

ENCLOSURE 1

Summary of FY-22 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 updates to FY-22 Standard Item 009-32. The specific changes discussed below appear highlighted and in *bold/italics* in the attached final draft, FY-22 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-22 Standard Item 009-32 in *bold/italics* and are not addressed below.

- 1. CHANGE:** Clarified requirement for preservation of underwater hull on embarked boats:
Updated the FY-22, Standard Item 009-32, paragraph 3.1.22 to clarify that the underwater hull coating on embarked boats must be “gray” as follows:
“3.1.22 **The final coat of the underwater hull coating** on boats and small craft that are embarked on surface ships or otherwise deployed **must be gray.**” The change also appears as an update to Table One, Line 19, Columns E & F that states: “ONE AF COAT MIL-PRF-24647, TYPE I GRAY, 5 - 7 MILS SEE NOTES (6), (8) & (48)”
- RATIONALE:** The current, FY-21, Change 2, Standard Item 009-32, paragraph 3.1.22 invokes the reference 2.7 surface ship camouflage manual that requires the underwater hull on embarked boats to be gray. By simply stating the gray color in the FY-22 Standard Item 009-32 paragraph 3.1.22, the requirements are clarified. Interestingly, these requirements for a gray underwater hull coating on embarked boats are consistent with historical requirements that first appeared in the FY-06 Standard Item 009-32, published on 29 Jul 2004 and remained through the FY-11, Change 1, Standard Item 009-32, published on 24 Jul 2009. Thus, the change is clarify an existing, and reiterating a historical, requirement without requiring the work planner to consult the camouflage manual. Thus, the change will streamline production and avoid confusion on the waterfront.
- 2. CHANGE:** Removed Note (65) on unpainted fuel tanks from the critical coated area table:
Revised the FY-22 Standard Item 009-32, paragraph 3.7 table of critical coated areas to remove the Note (65) that discusses unpainted ships fuel tanks.
- RATIONALE:** The current, FY-21, Change 2, Standard Item 009-32, paragraph 3.7 table that lists critical coated areas includes Note (65) that addressed uncoated fuel tanks. Defining a critical coated area and including a note regarding uncoated tanks in inherently confusing (i.e., one cannot apply requirements for a critical coated area to an uncoated surface). The proposed change retains Note (65) in Table 4 Table/Line citations for uncompensated ship fuel and diesel fuel tanks and as such the requirements are unchanged, but more clear because they are shown to only apply to specific tanks. Thus, the change will streamline production and avoid confusion on the waterfront.
- 3. CHANGE:** Included minimum spread rate for spray applied nonskid:
Revised the FY-22 Standard Item 009-32, paragraph 3.11.12 to add a new, minimum spread rate for spray applied nonskid as follows: “Verify that nonskid spread rate meets the following requirement: Types I, V, VI, VII, and VIII - 18 square feet/gallon minimum and 30 square feet/gallon maximum; Types II, III, IX and X - 23 square

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feet/gallon minimum and 35 square feet/gallon maximum; and, Types IV and X (sprayed) - **40 square feet/gallon minimum** and 60 square feet/gallon maximum.”

RATIONALE: The current, FY-21, Change 2, Standard Item 009-32, paragraph 3.11.12 only includes a maximum spread rate for spray applied nonskid of 60 square feet per gallon. Recent experience in SWRMC has shown that application contractors are unfamiliar with spray application of nonskid and have spray applied too much nonskid material per unit area (i.e., too low a spread rate) on LCS 2 class ship flight decks resulting in puddles with less than ideal coefficients of friction. Correcting the spray application in these areas has slowed production with local nonskid rework and repair. To ensure spray applied polysiloxane nonskid has the optimal surface roughness and still completely covers the primer, a minimum and maximum spray application spread rate is required. In addition, these new requirements will support the 18 May 2020 Precedent Setting DFS for spray application of polysiloxane nonskid on all LCS 2 class ship flight decks by ensuring the most current, clear, and effective requirements appear in the FY-22 Standard Item 009-32.

4. CHANGE: Clarified requirement for preservation of jet blast deflectors:
Updated the FY-22, Standard Item 009-32, Note (35) to clarify that the jet blast deflector pits are intended to be painted with a final, white topcoat as follows: “**The topcoat in** Jet blast deflector (JBD) pits and barricade stanchions must be painted with one coat MIL-DTL-24441, **white, 4-6 mils** or one coat MIL-PRF-23236 Type VI, white, at 4-8 mils.”

RATIONALE: The current, FY-21, Change 2, Standard Item 009-32, Note (35) requirements cite white as the color for the MIL-PRF-23236 topcoat, but do not mention a color for the MIL-DTL-24441 topcoat option. Thus, the change is clarify an existing requirement for a white topcoat color for each of the paint options cited in Note (35).

