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

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From: Commander, Navy Regional Maintenance Center
To: Distribution

Subj: FISCAL YEAR 2025 NAVAL SEA SYSTEMS STANDARD ITEMS CHANGE 1

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

Encl: (1) NAVSEA Standard Items Summary of Change FY25 CH-1

1. Per references (a) and (b), the Fiscal Year 2025 (FY25 CH-1) NAVSEA Standard Items are available on the official Specification for Ship Repair and Alteration Committee Web site at: http://www.navsea.navy.mil/Home/RMC/CNRMC/OurPrograms/SSRAC.aspx

a. The FY25 CH-1 Standard Items and Standard Phraseology must be invoked in Chief of Naval Operations availabilities and Continuous Maintenance Availabilities with an availability start date in FY25 that have not reached the 100% D Level Maintenance Work Package Lock Milestone.

b. Work items that have been previously planned utilizing FY25 Standard Items, only need to be updated to reflect the FY25 CH-1 requirements if they have not reached the 100% D Level Maintenance Work Package Lock Milestone.

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

3. Regional Maintenance Center Standards Coordinators and the Master Spec Catalog Maintenance Office are responsible for advising users within their command of this notice. Contracts Department, Code 400, is responsible for advising Master Ship Repair Contractors and Agreement for Boat Repair Contractors under their cognizance of the availability of these products.

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

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J. A. SIMMONS
By direction

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SRF-JRMC (C100, C100B, C1200)
PMS 407

NAVSEA Standard Items Summary of Change FY25 CH-1

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

1. **Change:** CP 3.10.2.1 Added verbiage below

    a. 3.10.2.1 Be revised prior to the start of productive work and updated as work proceeds on each Work Item. Supporting data for tests and inspections requiring government notification (G), including accept/reject criteria, must be available at the location of each test and inspection. Include provisions for documenting the date, time, and identification of the SUPERVISOR's representative notified and ***provisions to document the name of the contractor*** and government representative attending each (G)-Point on the TIP. ***For (I) and (V) inspections not requiring government notification (G), include provisions for documenting the date, time and name of the individual performing the test or inspection.*** The TIP must annotate the relationship to a specific key event unless otherwise agreed upon by the SUPERVISOR. The following key events must be considered at a minimum (as applicable): Undocking, Production Completion Date (PCD), Command, Control, Communications, Computer, Combat Systems, and Intelligence (C5I) Light-Off (C5ILO), Work Complete (WC), Dock Trials (DT), Fast Cruise (FC), Sea Trials (ST), and Availability Completion (AC).

Rational: 3.10.2.1 did not require the contractor to provide the name of the inspector for (G) inspections nor did it specify the contractor to specify the date, time and name of individuals performing (I) or (V) inspections. The NMD TIP is already setup to record this information, and while some contractors do provide this, the below change will make this a uniform product delivery requirement.

2. **Change:** CP New 3.17.3 Added new 3.17.3.1 and 3.17.3.2

    a. ***3.17.3 Four weeks prior to an established Key Event, meet with the SUPERVISOR, Ship's Force, and others as requested by the SUPERVISOR or Prime Contractor. The meeting will ensure all items tied to 009-60 Key Event and Milestone Analysis Report of 2.1, including required reports and OQE, are adjudicated prior to the Key Event.***
    b. ***3.17.3.1 Barriers to meeting the Key Event will be identified and a Plan of Action and Milestones (POAM) will be established.***
    c. ***3.17.3.2 Up to 4 additional meetings will be held weekly with an updated POAM until the Key Event is achieved, unless otherwise directed by the SUPERVISOR.***

Rational: By implementing a formal requirement for the contractor to conduct Key Event readiness meetings in advance of the Key Evet, the likelihood of meeting that KE date is significantly increased and enhances the opportunity to achieve on-time-delivery.

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

1. **Change:** CP 3.4.2

   a. 3.4.2 Class P-3a special category silver brazing, as defined by 2.5. The procedure must include, as a minimum, the information required by Sections 4 of 2.5.

   Rational: 3.4.2 Corrected "by Sections 4 of 2.4". To read "by Sections 4 of 2.5".

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

1. **Change:** CP NOTES FOR TABLE ONE

   a. 5. ***Intentionally left blank.***

Rational: The specific areas to be repaired must be defined, marked, and excavated for surface preparation by the NAVSEA approved Technical Representative. Administrative Change from last SSRAC

2. **Change:** CP Table One Line 4

   a. Deleted "& (5)"

   Rational: Administrative Change from last SSRAC

ENCLOSURE 1

Summary of Changes to NAVSEA Standard Item 009-32, "Cleaning and Painting Requirements; accomplish" for Incorporation in the FY-25 Standard Item 009-32 and Associated Technical Rationale for Each Change

The following provides the rationale for the substantive FY-25, NAVSEA Standard Item 009-32 updates and changes. The specific changes discussed below appear highlighted and in ***bold/italics*** in the attached final, "Clean," FY-25, NAVSEA Standard Item 009-32. The changes also appear in the attached "Track Changes" version of the document. Minor re-numbering changes, other typographical corrections, and minor changes to clarify existing requirements appear in the attached final draft, FY-25 NAVSEA Standard Item 009-32 in ***bold/italics***, but are not addressed below.

1. CHANGE: Universal editorial changes: Numerous administrative and editorial changes incorporated in the FY-25, NAVSEA Standard Item 009-32 include the following:

a. Added "NAVSEA" to reference 2.1.

b. Updated name of reference 2.5 to "SSPC Standards."

c. Removed "manufacturer's" term in paragraph 3.1.13.1.

d. Replaced archaic terms for training credentials with "AMPP Basic Coatings Inspector, or as approved by NAVSEA" in paragraph 3.9.1.

e. Removed term "Water Based" and "Latex" from multiple locations in Table 3 and Table 5.

f. Added "Table 3" or "Table 6" to all lines in which term "Same as Line…" had been used in the respective FY-24 Standard Item 009-32 Tables.

RATIONALE: Administrative and editorial changes were incorporated into the FY-25, NAVSEA Standard Item 009-32 to standardize language, align phraseology with SSRAC documentation policy, and update references as summarized below.

a. The change to add the term "NAVSEA" to the references ensures consistency across all other NAVSEA Standard Items and improves clarity by using common phraseology.

b. FY-24, NAVSEA Standard Item 009-32 cites the "SSPC Painting Manual" as reference 2.5. The 2021 merger between NACE International and SSPC (i.e., to create the new Association for Material Protection and Performance [AMPP]) led to the renaming of the "SSPC Painting Manual" into individual, respective standards, all of which are correctly, individually cited by name in the FY-25, Standard Item 009-32. Thus, the "SSPC Standards" citation is consistent with the most recent AMPP terminology and was suggested by the AMPP representative who attended the June 2023, Standard Specification for Ship Repair and Alteration Committee (SSRAC) meeting.

c. The change clarifies that while NAVSEA reviews manufacturer's ASTM F718 data sheets for coatings qualified to performance specifications (e.g., MIL-PRF-24667, MIL-PRF-24635, etc.), not all ASTM F718 data sheets are prepared by coating manufacturers. For example, in the case of detail specifications (e.g., MIL-DTL-24607, MIL-DTL-15090, etc.) that define the

specific coating formula, the ASTM F718 data sheets are being developed by SEA 05P2 with input and concurrence from multiple coating manufacturers. Thus, the change avoids an implication that the coating manufacturers have the responsibility to develop the ASTM F718s for the detail specification coatings and as such the only time the term "manufacturer's appears in the paragraph is to cite other documents that are not reviewed by NAVSEA.

d. FY-24, NAVSEA Standard Item 009-32 included "NACE International Coating Inspector Program (CIP) Level 1 or higher, or SSPC Protective Coating Inspector Program (PCI) Level 2" as technically acceptable certifications for coatings inspectors. The 2021 merger of NACE and SSPC into AMPP has led to the renaming of many of the two organization's certifications/credentials. Based on these changes, the technically equivalent certification to the Navy Basic Paint Inspector (NBPI) credential is the "AMPP Basic Coatings Inspector" certification. Thus, the change aligns the name of the required certification with the latest AMPP terminology. The change to cite, "or approved by NAVSEA" avoids the use of the unclear term "or higher" and allows personnel with other credentials such as a Professional Engineering license in an applicable discipline or a foreign certification to be accepted by NAVSEA to inspect coatings application work.

e. FY-24, NAVSEA Standard Item 009-32 includes the term "Water Based Interior Latex" when citing MIL-PRF-24596, "nonflaming," fire resistant, interior coatings in Table 3 and Table 5. This is the only coating specification in which a descriptor appearing in Standard Item 009-32 does not appear in the title of the specification (i.e., the MIL-PRF-24596 specification defines performance requirements for latex-type paints, but the term "latex" does not appear in the document). Thus, the changes to Table 3 and Table 5 are required to avoid an inconsistency between the terms in Standard Item 009-32 and the terms appearing in the MIL-PRF-24596 specification.

f. Historically, Standard Item 009-32 included the term "Same as Line …" in a number of Lines to cite a requirement by referencing another Line. However, over the past few years, cases where changes in specific Line numbers did not get captured in the "Same as Line ... " terms because the Tables were not cited, have led to confusing or inaccurate requirements (i.e., the "cut and paste" processes used to edit the document created inadvertently inconsistent requirements). By updating the remaining "Same as Line ... " citations in Table 3 and Table 6 to cite both the Table and Line, the risk that these citations will be incorrectly or inconsistently cited when other changes are made in the future is eliminated.

