A description of the conditions found with supporting data. Include annotated sketches, graphs, and photographs when necessary to make a report clearly understood to the SUPERVISOR. Identify actual readings and dimensions taken.

(2) 3.3.1.3 Recommendations and/or a list of material required.

(3) 3.3.1.4 For those reports not submitted in NMD, submit the following additional information: data required by, signature, printed name and title of the contractor's representative, and submission date.

(4) Re-numbered paragraphs as needed.

(5) 3.9.3 Install interferences removed in 3.9.1

(6) 3.9.3.1 Accomplish the requirements of 009-32 of 2.1 for each new and disturbed surface.

(7) 3.9.3.2 Align and accomplish appropriate strength, tightness, system cleanliness, and operational tests and ensure that the installed interferences perform their normal functions within the system.

(7) 3.9.4 Identify, disconnect, inspect, and isolate each cable to be pulled back, reused, rerouted, relocated, or repurposed. Record and retain electrical hook-up data.

(8) 3.9.5 Connect each cable pulled back, reused, rerouted, relocated, or repurposed using retained electrical hook-up data.

Summary of FY-23 Changes to Standard Item 009-32,
"Cleaning and Painting Requirements; accomplish"
and Associated Technical Rationale for Each Change

The following provides the rationale for the substantive changes to the FY-23 update to Standard Item 009-32. The specific changes discussed below appear highlighted and in ***bold/italics*** in the attached final draft, FY-23 Standard Item 009-32. Minor re-numbering changes, other typographical corrections, and minor changes to clarify existing requirements appear in the attached final draft, FY-23 Standard Item 009-32 in ***bold/italics***, but are only discussed in general terms below.

1. CHANGE: Editorial changes: Numerous administrative and editorial changes incorporated in the FY-23 Standard Item 009-32 are as follows:

a. Replaced the symbol " in the text that is used for inches with "inches" in Note (3A) and (42A) to improve clarity.

b. Updated the number "1000" in paragraph 3.10.6.3 to "1,000" and included the comma in Note (43A) to be consistent with the Standard Item numbering convention.

c. Relocated the exclusion in FY-22, Change 1, Standard Item 009-32 paragraph 3.6.1.5 for "potable water, reserve feedwater, fresh water drain collecting tanks and flight deck nonskid" to the beginning of the first sentence to improve clarity. The change clarifies the first sentence that now states; "On surface ships and submarines, excluding potable water, reserve feedwater, fresh water drain collecting tanks and flight deck nonskid, for new and disturbed…"

d. Clarified Note (41A) by adding Reference 2.4 for S9510-AB-ATM-010/(U), Nuclear Powered Submarine Atmosphere Control Manual to Note (41A) that already cited Reference 2.6.

e. Moved Table 2, Line 4, Columns B and C to Table 2, Line 1, Columns B and C respectively and deleted Table 2, Line 4 in its entirety to condense requirements into single line entries.

f. Corrected typographical error in the FY-22, Change 1, Standard Item 009-32 Dry Film Thickness (DFT) requirement for MIL-PRF-23236, Type VII ultrahigh solids coatings in Table 4, Line 8, Column D, to replace the incorrect "4-8 mils" with the correct "10-12 mils".

g. Eliminated the term "Same as Line 55" appearing in FY-22, Change 1, Standard Item 009-32, Table 2, Line 73, Column D, and throughout the document, by adding requirements to each line throughout the tables to improve clarity and mitigate the risk of transposition update errors in the future.

h. For consistency with the second coat entries in FY-22, Change 1, Standard Item 009-32, Table One, Lines 1, 11, and 12, Column B, cited the DFT requirements for the first coat of the two coat system.

i. Clarified that the final coat of both MIL-PRF-23236 qualified potable water tank coatings and MIL-DTL-24441, Type III coatings are to be white by

updating the FY-22, Change 1, Standard Item 009-32, Table 4, Line 1, Column F in the FY-23 update to require that the final topcoat for potable water tanks must be, "MIL-DTL-24441, Type III, F-152." The MIL-DTL-24441, Type III, Formula 152 is the white version of the MIL-DTL-24441, Type III coating system.

j. Based on merger of SSPC and NACE, removed references to "www.sspc.org" and "www.nace.org" from the FY-23, Standard Item 009-32 and replaced these citations with references to "www.ampp.org/certification" in paragraph 3.9. Note that the AMPP organization has decided to retain both the NACE and the SSPC designations for their current specifications and standards (e.g., SSPC-SP 10, NACE 2, etc.) and as such, these citations appearing in the updated FY-23 Standard Item 009-32 are still technically correct.

k. Eliminated the term "Same as Line…" used in FY-22, Change 1, Standard Item 009-32, Tables and Lines and replaced the term with specific surface preparation and coating requirements to improve clarity throughout the tables and to mitigate the risk of transposition errors in future document updates. Some "Same as" citations remain where there are changes or caveats to the requirements. These remaining citations will be reviewed and specific changes will be discussed with the technical community during the 2022 SSRAC meeting.

l. Corrected the FY-22, Change 1, Standard Item 009-32, transposition error that stated "Same as Line 31" in Table 2, Line 41, Columns F and G and replaced the term with the correct coating system requirement for a two layer fluidized bed powder coating as "One Coat MIL-PRF-24712, TGIC Polyester, Total System 15-30 Mils".

m. Corrected the FY-22, Change 1, Standard Item 009-32, Table 3, Line 8A, Column E transposition error that cited Note (4) by removing the note.

RATIONALE: Many of the editorial corrections and simplifications above are intended to address editorial errors or correct inconsistent requirements. The following list cites the references that explain the rationale for many of the administrative changes incorporated into the FY-23 Standard Item 009-32 to standardize language, align phraseology with Navy documentation policy, and update references.

a. To standardize the language in the FY-23 Standard Item 009-32 as required by the JFMM Volume VII, Chapter 4, Appendix E, references to the term " for inches were replaced by "inches".

b. To standardize the language in the FY-23 Standard Item 009-32 as required by the JFMM Volume VII, Chapter 4, Appendix E, references to values over 1,000 are to include a comma.

c. The authorized list of powder coatings has recently been removed from the Submarine Maintenance Standard, MS6310-081-015, Submarine Preservation and is now maintained on the QPL. To provide a reference to the list of the approved powder coatings for submarines, the reference to S9510-AB-ATM-

010/(U), Nuclear Powered Submarine Atmosphere Control Manual was incorporated into this Note.

d. Updated website to reference Association for Materials Protection and Performance (AMPP) to reflect merger of Society of Protective Coatings (SSPC) and NACE International. The change based on the merger was approved during the 2021 SSRAC meeting by representatives from both the NACE and SSPC organizations (i.e., who currently work for AMPP).

2. CHANGE: Adding allowance for NACE 4/SSPC-SP 7 Brush-off Blast Cleaning for ferrous piping in tanks and voids:

Added a new paragraph 3.1.4.5 to the FY-23 update to Standard Item 009-32 which states, "Existing ferrous piping in tanks and voids may be prepared in accordance with NACE 4/SSPC-SP 7 of 2.5 and 2.9."

RATIONALE: Currently, FY-22, Change 1, Standard Item 009-32, paragraph 3.1.4 requires the same SSPC-SP 10, near white metal level of abrasive blasting surface cleanliness for tank surfaces to be applied on any ferrous piping within the tanks. HII-NNS noted in their change proposal that requiring an SSPC-SP 10 on ferrous piping creates a risk that coating surface preparation would adversely affect pipe wall thickness and lead to unscheduled growth work to replace pipe. The HII-NNS change proposal noted that aircraft carrier Technical Relief Letters; 9631 Ser 05V/085 of 18 September 2019 for CVN 74, 9631 Ser 05V/097 of 15 June 2015 for CVN 73, and 9631 Ser 11/0600 of 20 September 2011 for CVN 72, allowed existing ferrous piping and piping components in tanks and voids, except in potable water, reserve feedwater, or freshwater drain collecting tanks, to be prepared to an SSPC-SP 7, brush off blasting level of cleanliness. In addition, the current local process instruction, IPI 0631-905 Rev F Ch-2 (dated 20 August 2020) utilized at Puget Sound Naval Shipyard (PSNS) states, "Ferrous and non-ferrous piping and cable pans in immersion areas shall be prepared in a manner consistent with the surrounding area. When blasting the area, prepare piping to SSPC-SP 7 or SSPC-SP 16, as applicable, except that no corrosion or mill scale may remain. If small areas have been missed, it is acceptable to prepare them to SSPC-SP 2, SSPC-SP 7, or SSPC-SP 16 as stated above (mechanical tooling shall not be used on piping or cable pans). Nuclear cognizant piping shall not be prepared or painted except when specifically directed by the cognizant technical code."
Thus, the allowance to prepare ferrous piping in accordance to SSPC-SP 7 has already been implemented on aircraft carriers and other ship classes. SEA 05P2 has no data showing that coating corrosion-control performance on ferrous piping prepared to SSPC-SP 7 has been inadequate and as such the change will; limit the risk of coating surface preparation processes damaging to piping; align work practices with existing procedures; speed the ferrous piping surface preparation process; and mitigate the risk of schedule delays associated with replacing ferrous piping damaged by surface preparation.

3. CHANGE: Clarified and standardized abrasive blasting surface preparation for aluminum surfaces:

Incorporated the SSPC-SP 17, "Thorough Abrasive Blast Cleaning of Non-Ferrous Metals," requirements into paragraph 3.1.4 for aluminum plates and shapes.

RATIONALE: Historically, NAVSEA incorporated the relatively new surface preparation standard, SSPC-SP 17 (i.e., that was published on 16 Sep 2019) that defines abrasive blasting cleanliness requirements for non-ferrous materials like aluminum, (i.e., and that are analogous to the SSPC-SP 10, near white metal level of cleanliness for steel substrates) into the FY-21 Standard Item 009-32 that was published on 6 Mar 2020. At that time, the SSPC-SP 17 requirements were included in the Tables, but incorporation of SSPC-SP 17 into paragraph 3.1.4 (i.e., that includes requirements for abrasive blasting of both steel and aluminum plates and shapes) was overlooked. Incorporating SSPC-SP 17 into paragraph 3.1.4, aligns existing requirements throughout the document and will allow the technically correct surface preparation requirements to be invoked when cleaning aluminum plates and shapes.

4. CHANGE: Created new requirements for MIL-PRF-24647 qualified epoxy primers that do not have to be touch tacky when the first coat of ablative antifouling is applied:
Added a new paragraph 3.1.20.1 to the FY-23 update to Standard Item 009-32 that states, "The requirement for the last coat of epoxy to be tacky prior to the first coat of antifouling is waived if the NAVSEA-Reviewed ASTM F718 states the minimum and maximum overcoat interval between the last coat of epoxy and the first coat of antifouling."

RATIONALE: Since the first ablative copper antifouling coating systems were qualified to MIL-PRF-24647 in the 1980s, the inherent incompatibility of the epoxy primers and the ablative antifouling topcoats has required that the first coat of ablative antifouling be applied when the last coat of epoxy primer was "still tacky." Because the tacky state changes as the epoxy cures, timing of the application of the first ablative antifouling coat to the tacky primer has been a challenge for the coating application contractors. Over the years, SEA 05P2 has periodically received reports of premature delamination of ablative antifouling coatings from intact, adherent primers. In such cases, chips of the delaminated coating are inspected for color transfer between the ablative antifouling topcoat and the last coat of epoxy primer, (i.e., as shown below) to validate that the coating was applied when the primer was tacky. When color transfer is not apparent, as shown below, then SEA 05P2 concludes that the epoxy was no longer tacky when the first coat of antifouling was applied.

To address this issue, HII-NNS proposed a 2018 NSRP Surface Preparation and Coatings (SPC) panel project to develop tables or charts in the NAVSEA-reviewed ASTM F718 data sheets that would show the tacky state as a function of time and temperature. SEA 05P2 and the paint manufacturers noted that creating accurate tables was technically impossible because issues of local solar heating, wind, and inherent variations in coating thickness would all affect the time it would take for an epoxy primer to become tacky. Based on this discussion, the NSRP SPC did not support such a project, but SEA 05P2 agreed to work with antifouling coating manufacturers to qualify new epoxy primers that contain enough solvent-soluble constituents to allow the first antifouling topcoat to be applied after the primer coating is no longer tacky and within a more broad "overcoat window." The "overcoat window" is similar to that for other primer systems and can more easily be presented as tables or charts in the NAVSEA-reviewed ASTM F718 data sheets. NAVSEA qualified these new primers in 2019 and 2020 and added the new FY-23, Standard Item 009-32, paragraph 3.1.20.1 to allow use of these primers that will:

(a) Appreciably reduce the risk of antifouling topcoats delaminating from epoxy primers.
(b) Reduce the costs associated with antifouling system application by avoiding the need for a coating applicator's paint crew to wait for a coating to become touch tacky before applying the first coat of antifouling primer.
(c) Streamline waterfront production work planning by allowing larger zones to be coated at one time (i.e., the tacky states continues to change as the antifouling topcoat is applied and as such ablative topcoats have been observed delaminating from the "last" area of a large zone, even though the ablative topcoats were adherent in the "first" area of the large zone that was coated).

This is a significant change that many underwater-hull coating applicators have stated will appreciably improve underwater-hull coating efficiency and reduce underwater hull coating application costs.

5. CHANGE: Define requirements for relative humidity when preparing and coating bolting rings and manhole cover gasket seating surfaces:

Added two new sentences to the end of paragraph 3.1.33 in the FY-23 Standard Item 009-32 that define relative humidity requirements for bolting rings and manhole cover gasket seating surfaces as follows, "…Maintain relative humidity at a maximum of 85 percent. This requirement supersedes Notes (26) and (29A)."

RATIONALE: The proposed change addresses an inherent production issue in the tank coating process that the bolting ring or gasket seating surface is typically coated after the rest of the tank has been coated because utilities, workers, and equipment may have to pass over these bolting ring areas during tank coating. This is why these areas are not typically blasted with the rest of the tank and the FY-19, Change 1, Standard Item 009-32, (i.e., published on 26 Mar 2018) included requirements for preparing the rings using hand-held powder tools to an SSPC-SP 15, level of cleanliness that allows retention of, "random staining limited to no more than 33 percent of each unit area." Based on the success of the process on surface ships in the FY-19, Change 1, Standard Item 009-32, these requirements were expanded to submarines in the FY-20, Change 1, Standard Item 009-32. Given that background, defining that the relative humidity requirement for all bolting rings and manhole cover gasket seating surfaces is not to

exceed 85% (i.e., even for a tank that was coated at a maximum relative humidity of 50%) is essential because the humidity controls that can be achieved in a tank are impractical to require in an engineering space or entire compartment when the bolting ring is simply being prepared with hand-held power tools. Since 2018, SEA 05P2 has had no reports of premature corrosion on bolting rings prepared to SSPC-SP 15 and as such, the change in surface preparation cleanliness requirements has not created a corrosion risk. As described in 2018, the corrosion risk in these bolting ring and gasket seating areas is inherently LOW because the gasket prevents exposure of the coated surface to the system fluid. Thus, by defining the requirements for relative humidity controls when using hand-held power tools to prepare bolting rings and gasket seating surfaces, the proposed new requirement acknowledges the impracticality of trying to reduce relative humidity in an open engineering space or compartment to the same level required inside of the tank. Furthermore, the allowance to coat the bolting rings and gasket seating surfaces at relative humidities of up to 85% does not appreciably alter the risk of inadequate coating corrosion-control performance in these areas. Thus, the change will avoid confusion on the waterfront regarding requirements and streamline production by avoiding situations in which the coating teams tries to wait or control the relative humidity in an engineering space or compartment to a maximum of 50%.