5. CHANGE: Clarified requirements for nonskid application on vehicle decks and associated ramps:
Updated the FY-22, Standard Item 009-32, Table 2, to include new Lines 20A & 20B that require application of the same flight deck, MIL-PRF-24667, Type I, Composition D or Type V, Composition D nonskid system to vehicle decks and associated ramps on LHA, LHD, LSD, and LPD class ships. The new Lines 20A & 20B also invoke a revised Note (83) that states: “***Nonskid on vehicle ramps must be rolled perpendicular to main axis of the ramp. Welds must not be cross-rolled on vehicle ramps.***”

RATIONALE: The current, FY-21, Change 2, Standard Item 009-32, does not include clearly defined requirements for coating vehicle decks and associated ramps on LHA, LHD, LSD, and LPD class ships. CNSP OSR staff questioned the requirements for such decks and noted that the contractor doing the work on an LSD had proposed to roll the nonskid on the vehicle ramps perpendicular to the main axis of the ramps or transverse to the direction of travel of a vehicle on the ramp. SEA 05P2 validated these requirements with both Corrosion Control Assistance Team staff (i.e., personnel who are on ships every day and walk up and down ramps on a regular basis) and nonskid application contractor staff and created the new requirements to avoid confusion about interior nonskid applications on LHA, LHD, LPD, and LSD class ships in the future. Based on the validated requirements, the FY-21, Change 2, Standard Item 009-32, Note (83) that was “Intentionally left blank” was revised to state that: ““Nonskid on vehicle

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ramps must be rolled perpendicular to main axis of the ramp. Welds must not be cross-rolled on vehicle ramps.” In addition, the new requirements in Table 2, Lines 20A & 20B require that the same Type I or Type V, Composition D or density controlled nonskids that are required to be installed on the flight decks of LHA, LHD, LPD, and LSD class ships are also required to be installed on the vehicle decks and associated ramps. Because the Composition D nonskids inherently reduce the risk that nonskid chips/flakes that are ingested into gas turbine engines will cause Foreign Object Damage (FOD), (i.e., the lower density polycarbonate and glass aggregate in Composition D nonskid has been shown in AIR 4.4 blade impact tests to cause less blade damage than equivalent size flakes or chips of Composition G nonskid that contains hard, dense aluminum oxide aggregate), the use of these Composition D nonskids on vehicle decks and ramps will ensure that any nonskid chips or flakes embedded in tires, tracks, or boots, that then transit to the flight deck, will not increase the risk of aircraft engine FOD. Thus, the change will further reduce the risk of nonskid chips/flakes causing aircraft engine FOD.

6. CHANGE: Clarified Note (85) requirements for atypical topside coatings on DDG 1000 class: Updated the current, FY-21, Change 2, Standard Item 009-32, Note (85) that required the topsides of the DDG 1000 class ships to be painted light gray (i.e., instead of the haze gray commonly used on other Navy ships) by modifying the note in FY-22, Standard Item 009-32 to cite the camouflage manual as follows: “*As designated by the SUPERVISOR, apply topside coating colors and patterns in accordance with 2.7.*”

RATIONALE: The current, FY-21, Change 2, Standard Item 009-32, Note (85) requirements for a unique topside color on the DDG 1000 class ships are based on the as-delivered color and have led to questions and concerns from the DDG 1000 C.O. To address these issues, SEA 05P2 has worked with the SEA 05P1 signatures Technical Warrant Holder and the DDG 1000 class Ship Design Managers to include alternative camouflage patterns for these ships in the updated S6360-AG-MAN-010, Camouflage Manual, Surface Ship Concealment that SEA 05P2 will be published later in 2020. The patterns include an option for the entire ship to appear in light gray, or for the hull and superstructure to be painted haze gray, while the specialized tile on the upper superstructure (i.e., which cannot be painted) remains light gray. Both approaches effectively address camouflage requirements and by modifying Note (85), the Supervisor will be responsible for defining which camouflage pattern the contractor is required to apply in each specific work package.

7. CHANGE: Clarified requirement for defining MIL-DTL-24607 coatings: Updated the FY-22, Standard Item 009-32, Note (10A) to clarify that there are no “qualified” MIL-DTL-24607 paints by removing the term “qualified” from the Note (10A) as follows: “When using MIL-DTL-24607 paints, use Table 631-8-10 of 2.2 to select approved colors.