2. CHANGE: <u>Included New Naval Ship's Technical Manual (NSTM) Chapter 634 reference and cited the new reference in a revised Note (50):</u>
Added new Reference 2.13, "S9086-RK-STM-010/CH-634, Deck Coverings" to FY-25 Standard Item 009-32 and updated the current, FY-24 Standard Item 009-32, Note (50) to cite the reference in a format consistent with the existing citation to NSTM Chapter 631 that has appeared as a reference in Standard Item 009-32 since 1999. In addition to adding NSTM 634 as a new Reference 2.13, the F-25 Standard Item 009-

32, Note (50) has been revised to avoid use of the unclear term "aviation decks" and rather to cite the term "flight decks" that appears throughout the document as follows: "Cosmetic" color topping is not to be applied on top of nonskid on vertical replenishment or flight decks in accordance with 2.13."

RATIONALE: The FY-24, NAVSEA Standard Item 009-32, and all previous versions of Standard Item 009-32 since 1999, included NSTM Chapter 631, "Preservation of Ships in Service – General" as Reference 2.2. Based on this precedent for the citation of NSTM Chapters in Standard Item 009-32, Ship Repair Facility-Japan Regional Maintenance Center (SRF-JRMC) staff proposed the change to include NSTM 634 on decking as a new FY-25 Standard Item 009-32, Reference 2.13 and to update Note (50) to cite that reference. Thus, the new Reference 2.13 provides the baseline requirement for use of a "cosmetic," color topping on walking area nonskid to extend service life and avoid ship's force requesting costly nonskid replacement for cosmetic reasons and Note (50) cites this reference. Tradename specific nonskid color toppings are cited in NSTM 634 and NRL is currently working on a project to determine if NAVSEA specifications need to be updated to include performance requirements for such color toppings. Importantly, Note (50) also accurately states that NSTM Chapter 634 prohibits the use of these "cosmetic" color toppings on flight or vertical replenishment decks. Thus, the updated Note (50) will allow walking surfaces to be color topped in accordance with existing NSTM 634 requirements and will avoid the costs and scheduled delays associated with ship's force submitting tasks to replace nonskid that is intact and adherent, but exhibits cosmetic issues.

3. CHANGE: <u>Clarified requirements for preservation of Corrosion Resistant Steel (CRES) and non-ferrous fasteners installed after coating work is complete:</u>
Updated FY-24 Standard Item 009-32, paragraph 3.1.4.3 to add the following sentence, "CRES and non-ferrous fasteners installed post preservation are not required to be painted."

RATIONALE: The change to FY-25 Standard Item 009-32, paragraph 3.1.4.3 leverages a 2020 change to FY-21, Change 1, Standard Item 009-32 to avoid non-value added work associated with coating fasteners that inherently do not corrode. On 6 Mar 2020, CNRMC published the FY-21, Change 2, Standard Item 009-32, that included a change to Note (17A) to add the following sentence, "CRES and non-ferrous fasteners installed post preservation are not required to be painted." The 2020 change reduced the risk of tank close out work being delayed to apply a few square inches of coatings to fasteners that inherently do not corrode. Because Note (17A) is only applicable to submarines, the FY-25 update to NAVSEA Standard Item 009-32, paragraph 3.1.4.3 expands this exemption for not requiring paint on CRES and non-ferrous fasteners installed after preservation work to be applied to aircraft carriers and other surface ships. Importantly, the 6 Mar 2020 change to allow the CRES and non-ferrous fasteners to remain unpainted on submarines has not resulted in any reports to SEA 05P2 about corrosion or water quality issues from tanks with uncoated fasteners. Therefore, the updated paragraph 3.1.4.3 requirement leverages the success associated with the 6 Mar 2020 change to Note (17A) to include aircraft carriers and surface ships. For example, the change to FY-25 Standard Item 009-32, paragraph 3.1.4.3 would allow AISI 316L stainless steel fasteners to be used to mount a ladder in a

freshly painted reserve feedwater tank on a CVN or a freshly painted potable water tank on an LPD, without any additional paint processes. Once these AISI 316L steel fasteners are mounted, the reserve feedwater or potable water tanks could be placed directly into service, avoiding days/weeks of time spent applying paint to these inherently extremely small areas on the fasteners. The update also mitigates the risk of damage to the intact, freshly installed tank coating associated with conducting surface preparation on CRES/non-ferrous fasteners (i.e., damaging the painted carbon steel surface upon which the fastener is installed). Finally, the update will not adversely affect water quality because the surface area of such fasteners is negligible compared with the overall coated surface area in the tank and the uncoated CRES/non-ferrous materials used in the tanks are also likely to be already used in piping and fittings in these overall fluid system. Thus, small areas of uncoated CRES/non-ferrous metals in submarine reserve feedwater and potable water tanks are already known to not adversely affect water quality and extending that success to other ship classes will reduce non-value added work. In summary, the change will eliminate the time/effort currently required to coat CRES/non-ferrous fasteners in reserve feedwater and potable water tanks without appreciably increasing the risk of substrate corrosion or adversely affecting water quality.

4. CHANGE: Added "Freeboards (Excluding Aircraft Carriers)" to paragraph 3.7 as Critical Coated Areas on both steel and aluminum substrates:

Updated the Table appearing under FY-24 Standard Item 009-32, paragraph 3.7 to add "Freeboards (excluding Aircraft Carriers)," to the list of Critical Coated Areas.

RATIONALE: Historically, from the 1980s to 2005, "Freeboard" was cited in Standard Item 009-32 as a Critical Coated Area (CCA). The CCA definition does not alter the coating application requirements, but rather requires that a government representative complete QA/QC checkpoints (i.e., the checkpoints are labeled in Standard Item 009-32 with a (G) in the paragraph headings) during the coating application process to validate that these key steps in the coating application process were conducted in accordance with requirements. In 2005, both the Surface and Air Type Commanders (TYCOMs) recommended removing "Freeboard" from the Standard Item 009-32 CCA list because government oversight associated with CCAs increased job costs and the TYCOMs noted that ship's force can touch up freeboard coatings on an as-needed basis. With TYCOM concurrence, FY-07 Standard Item 009-32, published on 14 Jul 2005, DID NOT include freeboard in the CCA list and that has remained the case to date with the FY-24 Standard Item 009-32. Unfortunately, there have been a number of recent stories in the trade press about the visual corrosion and degraded appearance of U.S. Navy surface ships. NRL addressed this issue in 2015 with a Topside Corrosion Control demonstration program on the USS MAHAN (DDG 72) that showed how properly applied, MIL-PRF-23236, Type VII qualified epoxy primers and two-pack, MIL-PRF-24635 qualified polysiloxane topcoats could appreciably improve the appearance of surface ships and reduce the coating touch-up/maintenance burden on ship's force during the first deployment by a factor of 34. SEA 05D5 noted that one key to the success of the DDG 72 topside coating demonstration installation was the NRL oversight of the work that was functionally equivalent to treating the freeboard and topside as a CCA. Based on the DDG 72 topside coating demonstration installation, SEA 00 and SEA 05 determined that adding freeboard to the CCA is an

important requirement to improve the appearance of U.S. Navy ships and both COMNAVSURFLANT and COMNAVSURFPAC to support this change. The change does not extend to aircraft carriers because CVNs do not appear to exhibit appreciable amounts of topside corrosion and the ongoing efforts to install Passive Counter Measure System (PCMS) tiles on CVNs freeboard and topsides includes an FY-25 change to Standard Item 009-32 to list these areas a CCAs (i.e., as discussed in Change 5. shown below). Thus, the change reverts to historical precedent and will address the NAVSEA leadership goal of improving the appearance of U.S. Navy ships.

5. CHANGE: Added areas receiving PCMS tile above the Flight Deck on Aircraft Carriers paragraph 3.7 to the list of Critical Coated Areas:
Added "Aircraft carrier areas above the flight deck receiving PCMS" for steel substrates to the table appearing below FY-25, Standard Item 009-32, paragraph 3.7 as a Critical Coated Area (CCA).

RATIONALE: During the past few years, the Passive Counter Measure System (PCMS) tile installation process on aircraft carriers has identified a number of issues with improperly applied coatings delaminating and causing PCMS tile installation worker confusion regarding acceptable substrate coating conditions for successful PCMS tile adhesion. These unpredictable coating conditions led the Mid-Atlantic Regional Maintenance Center (MARMC) to contact Naval Surface Warfare Center, Port Hueneme (NSWC-PHD) and they stated that coating failure under PCMS tile leads to increased system repair costs and creates a risk of delaminating PCMS tile causing aircraft engine Foreign Object Damage (FOD). As such, the SEA 05P1 Technical Warrant Holder for Topside Signatures has concurred that the additional government (G) checkpoint QA/QC inspection data associated with listing the coatings under PCMS tiles on aircraft carrier areas above the flight deck as CCAs is required to minimize the risk of coating failure under the PCMS tile leading to aircraft engine FOD in the future. In addition, the CNAL and CNAP TYCOMs also concur that the change is important to ensure the coatings under PCMS tiles are adherent and mechanically sound. Thus, the change is analogous to the FY-25 Standard Item 009-32, Change 4. shown above to make freeboards CCAs on surface ships and addresses the SEA 00 and SEA 05 goal of improving overall freeboard and topside corrosion control to improve the appearance of U.S. Navy ships.