6. CHANGE: Removed undefined terminology about inaccessible areas:
The term "pipe weld" was added to paragraph 3.2.1 in the FY-23 update to Standard Item 009-32 while the following terms ". . . including inaccessible areas such as back side of piping, underside of I beams . . .)" were deleted from the paragraph.

RATIONALE: The addition of the term "pipe weld" to paragraph 3.2.1 is intended to provide a clear example of an area that would require a stripe coat and avoids the ambiguous term "back side of piping." The change does not alter the stripe coat requirements, and is consistent with NSTM 631, and simply eliminates an unclear parenthetical that was reported by shipyards as leading to confusion between coating applicators and QA/QC staff. Thus, the change will avoid confusion on the waterfront regarding requirements and streamline production.

7. CHANGE: Included requirements for MIL-PRF-23236, Type VII, Class 9/18 rapid cure, single coat potable water coatings:
Updated paragraph 3.3.1 in the FY-22, Change 1, Standard Item 009-32 to include the widely used MIL-PRF-23236, Type VII, Class 9/18 coatings.

RATIONALE: Historically, the first ultrahigh solid potable water coatings qualified to MIL-PRF-23236, Type VII, Class 9 were two-coat systems like the Sherwin-Williams Dura-Plate or SigmaGuard CSF 585. In 2016, the rapid-cure, single-coat, ultrahigh solids MIL-PRF-23236, Type VII, Class 9/18 potable water coating system (e.g., Sherwin-Williams Template) was added to the FY-17, Change 1, Standard Item 009-32. The single-coat potable water coating system has performed effectively and has completed eliminated the need for a second coat of paint as was required when applying the MIL-PRF-23236, Type VII, Class 9 potable water tank coatings. Given the success of the MIL-PRF-23236, Type VII, Class 9/18 single-coat system, the change to paragraph 3.3.1 simply corrects an oversight associated with not updating this paragraph in 2016.

Thus, the change will avoid confusion on the waterfront regarding requirements and streamline production.

8. CHANGE: Clarified requirements for antifouling coating cure time:
Aligned requirements in FY-23 Standard Item 009-32 paragraph 3.3 and Note (6) for surface ships and Note (4A) for submarines to clarify that the antifouling coating system final cure time is defined as 24 hours after application of the last coat of the overall antifouling coating system.

RATIONALE: Historically, SEA 05P2 started working with Standard Item in 1999 and at that time, the FY-01, Standard Item 009-32, (i.e., published on 23 Sep 1999), already included Note (6) that established the 24 hours dry time for the last coat of antifouling as the criteria for launching a ship. Note (6) addresses a potential inconsistency between the cure requirements for underwater hull coating epoxy primers and ablative topcoats. Specifically, underwater hull coating epoxy primers chemically crosslink during cure and at lower temperatures, the time to full cure to support immersion service can be seven days or more. However, the ablative antifouling topcoats cure by simple solvent evaporation that occurs over a broad range of temperatures. During ablative antifouling coating system application, the epoxy primer is overcoated with two or three coats of ablative antifouling. Historically, there were cases where antifouling coatings applied in cold weather were acceptable for immersion service even though the underlying epoxy not fully cured to immersion service. To avoid confusion, Note (6) and Note (4A) were created to set the dry time for antifouling topcoats as 24 hours (i.e., the minimum allowed by the manufacturer) even though the epoxy primer may not yet have fully cured to support immersion service. Such an approach is technically acceptable because both the epoxy primer and the ablative antifouling topcoat will continue to cure/dry after the ship is launched. The only risk associated with the Note (6) requirement was that the still somewhat plastic primer and antifouling topcoat would "cold flow" due to hydrodynamic forces if a ship immediately started high-speed operations after launch. Such cold flow has been observed on commercial ferryboats that are placed back into service immediately after launch, but the "cold flow" has not been observed on a Navy ship since 1999 because Navy ships usually remain pier-side for an appreciably period after launch. Thus, the change clarifies the requirement that appears in Note (6) and Note (4A) and really does not alter waterfront work practices that have been successfully used to determine when a ship can be launched after antifouling coating application since 1999. Thus, the change will avoid confusion on the waterfront regarding requirements and streamline production.

9. CHANGE: Adopted a hand sanding based process to address areas less than or equal to two percent of the tank surface area with a coat that have exceeded the overcoat window:
Added a new sentence to the end of paragraph 3.4.2 of the FY-23 Standard Item 009-32, that states, "… For areas less than or equal to 2 percent of the surface being prepared, the process in 3.4.3 may be used."

RATIONALE: The paragraph 3.4.3 requirements for hand sanding coatings with 80 – 120 grit sandpaper to roughen a primer that has not been overcoated for more than 30 days to promote mechanical inter-coat adhesion is a standard industrial practice appearing on many commercial coating data sheets. The specific NAVSEA requirements for using hand sanding to address coatings that have exceed their overcoat window were added

to the FY-08, Standard Item 009-32 that was published on 13 Jul 2006 and have been used successfully since that time to address primers that have been on surfaces for more than 30 days. Shipyards noted that the required process appearing in FY-22, Change 1, Standard Item 009-32 to address a missed overcoat window required spraying a mist coat of paint is both cumbersome and time consuming, especially when employed to address small defects or damaged areas that occur frequently as part of tank close out. As such, the proposed change allows the shipyards to use hand tools (e.g., rags, solvent, sandpaper, brushes/rollers, etc.) to repair small defect areas in coating that have not been overcoated for 7 – 30 days using the same process required for coatings that have not been overcoated for more than 30 days. Because the requirements in paragraph 3.4.3 to hand sand and then overcoat have been successfully employed on the waterfront since 2006 to avoid the cost/effort associated with removing and replacing epoxy primers that have not been overcoated for 30 days; extending this successful work practice to repair small areas of coatings that have not been overcoated for 7 – 30 days posed a LOW risk of adversely affecting the integrity of the overall coating system. Thus, the change will adopt a more efficient, less costly process for ensuring inter-coat adhesion when the primer coat has exceeded the overcoat window in small areas without appreciably altering the risk of inadequate overall coating system performance.

10. CHANGE: Clarified the definition of touch-up within Standard Item 009-32:
Incorporated the term "or equal to" into paragraph 3.6.1.3 of the FY-23 Standard Item 009-32 so that the paragraph states, "…touch-up is defined within this Standard Item as preservation operations on cumulative surface areas less than or equal to 10 percent of the total area…".

RATIONALE: The current requirement in paragraph 3.6.1.3 of the FY-22, Change 1, Standard Item 009-32 provides the definition of touch-up but does not allow touch-up of areas equal to 10 percent. This change provides clarification of the area that can be subject to the touch-up requirements. SUPSHIP HII-NNS reports that there has been confusion on the waterfront as to whether or not preservation of 10 percent of the total area is considered in the definition of touch-up. During previous Aircraft Carrier Overhaul availabilities, the clarification that 10 percent of the area is considered touch-up has been deemed acceptable per Technical Relief Letters 9631 Ser 05V/085 of 18 September 2019 for CVN 74 and 9631 Ser 05V/097 of 15 June 2015 for CVN 73. Thus, clarifying that the definition of touch-up includes 10% of the area in paragraph 3.6.1.3 of the FY-23 Standard Item 009-32 avoids confusion on the waterfront and is consistent with established work practices.

11. CHANGE: Reducing FOD risk by incorporating an exclusion for LHA/LHD Flight Deck nonskid to the exceptions for touch-up area work scopes:
Added LHA/LHD flight deck nonskid to the exceptions in paragraph 3.6.1.3 for touch-up work in the FY-23 update to Standard Item 009-32.

RATIONALE: Since the USFF N43 Flight Deck Readiness Working Group started working on reducing the risk of chips or flakes of flight deck nonskid causing aircraft engine Foreign Object Damage in 2017, the group has proposed many changes to reduce the risk of nonskid chipping or flaking. Over the past two years, CNSP N43 Nonskid On Site Representatives (OSRs) have noted that contractors performing small-scale

repairs on flight deck nonskid have been invoking the touch-up requirements to conduct the work without government oversite and some of these repairs have delaminated prematurely. Because the NAVAIR 4.4 policy is that "any solid particle of any size released from the flight deck can pose a risk of aircraft engine FOD," even the small areas subject to touch-up can create an aircraft engine FOD risk. The CNSP N43 OSRs noted that the only cases of delaminating repairs posing an aircraft engine FOD risk have been on LHA/LHDs and as such, the change was not extended to CVNs because:

(a) CVNs have a more robust process for touch-up and repair of nonskid coatings (i.e., from their CNAP Nonskid OSRs and ship's force).
(b) CVNs inherently generate chips/flakes of nonskid during arrested landings (i.e., the tail hook knocks nonskid off the deck) and as such understand how to remove such flakes before they become an aircraft engine FOD risk.
(c) The CVNs have been successful with cleaning up nonskid chips and avoiding aircraft engine FOD.

Thus, the change is currently only applicable to LHA/LHD class ships that conduct vertical landings of AV-8B and F-35 aircraft. The proposed change will reduce the risk of small areas of flight deck nonskid applied as part of a touch-up process delaminating and damaging AV-8B or F-35 aircraft engines and SEA 05P2 determined the change is technically essential.

12. CHANGE: Added DSRV or submarine rescue vehicle seating surfaces to the critical coated areas list:

Updated the FY-23 Standard Item 009-32, critical coated list in paragraph 3.7 to include DSRV Seating Surfaces.

RATIONALE: SUBMEPP and SEA 05U7 noted that when required, operations of a DSRV or similar submarine rescue system must essentially form a watertight seal to the hull coating in the seating surface area. Any delamination or flaking of the hull coating in these areas could pose a risk of leaks or adversely affect the ability of a DSRV or submarine rescue system to obtain a watertight seal to the painted hull. Because the area is relatively small, and the much larger underwater hull coating system is already cited in FY-22, Change 1, Standard Item 009-32, paragraph 3.7 as a critical coated area, citing the DSRV or submarine rescue system seating surface area in FY-23 Standard Item 009-32, paragraph 3.7 will not appreciable alter coating installation costs or installation time, but will reduce the risk of inadequate coating application workmanship leading to delaminating or flaking coatings in these areas. SEA 05U7 confirmed that the COMSUBLANT and COMSUBPAC TYCOMs support the change and any associated increase in job costs. SEA 05P2 concurs with the change as being technically essential because of the risk associated with a DSRV or submarine rescue vehicle being unable to form a seal to a delaminating hull coating.

13. CHANGE: Clarified that Surface Ship Bilges include both Drain Sumps and Drain Wells:

Updated the FY-23 Standard Item 009-32, critical coated area list in paragraph 3.7 to include drain sumps, and drain wells.

RATIONALE: Historically, Standard Item 009-32 lists categories of spaces or locations to facilitate application of the requirements to a wide range of ship classes that may use different terms for similar areas. As such, SEA 05P2 had considered the Surface Ship Bilges

(i.e., a critical coated area since 1999) to included bilge sumps. However, due to repeated cases of coating application contractors challenging work packages as not clearly defining such sump areas as being subject to the requirements for critically coated areas, NAVSEA published the FY-11, Standard Item 009-32 on 24 Jul 2009 to include the following clarification; "(including sumps)." Over the past decade, this citation has also been challenged by coating application contractors as not being clear or specific and as such, a new vernacular was agreed upon by the technical community at the 2021 SSRAC. The new terms added to the FY-23, Standard Item 009-32, paragraph 3.7 are as follows:
"Surface ship bilge, drain sump, and drain well." Such an approach addresses the concern that a "drain" is not a "bilge" and clarifies the NAVSEA intent. Bilge sumps and bilge wells will still be covered as critical coated areas based on the citation of these areas as part of the critical coated area of surface ship bilges. Thus, the change clarifies requirements and will reduce debate with coating application contractors about requirements resulting in streamlined production and reduced coating application costs.

14. CHANGE: Added requirements for SSPC-SP 15 commercial power tool cleaning and added requirements for coating submarine bilges, to paragraph 3.10.5.2 that addresses power tool cleaned surface profile measurement:
Added "submarine bilges" to paragraph 3.10.5.2 in the FY-23 update to Standard Item 009-32 for surface profile measurement requirements.

RATIONALE: SUBMEPP and SEA 05U7 concur with the change below to require a profile for submarine bilges to be 2-4 mils and that submarine bilges do not need be added to the critical coated areas list appearing in paragraph 3.7. SEA 05U7 determined that submarine bilges are not to be considered critical coated areas because they are accessible and ship's force can, if needed, perform touchup work of such bilges. The intent of the change was to ensure a minimum 2 mils of surface profile is created in these areas to ensure effective adhesion of ultrahigh solids coatings. SEA 05U7 reviewed the success of the FY-07 update to Standard Item 009-32 (i.e., that was published on 14 Jul 2005) that required critical coated areas that were power tool cleaned to an SSPC-SP 11 or SSPC-SP 15 level of cleanliness to have minimum profile of 2 mils. The change has been successful over the years in reducing delamination of ultrahigh solids coatings from hull cuts and other areas. SURFMEPP also noted that there have been reports from in-service submarines that dropped tools or equipment can cause the bilge coating applied over a profile of just one mil to chip or flake off the substrate. Thus, the increase in minimum required profile aligns the submarine and surface ship requirements and the minimum of 2 mils of surface profile will help reduce the amount of chipping or flaking in these areas. Because it is merely the sharpness of tools or tool settings that determine the profile, the change is unlikely to appreciably alter the time or costs associated with preparing surfaces to SSPC-SP 11 or SSPC-SP 15. Thus, the change will avoid confusion between submarines and surface ship requirements on the waterfront and streamline production.

15. CHANGE: Clarified that thinning of coatings is prohibited:
Moved requirement to not thin coatings from paragraph 3.10.8.2 of the FY-22, Change 1, Standard Item 009-32 to paragraph 3.1.34 of the FY-23 Standard Item 009-32.

RATIONALE: The requirement that coatings applied to Navy ships must not be thinned has existed in the Standard Item 009-32 dating back to the FY-06, Standard Item 009-32 published on 24 March 2005 and is consistent with requirements in NSTM 631. The NSWC-PD change proposal noted that the prohibition on thinning coatings appears FY-22, Change 1, Standard Item 009-32, paragraph 3.10.8.2 that does not apply to nonskid system applications but rather applies to all other coating applications. In 2019, SEA 05P2 learned that a nonskid application contractor was thinning epoxy primers to serve as a "hold coat" that would be removed before the final nonskid system was applied. SEA 05P2 immediately reported the thinning to the SWRMC environmental compliance team and they immediately stopped the nonskid application contractor's work to prevent further noncompliance with local air emission permits. Thus, to clarify the requirements and eliminate confusion on the waterfront about whether a nonskid "hold coat" could be thinned, the prohibition for adding thinners to qualified Navy coatings was moved to paragraph 3.1.34 in the FY-23 update to Standard Item 009-32 to clarify that this requirement applies to all Navy coating application tasks (i.e., conventional coatings and nonskid). Because the requirement is simply being moved, the change does not alter the time or costs associated with applying coatings and will reduce the risk of adverse regulatory actions or fines associated with coating application contractor's thinning coatings.