RATIONALE: The current, FY-21, Change 2, Standard Item 009-32, Note (10A) requirements cite “qualified” MIL-DTL-24607 coatings, but there are no such “qualified” products, not is there a Qualified Products List (QPL) for MIL-DTL-24607. MIL-DTL-24607 is a formula-based or detail specification that uses a “first article” approach to ensure coatings satisfy requirements. In a “first article” specification, the procuring activity can request a data package from the manufacturer or can test the first batch of coating

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delivered to verify that the coating satisfies requirements. As such, NAVSEA does not maintain QPLs for first article specifications. Thus, the change avoids confusion by not directing the reader to search the ASSIST database for a MIL-DTL-24607 QPL that does not exist.

8. CHANGE: Clarified requirements for application of Composition 1 and Composition 2 polysiloxane topside coatings:

Updated the FY-22, Standard Item 009-32, Table 2, Lines 1 – 8A to separate the coating application requirements for MIL-PRF-24635, Type V or VI, Composition 1 (i.e., single pack polysiloxane coatings) and MIL-PRF-24635, Type V or VI Composition 2 (i.e., two pack polysiloxane coatings) to clarify that the number of primer coats is dependent of the thickness or the polysiloxane coat. Specifically, the revised Table 2, Lines 1- 8A requirements for Composition 2 products show they are to be applied with only one coat, with a stripe, of solvent-based epoxy primer while Composition 1 products are to be applied over two primer coats, with a stripe, of solvent-based epoxy primer such that the overall polysiloxane coating system thicknesses are similar for both Composition 1 and Composition 2 coatings.

RATIONALE: The current, FY-21, Change 2, Standard Item 009-32, Table 2, Lines 1 - 4 include requirements for applying either Composition 1 (i.e., single pack polysiloxane coatings) or Composition 2 (i.e., two pack polysiloxane coatings) over two coats, with a stripe, of MIL-PRF-23236, Type V or VI solvent-based epoxy primer (i.e., Table 2, Line 1), or two coats of MIL-PRF-23236, Type VII ultrahigh solids primer without a stripe coat (i.e., Table 2, Line 2), or one coat of MIL-PRF-23236, Type VII ultrahigh solids, rapid cure, single coat paint (i.e., Table 2, Line 3), or two coats of MIL-PRF-24647 epoxy primer with a stripe coat (i.e., Table 2, Line 4). Because Columns E - G in these citations allow either the Composition 1 polysiloxane topcoat or the Composition 2 polysiloxane topcoat, the current requirements result in a much thicker layer from the Composition 2 polysiloxane topcoat system than Composition 1 polysiloxane topcoat system. For example, the FY-21, Change, Standard Item 009-32 Table 2, Line 1 requirements result in 10 – 19 mils DFT of total system thickness for a Composition 1 system and 13 -24 mils DFT of total system thickness for the Composition 2 system. Such high total system thicknesses for the Composition 2 system are not technically required to effectively control topside corrosion. Historically, the first polysiloxane products adopted for use in Standard Item 009-32 were two pack products that were derived from epoxy baseline coating chemistry that provided corrosion control functionality at their film thickness of 5 – 8 mils (i.e., a similar in thickness to the DFT for a single coat of solvent-based epoxy primer). In fact, the previous versions of Standard Item 009-32 allowed the these two pack polysiloxane topcoats to contribute to overall corrosion control performance of the system by requiring only a single coat of solvent based epoxy primer on steel, with a stripe coat, and only a stripe coat of epoxy based primer on aluminum to be top coated with a single coat of two pack polysiloxane. Such a coating system would achieve a notional coating thickness of 9 – 16 mils of total coating DFT on flat surface. Since introduction of the two pack polysiloxane coatings in the FY-10, Change 1, Standard Item 009-32 published on 9 Mar 2009, topside coating systems using the Composition 2, two pack, polysiloxane coating with a single coat of solvent-based primer on a steel surface have provided outstanding corrosion control performance that led SEA

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00/SEA 21 to direct that these coatings be required on all surface ships in the FY-19, Change 2, Standard Item 009-32 published on 26 Mar 2018. The Composition 1, single pack, polysiloxane coatings were recently developed and qualified to MIL-PRF-24635 at application thicknesses of 2 – 3 mils. As such, the Composition 1, single pack coatings offer inherently limited corrosion control performance more like that of the old MIL-PRF-24635, Type III silicone alkyd coatings with dry film thicknesses of 2- 3 mils. For example, the FY-21, Change 2, Standard Item 009-32 required two coats of solvent-based epoxy primer, with a stripe, under the Composition 1 coating resulting a system thickness of 8 – 19 mils DFT. However, because the FY-21, Change 2, Standard Item 009-32 used the term “or” for the two different polysiloxane coating Compositions, the requirements in Table 2, Line 1 for a Composition 2 coating would result in total system thickness of 13 – 24 mils DFT. Thus, the overall system thicknesses in the FY-21, Change 2, Standard Item 009-32, Table 2, Lines 1 - 4 were excessive for Composition 2 polysiloxane systems and by separating the requirements into new Lines in the FY-22, Standard Item 009-32, Table 2, the overall system thicknesses on flat surfaces will be more consistent, better aligned with requirements in previous versions of Standard Item 009-32, and will reduce both application time and cost for the Composition 2 systems. The following summarizes the notional thicknesses for topside coatings applied to a steel substrate on flat surfaces:

Composition 1 - single pack polysiloxane systems with solvent-based epoxy primer resulting in a total system DFT of 10 -19 mils.