6. CHANGE: Clarified the coating receipt inspection requirements for submarines:
Updated FY-24, NAVSEA Standard Item 009-32, paragraph 3.8.1 to include the following new parenthetical clause: ". . . areas listed in 3.7 (excluding nonskid systems, underwater hull coating systems for aircraft carriers, and antifouling topcoats for submarines) upon receipt of the coatings from the manufacturer."

RATIONALE: Since the FY-12, NAVSEA Standard Item 009-32, published on 30 Jul 2010, Standard Item 009-32 excluded all components of the MIL-PRF-24647 qualified underwater hull coatings system from receipt inspection for both aircraft carriers and submarines. However, the Submarine Maintenance Engineering, Planning, and Procurement activity (SUBMEPP) correctly noted that, in the case of submarines, the MIL-PRF-24647 qualified anti-corrosive primer portion of the underwater hull coatings system requires receipt inspection because these coatings are also cross-qualified as MIL-

PRF-23236 coatings that are used on other areas of submarines for which receipt inspection is required. Clarification of the receipt inspection requirements ensures that receipt inspection for the MIL-PRF-24647/MIL-PRF-23236 epoxy primers that are part of the underwater hull coating system, but are also used on other areas of the submarine, have the required receipt inspection data. Thus, the change avoids the risk of a paperwork issue associated with use of the same epoxy primer coatings in multiple areas of a submarine being rejected for lack of receipt inspection data.

7. CHANGE: Updated environmental reading requirements for nonskid coating applications: Added sentence that states, "When last reading was within 5 degrees of maximum or minimum ambient and substrate surface temperatures and dew point record manual readings at 15 minute intervals during nonskid system application." to FY-25, Standard Item 009-32, paragraph 3.11.2.1.

RATIONALE: Historically, since the FY-07 Standard Item 009-32, published on 14 Jul 2005, nonskid installation processes required environmental data to be collected with a data logger or manually on an hourly basis because the environmental conditions can rapidly change on an exterior deck. Even in a containment, the sun can cause rapid heating in the late morning and these environmental data collection requirements have been retained through the current FY-24 NAVSEA Standard Item 009-32. As part of the change proposal, the CNAL N43 Nonskid Onsite Representatives (OSRs) noted that in some locations like San Diego, CA, and during nonskid installations without a containment, environmental readings need to be taken more frequently when nearing the minimum or maximum allowable environmental conditions because sunlight and weather can rapidly change the deck conditions. For example if the sun is rising in the morning in San Diego, CA and the deck temperature is 105°F at 10:00 AM (i.e., within the Standard Item 009-32 requirement for deck temperatures to not exceed 110°F), then the deck could be at 135°F by the next hourly reading. Although work would stop after the 135°F reading, some of the nonskid applied in that hour between 10:00 AM and 11:00 AM would have been applied to a deck that is too hot and as such may become brittle and prone to in-service cracking. Because brittle nonskid can lead to the formation of chips/flakes that can cause aircraft engine FOD, the change reduces the risk of large areas of nonskid being applied during some fraction of an hour long period when the deck it too hot or too cool. SEA 05P2 determined that the limited cost of a few extra environmental readings, to reduce the risk of aircraft engine FOD, represents a technically required change and the 2023 SSRAC meeting group discussed the issue and supported the additional data collection as a low cost means of reducing the risk of aircraft engine FOD.

8. CHANGE: Added an exemption for stripe coating of tie downs on aircraft carriers: Added "The stripe coat requirement on tie downs is waived for aircraft carriers." to FY-25 Standard Item 009-32, paragraph 3.11.8.

RATIONALE: Standard Item 009-32 has always required tie downs to be stripe coated because they are complex shapes that are inherently difficult to coat. However, the CNAL N43 Nonskid OSRs noted in their change proposal that the inherently large number of tie downs that need to be coated when applying nonskid primer to the large areas on aircraft carrier decks has limited the ability of contractors to accomplish the tie down stripe coat within the primer overcoat window and as such the stripe coat requirement

has been locally waived on multiple jobs in the past. The CNAL N43 Nonskid OSRs also noted that because almost all tie downs are used on aircraft carriers (i.e., aircraft are chained down all over CVN flight decks) and the coating on the tie down is always damaged when a hook attached (i.e., the metal hook on the chain crushes the paint on the tie down), that there is effectively no difference in corrosion-control performance of tie downs installed with, and without, a stripe coat. In addition, the CNAP N43 Nonskid OSRs noted that ship's force on carriers is attentive to touching up coatings on tie downs that are corroding, even though the touch up coating is also damaged again when a hook is installed. Note that on other ship classes (e.g., DDG, LPD, etc.), with less widespread use of tie downs (i.e., aircraft are not typically stored all over the deck), the stripe coat does help retard corrosion and because of the smaller number of tie downs that need to be coated on the smaller decks on other ship classes, retaining the stripe coat requirement will not adversely affect the nonskid installation process. By waiving the stripe coat requirements for tie downs on aircraft carriers in the FY-25, NAVSEA Standard Item 009-32, the need to process local Departure From Specifications (DFSs) can be eliminated without degrading or altering the performance of the overall tie down coating system.

9. CHANGE: <u>Removed all references to PPG Industries PSX 892HS:</u>
Updated the FY-24, Standard Item 009-32 Note (39) that historically referenced the heat resistant PSX 892HS coating to be "Intentionally left blank"; updated Table 5, Line 5 to be "Intentionally left blank"; and replaced the requirement for use of PPG PSX 892HS with requirements to use heat resistant TT-P-28 or PPG HI-TEMP 10127 and HI-TEMP 1000 as appropriate in Table 5, Lines 15, 15A, and 17.

RATIONALE: Historically, since publication of the FY-05 Standard Item 009-32 on 29 Aug 2003, Standard Item 009-32 has included a product-specific call out for PPG Industries PSX 892HS high temperature coating for application on machinery and exhaust pipes that experience operating temperatures between 250°F and 400°F. In addition, Note (39) was added in 2003 to require that the surfaces to which the PSX 892HS was applied must not exceed 700°F. The tradename citation was required because NAVSEA did not have a specification requirement for such a moderately heat resistant paint that would cure without heating (i.e., the TT-P-28 heat resistant coating coatings can withstand operating temperatures up to 1,200°F, but do require heating to over 400°F to fully cure), while the PSX 892HS was based on a heat-resistant polysiloxane chemistry that cured at room temperature. In 2021, PPG Industries reported to NAVSEA that PSX 892HS would no longer be manufactured and suggested the alternative coating for most Navy applications was the PPG Hi-Temp 1000. The FY-23, Change 2, published on 5 May 2022 included both the Hi-Temp 1000 and the PSX 892HS coatings as options for the elevated temperature operations. The change to include the Hi-Temp 1000 coating was based on a 2021 Paint Center of Excellence (PCOE) program study during which NSWC-CD, Code 613 examined alternative, commercial heat-resistant coatings that would offer improved corrosion resistance as compared with standard TT-P-28 coating system and as such would be applicable as a direct alternative to the PSX 892HS. 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 showed how the Hi-Temp 1000 offered enhanced edge retention and resistance to undercutting corrosion as compared

with PSX 892HS and was available in a gray color that was more cosmetically acceptable to ship's force than the appearance of the TT-P-28 aluminum-bearing coatings that when applied, appeared to be shiny aluminum. It is important to note that the shiny aluminum flakes in the TT-P-28 rapidly oxidize to a dull gray appearance, but ship's force still requested a simple gray coating. Since the 5 May 2022 publication of the FY-23, Change 2, Standard Item 009-32 the existing stocks of PSX 892HS have been exhausted and as such, the citations for this coating were removed from the FY-25 Standard Item 009-32.

Although performance of the Hi-Temp 1000 has been acceptable, NSWC-CD Code 613 determined that to further improve the adhesion of the Hi-Temp 1000 to stainless steel substrates, the corresponding PPG high temperature primer, Hi-Temp 1027 should be included in the FY-25 Standard Item 009-32 as the direct-to-metal coating to enhance adhesion of the entire system. Because the cost of Hi-Temp 1027 is comparable to that of Hi-Temp 1000, and the Hi-Temp 1027 / Hi-Temp 1000 system is the PPG Industries standard for exhaust pipes and boilers, the FY-25, NAVSEA Standard Item 009-32 cites Hi Temp 1027 primer and Hi-Temp 1000 topcoat for elevated temperature service. Thus, the change aligns FY-25 Standard Item 009-32 requirements for coatings used on moderately elevated temperature surfaces with a commercially available, gray coating system that was proven effective in NSWC-CD, Code 613 testing.