16. CHANGE: Clarified requirements for application of the Impressed Current Cathodic Protection (ICCP) sprayable dielectric shield in close proximity to seachests:
Updated the FY-23 Standard Item 009-32, Attachment D, paragraph 2. to state; "Install plug or masking material for the protection of areas not to be painted to include sea chests and other areas as directed by the SUPERVISOR." In addition, updated the FY-23 Standard Item 009-32, Attachment E, paragraph 1. to include a new last sentence that states; "Install plug or masking material for the protection of areas not to be painted to include sea chests and other areas as directed by the SUPERVISOR."

RATIONALE: There are smaller sea chests on Navy ships that historically have not been required to be masked and were simply coated with as much of the underwater hull coating system as could be applied with conventional spray equipment (i.e., the sea chests are so small that the spray gun cannot fit in the chest). The SEA 05P2 ICCP Technical Warrant Holder learned that in some cases, the inherently high-build coatings used in the dielectric shield built up too rapidly in these smaller sea chest, resulting in costly hand work to remove excess dielectric shield coating. To mitigate the risk of excessive amounts of dielectric shield coating building up in smaller sea chests, the FY-23, Standard Item 009-32 includes new requirements in Attachment D and Attachment E that require masking to preclude excessive coating build-up. These changes will reduce the risk of potential adverse cost and schedule impacts associated with spray application of dielectric shields.

17. CHANGE: Authorized application of MIL-PRF-23236, Type VII coatings for low temperature applications:
Clarified and updated Note (84) to state, "For applications when substrate temperature cannot be maintained above 50 degrees Fahrenheit, MIL-PRF-23236 coatings must be used in accordance with the NAVSEA-Reviewed ASTM F718 to determine the lower application temperature limit. Do not apply these coatings below 35 degrees Fahrenheit substrate or ambient temperature." Incorporated the new Note (84) into Tables and Lines for bilges, JP-5 tanks, ballast tanks, peak tanks, and chain lockers. The update also deleted the titled appearing in the FY-22, Change 1, Standard Item 009-32, first column of Table 4, Lines 17 and 18, "substrate temperature 50 degrees Fahrenheit and above" as well as Table 4, Line 14 and Table 4, Line 19 which were simply deleted.

RATIONALE: To support project schedules that require more tanks to be coated while carriers and other ships are in the water, the FY-19, Change 2, Standard Item 009-32 was updated on 26 March 2018 to allow some ballast and JP-5 tanks to be coated when the substrate could not achieve the required 50F steel substrate temperature (i.e., when a ship is in the water, in the winter, and the surrounding seawater is less than 50F). Before the 2018 change, PSNS staff had worked for years to develop processes to coat CVN "skin" tanks that were adjacent to cold seawater and none of the processes proved effective or practicable. As such, SEA 05P2 historically approved DFS to install coatings at lower temperatures as approved demonstration processes. However, since 2018, JP-5 tanks, surface ship fuel/contaminated fuel tanks, DDG 51 fuel service tanks, sumps, dirty drain collecting tanks, some bilges, oily waste tanks, chain lockers and some non-floodable and floodable voids have all been coated with these low temperature coatings that are qualified to MIL-PRF-23236, Type V or VI. The low temperature coatings are to be applied in accordance with the NAVSEA reviewed ASTM F718s and the other general requirements in Standard Item 009-32. It is important to note that the FY-23 update to Note (84) also includes a prohibition on applying these coatings, even if the NAVSEA-reviewed ASTM F718 allows application, at temperatures below 35F. Applying any coatings to substrates that are below 35F creates an appreciable risk of painting over an adherent layer of ice and as such, the update to Note (84) will reduce the risk of applying coatings over ice. NAVSEA has had no reports of previous installations of low temperature coatings in tanks failing prematurely. It is important to note that neither the tanks cited in 2018, nor the area cited in the proposed update to the Note (84) were or are applicable to reserve feedwater, potable water, or freshwater drain collecting tanks and these tanks must still be coated when the substrate temperature is above 50F. SEA 05P2, the Technical Warrant Holder for Coatings and Corrosion Control – Ships rates the risk of allowing low temperature application of MIL-PRF-23236, Type VII coatings to be applied to additional types of tanks resulting in premature coating delamination or corrosion that would adversely affecting ship structure as LOW. Updating Note (84) in the FY-23 Standard Item 009-32 is considered essential to the Carrier Planning Activity (CPA) overall tank maintenance strategy to support carrier overall service life goals (i.e., shipyards report they cannot coat enough tanks during drydockings to support the notional 50 year CVN service life) and the change builds on the successful processes that have been established since 2018 for coating tanks on ships that are afloat in cold seawater.

18. CHANGE: Clarified requirements for applying coatings to non-ferrous liners on submarines to eliminate the arbitrary term 1/2 inch overlap:
Deleted "a minimum 1/2 inch" from Note (1A) in the FY-23 update to Standard Item 009-32.

RATIONALE: SUBMEPP noted in their change proposal that there are some small hull inserts/valves that require less than ½ overlap of preservation to allow for proper fit-up during installation and these valves create an inherent conflict with the current, FY-22, Change 1, Standard Item 009-32, Note (1A). Based on these issues with coating application and fit-up, and the fact the coatings on non-ferrous liners and cladding do not prevent corrosion, the technical community at the 2021 SSRAC meeting determined that arbitrarily requiring ½ inch of coating overlap on nonferrous liners or cladding did not improved coating performance or limit corrosion. Because the current ½-inch requirement was generating confusion on the waterfront when some valves were re-installed, SEA 05P2 concurred with the discussion at the 2021 SSRAC meeting and determined the requirement for overlapping coatings by ½ inch onto nonferrous surfaces was non-value-added and could be eliminated. As revised in the FY-23 Standard Item 009-32, Note (1A) still requires coating to be applied onto the non-ferrous liners or cladding, but does not require measurements of how far such coatings extend onto the liners. Thus, the change will avoid non-value-added tasks to remove coating from small nonferrous hull inserts and valves to streamline production and reduce cost.

19. CHANGE: Clarification of coating repair terminology:
Added the term "newly installed" to Notes (26) and (29A) in the FY-23 update to Standard Item 009-32, such that the Notes state, "For newly installed coating repair or replacement…"

RATIONALE: Notes (26) and (29A) were initially included in Standard Item 009-32 to require coatings to be installed at relative humidities below 50 percent, but on 12 May 2016, Notes (26) and (29A) were updated in the FY-17, Change 1, Standard Item 009-32 to clarify that the requirement for relative humidity during "in-service coating touch-up" was 85% relative humidity. The 2016 change allowed streamlined coating repair tasks by acknowledging that repaired, in-service coatings were not going to provide the same service life as newly installed coatings applied at relative humidities below 50% and as such, repairing the coatings at below 85 percent relative humidity did not appreciably alter the overall corrosion control performance of the repaired coating. However, since 2016 there have been cases where coating applicators had been applying the Notes (26) and (29A) requirements to the normal coating touch up and repair tasks of newly applied coatings, even when the government required these newly installed coatings to be applied at below 50% relative humidity to maximize coating service life. Thus, the FY-23 update to Notes (26) and (29A) clarify the intent of the government that when the note is invoked, the coatings must be applied, and repaired, at relative humidities below 50% and it is only after the coating is installed and repaired that the relative humidity may be allowed to increase to up to 85%. Thus, the change simply clarifies the government intent of the existing requirement by clarifying the difference between repair of a newly applied coating and touch-up of an in-service coating.

20. CHANGE: Deleted requirements that defined work planning:
Deleted Note (46) and (79) in their entirety from the FY-23 update to Standard Item 009-32 and all references to Note (46) and (79) in the Tables and Lines.

RATIONALE: Historically, when the ultrahigh solids, MIL-PRF-23236, Type VII coatings were implemented in Standard Item 009-32, the technical community considered the risk that these inherently viscous coatings (i.e., as compared with the solvent-based coatings like MIL-DTL-24441 that were in widespread use at the time) would not conform or wet areas that were rough, irregular, or "heavily pitted." To address this risk, Sherwin-Williams and International Paint noted that their initial coat, or "primer" products could be brush applied to manually work the coating into pitted areas. These coatings were included in the FY-07, Standard Item 009-32 that was published on 14 Jul 2005 and had been in the document ever since. However, since 2005, the technologies for supporting brush application of the fully qualified MIL-PRF-23236, Type VII coating system has improved. For example, NAVSEA has fielded paint cartridge systems that automatically dispense small amounts of pre-mixed MIL-PRF-23236, Type VII coating into a location allowing the coating to be brushed into a pitted area, and burst packs of MIL-PRF-23236, Type VII coatings that can be mixed in the flexible packaging and then dispensed into a pitted area for brush application. During the same period, NAVSEA has not encountered any cases where ultrahigh solids coatings inadequately wet a pitted or rough surface. Thus, work planners noted that the Notes (46) and (79) could drive slow, manual brush coating application work practices and that allowing local, waterfront decisions about when the brush application is required would speed coating installation without appreciably altering risk. In addition, eliminating Note (46) eliminates a separate checkpoint that will also speed products. SEA 05P2 concurs that allowing local decision-making about when brush application is required in a pitted or rough area is more efficient than requiring all areas subject to these notes to require the separate primer coat and the associated checkpoint, without appreciably altering the risk of coatings delaminating from inadequately wet pitted or rough surfaces. Thus, the proposed change will streamline coating product by allowing local waterfront decisions regarding coating installation practices, without appreciably altering the risk to overall coating system performance.

21. CHANGE: Deleted Note (49) that cited "Brush Grade" products that are no longer required based on current packaging for MIL-PRF-23236, Type VII qualified ultrahigh solids coatings:
Deleted Note (49) in its entirety from the FY-23 update to Standard Item 009-32 and all references to Note (49) in the Tables and Lines.

RATIONALE: Historically, when the ultrahigh solids, MIL-PRF-23236, Type VII coatings were implemented in Standard Item 009-32, the technical community considered the risk that these inherently viscous coatings (i.e., as compared with the solvent-based coatings like MIL-DTL-24441 that were in widespread use at the time) would not conform or wet areas that were rough or irregular. To address this risk, Sherwin-Williams and International Paint offered lower viscosity versions of their ultrahigh solids coatings that were advertised as being useful in small areas where working the coating into the surface with a brush might be required. These coatings were included

in the FY-07, Standard Item 009-32 that was published on 14 Jul 2005 and had been in the document ever since. However, it is important to note that these "Brush Grade" coatings were never independently qualified by NAVSEA, but rather were considered part of the manufacturer's qualified MIL-PRF-23236, Type VII system. However, since 2005, the technologies for supporting brush application of the fully qualified MIL-PRF-23236, Type VII coating system has improved. For example, NAVSEA has fielded paint cartridge systems that automatically dispense small amounts of pre-mixed MIL-PRF-23236, Type VII coating into a location allowing the coating to be brushed into a rough area, and burst packs of MIL-PRF-23236, Type VII coatings that can be mixed in the pack and then dispensed into a rough area for brush application. These new coating packaging systems support brush application of the fully qualified MIL-PRF-23236, Type VII coating and allow NAVSEA to eliminate the archaic requirements for the Brush Grade products by deleting Note (49) from the FY-23 Standard Item 009-32 update. NAVSEA took the action to delete these Brush Grade coatings in the FY-23 update to Standard Item 009-32 because in 2021 a Navy shipbuilder procured all the Brush Grade coating available in the United States from a coating manufacturer and was essentially trying to brush apply an entire tank coating system. Because there were no area limits associated with the FY-22, Change 1, Standard Item 009-32 Note (49), NAVSEA had to argue that because the Brush Grade products were not independently qualified to MIL-PRF-23236, Type VII, they could not be independently applied as a tank coating that was required by contract to be coated with a MIL-PRF-23236, Type VII. Based on discussions with the technical community at the 2021 SSRAC meeting, and the discussion with all coating manufacturers and coating application contractors, the technical community agreed that the advancements in paint packaging eliminated the need to call out the archaic Brush Grade products in Standard Item 00-32. By eliminating references to these products in the FY-23 update to Standard Item 009-32, NAVSEA will avoid the risk of having to explain to coating applicators why it was technically unacceptable to try and coat an entire tank with a Brush Grade material. The change will also ensure that when the government contracts to apply a qualified MIL-PRF-23326, Type VII coating, only that qualified coating will be applied.

22. CHANGE: Updated Figure One to incorporate tolerances for all dimensions to eliminate schedule delays:

Updated Figure One in Note (61) in the FY-23, Standard Item 009-32 to include a plus or minus 1/4 inch tolerance for all dimensions listed in Figure One and added new Note #3 to Note (61) to state, "3/4 inch masking around all plate edges."

RATIONALE: The Figure One that defines the location of nonskid on surface ship Recovery Assist Secure and Traverse (RAST) track plates was first included in the FY-11, Standard Item 009-32 (i.e., published on 24 Jul 2009) was provided by NAVAIR and included "verbatim." NAVSEA defaulted to NAVAIR regarding the technical content of the Figure One drawing, but during the 2021 SSRAC meeting, SRF-JRMC noted that the drawing did not include a tolerance to allow use of metric masking tapes that are similar to the dimensions on the drawing, but not identical. SEA 05P2 concurred that lack of tolerance on the drawing would result in confusion during production and could delay work if specific width masking materials had to be procured. SEA 05P2 also noted that the drawing did not clearly define the masking requirements and

revised the RAST track plate drawing to include a note that, "ALL DIMENSIONS PLUS OR MINUS ¼ INCH." The tolerance does not appreciably alter the location of the nonskid, but rather allows metric sized tapes and other slightly different materials to be used in masking before nonskid is applied. SEA 05P2 also clarified the requirements for masking by eliminating some specific drawing dimensions that were not clearly associated with nonskid installation. Finally, SEA 05P2 completed the updated, clarified RAST track plate drawing and on 4 Oct 2021 at 3:49 PM, the NAVAIR ACS/AAS Recovery Team Leader concurred with the revised sketch. Based on the NAVAIR concurrence, FY-23, Standard Item 009-32 will include a new Figure One that includes a tolerance to allow slightly different size masking materials and more clear masking requirements. Thus, the change will streamline production in OCONUS locations and will more clearly define the requirements for masking RAST track cover plates.

23. CHANGE: Added new requirements to invoke the recently published SSPC-SP 18 process for "Thorough Spot and Sweep Blast Clean" cleaning Well Deck Overheads, Ballast Tanks, Voids, and Chain Lockers.

Created an entirely new Attachment F that describes the NAVSEA requirements for implementing the recently published SSPC-SP 18 requirements and created a new Note (67) that invokes the Attachment F requirements. Note (67) is then cited in new FY-23, Standard Item 009-32, Table 2 Lines 32A and 33A for Well Decks and Well Deck Overheads; new Line 24A to Table 4 for Chain Lockers; and a new Line 19 to Table 4 for Ballast Tanks, Voids, and Floodable and Non-floodable Voids.