Composition 2 - two pack polysiloxane systems with solvent-based epoxy primer total system DFT is 9 -16 mils.

These changes appear in the FY-22 Standard Item 009-32 Table 2 Lines, 1, 1A, 2, 3, 4, 4A, 5, 5A, 6, 8, and 8A.

9. CHANGE: Clarified requirements for installing PCMS tile on both steel and aluminum surfaces: Updated the FY-22, Standard Item 009-32, Table 2, Lines 45 – 52 for steel substrates and 75 - 82 for aluminum substrate to include the requirements for applying PCMS primers to steel surfaces that previously appeared in Table 5; and added new lines in Table 2, Lines 75 -82 that cite the recently adopted, SSPC-SP 17, “Thorough blast cleaning of nonferrous surfaces” standard to create a new set of requirements for application of primers to aluminum surfaces to which PCMS will be applied. Finally, also moved the PCMS installation requirements for GRP from the current Table 5, Line 26 to the new, Table 2, Line 86, removed the ambiguous term “as necessary,” and invoked Note (71) to define the sanding process requirements.

RATIONALE: The current, FY-21, Change 2, Standard Item 009-32, Table 5 (i.e., which is not specific to substrate materials) included requirements for application of PCMS tile primer systems that referenced surface preparation requirements like SSPC-SP 10 that are inherently applicable only to steel surfaces. SRF-JRMC noted that there were no clear requirements for application of primer to aluminum surfaces that would then receive PCMS tile and as such the proposed FY-22 Standard Item 009-32 change places the PCMS tile primer application requirements at three locations in Table 2, for steel, aluminum, and GRP substrates, that can be summarized as follows:
Table 2, Lines 45 - 52 – these lines are the same as the lines appearing in FY-21, Change 2, Standard Item 009-32, Table 5, Lines 21 to 23A. There are subtle

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modifications to address the more detailed Column headings in Table 2, but the technical requirements remain unchanged.

Table 2, Lines 75 - 82 – these lines are technically the same as those appearing FY-21, Change 2, Standard Item 009-32, Table 5, Lines 21 to 23A, but cite the recently adopted SSPC-SP 17, “Thorough blast cleaning” requirements for nonferrous substrates that are technically equivalent to the the SSPC-SP 10 near white metal blast cleaning requirements for steel substrates appearing in the FY-21, Change 2, Standard Item 009-32 Lines 45 -52. There are subtle modifications to address the more detailed Column headings in Table 2, but the technical requirements simply cite the new SSPC-SP 17 process that is technically accurate for surface preparation of aluminum in the same manner that SSPC-SP 10 is technically accurate for surface preparation of steel substrates. All other requirements remain unchanged.

Table 2, Line 86 – this line provides more clear and technically accurate surface preparation requirements for GRP surfaces by removing the current, ambiguous term (“as necessary). The change retains the basic requirement to SOAP & WATER CLEAN & HAND SAND,” but also invokes Note (71) that defines that 80 -120 grit sandpaper is to be used to minimize the risk of excessive material loss exposing fibers in the GRP substrate.

Thus, these changes create clear, technically accurate requirements for surface preparation and primer application for PCMS tile application to steel, aluminum, and GRP surfaces.

10. CHANGE: Clarified requirement for surface preparation of wood surfaces:

Updated the FY-22, Standard Item 009-32, Table 2, Line 87 to clarify requirements for preparing wood surfaces for coating by invoking Note (71) that requires hand sanding or use of an orbital sander with 80 – 120 grit sandpaper to remove loose or deteriorated paint before applying new coatings.

RATIONALE: The current, FY-21, Change 2, Standard Item 009-32, Table 2, Line 69 invokes a process for preparing wood surfaces that states: “HAND TOOL CLEAN - OR - POWER TOOL CLEAN TO REMOVE DETERIORATED COATINGS.” However, the citation does not describe the required tools and could result in use of inappropriate power tools (e.g., needle guns, flapper wheels, etc.) that could damage wood surfaces. By adding Note (71) to the Table 2, Line 87 citation for wood surfaces in the FY-22 Change 2, Standard Item 009-32, wood surfaces must be prepared either by hand sanding or sanding with an orbital sander using 80 – 120 grit sandpaper. Such processes minimize the risk of causing excessive damage to a wood surface.