10. CHANGE: <u>Clarified requirements for the coatings repair and reinstallation around PCMS tile:</u> Altered the FY-24 Standard Item 009-32 Note (57) to be "Intentionally left blank" and updated Note (87) (i.e., that is cited for coating application around PCMS tile repairs and reinstallations in Table 2, Lines 45 to 48 and Lines 50 and 52 and Lines 75 to 78 and Lines 80 and 82) to read: "As directed by the SUPERVISOR, prepare surface and apply primer to area that extends 10 to 14 inches around the perimeter of the vertical area to receive PCMS tile. Prepare surface and apply primer to corners and welds and up to retained label plates and deck edges."

RATIONALE: SUPSHIP HII-NNS noted that recent PCMS tile installation on aircraft carriers demonstrated that the current FY-24 Standard Item 009-32 requirements for installing coatings around PCMS tile repair and reinstallations were not clear. As such, SUPSHIP HII-NNS submitted a change proposal to clarify the requirements that addressed the following two issues: The first issues was that the FY-24, NAVSEA Standard Item 009-32, Note (57) on painting PCMS tile was not referenced in any Table/Line in the document, suggesting the requirement was archaic and needed to be removed. The SEA 05P1 Technical Warrant Holder responsible for the PCMS tile concurred that the PCMS tile painting requirement was archaic and that Note (57) should be changed to "Intentionally left blank" in the FY-25 update to Standard Item 009-32. Thus, the first change simply eliminates an archaic requirement that could cause confusion during the PCMS installation process.

The second issue identified by SUPSHIP HII-NNS was that the coating requirements for the transition areas between the PCMS tile and the surrounding structure were not clear. To address this issue, the 2023 SSRAC meeting group generated a number of improvements in the proposed language for updating of Note (87) to address a range of transition areas. Again, the SEA 05P1 Technical Warrant Holder responsible for the PCMS tile concurred that the new Note (87) represented sound technical

requirements and that that this proposal combined with the change to make areas receiving PCMS tile above the flight deck on aircraft carriers would appreciably reduce waterfront confusion regarding installation requirements. The new Note (87) addresses the key issue of how the areas around the PCMS are to be prepared and coated and allows the SUPERVISOR to address any questions on the waterfront. The SSRAC meeting group concurred with the final Note (87) language and as such, the FY-25 Standard Item 009-32 requirements for PCMS tile should be more clear and should reduce the inefficiencies associated with inadequate or incorrect coating installation before PCMS tile is applied to the paint.

11. CHANGE: Clarified fuel oil and fuel oil service tank requirements for tanks that require painting and tanks that do not require painting:
Updated the FY-24 Standard Item 009-32, Note (65) to read, "For existing paints, when flaking occurs, SSPC-SP 3 surface preparation must be accomplished and a light coat of system fluid must be wiped over the surface prior to closing. If preconstruction primer was applied in accordance with 3.1.5, it may be retained, but it must be overcoated with one coat MIL-PRF-23236, Type V, VI, or VII Class 5 at 4-8 mils." In addition, removed Note (65) from Table 4, Lines 10-13, and established Table 4, Line 14, that includes the revised Note (65), to address requirements for unpainted tanks or tanks that only need to have any loose paint removed and then the tanks are simply recoated the tank's respective service fluid in the FY-25 Standard Item 009-32.

RATIONALE: Historically, NAVSEA adopted the commercial practice of not coating ship's fuel tanks (e.g., fuel oil storage, service, and gravity head tanks, and diesel service tanks) since the FY-11 update to Standard Item 009-32, that included the Note (65) (i.e., that did not require these specific tanks to be coated) and that was published on 24 Jul 2009. Since 2009, the ship's fuel tank requirement has been to simply scrape away any loose paint and apply a system fluid to the bare steel because the oily system fluids inherently inhibit corrosion. The change was made in 2009 to reduce fuel tank coating costs and to address production delays associated with oily fluids diffusing out of pits even after a surface was abrasive blasted to an SSPC-SP 10 level of cleanliness. Historically, waterfront maintenance teams reported a surface would "pass" an SSPC-SP 10 cleanliness inspection after blasting, but the next day the surface would show dark spots as oils from pits leached out onto the clean, abrasive blasted steel. The results of these spots were production delays that required workers to clean, and re-clean the steel surfaces. So, because of the commercial practice that inherently avoided these production delays was to simply not paint such tanks, uncompensated ship's fuel tanks have not required re-painting for the past fourteen years. The process has been successful with millions of manhours of labor having been avoided over that period. However, over the years, NAVSEA has identified specific ship's fuel tanks that due to unique design or operational issues experience far more corrosion than is the case with most ship's fuel tanks. For example, DDG 51 fuel oil service tanks, even with coatings, were found to experience pitting in the narrow V-shaped tank bottoms that trapped water (i.e., with corrosion actually perforating the steel hull in these areas on multiple ships). The most recent perforation was on the USS MASON (DDG 87) in 2016, which led to NAVSEA requiring "DDG Fuel Oil Service" tanks to be coated in the FY-18, Change 1, update to Standard Item 009-32 that was published on 7 Mar 2017.

Unfortunately, these changes led to confusion on the waterfront with planning activities inappropriately requiring ship's fuel tanks to be abrasive blasted to remove residual paint (i.e., NAVSEA never required such non-value added work) or incorrectly scheduling recoating in ship's fuel tanks after required coatings and structural inspections. To avoid the ongoing waterfront confusion, SURFMEPP indicated in their change proposal that because work planners were not reading Note (65) when reviewing requirements for ship's fuel tank coatings in the existing Tables/Lines that simply adding a new line for these fuel tanks that do not require painting, and providing an exception in that Line for tanks like the DDG Fuel Oil Service tanks that do require painting, would clarify the issue. The SSRAC meeting group agreed with the SURFMEPP change proposal and CNSL N43 commented in a separate proposal that also requested changes to clarify which ship classes required painting of service fluid tanks. Thus, by updating Note (65) to explicitly state the requirements for dealing with partially painted ship's fuel tanks and establishing Table 4, Line 14 for tanks that are not to be painted (i.e., the first column in Table 4, Line 14 includes the specific types of tanks that do not require repainting as had appeared in the Note (65) that had been in Standard Item 009-32 for the past fourteen years); the future FY-25 Standard Item 009-32 based work packages can clearly define a specific procedure for each tank with a corresponding Table/Line citation to reduce the risk of waterfront confusion, rework, or inadvertent abrasive blasting/coating of ship's fuel tanks that did not require coating.

12. CHANGE: <u>Clarified and defined bilge areas:</u>
Updated the FY-24 Standard Item 009-32 Note (79) that was "Intentionally left blank." to state:
"On surface ships, except aircraft carriers, a bilge is defined as that area of a compartment from the keel to the top of the existing bilge red line. Included are vertical keel, shell plating and each attached structural member, bulkhead, tank top plating, manhole cover, bilge well, sump, foundation, floor plate/grating, support structure, piping and associated support structure, valve and painted equipment therein."
The updated Note (79) is then cited in the first column of FY-25, Standard Item 009-32, Table 3, Lines 9-13 and 36-40, and the change removed Note (78) from lines that do not apply to bilges in Table 3.

RATIONALE: The SURFMEPP change proposal correctly noted that there has been confusion on the waterfront regarding the specific areas or features in the bilge area that are required to be painted when the bilge Table and Lines (e.g., Table 3, Lines 9-13 and Table 3, Lines 36-40) were cited in contracts. The change proposal includes numerous terms to avoid this ambiguity in the required work in bilges. In addition, SURFMEPP correctly noted that the FY-24 NAVSEA Standard Item 009-32, Note (78) that also addressed SSPC-SP 3 surface preparation in the "bilge area" was referenced in a number of Lines in Table 3 to which Note (78) is not applicable. For example, Note (78) was cited in FY-24 Standard Item 009-32, Table 3, Lines 14 -17 that defined coating requirements for "Vent Plenums" and as such citing a Note (78) that mentioned the requirements for the bilge area was incorrect. Finally, SURFMEPP defines individual surface ship bilge areas in the Class Standard Work Template (CWST) and the terms included in the new, FY-25 Standard Item 009-32, Note (79) are consistent with the

terms in the CSWT. The 2023 SSRAC working group agreed that adopting the change would avoid confusion about what items or areas in the bilge area requires coating, avoids confusion by removing erroneous bilge coating requirements, and defines bilges in the same general manner at the SURFMEPP CWST for each applicable ship class.

13. CHANGE: Clarified MIL-PRF-24647 "Applications" for antifouling systems based on expected service life:

Updated FY-24 Standard Item 009-32, Table One, Lines 1-5 and Table One, Lines 14-18 to reflect the specific MIL-PRF-24647, "Application" designation from the coating specification that corresponds to the notional service life requirement cited in the left hand column of Table One. For example, the left hand column in Table One, Line 1 cites a "UP TO 3 YEARS SERVICE LIFE" for the antifouling coating system and the FY-25 Standard Item 009-32 updates to Table One, Line 1 to include the following term in Columns B, E, and F, "APPLICATION-1." Analogous changes are required for Table One, Lines 1-5 by citing "APPLICATION-2" and "APPLICATION-3" in appropriate Lines in Table One.