RATIONALE: Based on senior leadership interest, SEA 05P2 concurred with the SURFMEPP proposed change to incorporate the SSPC-SP 18, "Thorough Spot and Sweep Blast Cleaning for Industrial Coating Maintenance" surface preparation requirement that was published on 30 Dec 2020 into selected new lines in the FY-23 Standard Item 009-32. SSPC-SP 18 was developed based on "lessons learned" by decades of NSRP Surface Preparations and Coatings (SPC) panel efforts to develop requirements for a partial blast process that would allow existing adherent, intact, MIL-PRF-23236, Type VII ultrahigh solids coating to be retained under a complete new coat of ultrahigh solids paint. The SSPC-SP 18 requirements may be summarized as requiring corroded or expose steel to be abrasive blasted to an SSPC-SP 10, near white metal level of cleanliness and retained ultrahigh solids coating to be brush blasted and retained. One of the NSRP SPC tasks was a demonstration of the partial blast process on the USS NEW YORK (LPD 21) well deck overhead. The LPD 21 well deck overhead was originally coated with a MIL-PRF-23236, Type VII, Class 19/18 qualified system in 2008 and then in 2016, the well deck overhead was subject to a partial blast process with oversight by an NSRP SPC project team. The NSRP SPC project team observed a number of key issues associated with worker training, QA/QC processes, and requirements that needed to be addressed to institutionalize the partial blast process, but also validated that retained, intact, coatings exhibited ASTM D4541 coating adhesion values between 1,748 and 3,334 psi to the substrate and as such posed a LOW risk of delaminating or cracking when overcoated with an ultrahigh solids coating system. In 2016, the entire well deck overhead was subject to partial blasting and overcoated with a MIL-PRF-23236, Type VII, Class 19/18 qualified coating. The coating system was inspected in 2018 and the coating condition in areas subject to the

partial blast process and the conventional SSPC-SP 10 process exhibited similar performance with both areas of coating being in excellent or good condition. Based on the NSRP SPC and other Navy data, SSPC created the SSPC-SP 18 standard in 2020 and adopting the new requirement in the FY-23 Standard Item 009-32 will allow NAVSEA to reduce the time required to abrasive blast tanks, voids, and well deck areas by between 19% and 57% (i.e., depending on the condition of, and adhesion of, the coating that will be retained). The proposed change strategy shown above is to allow work planners to select the separate lines for SSPC-SP 18 when the work planners feel the approach makes sense and then the new Attachment F provides the key "lessons learned" requirements from the NSRP SPC work that were found to be essential to successful process implementation. Please note that the following considerations went into selected the four categories of spaces that are cited in the FY-23 Standard Item 009-32 for use of the SSPC-SP 18 surface preparation process:

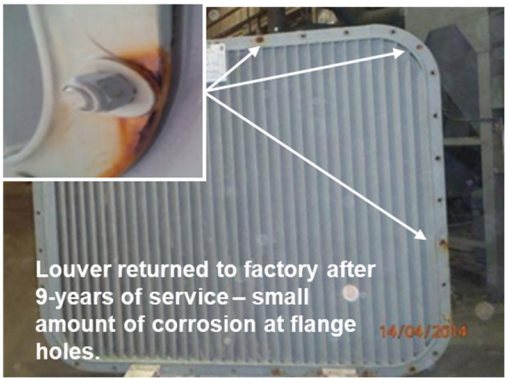
- JP-5 tanks and other tanks subject to hydrocarbon exposure ARE NOT included in the tanks that can be prepared using SSPC-SP 18 above because SEA 05P2 has no data on the degree to which hydrocarbon diffusion into the retained coating would degrade adhesion of any subsequent coating layers. Because there is no data on the risk of degraded adhesion, there is a risk of partial blast coating processes in fuel or hydrocarbon service tanks delaminating prematurely and leading to paint chips contaminating the fuel over time and as such SEA 05P2 cannot justify the risk of paint chips forming in aviation or ship's fuel and the process is not to be invoked in such tanks.
- Potable water tanks (i.e., and reserve feedwater, and freshwater drain collecting tanks) ARE NOT included in the changes because there are no NSF 61 systems that cite SSPC-SP 18 and SEA 05P2 does not have enough performance data to justify the change. Thus, there are no lines in the FY-23 Standard Item 009-32 that cite SSPC-SP 18 for potable, reserve feedwater, and freshwater drain collecting tanks
- CHT and sanitary tanks ARE NOT included in the changes above because CHT tank coatings are inherently degraded by exposure to fatty acids in the waste products and as such may not be a sound substrates for overcoating.
- Submarine tanks ARE NOT included in the changes, but SEA 05P2 recommends that SEA 05U7/SUBMEPP determine if a change for SSPC-SP 18 in ballast tanks might be acceptable based on previous work conducted to the Submarine Maintenance Standard, MS6310-081-015 that allowed some retained paint provide enough OQE to allow the process in submarine tanks in the next update to Standard Item 009-32.

Thus, the proposed change will provide waterfront work planners with a tool to retain adherent, intact MIL-PRF-23236, Type VII coatings and appreciably reduce the time to prepare such tanks/areas by retaining the intact and adherent coatings while creating a LOW risk that the final coatings in tanks/areas subject to the SSPC-SP 18 surface preparation process will delaminate or degrade prematurely.

24. CHANGE: Clarified that liquid coating repair processes for fluidized bed powder coatings are limited to touch-up applications only:

Updated the FY-23, Standard Item 009-32 by removing "Same as Line 36" in Table 2, Line 40, Column A and replaced this with "Power Tool Clean to Bare Metal, SSPC-SP 11 for Touch-Up Only".

RATIONALE: The binary, fluidized bed powder coating process for DDG gas turbine intake and exhaust louvers is a high-performance coating application process that was added to the FY-12, Change 1, Standard Item 009-32 on 31 Jan 2011 and has appreciably reduced corrosion in these louvers over the past decade. In 2021, the fluidized bed powder coating applicator noted that three ship sets of the fluidized bed powder coated louvers had achieved 18 years of service life. The fluidized bed powder coating applicator also noted that the vast majority of louvers returned to their facility for re-coating are corroding in the areas where the bolts used to install the louvers have crushed or damaged the coating. Although the louvers are intended to be installed with polymeric "top hat" bushings to prevent damage to the binary fluidized bed coating, there are still a number of cases where the only coating damage on the louver is under the bolted fasteners as shown below.



SRF-JRMC and FD-RMC noted that there was not enough time in ship maintenance schedules to send the DDG louvers to the fluidized bed powder coating applicator and as such, requirements to allow fluidized bed coating touch-up with liquid coatings were added to the FY-19, Change 2, Standard Item 009-32 that was published on 26 Mar 2018. However, the SRF-FDRMC team noted that the "Same as Line 36" term appearing in the FY-22, Change 1, Standard Item 009-32 actually referenced an abrasive blasting line that was not likely to be employed to support touch-up of louver coatings. Rather, liquid coating system touch-up or repair of the small areas of damage around the bolt holes can more reasonably be accomplished using needle guns or similar tools that produce and SSPC-SP 11, power tool cleaned to base metal level of surface cleanliness. As such, in the FY-23, Standard Item 009-32, Table 2, Line 40, Column A was updated to "Power Tool Clean to Bare Metal, SSPC-SP 11 for Touch-Up Only" and this change will reduce costs by allowing OCONUS activities to readily repair fluidized bed powder coated louvers within the normal time associated with a maintenance availability. Extending DDG exhaust and intake louver service life reduces costs and appreciably mitigates the risk of corrosion staining from the louver bolted joints staining the louvers and or the surrounding ship structure.

25. CHANGE: Added new requirement for application of single coat systems in fan rooms: Updated the FY-23, Standard Item 009-32, Table 3, Line 21A to include requirements for installing rapid-cure, single-coat systems in fan rooms.

RATIONALE: Historically, rapid-cure, single-coat paints qualified to MIL-PRF-23236, Type VII, Class 7/18 were required for use in all ballast tanks in the FY-10, Change 1, Standard Item 009-32 published on 9 Mar 2009. Since 2009, these coatings have provided excellent service in ballast tanks and applications for rapid-cure, single-coat paints have expanded to a wide range of applications including well deck overheads, superstructure primers, and all other tank types. However, the FY-22, Change 1, Standard Item 009-32, Table 3, Line 21 only cited a two-coat ultrahigh solids coating system (i.e., that was based on the coatings used in bilges) for application in fan rooms. The Engineering Manager for the Corrosion Control Assessment Teams (CCAT) noted that an inherently thick (i.e., 20 – 30 mils Dry Film Thickness (DFT)) rapid-cure, single-coat system would be ideal in fan rooms and would reduce the time ship's force and CCAT would have to expend to repair coatings in such areas. To address this issue, a new Line 21A was added to the FY-23, Standard Item 009-32, Table 3 to allow a waterfront work planner to invoke the rapid-cure, single-coat paint in fan rooms as a means of reducing the future maintenance burden on ship's force. Because the waterfront work planner is not required to cite the new Line 21A, the increased costs associated with application of the rapid-cure, single-coat paint is only an issue when the work planner chooses to invoke the line. Thus, the proposed change provides an option to decrease ship life-cycle maintenance that can actually speed production by reducing the required number of coats of paint in fan rooms.

26. CHANGE: Added requirements for coating LHD class Fuel Service Tanks, which have not historically been specifically cited in Standard Item 009-32:
Added "LHD Class Fuel Service Tanks" to the first column of Table 4, Line 10 and 11, in the FY-23 update to Standard Item 009-32.

RATIONALE: Historically, based on input from TYCOMs, the NSRP technical community, and the "lesson learned" on the waterfront that cleaning fuel out of pitted, older steel to support coating applications was a source of production delays, requirements to coat ship's fuel tanks were removed from FY-11, Standard Item 009-32 that was published on 24 Jul 2009. Since 2009, NAVSEA has avoided the costs and schedule impacts of painting thousands of ship's fuel tanks, but some specific tanks have proven to present unique corrosion challenges that require painting. For example, severe corrosion in the DDG 51 class fuel oil service tanks, due to a design that allowed seawater to collect in the base of the tank, resulted in a tank that was actually coated during new construction perforating on a DDG in 2016. The issue is that the DDG Fuel Service Tanks are located within the ship where the margin plate and shell plate intersect at a longitudinal weld joint to form a deep "V" shape at the bottom of the tank. This "V" shape allows water from contaminated fuel or condensate to collect below the level of the stripping pipe in-take, allowing accelerated corrosion. SURFMEPP analysis showed that programmed coating of the four Fuel Service Tanks on each DDG is a life cycle cost savings as compared with the current practice of inspection and weld repairs required when pitting is discovered. In addition, the coating requirement will also mitigate the risk of pits in tanks perforating and adversely affecting ship operational schedules and as such, the FY-18, Change 1, Standard Item 009-32 published on 7 Mar 2017 was updated to include requirements to coat DDG 51 Class Fuel Service Tanks. The same type of SURFMEPP analysis found that there was appreciable pitting in LHD class fuel oil service tanks and as such, the technical community at the

2021 SSRAC meeting concurred with the proposed change to require painting of these LHD Fuel Service Tanks. Because the new requirement to coat LHD fuel oil service tanks will increase LHD maintenance costs, SEA 05D5 contacted both the East and West coast TYCOM (CAPT Saegert, CAPT Tate, and CDR Shaner) and on 8 Aug 2021, both TYCOMs concurred with the new coating requirement. SEA 05P2 presented the rationale for the new requirement to the SEA 05D5 Ship Design Manager for LHDs (Kotacka) and SEA 05D5 also concurred with the proposed change. Thus, the proposed change avoids the risk of schedule delays associated with weld repair growth work in LHD Class Fuel Oil Service Tanks, but will increase costs to coat such tanks and the TYCOMs determined they are willing to fund coating these tanks to avoid the risk of unplanned growth work.

27. CHANGE: Clarified requirements for preservation of the propulsion shaft (inside the hull) to include fasteners:
Updated the first column of FY-23, Standard Item 009-32, Table 3, Line 8A to not only include the propulsion shaft (i.e., on the inside the hull), but also to also include hydraulic coupling nuts and bolts.

RATIONALE: The proposed change addressed an ongoing issue with LCS and LPD 17 class ships in which NSWC-PD, Code 427 noted that the high-carbon steel shaft flange hydraulic coupling bolts had been delivered on new construction ships without any plating or coating and as such were exhibiting substantial corrosion on in-service ships. To address this issue, NSWC-PD, Code 427, issued Naval Message 122054Z MAR 21 ZYB MID600050373518U that included specific requirements for painting these fasteners. To institutionalize the requirements in the 12 Mar 2021 Naval Message, and to allow any waterfront work planner encountering similar uncoated, corroded fasteners to require coating on these items, the FY-23, Standard Item 009-32, Table 3, Line 8A was updated to include fastener coating requirements. The fastener coating requirements are based on the 12 Mar 2021 Naval Message and require SSPC-SP 3 hand tool surface preparation (i.e., to reduce the risk of power tools deforming or marring the fastener threads to such a degree as to adversely affect fastener removal) and application of two coats of MIL-PRF-23236, Type VII qualified epoxy coatings. These requirements are consistent with the FY-22, Change 1, Standard Item 009-32, Table 3, Line 8A and the current NSTM Chapter 631, Table 631-1-2 for coating the shaft itself and as such can be readily implemented. Thus, the new requirement addresses an observed issue with fastener corrosion and is consistent with both NSWC-CD, Code 427 policy. The new requirement is also consistent with NSTM Chapter 631 and as such is technically acceptable. The change will reduce overall ship life-cycle costs by avoiding the need to replace corroded shaft fasteners.

28. CHANGE: Included another trade name condensation control coating to the existing list of trade names of such coatings appearing in Table 5, Line 4A.
Updated FY-23, Standard Item 009-32, Table 5 to include a new Line 4A for the Tnemec Aerolon Series 971 or 972 coating that is applied at 30-50 mils to the uninsulated side of bulkhead or shell adjacent to a sea or air-conditioning boundary. The new line requires surface preparation to an SSPC-SP 11, power tool cleaning to bare metal level of cleanliness, followed by one coat of TT-P-645, Formula 84 alkyd

primer at 2-4 mils or one coat MIL-PRF-23236, Type V, VI, or VII, Class 5 or 7, coating at 4-8 mils, that is then followed by coats of the Tnemec Aerolon.