11. CHANGE: Condensed requirements for condensation control coatings to two lines:

Updated the FY-22, Standard Item 009-32, Table 5, Line 3 to include both the Hempel ANTI-CONDENS 617US-10000, and KEFA AIRLESS 8125 condensation control coatings, eliminating the need for the FY-21, Change 2, Standard Item 009-32, Table 5, Line 5.

RATIONALE: The current, FY-21, Change 2, Standard Item 009-32, Table 5, Line 3 invokes requirements for the Hempel ANTI-CONDENS 617US-10000, condensation control coating that retards condensation on surfaces by absorbing moisture in the same manner that archaic vermiculite-based coatings absorbed moisture. The current, FY-21, Change 2, Standard Item 009-32, Table 5, Line 5 invokes requirements for the

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KEFA AIRLESS 8125 condensation control coating that also retards condensation on surfaces by absorbing moisture in the same manner that archaic vermiculite-based coatings absorbed moisture. Thus, these two coatings are technically equivalent and can appear on the single, FY-22, Standard Item 009-32, Table 5, Line 3. As a result of this change, work planners using the FY-22 Standard Item 009-32 would invoke Table 5, Line 3 to require installation of condensation control coatings that retard condensation on surfaces by absorbing moisture in the same manner that archaic vermiculite-based coatings absorbed moisture, or would invoke the FY-22 Standard Item 009-32, Table 5, Line 4 to require installation of condensation control coatings that retard condensation on surfaces by providing additional insulation on the surface. These changes are primarily editorial, but by grouping similar products, the change will enhance competition between suppliers of similar products and facilitate the addition of other tradename coatings in Lines 3 and 4 until the significantly updated TT-C-492 condensation control coating specification is published in January 2021. Publication of the updated TT-C-492 will allow all condensation control tradename citations to be removed from Standard Item 009-32 (i.e., in accordance with CNRMC policy on tradenames in Standard Items).



Enclosure (2)

FY 22 CH-1 NSI Summary of Change

009-07 Confined Space Entry, Certification, Fire Prevention and Housekeeping; accomplish

CP 2-009-07 3.4

3.4 Locate oxygen, acetylene, fuel gas, toxic, refrigerant, air conditioning gases, oxygen depleting (OD) gas supply systems off the ship. Manifolds connected to pierside supply systems may be placed on board ships as long as they are located on a weather deck and equipped with a shutoff valve located on the pier. The pierside shutoff valve must be in addition to the shutoff valve at the inlet to each portable outlet header required by 2.2.

RATIONALE : (Due to recent fire onboard a US Naval vessel, it was discovered the NSI and the 8010 had gaps in the verbiage discussing removal refrigerant and air condition gas cylinders within industrial hot work areas.)

CP 3-009-07-3.10.1.4/4.9

3.10.1.4 When one of the brow/gangways designated for personnel access/egress must be secured, notify the SUPERVISOR for concurrence. (See 4.9)

4.9 The Fire Safety Council (FSC) must concur on mitigation actions. FSC must ensure a means of access/egress is maintained via the other required brow(s)/gangway(s).

RATIONALE : (Due to recent fire onboard a US Naval vessel, it was discovered the NSI and the 8010 had gaps in the verbiage discussing use of gangway requirements for the safety of personnel transiting on and off ship)

CP 10-009-07-3.10.1.3

3.10.1.3 Each route of escape leading to each exit and gangway must be clearly marked and must endure an industrial work environment, stay attached, and remain legible.

RATIONALE : (Due to recent fire onboard a US Naval vessel, it was discovered the NSI and the 8010 had gaps in the verbiage discussing use of egress route marking and announcement of egress routes.)

CP 12-009-07-3.14

3.14 Deleted ... or anytime during the availability that the ship's power is not available as an emergency back-up to installed shore power.

RATIONALE : (Requirements for backup power will be provided by SWT (mandatory TECH REQ) 992-049/051)



Enclosure (2)

FY 22 CH-1 NSI Summary of Change

009-08 Shipboard Fire Protection and Fire Prevention; accomplish

CP 3-009-08-3.28

3.27.1 The ship's permanently-installed fire detection system will be maintained in an operational condition during the availability. Any work that would impair the permanently-installed fire detection system must be approved by the SUPERVISOR.

RATIONALE : (Due to recent fire onboard a US Naval vessel, it was discovered the NSI and the 8010 had gaps in the verbiage discussing use of mechanical AFFF producing equipment.)