RATIONALE: The FY-24 NAVSEA Standard Item 009-32 solely identifies the expected service life of MIL-PRF-24647 underwater hull coatings systems in Table One via the notional service life cited in the left hand column for each Line. For example, Table One, Line 1 includes the following term in the left hand column, "UP TO 3 YEARS SERVICE LIFE." SRF-JRMC noted in their change proposal that MIL-PRF-24647 includes specific "Applications" that align with the notional service life terms appearing in Standard Item 009-32. The SRF-JRMC change proposal correctly points out that including the Application categorization is consistent with the expected service life listed in Table One and as such should be cited within the specific coating requirements for each applicable Line. For example, the FY-25 Standard Item 009-32, Table One, Line 1 defines requirements for applying antifouling coating to steel substrates for "UP TO 3 YEARS SERVICE LIFE" and Line 1, Columns B, E, and F cite "APPLICATION-1" in the section citing the MIL-PRF-24647 coating system. Similarly, for GRP substrates, the FY-25 Standard Item 009-32, Table One, Line 14 defines requirements for applying antifouling coating for "UP TO 3 YEARS SERVICE LIFE" and Line 14, Columns B, E, and F will cite "APPLICATION-1" in the section citing MIL-PRF-24647. Because the MIL-PRF-24647 Application qualification already aligns with the notional service life expectations within FY-24 Standard Item 009-32 Table One, the change does not alter any technical requirements. Given that the technical requirements have not changed, the SSRAC meeting group concurred with the SRF-JRMC proposal because it will increase clarity and improve efficiency when confirming that the procured, MIL-PRF-24647 qualified products are appropriate for installation in accordance with the specific Table One Line 1-5 or 14-18 citations.

14. CHANGE: Updated plenum-coating requirements to correctly cite color stable topcoats in vent plenums instead of relying on the current epoxy coatings that chalk and fade on the dirty side combustion air intakes:

Updated Table 3, Lines 16A, 19A, 41A, and 46A Columns A and B to include only MIL-PRF-23236, Type VII;

Column D to state, "ONE COAT HAZE GRAY MIL-PRF-24635 TYPE V OR VI, CLASS 2, GRADE B OR C, COMPOSITION 2, 5 - 8 MILS",

Column E to state 'ONE COAT DECK GRAY MIL-PRF-24635 TYPE V OR VI, CLASS 2, GRADE B OR C, COMPOSITION 2, 5 -8 MILS",

and Lines 16A and 41A, Column F to state "2 COATS MIL-PRF-24596 GRADE A, GRAY, AS REQUIRED FOR HIDING (OVER INSTALLED INSULATION)."

RATIONALE: The FY-24 NAVSEA Standard Item 009-32, published on 25 Oct 2022 updated Table 3, Lines 16A, 19A, 41A, and 46A to include MIL-PRF-24635 as a topcoat option in vent plenums and combustion air intakes. Due to a formatting error in the final version of FY-24 NAVSEA Standard Item 009-32, the columns within Table 3, Lines 16A, 19A, 41A, and 46A were misaligned. The NSWC-CD, Code 613 change proposal addressed the misalignment and includes the color stable MIL-PRF-24635 coatings for application in areas where sunlight has been found to lead to chalking and fading of the previously specified epoxy coatings.

Historically, Standard Item 009-32 included requirements for coating vent plenums and the clean and dirty side of combustion air intakes/exhaust trunks in the Table 3 with epoxy coatings that provide effective corrosion control performance in interior spaces. Because vent plenums and the clean and dirty side of combustion air intakes/exhaust trunks are corrosion prone areas that trap moisture and debris, the coatings required in these areas were the same high performance MIL-PRF-23236, Type VII, ultrahigh solids, edge retentive, coatings required for use in tanks and bilges. All of these tank and bilge coatings are based on epoxy chemistry. NSWC-CD, Code 613 completed multiple ship inspections that showed how sunlight entering the vent plenums and the clean and dirty side of combustion air intakes/exhaust trunks was degrading the epoxy coating in these spaces. Sunlight causes epoxy coatings to rapidly lose gloss, chalk, fade, and eventually require replacement. Because corrosion staining is difficult to remove from a chalked epoxy coating, and because chalking will eventually compromise corrosion control performance, NSWC-CD, Code 613 submitted the Change Proposal to allow work planners the option of coating vent plenums and intakes/exhaust trunks with the high performance, MIL-PRF-23236, Type VII qualified coatings, but then topcoating these areas with MIL-PRF-24635, Type V/VI, qualified polysiloxane topside coatings. With a polysiloxane coating in the plenums and intakes/exhausts trunks, ship's force can more easily clean and maintain these spaces and the underlying epoxy will not chalk or fade.

In addition to the use of the color stable polysiloxane coatings, the change also defined a color stable, flexible, acrylic latex based MIL-PRF-24596 coating for use on insulation. The MIL-PRF-24596 coating is normally used in interior spaces, and is available in a gray color. However, because the MIL-PRF-24596 coating is based on acrylic latex chemistry, and is readily available on the waterfront, use of these coatings on insulation is technically acceptable. Finally, SURFMEPP concurred that using the color stable coatings in the plenums would reduce the need to maintain coatings in these spaces and the 2023 SSRAC meeting group concurred with the proposed change.

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

15. CHANGE: Updated FY-24 Standard Item 009-32, Table 3, Lines 18-20 and 22 to separate combustion air intakes and mixing room/gas turbine exhaust spaces and exhaust trunks and align proper surface preparation and coatings to the correct spaces:
Updated FY-24 Standard Item 009-32, Table 3, Lines 18-20 to define requirements for coating, "CLEAN AND DIRTY SIDE OF COMBUSTION AIR INTAKES"
Added a new Table 3, Line 18A: that includes,
Column A that cites "NEAR WHITE METAL BLAST, NACE 2/SSPC-SP 10 SEE NOTE (28)", and
Column B, that cites, "SINGLE COAT, ONE COAT MIL-PRF-23236 TYPE VII CLASS 17/18, HAZE GRAY OR LIGHT GRAY, 20-30 MILS SEE NOTE (24)."
Updated Table 3, Line 22 to define requirements for coating "MIXING ROOM/GAS TURBINE EXHAUST SPACES AND EXHAUST TRUNKS," with
Column B citing, "ONE COAT MIL-PRF-23236 TYPE VII CLASS 19, HAZE GRAY OR LIGHT GRAY, 4-8 MILS. SEE NOTE (24)", and
Columns D and E citing "ONE COAT MIL-PRF-23236 TYPE VII CLASS 19, HAZE GRAY OR LIGHT GRAY, 10-12 MILS. SEE NOTE (24).
Added Table 3, Line 22A: that includes,
Column A, "Column B, "ONE COAT MIL-PRF-23236 TYPE VII CLASS 19/18, HAZE GRAY OR LIGHT GRAY, 20-30 MILS. SEE NOTE (24)"

RATIONALE: The current FY-24 NAVSEA Standard Item 009-32 does not differentiate between air intakes and gas turbine exhaust trunks in Table 3, Lines 18-20 and the Table 3, Line 22 also addresses mixing room gas turbine exhaust uptake spaces and trunks. The similar terms in these lines had led to waterfront confusion in preparing work packages. The SURFMEPP change proposal, with support from Forward Deployed Regional Maintenance Center Rota Detachment (FDRMC Rota), pointed out this confusion because all four relevant lines could be applied to various types of exhaust trunks. To clarify requirements, the change separates the air intakes (Lines 18-20) and the exhaust pathways (i.e. exhaust spaces and exhaust trunks).
In the case of Line 20, the SURFMEPP change proposal indicates that the SSPC-SP 11 surface preparation is not ideal for a "single coat" paints, (i.e. MIL-PRF-23236 Class X/18 coatings) and notes that the manufacturers of these Class X/18 primers typically cite abrasive blasting to an SSPC-SP 10, "Near White" level of cleanliness as the preferred surface preparation. Because of the SURFMEPP observed corrosion in these spaces, the requirement to apply the single coat paint over an SSPC-SP 10 level of surface cleanliness incorporated into the new Table 3, Lines 18A and 22A.
The separation of exhaust pathways also allows for the implementation of MIL-PRF-23236, Type VII, Class 19 or 19/18, heat resistant coatings to be required in exhaust pathways. As pointed out by both SURFMEPP and FDRMC Rota in separate proposals, the process for qualification of MIL-PRF-23236, Type VII, Class 19 and 19/18 coatings includes testing of the coatings for exposure to temperatures as high as 500F for eight hours. Thus, because the MIL-PRF-23236, Type VII, Class 19 and 19/18 qualification process validates that these systems can perform effectively at

higher temperatures (i.e., as compared with the more generic MIL-PRF-23236, Type VII, Class 5 and 5/18 fuel tank coatings that include no heat resistance requirements in the qualification process), the use of these MIL-PRF-23236, Type VII, Class 19 and 19/18 coatings in exhaust pathway spaces that have be observed to suffer thermal damage to coatings, will extend coating life in these spaces. The use of these MIL-PRF-23236, Type VII, Class 19 and 19/18 coatings in these mixing rooms and gas turbine exhaust pathways will reduce the costs associated with premature coatings failure that SURFMEPP observed was linked to the higher temperature operational environment created by the gas turbine exhaust.