RATIONALE: Historically, Navy ships used a vermiculite addition to interior coating systems to control condensation on surfaces that are likely to be cool (e.g., sea boundaries or boundaries adjacent to air-conditioned spaces). The vermiculite appeared as large chunks (e.g., ≈1/8 inch diameter) of material that was expressed into a wet film of the MIL-DTL-24607 interior chlorinate alkyd coating. After the coating dried, the adherent vermiculite was then overcoated with one coat of MIL-DTL-24607 that left some of the vermiculite exposed, resulting in a coating that controlled condensation by water being absorbed by the vermiculite. In the late 1980s, vermiculite was identified as containing asbestos-like particles and the Navy stopped using the material. Over time, a number of applications for coatings to control condensation were identified and in the 1990s SEA 05M1 determined that a water-based product, Hempel Anti-condens 617 was an acceptable alternative to vermiculite and this coating was called out by trade-name in the 1996 NSTM Chapter 631. Based on this precedent, the Hempel Anti-condens 617 was added to the FY-03 Standard Item 009-32 on 30 Aug 2001. NAVSEA did not create a material specification for the Hempel Anti-condes 617 product because reported use of the coating was less than 200 gallons per year across the entire Fleet. Since the inclusion of Hempel Anti-condens 617 in Standard Item 009-32, there have been five other trade-name coatings that demonstrated an equivalent level of condensation-control performance that have been added to Standard Item 009-32, Table 5 over the years. Based on data from HII-Newport News Shipbuilding, the Tnemec Aerolon Series 971 or 972 product was added as a separate line in the FY-23, Standard Item 009-32 because the product is applied in more coats, and each coat is thicker, than those of the other trade-name condensation-control coatings grouped in FY-22, Change 1, Standard Item 009-32, Table 5, Lines 3 & 4. To avoid the need to call out ever more trade-name products in Standard Item 009-32, NSCW-CD, Code 613 has been working for the past two years on an update to the TT-C-492 specification for such condensation-control coatings. The TT-C-492 specification update project is in progress and on 27 Dec 2021, NSWC-CD, Code 613 addressed the last comment from the Specification Review Board document review and as such SEA 05P2 is anticipating publication of TT-C-492 in June 2022. Once TT-C-492 is published, SEA 05P2 will propose updating the next revision of Standard Item 009-32 to eliminate the trade-name products and simply cite TT-C-492 coating systems by Type and Class. Importantly, as part of the NSWC-CD, Code 613, TT-C-492 specification update task, coatings like Hempel Anti-condens 617 and Tnemec Aerolon Series 971/972 coatings were tested and they do satisfy the proposed TT-C-492 specification requirements. Thus, these coatings can be used to effectively control condensation on Navy ships and adding another option for such coatings enhances competition and can reduce coating procurement costs.

29. CHANGE: Reduced the total number of coats to be applied to unheated piping, fittings, valves: Updated the FY-23, Standard Item 009-32, the Table 5, Line 1, to eliminate the atypical requirement to apply the TT-P-645, Formula 84 primer followed by two coats of the bilge coating, by simply citing a new requirement of, "Coat to Match Surrounding Area, See Note (93)" with a new Note (93) allowing MIL-DTL-24607 to be applied in a direct to metal mode.

RATIONALE: Historically, the Table 5, Line 1 requirement for two coats of TT-P-645 alkyd primer followed by two coats of the bilge coating "to match surroundings" (i.e., that would usually require two coats of MIL-DTL-24607 interior chlorinated alkyd coating) have appeared in every Standard Item 009-32 since at least the FY-01, Standard Item 009-32 was published on 23 Sep 1999 (i.e., the 1999 document is oldest version of Standard Item 009-32 in the SEA 05P2 records). These requirements were consistent with the 1996 version of NSTM 631 and were simply retained in all subsequent versions of Standard Item 009-32. However, in 2012, SEA 05 convened a new-construction working group with representatives from all major shipbuilders to propose changes to NAVSEA requirements to streamline production without adversely affecting overall ship corrosion control performance. Electric Boat (EB) presented a number of proposed changes at the time and one of the changes was their finding that the adhesion and corrosion-control performance of the MIL-DTL-24607B chlorinated alkyd was essentially the same as the adhesion and corrosion-control performance of the TT-P-645C alkyd primer coatings. SEA 05P2 concurred with the EB data by noting that since the publication of TT-P-645B in 1990, to the publication of TT-P-645C in 2013, the alkyd primer contained the active, zinc molybdate corrosion inhibitor that enhanced corrosion-control performance. However, the reformulation of TT-P-645C in 2013 to eliminate hazardous heavy metals from the formula resulted in more of a barrier coating than an inhibited primer and as such, the EB data showing equivalent barrier coating performance between two coats of TT-P-645C and two coats of MIL-DTL-24607B was not surprising. Based on the EB data, SEA 05 (RADM Eccles), issued letter Ser 05D/153 on 2 Apr 2012 approving the application of MIL-DTL-24607 coatings in a direct to metal mode, without a TT-P-645 primer. To date, SEA 05P2 has had no reports of coating delamination or degradation of parts coated with MIL-DTL-24607B coatings in a direct-to-metal mode on new construction submarines and as such the risk of the direct to metal coatings performing inadequately is LOW. Unfortunately, the direct to metal change was never presented to the SSRAC working group because EB does not work to Standard Item 009-32 and as such does not submit changes. However, because of additional scrutiny of pipe coating processes associated with the demonstration of the FS1 coating (i.e., see Change 51 discussion in this document), SEA 05P2 determined that reducing the current, four-layer alkyd coating system in the FY-22, Change 1, Standard Item 009-32, Table 5, Line 1, to a two layer alkyd coating system in the FY-23, Standard Item 009-32, Table 5, Line 1 would result in a LOW level of technical risk associated with the coating system allowing substrate corrosion and would reduce the labor and materials required to coat such components by 50%.

30. CHANGE: Clarified requirements for surface preparation of new and existing pipes:
Updated the FY-23 Standard Item 009-32 in Table 5, Lines 8 and 17-19, Column A to specify requirements for surface preparation of new and existing piping. The new language in Table 5, Lines 8 and 17-19, Column A, is "New Piping: Power Tool Clean to Bare Metal to SSPC-SP 11, using stainless steel wire brushes, stainless steel pads, or abrasive sanding discs (ANSI/BHMA B74.18). Abrasive blasting where specified must be SSPC-SP 10 (ferrous piping) or SSPC-SP 16 (non-ferrous piping). Existing Piping: Clean to Bare Metal using hand tools, approved chemical strippers, or an

emery cloth flap wheel tool. Abrasive blast must be limited to SSPC-SP 7 (ferrous piping) or SSPC-SP 16 (non-ferrous piping)."

RATIONALE: HII-NNS submitted the change proposal to more clearly define pipe surface preparation requirements to address issues with pipe repair growth work and to align requirements with the GSO prohibition on using grinders to prepare pipes for coatings. The proposed change includes the SSPC-SP 16 surface preparation standard that was adopted in the FY-19, Change 2, Standard Item 009-32 (i.e., published on 26 Mar 2018) for non-ferrous piping on new piping, but limits abrasive blasting to the SSPC-SP 7 brush-off blasting on existing piping. During the 2021 SSRAC discussion, naval shipyard staff concurred with HII-NNS that trying to achieve an SSPC-SP 10, near white metal level of cleanliness, on pipes could lead to excessive reduction in pipe wall thickness and growth work to replace damaged pipe. Similarly, naval shipyard staff also agreed that use of grinders or other impact surface preparation tools could also damage piping. PSNS, Code 250.8 also confirmed that PSNS IPI 0631-905 Rev F Ch-2 (dated 20 August 2020), paragraph 4.3.7.7 includes similar requirements for SSPC-SP 7, SSPC-SP 10, or SSPC-SP 16 surface preparation on piping and that there was even a process for using an "approved" chemical paint stripper on specific items to reduce the risk of damaging piping. SEA 05P2 has no reports of premature coating delamination or excessive corrosion on piping that has been prepared using the PSNS processes and as such the proposed change appears to reduce the risk of damaging the pipe while not adversely affecting coating performance. Thus, the HII-NNS proposed change aligns with processes at PSNS and as such is technically acceptable. The proposed change will also avoid growth work to replace pipe that is inadvertently damaged by coating surface preparation process and streamline production by avoiding unnecessary pipe replacement.

31. CHANGE: Added new line requiring application of rapid-cure, single-coat systems in submarine fuel oil overflow collecting tanks:

Updated FY-23, Standard Item 009-32, Table 8 to include a new Line 9A to require surface preparation and coating of, "FUEL OIL OVERFLOW/COLLECTING TANK, FUEL OIL FILTER SUMP DRAIN TANK, DIESEL FUEL OIL TANK (MTS)," to include a requirement to abrasive blast clean surfaces to SSPC-SP 10, followed by application of one coat MIL-PRF-23236 Type VII, Class 5/18, "Single Coat" paint at 20-30 mils. The change also includes references to Notes (15A), (40A), & (5A) in Table 8, Line 9A, Column B.

RATIONALE: SUBMEPP proposed the change to speed up coating installation in the fuel oil overflow and collecting tanks, fuel oil filter sump tanks and diesel fuel oil tanks on the MTS because all of the current requirements in the FY-22, Change 1, Standard Item 009-32 Table 8, Lines 8 & 9 were based on solvent-based coatings that required two full coats and a stripe coat to be applied in each tank. Allowing installation of qualified, rapid-cure, single-coat MIL-PRF-23236, Type VII, Class 5/18 coating in these tanks could reduce the time required to paint the tanks by more than 50%. In addition, SUBMEPP noted that rapid-cure, single-coat MIL-PRF-23236, Type VII, Class 5/18 coatings have been required in surface ship fuel oil and diesel tanks since 2009 and have performed effectively. Finally, SUBMEPP noted that PMS 392 letter Ser 392T122/162, dated 30 Apr 2013 did authorize installation of qualified rapid-cure, single-coat MIL-PRF-23236, Type VII, Class 5/18 coatings in "SUBMARINE BILGE

AND DRAIN COLLECTION TANKS." Thus, the proposed change will reduce coating application costs by speeding production (i.e., by eliminating the need for a stripe coat and a second full coat of paint as currently required) and, based on other successful applications of qualified rapid-cure, single-coat, MIL-PRF-23236, Type VII, Class 5/18 coatings in fuel and bilge tanks and sumps, will pose a LOW risk of these coatings delaminating or otherwise degrading in the FUEL OIL OVERFLOW/ COLLECTING TANK, FUEL OIL FILTER SUMP DRAIN TANK, DIESEL FUEL OIL TANK (MTS).

32. CHANGE: Allowance to apply MIL-DTL-24607 chlorinated alkyd coating in a direct to metal mode instead of requiring the use of an alkyd TT-P-645 primer:
Added new note, Note (93), to the FY-23 update of Standard Item 009-32, that states "Except in medical spaces, TT-P-645 may be replaced by MIL-DTL-24607 applied at 2-4 mils per coat," and added Note (93) to all applicable Tables and Lines.

RATIONALE: Historically, Standard Item 009-32 requirement for two coats of TT-P-645 alkyd primer followed by two coats of MIL-DTL-24607 interior chlorinated alkyd coating have appeared in numerous locations in every Standard Item 009-32 since at least the FY-01, Standard Item 009-32 was published on 23 Sep 1999 (i.e., the 1999 document is oldest version of Standard Item 009-32 in the SEA 05P2 records). These requirements were also consistent with the 1996 version of NSTM 631 and were simply retained in all subsequent versions of Standard Item 009-32. However, in 2012, SEA 05 convened a new-construction working group with representatives from all major shipbuilders to propose changes to NAVSEA requirements to streamline production without adversely affecting overall ship corrosion-control performance. Electric Boat (EB) presented a number of proposed changes at the time and one of the changes was their finding that the adhesion and corrosion-control performance of the MIL-DTL-24607B chlorinated alkyd was essentially the same as the adhesion and corrosion-control performance of the TT-P-645C alkyd primer coatings. SEA 05P2 concurred with the EB data by noting that since the publication of TT-P-645B in 1990, to the publication of TT-P-645C in 2013, the alkyd primer contained the active, zinc molybdate corrosion inhibitor that enhanced overall primer corrosion-control performance. However, the reformulated primer (i.e., to eliminate hazardous heavy metals from the formula) and described in TT-P-645C in 2013, resulted in more of a barrier coating than an inhibited primer. Thus, it was not surprising that the EB data showed equivalent barrier performance between two coats of TT-P-645C and two coats of MIL-DTL-24607B. Based on the EB data and SEA 05P2 concurrence, SEA 05 (RADM Eccles), issued letter Ser 05D/153 on 2 Apr 2012 approving the application of MIL-DTL-24607 coatings in a direct to metal mode, without a TT-P-645 primer. To date, SEA 05P2 has had no reports of coating delamination or degradation of parts coated with MIL-DTL-24607B coatings in a direct-to-metal mode on new construction submarines. Unfortunately, the change was never presented to the SSRAC working group because EB does not work to Standard Item 009-32 and as such does not submit changes. However, based on the rationale presented in Change 29 shown above, a new Note (93) was added to numerous citations throughout the FY-23 Standard Item 009-32 that allows either TT-P-645 alkyd primer or MIL-DTL-24607 coatings to be applied a direct to metal mode in these lines. The only exception to these requirements was in "medical spaces" were there was no data to show

resistance of the MIL-DTL-24607 coating to undercutting or delamination when subject to exposure to various disinfectant solutions. SEA 05P2 will work with the medical community in 2022 to address this issue. As such, the inclusion of Note (93) in the FY-23, Standard Item 009-32 improves waterfront flexibility and speeds production by allowing either the TT-P-645 primer or the MIL-DTL-24607 coatings to be applied in a direct to metal mode.

33. CHANGE: Clarified nonskid mist coat application requirements:
Added "or the mist coat application" to paragraph 3.11.9 in the FY-23 Standard Item 009-32 update, so the paragraph reads, "Nonskid application must begin within 36 hours of completion of the final full primer coat or the mist coat application. For areas not listed in 3.7, nonskid overcoating application must be in accordance with NAVSEA-Reviewed ASTM F718."

RATIONALE: The CNAP N43 nonskid OSR proposed the change that is primarily editorial and addresses established requirements for addressing a nonskid primer that has not been overcoated within three days, but has not yet been exposed for seven days, to avoid the nonskid application contractor claiming a mist coat provided a full three days of additional overcoat window. Specifically, the current, FY-22, Change 1, Standard Item 009-32, paragraph 3.11.9.2 includes the following requirement:
"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 mist coat (one to 2 mils) of primer must be applied and allowed to cure to recoat."
These requirements first appeared in the FY-07, Standard Item 009-32 (i.e., published on 14 Jul 2005) and are widely used during production to avoid having to remove primers that have been exposed to the weather for more than three days. During the 2021 SSRAC discussion, the CNAP N43 nonskid OSR noted that some contractors did not consider the mist coat as being technically equivalent to the full coat of primer cited in FY-22, Change 1, Standard Item 009-32, paragraph 3.11.9 that requires nonskid installation within 36 hours. Thus, the proposed change clarifies the intent of the existing paragraph 3.9 requirements and precludes nonskid application contractors from attempting to extend the time before the nonskid must be applied to the second full coat or mist coat by more than 36 hours. The change reduces the risk of intercoat delamination between nonskid primers and topcoats and will speed production by avoiding the nonskid application contractors attempting to retain mist coats for more than 36 hours.

34. CHANGE: Added requirements to allow use of recycled abrasive blast media based on NRL developed nonskid recycling system:
Added new paragraph 3.1.3.1.1 to the FY-23 Standard Item 009-32 that states, "Recycled abrasive blast media conforming to MIL-A-22262, A-A-1722, or SSPC AB-1 can be used for abrasive blasting processes as specified in the invoking Work Item or Task Order. Sampling and testing of the recycled abrasive must meet the requirements for cleanliness (oil and conductivity) contained in SSPC AB-1 (paragraph 4.1.14 Water Soluble Contaminants, and 4.1.6 Oil Content) once per day. Recycling of non-metallic grit must be accomplished using equipment meeting CID A-A-60016."