CP 4-009-08-3.6.14

3.6.14 The ship's permanently installed AFFF system must be maintained in an operational condition during the availability, impairment to the permanently installed AFFF system or where flammable or combustible materials are temporarily stored or maintained without permanent AFFF system installed must have a mitigation plan approved by the SUPERVISOR.

RATIONALE : (Due to recent fire onboard a US Naval vessel, it was discovered the NSI and the 8010 had gaps in the verbiage discussing use of mechanical AFFF producing equipment.)

CP 5-009-08-3.6.1.4

3.6.1.4 Each Temporary and Permanent hose or hose reel must be protected by an enclosure. The enclosure must be painted red and must not significantly restrict access to the hose or hose reel for firefighting.

RATIONALE : (Due to recent fire onboard a US Naval vessel, it was discovered the NSI and the 8010 had gaps in the verbiage discussing use of Hose and Hose Reel protection.)

CP 6-009-08-3.6.13

3.6.13 Where drydocked ships or ships under construction are constructed of combustible hull materials such as composites and wood, materials subject to melting such as aluminum, or equipped with combustible external hull/structure treatments such as Special Hull Treatment (SHT), Radar Absorbent Material (RAM), or Passive Countermeasure System (PCMS), each fire hose station must be provided such that each area of the hull/structure are reachable by 2 separate fire hose stations rigged with 100 feet of hose.

RATIONALE : (Due to recent fire onboard a US Naval vessel, it was discovered the NSI and the 8010 had gaps in the verbiage discussing use of drydock firefighting.)

CP 7-009-08-3.7.1.1



Enclosure (2)

FY 22 CH-1 NSI Summary of Change

3.7.1.1 Each temporary fire alarm device placed aboard ship must be a fire alarm pull box, non-dial telephone, and annunciator panel, or as approved by the SUPERVISOR.

RATIONALE : (Due to recent fire onboard a US Naval vessel, it was discovered the NSI and the 8010 had gaps in the verbiage discussing use of annunciator panel.)

009-74 Occupational, Safety and Health Plan; accomplish

CP 1-009-74- 3.27, 3.27.1

3.27 Store each plastic bodied tool in metal tool boxes or remove from the ship at the end of each shift. Equipment that must remain in service after working hours (e.g., temporary lighting, monitoring devices, etc.) is exempt from this requirement.

3.27.1 Requirements of paragraph 3.27, do not apply to currently regulated and each controlled radiological containment, nor does it supersede any requirements of the Naval Nuclear Propulsion Program.

RATIONALE : (Due to recent fire onboard a US Naval vessel, it was discovered the NSI and the 8010 had gaps in the verbiage discussing use of plastic bodied tools and equipment)

CP 8-009-74- 3.22, 3.22.1

3.22 The ship's permanently-installed general announcing system will be maintained in an operational condition during the availability. Any work that would impair the permanently-installed general announcing system must have a mitigation plan approved by the SUPERVISOR.

3.22.2 Install an audible and visible system to warn personnel to evacuate the ship. The audible phase must consist of a klaxon horn, siren, or other device and must be clearly distinct from the fire and stop hot work alarms. Sounding of the evacuation alarm must be accompanied by the flashing of lights on all alarm box stations. Both the audible and visible signal must be actuated from the central CASCON Station and/or DCC/Quarterdeck. The evacuation alarm system must be approved by the SUPERVISOR. The ship's temporary or permanent announcing system may be used for evacuation ship alarm and will announce the emergency. To achieve separate fire, stop hot work, and evacuate ship alarms, the ships announcing system must be used to announce the nature of the emergency in conjunction with the alarm actuation.

RATIONALE : (Due to recent fire onboard a US Naval vessel, it was discovered the NSI and the 8010 had gaps in the verbiage discussing use of evacuation alarm)



Enclosure (3)

FY 22 CH-1 NSI Summary of Change

CP 001-009-60 009-60 Schedule and Associated Reports for CNO Availabilities; provide and manage

List of affected paragraphs:

1.1 Title: Schedule and Associated Reports for CNO Availabilities; provide and manage

RATIONALE : (Change title to: “Schedule and Associated Reports for CNO Availabilities; provide and manage” to better reflect the availabilities that should invoke this NSI.)

3.1.2.6: The contractor is permitted, to include contract changes (growth, descopes, and new work) within the integrated production schedule prior to settlement of the associated change. All changes incorporated prior to settlement must be clearly denoted by the word “pending” in the title, in accordance with TABLE 1.

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

RATIONALE : (The contractor is permitted, at their discretion, to include contract changes (growth, descopes, and new work) within the integrated master schedule prior to settlement of the associated change.)