16. CHANGE: Included the white topcoat color requirement for aircraft carrier reserve feedwater tanks:
Updated FY-24 Standard Item 009-32, Table 4, Line 6, Column F to cite "ONE COAT F-152, MIL-DTL-24441, TYPE III, 2 - 4 MILS AT ADEQUATE THICKNESS TO MEET COATING RANGE."

RATIONALE: Since the requirements for coating the reserve feedwater tanks on submarines were added to the FY-08 Standard Item 009-32 published on 13 Jul 2006, the final coat in the submarine reserve feedwater tanks was required to be the white, MIL-DTL-24441, Type III, Formula 152 coating. When the aircraft carrier reserve feedwater tanks were included in the FY-09, Change 1, Standard Item 009-32 published on 1 Apr 2008, the requirement used the "Same as line ..." term (i.e., see the Change 1. discussion above) to reference requirements for surface ship reserve feedwater tanks that did not include a color requirement for the final coat of paint. Thus, to align the submarine and aircraft carrier reserve feedwater tank painting requirements, the Norfolk Naval Shipyard (NNSY) change proposal was to add the color requirement (i.e., the color does not need to be specified because the Formula 152 coating is the white version of the MIL-DTL-24441, Type III system with the baseline Formula 150 being a green color) to the Table 4, Line 6 requirements. SUPSHIP HII-NNS concurred with this change and indicated that using Formula 152 as the last coat was already a standard practice when coating aircraft carrier reserve feedwater tanks. Finally, SEA 05P2 concurred that for any tank where water quality is of paramount importance that the final color should be white or off white (i.e., as is the current requirement for painting potable water tanks with MIL-PRF-23236, Type VII, Class 9 or 9/18 qualified coatings). Thus, the change streamlines worker training, improves the ability of inspectors to validate tank cleanliness, and aligns submarine and aircraft carrier coating requirements.

17. CHANGE: Expanded use of zinc-rich coatings to align with carrier new construction requirements and defined specific zinc-rich coating material requirements:
Updated FY-24 Standard Item 009-32, Table 4, Line 26 that had defined requirements for coating "CVN CATAPULT WATER BRAKE TANKS" to include the following

additional areas, "AIRCRAFT CARRIER: CHAIN LOCKERS, CHAIN LOCKER SUMPS, AND CATAPULT WATER BRAKE TANKS" and updated Column B to cite, "ONE COAT INORGANIC ZINC SILICATE, SSPC PAINT 20, TYPE I-C COATING, 2-4 MILS, SEE NOTE (51)" in the FY-25 Standard Item 009-32

RATIONALE: The FY-17, Change 1, Standard Item 009-32, published on 12 May 2016 included requirements for coating aircraft carrier water brake tanks with zinc rich, inorganic zinc coatings in accordance with CVN 68 Class new construction requirements. The zinc rich inorganic coatings requirements were found to out-perform ultrahigh solids coatings in water brake tanks and there have been no reports of inadequate system performance. The intent of the SUPSHIP HII-NNS change proposal was to expand the successful use of zinc rich inorganic coatings in water brake tanks to include other areas where the inorganic coating is applied during aircraft carrier new construction and better align the new construction and Refueling and Complex Overhaul (RCOH) work packages (i.e., RCOH invokes Standard Item 009-32). As reported by SUPSHIP HII-NNS in their change proposal, the CVN 74 RCOH Technical Relief Letter, 9631 Ser 05V/085 dated 18 Sep 2019 expanded the allowable locations to use inorganic zinc coating to include chain lockers and chain locker sumps. These inorganic zinc coatings are inherently highly loaded with zinc particles and as such when crushed or mechanically damaged (i.e., as would be the case in a chain locker) the coatings leave a residue of zinc on the surface that helps to retard corrosion and this is one reason these coatings were used during new construction. To ensure that the inorganic zinc coatings used in these areas have a high loading of zinc particles and offer the required mechanical durability, the FY-25 NAVSEA Standard Item 009-32 requires the use of the "SSPC Paint 20, Type I-C" coatings. The SSPC Paint 20, Type I-C is a commercial specification for an inorganic zinc paint (i.e., SSPC paint standard do not have a qualified products list) in which the Type I-C defines an inorganic coating (i.e., as opposed to organic coatings that contain zinc like the MIL-DTL-24441, Type IV, Formula 159). Type I-C also requires use of the most durable, solvent-reducible silicate binders and requires that the coatings contain more zinc particles than any other pigment in the formulation (i.e., typically such inorganic zinc coatings contain at least 85% by weight or more zinc in the film). Thus, the FY-25 Standard Item 009-32, Table 4, Line 26 requirements better align with the aforementioned technical relief letter requirements with CVN 68 Class new construction practice. The change proposal noted that utilizing the inorganic zinc coating should reduce overall material costs because both the ultrahigh solids, rapid-cure, single-coat paint that has been required for use in chain lockers since the FY-10, Change 1, Standard Item 009-32 published on 9 Mar 2009 and the inorganic zinc coatings are costly paints on a per gallon basis. However, the rapid-cure, single coat paints only cover between 50 to 80 square feet per gallon (i.e., because the coating is required to be applied at 20-30 mils DFT) while a gallon of inorganic zinc coating covers between 250 and 500 square feet (i.e., because the coating is applied at 2-4 mils DFT). Thus, implementing the change should reduce material costs and will provide the same level of corrosion-control performance as has been the case on all new construction CVN 68 Class ships.

18. CHANGE: Added new requirements to coat LCS 2 Variant amah voids:
Added new Table 4, Line 30 to the FY-25 Standard Item 009-32 that defines requirement for coating, "LCS 2 VARIANT AMAH Voids," with
Column A, citing "THOROUGH ABRASIVE BLAST CLEANING OF NON-FERROUS METALS, SSPC-SP 17 USING MIL-A-22262 QUALIFIED MEDIA (EXCLUDING COAL SLAG) OR ALUMINUM OXIDE", and
Column B, citing "ONE COAT MIL-PRF-23236, TYPE VII CLASS 5 or 7, 4 - 8 MILS SEE NOTE (58)"

RATIONALE: Historically, NAVSEA has not operated many ships with aluminum hulls and until the LCS 2 Variant has never operated an aluminum trimaran. As such, SURMEPP is learning about corrosion issues as they become apparent during the ongoing operation of LCS 2 Variant ships. For example, the 25 Oct 2022, FY-24 NAVSEA Standard Item 009-32, Table 2, Line 53 established requirements for coating the exterior surfaces of the LCS 2 Variant amah tunnels with topside coatings. These requirements were created to align maintenance coating requirements with the new construction shipbuilder practice and to address observed corrosion at coating defects in these tunnel areas. The corrosion was due to the severe salt spray generated in the tunnels during high-speed ship operations degrading the coating system applied at new construction and contributing to aluminum pitting. In a similar manner, the 2023 SURFMEPP change proposal noted that the voids in the interior of the amahs that are rarely inspected suffer from seawater ingress and condensate build up, and in seventeen cases to date, there has been enough pitting corrosion to require costly replacement of aluminum plate. To minimize coating application costs and to isolate the inherently corrosion resistant aluminum from the aqueous electrolyte for the relatively limited service life of the LCS 2 Variant ships, SURFMEPP proposed application of a single coat of MIL-PRF-23236, Type VII, Class 5 or 7 epoxy paint in these areas. SEA 05P2 and the 2023 SSRAC meeting group agreed that a single coat of epoxy will be sufficient to protect the aluminum substrate inside of the amah voids from incidental exposure to seawater/condensate and the coating will decrease the risk of pitting corrosion. Thus, the proposed change represents a low-cost means of reducing the corrosion risk in the amah voids and avoiding the demonstrable costs associated with weld repair of aluminum plate in these areas in the future.

19. CHANGE: Updated Table 5, Line 15A for BLISS caps to reflect the most current, technically acceptable abrasive blast cleaning requirements and to adopt a option for a commercial, heat resistant coating system for these stainless steel parts:
Updated FY-24 Standard Item 009-32, Table 5, Line 15A, Column A, that had cited an SSPC-SP 6 commercial blast cleaning to require, "BRUSH OFF BLAST CLEANING,

SSPC-SP 16 USING MIL-A-22262 QUALIFIED MEDIA OR ALUMINUM OXIDE," and updated
Column B, to cite "ONE COAT PPG HI-TEMP 1027 5-6 MILS
-AND-
ONE COAT PPG HI-TEMP 1000, HAZE GRAY 1-2 MILS
--OR—
2 COATS OF TT-P-28 SUFFICIENT TO COVER THE PROFILE."