RATIONALE: Used abrasive blasting media is one of the largest volumes of waterfront waste and because all abrasive blasting particles are not degraded or damaged after a single abrasive blasting process, NRL identified an opportunity to reduce waterfront waste disposal costs by up to 38% by recycling blast media. NRL developed a system to remove wastes and fines from used abrasive blasting media and allow re-use of the media as shown below:

The NRL abrasive recycling unit was successfully demonstrated with 16 – 24 mesh aluminum oxide abrasive media used as part of the thermal spray nonskid installation task on the USS ESSEX (LHD 2) in 2020. The thermal spray nonskid installed during the demonstration is intact and adherent and still in service. NAVSEA validated that the grit recycling system can recover 60% to 70% of waste grit for re-use, reducing grit costs by ≈38%. NAVSEA published Commercial Item Description (CID) A-A-60016, "Recycling Equipment for Non-Metallic Abrasive Blast Grit" that describes requirements for the equipment on 28 Jul 2020. Because the system is effective at separating fines and debris from properly sized media, the risk of re-suing the media in another blasting operation resulting in a reduced surface profile or a less angular profile is negligible. However, because blast media can "pick up" contamination from hydrocarbons or soluble salts during operations, the new FY-23 Standard Item 009-32 paragraph 3.1.3.1.1 does include daily requirements to validate cleanliness (i.e., both oil and conductivity) contained in SSPC AB-1 (i.e., paragraph 4.1.14 Water Soluble Contaminants, and 4.1.6 Oil Content) and in MIL-A-22262 (i.e., paragraph 4.5.10 for conductivity, and 4.5.11 for oil content) once per day. SEA 05P2 has already cited this proposed requirement to SRF-JRMC as a means of re-using the aluminum oxide media that is required to be used to repair thermal spray nonskid on the USS AMERICA (LHA 6) because of a reported inability of the shipyard to procure additional aluminum oxide media. Thus, the proposed process will reduce costs and may allow facilities that are experiencing problems with abrasive media supply to use existing media to blast more surface area. As noted above, surfaces blasted with the recycled media and coated with thermal spray nonskid are still providing outstanding service and as such, SEA 05P2 rates the risk of coatings applied over surfaces blasted with media recycled through an A-A-60016 recycling system in accordance with the new FY-23 Standard Item 009-32 paragraph 3.1.3.1.1 requirements delaminating prematurely due to inadequate surface preparation as LOW. Furthermore, using the recycling systems will reduce waste disposal volumes, and associated costs, by up to 38%.

35. CHANGE: Added multiple options for surface preparation of new and existing pipes:
Added SSPC-SP 2 and SSPC-SP 3 surface preparation cleanliness standards to Table 5, Lines 15, 16, 17, and 18, Column A in the FY-23 Standard Item 009-32.

RATIONALE: This HII-NNS proposed change is a corollary to the Change 30 discussed above. Again, the purpose of the change is to more clearly define pipe surface preparation requirements to address issues with pipe repair growth work and to align requirements with the GSO prohibition on using grinding tools on pipes. The proposed change includes all of the requirements discussed in Change 30, but also addresses unique processes used on piping during RCOH. Specifically, many pipes during RCOH are recoated to provide an acceptable appearance and these pipes typically have large areas of intact, adherent coatings. As such, it is technically acceptable for these pipes to be prepared to an SSPC-SP 2 hand tool and/or SSPC-SP 3 power tool cleaning process simply to remove loose paint and allow overcoating. Again, SEA 05P2 has no reports or premature coating delamination or excessive corrosion on piping that has been prepared using the HII-NNS RCOH processes and as such the proposed change appears to reduce the risk of damaging the pipe while not adversely affecting coating performance. SUPSHIP NNS also noted that the HII-NNS proposed change aligns with processes approved by DLAR CVN74-0202, "Surface Preparation for High Temperature Paint Application" from Nov 2021 and as such is technically acceptable. The proposed change will avoid growth work to replace pipe that is inadvertently damaged by coating surface preparation processes and will streamline production by avoiding un-necessary pipe replacement, while creating a LOW risk of premature coating delamination or degradation.

37. CHANGE: Clarified requirements on QA appendices forms:
Implemented a number of minor changes to the Contractor QA Inspection Forms to align the forms with the FY-23 Standard Item 009-32 as follows:

a. Added a box to select "yes" or "no" as to whether the inspection required the use of a violet light to QA Inspection Form Appendix 7.
b. Added "Sat" and "Unsat" check boxes for "Holiday Inspection" and "Cleanliness Inspection" to QA Inspection Form Appendix 7A.
c. Added a check for "DH/Forced Hot Air Running" to QA Inspection Form Appendix 1.
d. Added a new Note #3 to QA Inspection Form Appendix 7 that states, "For Type 2 Scanning, without lifting the probe from the coated surface using an 'infinity symbol motion' ∞ [vertical or horizontal orientation] obtained within a 645cm^2 (~100in^2) segment of the area. The average of each scan is equal to one measurement." Revised checkbox for the Type 2 gage to state "Type 2 Scanning ∞" with the infinity symbol.

RATIONALE: All of the changes to the QA appendices forms incorporated into the FY-23 update to the Standard Item 009-32 are primarily editorial and intended to improve clarity. The proposed changes were modified based upon input from the technical community during the 2021 SSRAC meeting and the 2021 Mega Rust conference and may be summarized as follows:

a. The paragraph 3.10.9.2 of the current FY-22, Change 1, Standard Item 009-32 requires paints containing Optically Active Pigment (OAP) to be visually inspected using violet light. The current QA Inspection Form Appendix 7 does not

have a block to check whether the inspection required the use of violet light for the OAP coating. By incorporating this checkbox, the record keeping process is simplified and streamlined and allows for all of the current checkpoint requirements to be accurately documented.

b. The "Coating Inspection For Each Coat" checkpoint requires Wet Film Thickness (WFT) in lieu of Dry Film Thickness Readings (DFT) for any coat that must be in a tacky state when the next coat is applied for non-metallic surfaces, for anti-corrosive and antifouling paint applied over Capastic and sprayable shields, and when applied over existing coatings. Holiday and cleanliness inspections are also required for this inspection but the associated QA Inspection Form Appendix 1 lacks a checkbox for these inspections. By incorporating "Sat" and "Unsat" checkboxes for holiday and cleanliness inspections in QA Inspection Form Appendix 1, the record keeping process is simplified and all required checkpoint information can be more readily documented.

c. In paragraphs 3.10.1.6 through 3.10.1.8 of the current FY-22, Change 1, Standard Item 009-32, environmental readings can be taken manually every 4 hours or manually every 12 hours when work in conducted in a containment or space (i.e., that has dehumidification and/or climate control systems) or every 24 hours when a data logger (i.e., that is collecting data at a minimum of one reading every one hour) is being used. On the QA Inspection Form Appendix 1, there is a block for whether or not a data logger is being used; however, there is not a block for whether or not the dehumidification/climate control equipment is running to show compliance for taking environmental readings every 12 hours. By incorporating a checkbox for whether dehumidification/ climate control equipment is running aligns QA Inspection Form Appendix 1 with the requirements in the Standard Item 009-32.

d. The current FY-22, Change 1, Standard Item 009-32, paragraph 3.10.10 allows the use of scanning technology in accordance with SSPC-PA 2 Appendix 10 for taking DFT readings but the current QA Inspection Form Appendix 7 does not provide the required information to document the use of scanning technology. The change and addition of the new Note #3 to QA Inspection Form Appendix 7 provides additional information in order to simplify and streamline the record keeping process.

Finally, in addition to being discussed and accepted by the technical community during the 2021 SSRAC meeting, these changes were also briefed to the September 2021 Mega Rust meeting. All the coating application contractors in attendance at the Mega Rust meeting agreed that the changes would not appreciably alter coating application costs, but would avoid waterfront QA staff confusion.

38. CHANGE: Added option to use commercial heat resistant coating with improved corrosion control performance on exterior exhaust piping:
Added the option in Table 5, Line 15, Column B in the FY-23 Standard Item 009-32 to use two coats of PPG Hi-Temp 1000, gray, coating at 1-2 mils DFT for exterior exhaust pipes.

RATIONALE: As part of the Paint Center of Excellence (PCOE) program, NSWC-CD, Code 613 examined current, commercial heat resistant coatings what would offer improved corrosion resistance as compared with TT-P-28 coatings (i.e., aluminum flake

pigments in a silicone resin) and identified a commercial product, Hi-Temp 1000 from PPG/Ameron as such a coating. Interestingly, since at least the FY-01, Standard Item 009-32 was published on 23 Sep 1999 (i.e., the 1999 document is oldest version of Standard Item 009-32 in the SEA 05P2 records), Standard Item 009-32 has included another trade-name specific, heat resistant coating from PPG/Ameron (i.e., PSX 892HS) as an option for some hot surfaces. Thus, there is a precedent for citing these specialized, heat-resistant coatings by trade-name in Standard Item 009-32. The NSWC-CD, Code 613 study results are summarized in NSWC-CD, Code 613 report, "EXTERIOR HIGH TEMPERATURE COATING EVALUATION," Ser 61/22-005 that will be published in February 2022 noted that the Hi-Temp 1000 offered a number of performance improvements when compared with TT-P-28 or PSX 892HS that can be summarized as follows:

(a) During cyclic heating and salt fog testing, the Hi-Temp 1000 offered the highest level of edge retention and resistance to undercutting corrosion of the tested coatings.
(b) The Hi-Temp 1000 coating exhibits heat resistance up to 1,000F which is significantly greater temperature than the PSX 892HS that has always been limited in Standard Item 009-32 to application on surfaces that will not exceed 700F in service.
(c) The Hi-Temp 1000 is available in a gray color that is more consistent and cosmetically acceptable to ship's force than the appearance of standard TT-P-28 aluminum bearing coatings that when applied look like shiny aluminum, but rapidly oxidize to a mottled gray appearance.
(d) The Hi-Temp 1000, like the PSX 892HS, developed full ASTM D4541 pull of adhesion strength without a heat cure as is required by the TT-P-28 coatings (i.e., the Hi-Temp 1000 does not require a heat cure to perform effectively).
(e) The Hi-Temp 1000 is five times more color stable than the TT-P-28 coatings.

NSWC-CD, Code 613 conducted a demonstration installation of the Hi-Temp 1000 on the USS Leyte Gulf (CG 55) Number 3 generator exhaust stack in March 2020 and in January 2022, ship's force reports the coating is still performing effectively. Based on these results, adding an option to install the Hi-Temp 1000 on exterior exhaust pipes and similar exterior surface that experience high operating temperatures will allow the fleet to reduce the need to re-coat or touch-up the TT-P-28 coatings and expand the range of gray, cosmetically acceptable coatings to surfaces with operating temperatures up to 1,000F. Although the Hi-Temp 1000 is approximately 20% more expensive that the PSX 892HS coating (i.e., about $20 more per gallon), the overall impact of the new coating on job costs is likely to be limited and as such the change will reduce life cycle recoating costs for a minimal change in initial coating application costs. The change will also improve the overall appearance of the topsides on Navy surface ships, which is currently of great interest to senior leadership.

39. CHANGE: Added requirements for coating BLISS Caps on surface ships, which have not historically been independently cited in the Tables of Standard Item 009-32:
Updated the FY-23 Standard Item 009-32, Table 5 to include a new Line 15A for BLISS Caps that requires surface preparation to Commercial Blast Clean to NACE 3/SSPC-SP 6 followed by two coats of PPG Hi-Temp 1000, gray coating at 1-2 mils

DFT. The change also includes references to Notes (14) and (21) in Table 5, Line 15A, Column A for surface preparation.

RATIONALE: Historically, NAVSEA has considered the Boundary Layer Infrared Suppression System (BLISS) caps installed on DDGs to be "Exhaust Pipes" that would be coated with TT-P-28 because some areas of the caps exceed 400F in service. With the adoption of the Hi-Temp 1000 coating (i.e., as described in the discussion of Change 38 shown above), and the publication of the S6360-AG-MAN-010, REVISION 1, NAVSEA TECHNICAL PUBLICATION, SURFACE SHIP EXTERIOR APPEARANCE MANUAL, on 21 Oct 2021, SEA 05P2 determined that there was a need to define a gray coating for use on BLISS caps. By establishing these clear requirements, SEA 05P2 will preclude the waterfront practice of painting BLISS caps black which is not in accordance with the S6360-AG-MAN-010 requirements. Thus, the proposed change will provide the fleet with a durable, color stable, gray coating that will cure effectively on both the hot and cooler areas of the BLISS caps and resist soot staining more effectively than TT-P-28. Because BLISS caps were coated in the past as exhaust pipes, the new, separate line will simply clarify requirements without appreciably increasing coating application costs (i.e., see the Change 38 discussion above).

40. CHANGE: Clarified that MIL-PRF-23236, Type VII coating inspection requirements for runs, drips and sags are applicable to all steps in the coating process and not just the stripe coat:

Moved current FY-22, Change 1, Standard Item 009-32, paragraph 3.2.3 coating inspection requirements to address runs, drips and sags, (i.e., which are under section 3.2 for stripe coat requirements) to paragraph 3.10.9.5 in the FY-23 update to Standard Item 009-32 to apply the runs, drips, and sags inspection requirements to all coats, rather than just the stripe coat.

RATIONALE: SUPSHIP NNS proposed the change to clarify that coating inspection requirements for runs, drips, and sags are applicable to all coats of MIL-PRF-23236, Type VII paint as compared with a coating applicator's contention that because the current FY-22, Change 1, Standard Item 009-32, coating inspection requirements for runs, drips, and sags appear in paragraph 3.2.3, which is under section 3.2 for stripe coat requirements, that the requirements only applied to stripe coats. The government intent has always been that the runs, drips, and sags, inspection requirements apply to any coat of MIL-PRF-23236, Type VII coating and that has been clear since the requirements were added to the FY-17, Change 1, Standard Item 009-32 (i.e., published on 12 May 2016). The FY-17, Change 1, Standard Item 009-32 moved the runs, drips, and sags, inspection requirements from Note (33) to paragraph 3.2.3 to eliminate dozens of citations to Note (33) in the Tables that showed the runs, drips, and sags inspection was invoked whenever an ultrahigh solids, MIL-PRF-23236, Type VII, Class XX or Type VII, Class XX/18 coatings appeared in the Tables. Thus, the change to the FY-23 Standard Item 009-32 to move the runs, drips, and sags inspection requirements from Section 3.2 on stripe coats to Section 3.10.9 that defines requirements for inspecting ". . . each Prime, Intermediate, Stripe, Tack, and Top Coat (including Capastic) . . .," clarifies that the government intent to require each coat to be inspected for runs, drips, and sags. Thus, the proposed change will not alter coating application costs or inspection processes, but rather will avoid confusion about inspection requirements for

runs, drips, and sags whenever an ultrahigh solids, MIL-PRF-23236, Type VII, Class XX, or Type VII, Class XX/18 coating system is applied.

41. CHANGE: Removed ill-defined requirements for NAVSEA approval from the paragraph that discusses the 30-day maximum overcoat window for MIL-DTL-24441 epoxy coatings:
Revised paragraph 3.5.1 in the FY-23 update for Standard Item 009-32 to eliminate the unclear requirement that the 30-day maximum overcoat window may be extended if specifically documented on the NAVSEA-Reviewed ASTM F718 and if "approved in writing by NAVSEA" by modifying the second sentence in paragraph 3.5.1 to read: "The 30-day maximum may be extended beyond 30 days if specifically documented on the NAVSEA-Reviewed ASTM F718 and approved by NAVSEA."