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

RATIONALE : (In execution of the availability, the contractor may allow dates to exceed the contract period of performance.)

3.1.2.9 When required by contract, the LMA will be required to lead a Schedule Model Review (SMR). See note 4.1.31.

RATIONALE : (Recognizes the Schedule Model Review (SMR) process and the fact that it may be contractually invoked.)

3.1.3.2 When the Required O&I Reports present a sequencing conflict that would prevent one or more reports from being accomplished by the 20 percent O&I Milestone (e.g., stability, work integration, etc.), additional milestones will be created based on when they could be accomplished, and the lower priority conflicted Required O&I Reports will be associated to those new milestones. CNRMCINST 4711.1 provides guidance for the request and approval process for additional O&I milestones.

RATIONALE : (Provided guidance and approval process for the creation of additional O&I Milestones past the 20% O&I Milestone requirement.)



Enclosure (3)

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3.1.5 Develop the Schedule of Record (SOR) to serve as the “baseline” schedule, a revised IPS at the start of the availability (A-0 day) that includes refined sequencing and completeness as a result of completed subcontracting actions, incorporation of additional Government Furnished Information (GFI), or any contract modifications increasing the scope of work between contract/delivery Order award and availability start. The baseline will be maintained to reflect contract changes (RCCs and descopes) throughout availability execution. Deviations from contractually authorized dates will be addressed in the mitigation plan. Mitigation measures must be formulated prior to the next weekly update of the IPS, but in no case exceed two weekly IPS update cycles.

RATIONALE : (Directs the Baseline Schedule will be maintained to reflect RCCs and Descopes throughout the availability and that deviations from contractually authorized dates will be addressed in the mitigation plan.)

3.1.6.2 Activities projected to finish after their assigned Key Event or Milestone date, either by scheduling software-calculated date or by the accumulation of negative float, must be identified and a mitigation plan must be developed. Mitigation measures must be formulated and documented in report in accordance with 3.4 prior to the next weekly update of the IPS, but in no case exceed two weekly IPS update cycles.

3.1.6.3 When attainment of each Milestone or Key Event is projected to finish after their planned completion dates as a result of settled contract scope, corrective action must be taken through resource allocation, rescheduling, or other means, to restore predicted Milestone or Key Event attainment within contractually authorized dates. Where the attainment of a contractually-defined Key Event or Milestone cannot be recovered by means that are within the contractor’s control, comply with the reporting requirements of 009-01 of 2.1.

RATIONALE : (Directs when a mitigation plan must be developed and proscribes corrective action must be taken when a Milestone or Key Event is projected to finish after planned completion dates as a result of scheduled contract scope.)

Table 1: Added terms Baseline Start and Baseline Finish (for Planned), added Percent Complete (Planned), added Constraints

3.3.3 Update the project’s PDM for the 25, 50 and 75 percent points of the availability.

RATIONALE : (Changed the periodicity of PDM submission from weekly to 25%, 50%, and 75% points of the availability)

3.4.1.2 Revise the Key Event and Milestone Analysis Report weekly to reflect up-to-date contract performance. Address Work Items on the Critical and Controlling Path with negative float to Key Events and Milestones in accordance with 3.1.6.3. The report must reflect the addition, deletion, or modification of settled and pending Work Item changes.

RATIONALE : (Provided guidance regarding minimum fields required to be updated/addressed.)



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3.4.2 Generate a Schedule Health Report that includes the following information: Number of incomplete activities with missing logic; Finish-to-Start Percentage; Number of incomplete activities with negative float; Number of incomplete activities with high duration; Throughput Percentage. Parameters exceeding threshold values require explanation. Submit Schedule Health Report with the Initial IPS, SOR, and at the 25, 50, and 75 percent progress of the availability. (See 4.1.29, for report element description and threshold values).

3.5.1 Develop a total manpower-loading curve depicting the forecasted manning required to execute the IPS. Show scheduled manning throughout the contract period calculated in Full Time Equivalents (FTEs). The curve must indicate that portion of the total that is subcontractor provided. The curve must be incremented on a weekly progression.

RATIONALE : (Specified that the manning curve data will be in Full Time Equivalents (FTE))

3.5.1.1 Manning values must reflect actual FTEs expended. Future requirements must reflect weekly average FTE estimated to complete the project, scheduled using the early start/finish dates.

RATIONALE : (Added the requirement that manning values will reflect actual FTEs expended and requirement to reflect weekly average FTE estimate to completion of the project scheduled using the Early Start/Early Finish dates.)

3.5.2.1 Manning values must reflect actual FTEs expended. Future requirements must reflect weekly average FTE estimated to complete the project, scheduled using the early start/finish dates.