RATIONALE: Historically, Standard Item 009-32 used abrasive blasting requirements for steel substrates on galvanized, stainless steel, and non-ferrous surfaces simply because SSPC did not have equivalent abrasive blasting requirements for these other materials. As such, the SSPC-SP 6 commercial level of blast cleanliness standard for ferrous metals that had been cited for years as the requirement for preparing galvanized, stainless steel, or non-ferrous surfaces even though the removal of limited amounts of surface corrosion associated with SSPC-SP 6 was barely technically adequate. Given that background, SSPC/AMPP published a new SSPC-SP 16, "Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals" and the proposed change continues the NAVSEA efforts to incorporate the newer, more technically applicable SSPC/AMPP requirements documents in Standard Item 009-32. In addition to citing the SSPC-SP 16 standard, the SURFMEPP change proposal also updated the FY-25 Standard Item 009-32, Table 5, Line 15A coating requirements to eliminate the citations to the PSX 892HS product that PPG Industries is no longer manufacturing (i.e., see Change 9 discussed above) and rather to cite the Hi-Temp 1027/Hi-Temp 1000 coating system. The PPG Industries representative that attended the SSRAC meeting concurred that the Hi-Temp 1027/Hi-Temp 1000 coating system will perform effectively over stainless steel surfaces prepared to an SSPC-SP 16 level of surface cleanliness. The change also includes the option to use the heat resistant TT-P-28 aluminum bearing coating as discussed in Change 9 shown above as an option on the BLISS caps. Thus, the proposed change to the FY-25 Standard Item 09-32, Table 5, Line 15A adopts the most current, technically correct surface preparation requirements for the BLISS caps to avoid confusion associated with trying to apply the previously cited SSPC-SP 6 commercial blast cleaning requirements to the stainless steel substrate, cites the most current PPG Industries heat resistant coatings, includes an option to use the TT-P-28 coating, and will result in more effective performance of the BLISS cap coating system in the future.

20. CHANGE: <u>Added new Table 8, Line 22A to expand the use of ultrahigh solids coatings on Free Flood Areas and Recesses including the recently defined High Efficiency Inlet (HEI) Recesses for SSN 774 Class:</u>
Created a new, Table 8, Line 22A in the FY-25 Standard Item 009-32 that addresses: "FREE FLOOD AREAS AND RECESSES: TORPEDO TUBES RECESS, AFT FREE FLOOD AREA (MUD TANK), 774 CLASS HIGH EFFICIENCY INLET (HEI) RECESS SEE NOTE (29A)" and includes;
Column A, "NEAR WHITE METAL BLAST, NACE 2/SSPC-SP 10";
Column B, ""SINGLE COAT" ONE COAT MIL-PRF-23236, TYPE VII, CLASS 7/18, 20-30 MILS SEE NOTES (1A), (32A) & (40A)"

RATIONALE: The current FY-24 NAVSEA Standard Item 009-32 does not include any references to the High Efficiency Inlet (HEI) Recesses. In addition, the FY-24, Standard Item 009-

32, Table 8, Line 22 requirements for free flood mud tank areas and other recesses only includes requirements for applying a rapid-cure, single-coat, ultrahigh solids, MIL-PRF-23236, Type VII, Class 7/18 qualified coating with an overcoat of a MIL-PRF-24647 qualified antifouling coating system. These requirements have been included in Standard Item 009-32 since the FY-08 version of the document was published on 13 Jul 2006. The new requirements for the HEI recesses and other areas were first addressed by NAVSEA Ser Letter 05U7/102, dated 24 May 2021, that waived the requirement for application of the MIL-PRF-24647 antifouling coatings in torpedo tube recesses and aft free flood areas (e.g., mud tanks) because marine fouling was not found to be an issue in these locations. The letter addressed the observed negligible levels of fouling in these areas that aligns with the basic biology of fouling organisms. For example, green algae and similar organism do not grow in areas are usually dark (i.e., without light, aquatic photosynthetic organisms like green algae cannot grow) and filter feeding organism do not grow in area that do not have appreciable seawater flow (i.e., without flow, filter feeding organisms like barnacles or tubeworms cannot grow) and as such there is no technical "need" for antifouling in these areas. Based on the cost avoidance achieved by eliminating the requirements for applying antifouling coatings in these areas, NAVSEA issued Ser Letter 05U7/047, dated 05 April 2023, that expanded this waiver to include the SSN 774 Class High Efficiency Inlet (HEI) Recess as well. Given that the revised coating process that does not include antifouling coatings has been implemented via letter since 2021, and has been proving effective with no reports of appreciable marine fouling in these areas, inclusion of this change in FY-25 NAVSEA Standard Item 009-32 is not expected to alter waterfront work practices. However, by institutionalizing the process in FY-25 Standard Item 009-32, the inherently confusing need to reference multiple letters to define requirements will be avoided in the future.

21. CHANGE: Expanded the use of MIL-PRF-23236, Type VII, Class 18 "Single Coat" ultrahigh solids, rapid cure, single coat system to submarine Normal Fuel Oil Tanks:
Revised the FY-24 Standard Item 009-32, Table 8, Line 31 Column A, to cite "NEAR WHITE METAL BLAST, NACE 2/SSPC-SP 10 SEE NOTE (14A)";
and Column B, to cite, "SINGLE COAT" ONE COAT MIL-PRF-23236, TYPE VII, CLASS 5/18, 20-30 MILS."

RATIONALE: Historically, the NFO tanks on submarines were not painted. Since submarines coating requirements were added to the FY-08, Change 1, Standard Item 009-32, published on 1 Apr 2008, the requirement for Normal Fuel Oil (NFO) tanks was simply to conduct an SSPC-SP 6, "Commercial Blast Cleaning" process or SSPC-SP 11, "Power Tool Cleaning to Bare Metal" to remove loose or flaking rust in the tanks. These requirements have been consistent over time through to the current FY-24 Standard Item 009-32. Over the years, corrosion in the NFO tanks has become a significant issue and the submarine technical community developed procedures for cleaning and painting NFO tanks. The SUBMEPP change proposal requires an ultrahigh pressure wash of the tank to mitigate the risk of fuel oil trapped in pits in the steel diffusing out onto the surface after abrasive blasting as described in the Change 13 discussion above. Based on the new cleaning process, and to minimize the risk of corrosion in the NFO tanks, the FY-24 NAVSEA Standard Item 009-32 Table 8, Line 31 requirements for the commercial blast were removed and replaced with new

requirements for coating these tanks with MIL-PRF-23236, Type VII, Class 5/18, rapid-cure, single-coat, ultrahigh solids coatings. The updated, new FY-25 Standard Item 009-32 requirements also include surface preparation to an SSPC-SP 10, Near White Metal level of cleanliness after a high pressure or ultrahigh pressure freshwater wash-down of the tank surfaces. The submarine technical community found that the ultrahigh pressure wash process was the only way to remove fuel oil from pits in the steel substrate. The change to require ultrahigh solids, rapid-cure, single-coat paints in NFO tanks is a culmination of an effort to require coating of NFO tanks that began with NAVSEA Ser Letter 05U7/229, dated 13 September 2016 that allowed application of the tradename specific Sherwin-Williams Fastclad ER in these tanks. Later on 6 Oct 2021, NAVSEA Ser Letter 05U7/111 expanded this allowance to include all MIL-PRF-23236, Type VII, Class 5/18, qualified ultrahigh solids, rapid-cure, single-coat paints in the NFO tanks. Given that the coating process that includes the pressure washing process has been implemented via letter since 2016, and has been proving effective with no reports of appreciable coating delamination or degradation in operational NFO tanks, inclusion of this change in FY-25 NAVSEA Standard Item 009-32 is not expected to alter waterfront work practices. However, by institutionalizing the process in FY-25 Standard Item 009-32, the inherently confusing need to reference multiple letters to define requirements will be avoided in the future.

22. CHANGE: <u>Clarified specific, new requirements for painting the submarine bow dome attachment ring:</u>

Added a new Table 8, Line 38 to FY-25 Standard Item 009-32 that defines requirements for coating steel surfaces of submarine bow dome attachment rings as follows:
"BOW DOME ATTACHMENT RING SEE NOTE (29A)";
Column A, "NEAR WHITE METAL BLAST, NACE 2/SSPC-SP 10";
Column B, "ONE COAT MIL-DTL-24441, TYPE IV, F-150, 4 - 6 MILS --OR-- ONE COAT MIL- PRF-23236, TYPE V OR VI CLASS 5 OR 7, 4 - 8 MILS/COAT SEE NOTES, (18A), & 19A)";
Column D, "ONE COAT MIL-DTL-24441, TYPE IV, F-151 OR F-152, 4 - 6 MILS -- OR-- ONE COAT MIL- PRF-23236, TYPE V OR VI CLASS 5 OR 7, 4 - 8 MILS/COAT";
Column G, "TOTAL SYSTEM 8-16 MILS"

RATIONALE: Since submarines were first added to the FY-08 Standard Item 009-32, published on 13 Jul 2006, the requirement for painting the sonar bow dome attachment ring was generally considered to be covered as part of the "SONAR DOME AREA STEEL STRUCTURE" requirements that appeared in Table 8, Line 7. Table 8, Line 7 included requirements for a number of structures that were most effectively coated with a rapid-cure, single-coat, edge-retentive, ultrahigh solids coating system qualified to MIL-PRF-23236, Type VII, Class 7/18. These ultrahigh solids coatings are applied at a Dry Film Thickness (DFT) of between 20 and 30 mils. Over the years, the submarine maintenance community has encountered cases where the ultrahigh solids paint systems were too thick to allow installation of the bow dome, requiring shipyard workers to sand the coating on the attachment ring to reduce thickness enough for the dome to fit on the ring. These sanding processes are not value added and resulted in production schedule delays. During the 2023 SSRAC meeting, Norfolk Naval

Shipyard (NNSY) personnel stated that NNSY had to develop a local process for ensuring the coating in the dome attachment ring area was not so thick that it would interfere with the mating surface of the bow dome. To address this issue, SUBMEPP submitted a change proposal to install solvent-based coatings like MIL-DTL-24441, Type IV or MIL-PRF-23236, Type V or VI in two coats (i.e., such that the maximum thickness of the coating system is 16 mils) to avoid fit-up issues at the mating surface. All naval shipyard personnel attending the SSRAC meeting concurred that creating a new Table 8, Line 38 in FY-25 Standard Item 009-32 that limited the maximum coating thickness to 16 mils would streamline production and avoid the non-value added work of having to sand off ultrahigh solids coatings in the sonar dome attachment ring area. Thus, implementing the new requirements for solvent-based coating application on the sonar dome attachment ring will streamline production, avoid non-value added sanding work, and validate the locally developed procedures to address this issue at naval shipyards.