RATIONALE: SUPSHIP NNS submitted the proposed change because there was no defined process in the Standard Items for approving something "in writing." In fact, the term "in writing" only appears in Standard Item 009-32, paragraph 3.5.1 and has been in that paragraph since the FY-03, Standard Item 009-32 was published on 30 Aug 2001. Apparently, over the past two decades, the requirement was never specifically challenged because the correct Standard Item terminology for approving authority is "as approved by the SUPERVISOR," or "as approved by NAVSEA" and the acceptance of written, or electronic, or verbal approval is left to the activities implementing the requirements. Thus, the change eliminates atypical and unclear language from the FY-23, Standard Item 009-32, paragraph 3.5.1 but retains the key requirement that any extension of the 30 day overcoat window for MIL-DTL-24441 coating must still be "approved by NAVSEA." The change will have no impact on coating application process costs or schedule, but may help avoid confusion among waterfront QA/QC staff.

42. CHANGE: Clarified requirements for recording abrasive media for surface preparation on the QA Inspection Forms:
Added "(as applicable)" to paragraph 3.7.1.5 in the FY-23 Standard Item 009-32 update so that the paragraph reads; "Surface profile readings and surface preparation method, including name of abrasive and QPL-22262 revision number from which the product was purchased (as applicable), or copy of the NAVSEA product approval letter…"

RATIONALE: SUPSHIP NNS noted in their FY-23, Standard Item 009-32, paragraph 3.7.1.5 change proposal that there are many types of abrasive media used on Navy ships that are not purchased in accordance with the MIL-A-22262 qualified products list. For example, steel shot and steel grit used to prepare flight decks on carriers for nonskid installation are not qualified to MIL-A-22262, nor are aluminum oxide media used to install thermal spray nonskid, and as such, waterfront QA/QC personnel expressed confusion regarding the current requirement. By including the term "(as applicable) in the FY-23, Standard Item 009-32, paragraph 3.7.1.5, the personnel completing the Appendices will not need to request clarification from engineering about the required information. Thus, the change will have no impact on coating application process costs or schedule, but may help avoid confusion among waterfront QA/QC staff.

43. CHANGE: Clarified requirements for environmental readings:
Added the term "the final" before the term "coat" in paragraph 3.10.1.4 in the FY-23 update to Standard Item 009-32 so that the paragraph reads, "These environmental readings must be taken from the surface preparation acceptance checkpoint to 48 hours of creditable cure time after the application of the final coat. Creditable cure time is defined in 3.6.7. For areas preserved under 3.6.1.1/3.6.1.3, environmental readings must be taken at the surface preparation acceptance checkpoint to 24 hours after application of the final coat…"

RATIONALE: SUPSHIP NNS noted in their FY-23, Standard Item 009-32, paragraph 3.10.1.4 change proposal that the concept of creditable cure time relates to the entire period the coating has been applied, including final coat of paint. They reported that there had been issues with coating applicators applying coatings and then not collecting environmental readings after the final coat of paint was applied, assuming that the coat would be fully cured before the area was placed in service. The SUPSHIP NNS change was intended to clarify that the creditable cure time concept must be applied until the final coat of paint has cured. Clarifying this requirement is already consistent with the third sentence in the current FY-22, Change 1, Standard Item 009-32, paragraph 3.10.1.4 that already cites the "final coat." So, by including the term "final coat" in the first and third sentences of the FY-23, Standard Item 009-32, paragraph 3.10.1.4, the revised paragraph clarifies that creditable cure time is required to be addressed throughout the coating application cycle to include the final coat. Thus, the change does not alter current requirements, but will ensure that QA/QC staff receive the technical data required to ensure that coatings are fully cured before they are placed in service.

45. CHANGE: Reduced the total number of coats of paint required to be applied to interior cables by approximately 50%:
The current, FY-22, Change 1, Standard Item 009-32, Table 5, Line 9, Column C requirements in the FY-22, Change 1, Standard Item 009-32 were deleted and the requirements in Table 5, Line 10, Column B were updated in the FY-23, Standard Item 009-32 to reduce the number of coats from two coats to one coat with a note stating, "If required for hiding, one additional coat must be applied."

RATIONALE: Historically, the interior cable coating requirements appearing in FY-22, Change 1, Standard Item 009-32, Table 5, Line 9 (i.e., to apply two coats of MIL-PRF-24596 acrylic, followed by up to two coats of MIL-DTL-24607 chlorinated alkyd coating for "hiding") has appeared in every version of the document since the FY-01, Standard Item 009-32, was published on 23 Sep 1999. Since 1999, no activity had requested a change to the requirement, which given that cables on the interior of the ship do not corrode and as such, the coatings are purely cosmetic, applies far more layers of coating than is required. As part of the effort to include the new intumescent, FS1 coating to Standard Item 009-32 (i.e., see the Change 51 discussion below), the excessive number of coats required on cables was noted and SEA 05P2 submitted a change to reduce the number of coats. The technical community agreed the change at the 2021 SSRAC meeting. As a result, the FY-23, Standard Item 009-32, Table 5, Line 9 was modified to simply require one coat of either MIL-PRF-24596 acrylic or MIL-DTL-24607 chlorinated alkyd with another coat being added if required for hiding. Thus, the proposed change reduces the excessive requirements for coating

interior cables by approximately 50% and will still result in coated cables that are cosmetically acceptable to ship's force.

46. CHANGE: Reduced the total number of coats for exterior cables by approximately 50%:
Deleted the current FY-22, Change 1, Standard Item 009-32, Table 5, Line 10, Column B and the requirements in Table 5, Line 10, Column C were moved to Column B in the FY-23 update to Standard Item 009-32.

RATIONALE: Historically, the exterior cable coating requirement appearing in FY-22, Change 1, Standard Item 009-32, Table 5, Line 10 (i.e., to apply two coats of MIL-PRF-24596 acrylic, followed by up to two coats of MIL-PRF-24763 acrylic or MIL-PRF-24635, polysiloxane coating for "hiding") has appeared in every version of the document since the FY-01, Standard Item 009-32, that was published on 23 Sep 1999. Since 1999, no activity had requested a change to the requirement, which given that cables on the exterior of the ship do not corrode, and as such, the coatings are purely cosmetic, applies far more layers of coating than is required. As part of the effort to include the new intumescent, FS1 coating to Standard Item 009-32 (i.e., see the Change 51 discussion below), the excessive number of coats required on exterior cables was noted and SEA 05P2 submitted a change to reduce the number of coats. The technical community agreed the change at the 2021 SSRAC meeting. As a result, the FY-23, Standard Item 009-32, Table 5, Line 10 was modified to simply require either two coats of the MIL-PRF-24763 acrylic or one coat of the MIL-PRF-24635 polysiloxane to match the surrounding areas. Thus, the proposed change reduces the excessive requirements for coating exterior cables by approximately 50% and will still result in coated cables that are cosmetically acceptable to ship's force.

47. CHANGE: Aligned surface profile requirements by incorporating maximum surface profile requirements:
Added a maximum profile of 4 mils in paragraph 3.10.5.2 in the FY-23 update to Standard Item 009-32 for areas following power tool cleaning to SSPC-SP 11 or SSPC-SP 15. Added a maximum profile of 6 mils in paragraph 3.11.4.1 in the FY-23 update to Standard Item 009-32 for nonskid areas where the surface is prepared to SSPC-SP 11 due to the inability of abrasive blast equipment or waterjet equipment to access such areas.

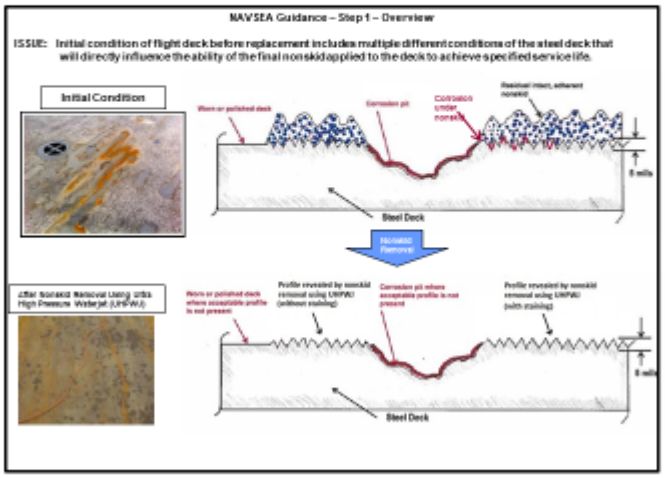
RATIONALE: During nonskid replacement work on an LHD in 2016, NAVSEA received reports of surface "profiles" that were far in excess of any surface profile that could be created using conventional surface preparation processes. Rather, the reported profiles were associated with the deckplate QA/QC staff mis-reporting on an inherently rough surface (i.e., due to corrosion or pitting) and simply reporting that number as "profile." To address this issue, NAVSEA included a requirement to abrasive blast 20% of the flight deck to the FY-18, Change 1, Standard Item 009-32 (i.e., published on 07 Mar 2017). The rationale for the 2017 change was that areas with pitting and corrosion are required to be abrasive blasted to create surface profile rather than simply reporting on a measurement of a pitted or corroded surface as "profile." The following slides explain this issue:

FY-18, Change 1, Standard Item 009-32
Published Sketches to Show Profile Measurement Best Practices

- **Clarify that profile readings are not to be taken in areas with appreciable corrosion pitting:**

- Updated paragraphs 3.10.5.1 and 3.11.4 to add simple statement:

"Surface profile shall be validated on areas without visible pitting."



Slide appears on NSTCenter web site to allow entire community to review content and approach.

Distribution A: Approved for Public Release

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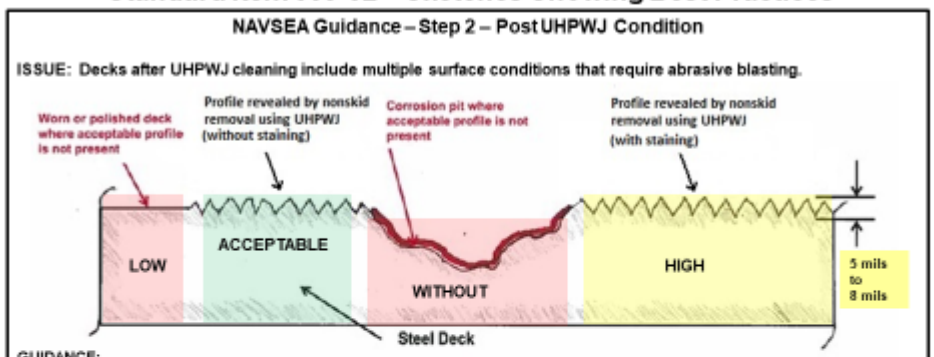
Standard Item 009-32 – Sketches Showing Best Practices



GUIDANCE:

1. After nonskid removal validate SSPC-WJ2 cleanliness. Areas without extensive corrosion staining may have ACCEPTABLE surface profile.

1. Define areas with LOW profile that does not satisfy requirements.
   Define areas where profile is reading HIGH because of residual corrosion pitting/staining.
   Define areas WITHOUT profile that simply represent rusted steel that has been waterjet cleaned.

3. Collect representative surface profile data from areas without visible pitting or corrosion metal loss using ASTM D4417, Method B or Method C, in accordance with SSPC-PA 17.
   Do not collect surface profile data from areas WITHOUT surface profile or with LOW surface profile.
   Collect surface profile data from areas with HIGH profile or staining.

4. Abrasive blast area WITHOUT surface profile and with LOW surface profile to satisfy SSPC-SP 10 near white metal level of cleanliness. Abrasive blasting materials and operating parameters shall be selected in accordance with Standard Item 009-32 requirement to establish the required surface profile.
   Areas with HIGH surface profile may be abrasive blasted as directed by the SUPERVISOR.

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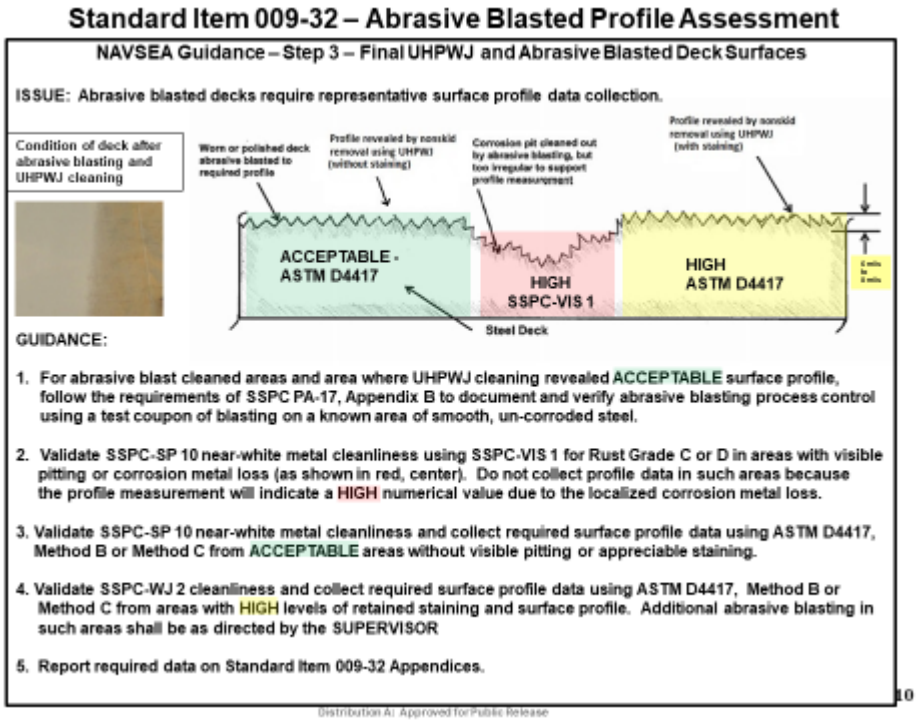

Given that background, the SUPSHIP NNS proposal is intended to establish limits on maximum profile to prevent similar cases of the coating applicators reporting on corroded or pitted surfaces as having levels of "profile" above those that could be created by power tools in accordance with the SSPC-SP 11 or SSPC-SP 15 normal work practices. This the change will avoid confusion on the waterfront regarding profile reporting and will ensure that the deckplate QA/QC staff understand that the concepts described in the slides above that discuss abrasive blasting also apply to power tool cleaned surfaces. Thus, the change will require deckplate QA/QC staff to collect representative data on the profile created by the power tool and not simply report on rough or pitted steel as "profile." Because the change addresses an improper data reporting practice, the proposal will not appreciably alter workmanship practices or job costs. However, the change will reduce the time engineering has to expend addressing "profile" data that is generated incorrectly from rough or corroded surfaces.

48. CHANGE: Added allowance for the SUPERVISOR to determine the maximum degree of surface preparation for inaccessible areas:

Deleted "…not to exceed 0.02 percent of the total surface area, with no individual areas larger than 2 square inches" in the last sentence of paragraph 3.1.6 of the FY-22, Change 1, Standard Item 009-32 and replaced it with "…as defined by the SUPERVISOR" in the FY-23 update to Standard Item 009-32.

RATIONALE: SUPSHIP NNS submitted the proposed change to require the SUPERVISOR to agree with the maximum possible degree of surface preparation for inaccessible areas and to not limit the amount of retained coating allowed in such areas. The proposed change also strikes the 0.02 percent requirement that was inconsistent with the 0.03 percent requirement appearing in FY-22, Change 1, Standard Item 009-32, section 3.6. Finally, the change allows the SUPERVISOR the final approval of the area cleanliness

at the surface preparation inspection point. The change is required because for many of the tasks conducted on carriers during RCOH, there are areas with interferences or accessibility issues that are not usually addressed during general ship maintenance. Because RCOH coating application requirements are based on Standard Item 009-32, the proposed change is required to provide SUPSHIP NNS with the flexibility to task appropriate surface preparation in a range of areas. Naval shipyards have also experienced the issue on submarine work and were supportive of the change. Finally, the change was already approved by DFS SSN-725-1035-2018 that addresses Potable Water Tanks. In addition, since 2018 the change allowing the SUPERVISOR to define the inaccessible area surface preparation for very small areas has be approved in five additional submarine DFSs and twelve CVN 73 DFSs and as such represents established precedent. SEA 05P2 concurs with the change and notes that allowing the SUPERVISOR more flexibility in requirements for defining inaccessible area surface preparation will streamline waterfront preservation practices while creating a LOW risk of inadequate surface preparation resulting in premature coating delamination or cracking.

49. CHANGE: Clarified existing requirements for dust tape test during nonskid installation: Added a new sentence to the end of paragraph 3.11.6 of the FY-23 Standard Item 009-32 to state, "Accomplish dust tape cleanliness tests on any surface that was UHP WJ cleaned or abrasive blast cleaned and that has not been coated with primer within 6 hours of completion of surface preparation."

RATIONALE: The CNAP nonskid OSR proposed the change to address the misinterpretation of existing FY-22, Change 1, Standard Item 009-32, paragraph 3.11.6.1 requirements that do not require dust tests for surfaces that have been cleaned by ultrahigh pressure waterjets (UHP WJ) and the cleaned surface is not over-coated with primer within 6 hours. The CNAP OSR noted that the nonskid application contractors were allowing UHP WJ surfaces to sit without primer for more than 6 hours and then simply suing a visual assessment to proceed with nonskid primer application. The CNAP nonskid OSR noted that in an industrial area like a flight deck, dust and debris is common and can be transferred onto the prepared substrate by even light wind. Ensuring that the substrate is clean prior to the primer application is essential and SEA 05P2 has dealt with multiple cases in the past in which dust on surfaces that were over-coated with primer exhibited degraded primer adhesion to such as degree as to allow premature coating/nonskid system delamination. As noted in the discussion of Change 11 shown above, NAVSEA has been tasked by the USFF N43 Flight Deck Readiness Working Group to reduce the risk of nonskid delamination leading to aircraft engine FOD and including the new last sentence in the FY-23, Standard Item 009-32, paragraph 3.11.6.1 will reduce the risk of nonskid applicators applying primer over dust. Reducing the risk of nonskid primer being applied over dust will improve nonskid primer adhesion and reduce the risk of delaminating nonskid causing aircraft engine FOD. SEA 05P2 determined the change is technically required.

50. CHANGE: Created new note to clarify requirements for preservation of insulation and to align Standard Item 009-32 requirements with Naval Ships Technical Manual (NSTM) Chapter 631 requirements:
Added a new note, Note (94) to the FY-23 update to Standard Item 009-32, stating, "For wet spaces or weather exposed spaces, topcoat to match surrounding area" and adding Note (94) to all applicable Tables and Lines.

RATIONALE: Forward Deployed Regional Maintenance Center (FDRMC) Detachment Rota identified a misaligned requirement for preserving insulation in a DDG-class ship bilge area. The specific instance that brought this issue to light, was that a contractor procured an unqualified color variant of MIL-PRF-24596 in red (SAE-AMS-STD Color Number 20152) per requirements of the current FY-22, Change 1, Standard Item 009-32 Table 3, Line 9, Column F. However, the paint specified should have been the same as the surrounding epoxy coating (i.e. MIL-PRF-23236) or per the marking paint (i.e. MIL-PRF-24635) for color-coding. Per NSTM Chapter 631, paragraph 631-8.7.3, subparagraph c. the requirements specify painting the bilge area the same epoxy paint as follows: "In bilge regions below the deck plates, defined 'wet spaces' (see 631-8.18.7), and where exposed to the weather, steel, galvanized steel, and aluminum piping and piping system components with operating temperatures of 200˚F or below shall be painted the same as the surrounding epoxy system used on the ship structure." For color-coding, MIL-PRF-24635 is required to be used on insulation or lagging. Per NSTM Chapter 631, paragraph 631-8.7.3, subparagraph b, "For piping systems with operating temperatures 200˚F and below, when color-coding is required, use MIL-PRF-24635 topcoat in a color specified per NSTM Chapter 505, either directly on the primed piping, or on any insulation or lagging. Identify valves by painting a section of the handwheel or by painting a band on the operating levers, or other method as specified in NSTM Chapter 505. Where no color is specified, the same color as the surrounding structure shall be used. Do not paint valve stems or other moving parts on valves, as specified in NSTM Chapter 505." The current FY-22, Change 1, Standard Item 009-32 did not specify that the topcoat in the bilge areas is required to match the surrounding area. Incorporating the new Note (94) and adding this to all applicable Tables and Lines in the FY-23 Standard Item 009-32 update, this will align requirements for preservation of insulation in the bilge area between the Standard Item 009-32 and the NSTM Chapter 631 requirements. Thus, the change does not alter existing technical requirements, but rather clarifies the color matching process.

51. CHANGE: Created new Table 5, Line 9A requirement for installing the trade-name specific FS1 intumescent cable coating on surface ship interior cables.
Created a new Table 5, Line 9A in the FY-23, Standard Item 009-32 that requires application of two coats of FS1 intumescent cable coating at 17 - 23 mils per coat and that allows, "2 COATS MIL-PRF-24596, 2-4 MILS (FOR COLOR MATCH IF REQUIRED)" to be applied over the FS1 coating. Also included a new Note (95) that explained application workmanship requirements as follows: "Runs, drips, and sags may appear during application of FS1 paint. When wet, runs, drips, and sags must be

brushed out to form a smooth, uniform film. Runs, drips, or sags that have dried to touch in accordance with the NAVSEA-reviewed ASTM F718 must not be sanded to reduce DFT without approval of the SUPERVISOR."

RATIONALE: Historically, the SEA 05P5 Technical Warrant Holders (TWHs) responsible for fire safety on Navy ships noted that vinyl jacketed cables were a potential significant source of acid gasses (e.g., the chlorine in the burned polyvinylchloride cable jacket reacts with water and forms hydrochloric acid) after a fire on Navy ships. As such, SEA 05P5 THWs worked with private industry to identify coatings that could protect such cables from fire. The Fire Security AS, FS1 intumescent coating was tested by NSWC-CD, Code 612 in April 2017 (i.e., NSWCCD report, NSWCCD-61-TR-2017/21) and found to be an effective cable coating at extending the time cables can be subject to fire without producing acid gasses. Based on recent significant ship fires, leadership expressed an interest in ensuring that the FS1 cable coating could be applied to Navy ship cables. To ensure that the coating could be applied on Navy ships and to validate application requirements in the new, NAVSEA-reviewed ASTM F718 product data sheet for the FS 1 intumescent coating that is posted on the NST Center website, NSWC-CD, Code 613 staff worked with Fire Security AS to conduct a demonstration installation of the FS1 coating on USS BULKELEY (DDG 84) in Dec 2020. The demonstration installation results are summarized in NSWC-CD, Code 61 letter report Ser 61/21-004 dated 22 Jan 21 and show the coating could be applied at the required thicknesses, but did note that the Fire Security AS applicators were skilled in using their spray equipment to apply the coating. Thus, the change will allow ships that elect to improve the performance of their cables in a fire to install a commercial coating system that has been validated to perform effectively by SEA 05P5 in accordance with coating application requirements that have been validated by SEA 05P2. The change will not reduce costs or streamline production, but will improve the performance of cables in a shipboard fire.

52. CHANGE: Aligned requirements in the Notes of Tables 6 Through 8 for Submarines with overall Standard Item 009-32 requirements to avoid duplication:
The first sentence and end of the last sentence of Note (17A) in the FY-22, Change 1, Standard Item 009-32 were removed from Note (17A) in the FY-23 Standard Item 009-32 update.

RATIONALE: SUBMEPP included the proposed change in accordance with the SSRAC policy that has been expressed by senior CNRMC leadership over the past five years that any duplicative requirements must be removed from Standard Items. Senior CNRMC leadership has noted that duplicative or repeated requirements cause confusion when contracts or task items are prepared and retard efficient waterfront production. As such, SUBMEPP noted that the first sentence and end of the last sentence of Note (17A) in the FY-22, Change 1, Standard Item 009-32 both noted that areas that were required to be coated are already defined when a contract or task order is prepared and it is only the areas that do not require coating that must be defined. Because Note (17A) applies only to submarines, work planners preparing contract or work plans for a given tank would consult work planning documents like the Submarine Maintenance Standard to define the equipment that is to be coated and as such, the Standard Item 009-32 must only cite areas that are not to be coated in the requirements. Thus, the proposed change streamlines production by allowing work planners to specify which

specific systems are to be coated and avoids duplication of coating requirements for non-ferrous materials that already appear in other documents and sections of FY-23, Standard Item 009-32.

53. CHANGE: Reduced QA Inspection requirements for touch-up areas:
Added new paragraph 3.6.1.6 to the updated FY-23 Standard Item 009-32 which states, "For areas of touchup of 6 square inches or less total cumulative area within a tank, visual inspection only of the touchup area is authorized. All other QA requirements specified in 3.10 are not required."

RATIONALE: SUBMEPP proposed the change to the required coating QA inspection practices by adding a new paragraph 3.6.1.6 to FY-23 Standard Item 009-32 because in many cases on the waterfront, actual QA data collection from small repairs is not possible. For example, it is not possible to collect a meaningful surface profile measurement from a chip in the coating system on an edge of a stiffener because both profile tapes and profile gauges require a flat or uniformly curved surface to produce representative data. SURFMEPP noted that the inherent inability to collect representative QA data from these small repair areas required additional time from engineering to adjudicate or document the issue. SURFMEPP 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."
Thus, SEA 05P2 concurs with the proposed change because it effectively addresses a technical limitation with existing QA tools and small areas and is based on an already established precedent. SEA 05P2 determined that because the change only relates to very small areas, the risk of the lack of QA data appreciably altering the coating performance in repair areas is LOW. The proposed change will streamline waterfront coatings touch-up tasks by avoiding the need for engineering to adjudicate each waiver of QA/QC data collection from very small areas.

54. CHANGE: Removed requirements to apply archaic unqualified coating products:
Deleted the first paragraph of the FY-22, Change 1, Standard Item 009-32, Notes (24) and (40A) from the FY-23 Standard Item 009-32 update.

RATIONALE: Historically, when the ultrahigh solids, MIL-PRF-23236, Type VII coatings were implemented in Standard Item 009-32, the technical community considered the risk that these inherently viscous coatings (i.e., as compared with the solvent-based coatings like MIL-DTL-24441 that were in widespread use at the time) would not conform to, or adequately wet areas that were rough or irregular. To address this risk, Sherwin-Williams and International Paint offered lower viscosity versions of their ultrahigh solids coatings that were advertised as being useful in small areas where working the coating into the surface with a brush might be required. These coatings were first included in the FY-07, Standard Item 009-32 that was published on 14 Jul 2005 and have been in the document ever since. However, it is important to note that these "brush grade" coatings were never independently qualified by NAVSEA to MIL-PRF-23236 requirements, but rather were considered part of the manufacturers qualified MIL-PRF-23236, Type VII system. Ever since 2005, the technologies for

supporting brush application of the fully qualified MIL-PRF-23236, Type VII coating system has improved with NAVSEA fielding paint cartridge systems that automatically dispense small amounts of pre-mixed coating into a location allowing the coating to be brushed into a rough area, and burst packs of two-part coatings that can be mixed in the pack and then dispensed into a rough area for brush application. These cartridge and burst pack systems that support brush application of qualified MIL-PRF-23236, Type VII ultrahigh solids coatings allow NAVSEA to eliminate the archaic requirements for the brush grade products by deleting the first paragraph of Notes (24) and (40A) from the FY-23 Standard Item 009-32 update. NAVSEA took the action to delete these brush grade coatings in the FY-23 update to Standard Item 009-32 because in 2021 a Navy shipbuilder procured all the brush grade coating available in the U.S. from a coating manufacturer and was essentially trying to brush apply an entire tank coating. Because there were no area limits associated with Notes (24) and (40A)), NAVSEA had to argue that because the brush grade products were not independently qualified to MIL-PRF-23236, Type VII, they could not be independently applied as a tank coating that was required by the shipbuilding contract to be coated with a MIL-PRF-23236, Type VII ultrahigh solids coating. Based on discussions with the technical community at the 2021 SSRAC meeting, all coating manufacturers and coating application contractors agreed that the advancements over the years in paint dispensing cartridges and burst packs eliminated the need to call out the archaic brush grade products in Standard Item 00-32 and by eliminating references to these product, NAVSEA avoids the future risk of having to explain to coating applicators why it was technically unacceptable to try and coat an entire tank with a brush grade material.

55. CHANGE: Included magazines and weapons handling spaces in the current interior nonskid requirements:

Updated the first column in the FY-23 Standard Item 009-32, Table 2, Lines 21(i.e., for steel substrates) and Line 60 (i.e., for aluminum substrates), to add the terms ". . . AND INTERIOR SPACES INCLUDING MAGAZINES AND WEAPONS HANDLING AREAS."

RATIONALE: The addition of the term ". . . AND INTERIOR SPACES INCLUDING MAGAZINES AND WEAPONS HANDLING AREAS" was not presented or discussed as a proposed change to the FY-23, Standard Item 009-32 at the 2021 SSRAC meeting and as such is atypical. Rather, the change is a corollary to a change in the FY-23 update to Standard Item 009-26 on decking that was submitted by the SEA 05Z44 TWH responsible for magazines and weapon handling areas to address recent questions from the waterfront regarding coatings, colors, and requirements for decking in such spaces. The FY-23, Standard Item 009-26 change was accepted by the technical community at the 2021 SSRAC meeting and resulted in the addition of a new Note (12) on decking in ". . . magazines and weapons handling areas." Unfortunately, SEA 05Z44 had included nonskid requirements in their proposal to create the new FY-23, Standard Item 009-26, Note (12) and SEA 05P2 noted that nonskid requirements appear in Standard Item 009-32 (i.e., not in Standard Item 009-26) and as such including duplicative nonskid requirements in Standard Item 009-26 would violate CNRMC policy. To address this issue, SEA 05P2 worked with SEA 05Z44 to demonstrate how the requirements for nonskid installation, including

masking of tie-downs, and other key installation details already appeared in Standard Item 009-32 and recommended shifting the requirements from the new FY-23, Standard Item 009-26, Note (12), to the first column of FY-23, Standard Item 009-32, Table 2. SEA 05Z44 concurred with adding the additional term ". . . AND INTERIOR SPACES INCLUDING MAGAZINES AND WEAPONS HANDLING AREAS" to the FY-23, Standard Item 009-32, Table 2, Lines 21 and 60 and as such the change appears in the final document. The proposed change does not alter existing requirements, but rather will streamline waterfront work planning by eliminating the need for waterfront work planners to contact SEA 05P2 to determine which coatings and colors are intended to be applied in magazines and weapons handling areas.