23. CHANGE: Updated the Standard Item 009-32 Appendices used to collect coating QA/QC data:
Updated Contractor Appendices 3, 4, and 5 as follows:

- Appendix 3 - removed archaic Notes 1 and 2 that no longer align with FY-24 Standard Item 009-32 text requirements.
- Appendix 4 – aligned area requirements for conductivity readings in Standard Item 009-32 with appendices as follows: "1 READING REQUIRED FOR EVERY 200 SQFT FOR FIRST 1000 SQFT, THEN 1 READING FOR EACH ADDITIONAL 1000 SQFT OR LESS."
- Appendix 5 – aligned area requirements for dust tape readings in Standard Item 009-32 with appendices as follows: "FOR UNDERWATER HULL, 1 INDIVIDUAL READING REQUIRED FOR EVERY 200 SQFT FOR THE FIRST 1000 SQFT AREA; IF READINGS ARE SATISFACTORY, 1 INDIVIDUAL READING REQUIRED FOR EACH ADDITIONAL 1000 SQFT OR LESS AREA."

RATIONALE: In response to a 9 Aug 2023 inquiry from AVMAC LLC, SEA 05P2 noted that there were editorial issues in which Standard Item 009-32 updates did not transition into updates to the Appendices because the Appendices are not actually part of Standard Item 009-32, but rather were developed by NAVSEA to assist the waterfront in collect required coating QA/QC data. Thus, the appendices are not normally reviewed at SSRAC. However, given the accuracy of the AVMAC LLC inquiry, SEA 05P2 recommended that the Appendices be reviewed as part of future SSRAC meetings. Given that general comment on future improvements in the review process for appendices, the AVMAC LLC inquiry accurately identified inconsistencies between Standard Item 009-32 text and three of the Appendices. To address these inconsistencies, SEA 05P2 determined that Technical Authority directed changes to the Appendices were required to align the current requirements with the Appendices. The following summarizes these changes:
AVMAC LLC noted that FY-24, Standard Item 009-32, paragraph 3.10.5 that states "One profile measurement must be recorded for every 100 square feet for the first 500 square feet; for each additional 1,000 square feet or less, one profile measurement

must be taken.... For areas listed in 3.7, document surface profile on QA Checklist Form Appendix 3 or Naval Shipyard QA Checklist Form Appendix 3 or 3A." is not consistent with Contractor Appendix 3 that has two specific notes that differ from paragraph 3.10.5 but these notes apply only to nonskid jobs as follows:
NOTE #1 FOR PAINTS & SUBMARINE NONSKID: 1 PROFILE MEASUREMENT REQUIRED FOR EVERY 200 SQFT (10 INDIVIDUAL READINGS FOR METHOD B; 2 INDIVIDUAL TAPE READINGS FOR METHOD C) FOR THE FIRST 1000 SQFT AREA (50/10 INDIVIDUAL READINGS TOTAL FOR METHOD B/C); 1 PROFILE MEASUREMENT REQUIRED FOR EACH ADDITIONAL 500 SQFT OR LESS AREA (10/2 INDIVIDUAL READINGS FOR METHOD B/C).
NOTE #2 FOR SURFACE SHIP NONSKID: 1 PROFILE MEASUREMENT REQUIRED EVERY 100 SQFT (10 INDIVIDUAL READINGS FOR METHOD B; 2 INDIVIDUAL TAPES FOR METHOD C) FOR THE FIRST 500 SQFT AREA (50 INDIVIDUAL READINGS TOTAL FOR METHOD B; 10 INDIVIDUAL TAPES TOTAL FOR METHOD C); 1 PROFILE MEASUREMENT PER 1000 SQFT REMAINING (10 INDIVIDUAL READINGS FOR METHOD B; 2 INDIVIDUAL TAPES FOR METHOD C).
The two notes above suggest that the number of readings per unit area are collected at one frequency set for paints (i.e., regardless of ship platform) and are collected at a different frequency for surface ship nonskid. However, the current, FY-24 Standard Item 009-32 paragraph 3.11.4 does not have any requirements regarding the number of readings per area prepared for nonskid, but rather refers back to 3.10.5 for coatings. Because the requirement for nonskid surface profile frequency no longer exists in FY-24 Standard Item 009-32, the Appendix 3, Notes 1 and 2 in Appendix 3 were removed. Removing Notes 1 and 2 will streamline production by avoiding confusion on the waterfront.
The AVMAC LLC inquiry correctly noted that the required frequency for conductivity measurements in the FY-24 Standard Item 009-32 paragraph 3.10.6.3 text does not align with the required frequency appearing in Appendix 4. For example, the FY-24, Standard Item 009-32, paragraph 3.10.6.3 states: "One reading must be taken for every 200 square feet for the first 1,000 square feet. One reading must be conducted for every additional 1,000 square feet or less." Unfortunately, Appendix 4 states; "1 READING REQUIRED FOR EVERY 200 SQFT FOR FIRST 1000 SQFT, THEN 1 READING FOR EACH ADDITIONAL 500 SQFT OR LESS." This deviation between the Standard Item 009-32 requirements and the Appendix 4 text developed as part of the FY-22, Change 1, Standard Item update, published on 21 Feb 2021, that streamlined the data collection requirements by changing the area from 500 to 1,000 square feet and Appendix 4 appears to not have been updated since that time. The inconsistency remained through FY-24 Standard Item 009-32 and as such the current, Technical Authority directed change it update the conductivity frequency requirements in Appendix 4 to cite; "1 READING REQUIRED FOR EVERY 200 SQFT FOR FIRST 1000 SQFT, THEN 1 READING FOR EACH ADDITIONAL 1000 SQFT OR LESS."
Finally, The AVMAC inquiry also noted that the FY-24, Standard Item 009-32 paragraph 3.10.7.1 requirements for collecting dust readings does not align with the Notes in Appendix 5. For example, the current, FY-24, Standard Item 009-32,

paragraph 3.10.7.1 states: "One dust tape reading must be taken for every 200 square feet for the first 1,000 square feet; for each additional 1,000 square feet or less, one tape reading must be taken." Unfortunately, the Appendix 5 lists two different requirements for collecting dust data depending on whether it dust measurements are being taken for underwater hull or for flight deck nonskid as follows:
"NOTE #1 FOR UNDERWATER HULL, 1 INDIVIDUAL READING REQUIRED FOR EVERY 200 SQFT FOR THE FIRST 1000 SQFT AREA; IF READINGS ARE SATISFACTORY, 1 INDIVIDUAL READING REQUIRED FOR EACH ADDITIONAL 500 SQFT OR LESS AREA.
NOTE #2 FOR FLIGHT DECK NONSKID, 3 INDIVIDUAL READINGS REQUIRED EVERY 100 SQFT FOR THE FIRST 500 SQFT; IF READINGS ARE SATISFACTORY, 1 INDIVIDUAL READING PER 1000 SQFT REMAINING."
Again, the FY-21, Change 1 update to Standard Item 009-32 aligned the required number of dust readings for nonskid and coatings to ensure consistent requirements and simplify training by going from an additional reading every 500 square feet to an additional reading every 1,000 square feet, beyond the initial one reading per every 200 square feet for the first 1000 square feet. However, Appendix 5 was never updated to accurately reflect this reduction in the required number of measurements. Thus, there is a conflict between the FY-24 Standard Item 009-32 text and the notes in Appendix 5 and the Appendix 5 notes were revised to cite;
"NOTE #1 FOR UNDERWATER HULL, 1 INDIVIDUAL READING REQUIRED FOR EVERY 200 SQFT FOR THE FIRST 1000 SQFT AREA; IF READINGS ARE SATISFACTORY, 1 INDIVIDUAL READING REQUIRED FOR EACH ADDITIONAL 1000 SQFT OR LESS AREA."
NOTE #2 FOR FLIGHT DECK NONSKID, 3 INDIVIDUAL READINGS REQUIRED EVERY 100 SQFT FOR THE FIRST 500 SQFT; IF READINGS ARE SATISFACTORY, 1 INDIVIDUAL READING PER 1000 SQFT REMAINING."