RATIONALE : (Added the requirement that Trade manning values will reflect actual FTEs expended and requirement to reflect weekly average FTE estimate to completion of the project scheduled using the Early Start/Early Finish dates.)

3.5.3 Update the manpower curves of 3.5.1 and 3.5.2 weekly to accurately reflect the actual FTE expended and any changes necessary in future weeks' manpower requirements to meet scheduled Milestones, Key Events and vessel delivery.

RATIONALE : (Specified "Actual FTE" for manpower updates.)

3.5.4 Develop a weekly progress report showing the availability's planned and actual progress.

RATIONALE : (Changed report to a "Progress" report to address planned vs. actual progress.)

3.5.4.1 The weekly progress report must indicate the total hours attributed to work pending descopes and pending growth RCCs. This must not include unallocated LOE to completion.

RATIONALE : (Added direction that the weekly progress report will indicate total hours attributed to work pending descopes and pending growth RCCs.)



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3.6.1 The representative must meet with the AIT, Government-Contracted Third Party Maintenance Providers, S/F, CIS, and FMA between contract award and A-0. Commencing at A-0, this engagement must occur daily to compare and coordinate programmed AIT, Government-Contracted Third Party Maintenance Provider, S/F, CIS, and FMA work with the IPS.

RATIONALE : (Clarified the timeline for the LMA representative to engage all stakeholders for schedule development.)

3.6.2.1 The representative must develop a report identifying missing or incomplete schedule integration data for known participants in the availability when the SOR is submitted. Identification of missing or incomplete schedule integration data is required to highlight areas of elevated IPS uncertainty, but must not be cause for delay in establishing the SOR nor the delivery of reports required under this Standard Item.

RATIONALE : (Corrected spelling of SOR)

Table 2: Replaced Schedule Analysis with Schedule Health Report and allowed .doc or .xls formats, changed paragraph link for Manpower Curves (Total and Trades), added “Progress Report” and changed the submission requirements for the Critical Path Network (PDM) and Schedule Health Report to 25%,50%, and 75% conferences (vice weekly).

Table 3: Update FFP Schedule submission requirements to “The earlier of: 60-days after contract award or A-7”

4.1.11 Total Float: The total number of days that the Contractor can delay a Work Activity without affecting the project finish date. A path of Work Activities is established by predecessor and successor relationships.

RATIONALE : (Clarified the Total Float definition to The total number of days that “the Contractor can delay a Work Activity”)

4.1.15 Baseline Start or Baseline Finish. The date identified in the IPS when the contractor plans to start or finish (respectively) the Work Activity. This may be established by a controlled schedule baseline (preferred method) or by manual entry into the scheduling software according to contractor policy/practice.

RATIONALE : (Changed term from “Planned Start and Planned Finish” to “Baseline Start and Baseline Finish”)

4.1.16 Planned progress percent. Baseline progress of work to be completed based on planned start and planned finish dates.

RATIONALE : (Added definition of Planned Progress percent.)

4.1.17 Actual Progress percent. Degree of completion based on the Work Activity’s work scope and degree of accomplishment of production labor.

RATIONALE : (Added definition of Actual Progress percent.)



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4.1.28 Hard Constraint: A Mandatory Start or Finish date imposed on an activity, i.e. the activity becomes fixed to that date. When expressed as the activity Must Start On (MSO) or Must Finish On (MFO) the given date. Hard Constraints prevent their associated activity from being logic-driven.

4.1.30 Lags and Leads. Lags and Leads are scheduling functions used to represent a gap (Lag) or overlap (Lead) between activities. The use of Lags and Leads must be controlled to ensure they support an accurate and logical work flow. Improper and overuse of Lags and Leads can have a detrimental effect on a logic driven schedule and adversely affect float and the Critical Path. Typical examples where their use may be warranted include: insertion of time delay to represent report cycle time, staggering unrelated work item start dates, or drive work based on material receipt projection.

4.1.30.1 Lag: The delayed start of a successor activity and represents time that must pass before the second activity can begin.

4.1.30.2 Lead: The accelerated start of a successor activity where there is a finish to start relationship. The second activity can begin and be conducted in parallel with the first activity.

4.1.31 Schedule Model Review. An LMA-led event to review the IPS (in its current state) and thorough discussion of any predicted challenges, constraints, schedule efficiencies, etc will be conducted in accordance with contractual requirements. The contractor will discuss the schedule in sufficient detail to support understanding of time and space constraints, critical and controlling path work, and items requiring integration. CNRMCINST 4701.1 Schedule Model Review (SMR), provides policy and guidance for the administration, preparation and execution of the Schedule Model Review (SMR) meeting.

4.1.32 Full Time Equivalents (FTE) – A normalized representation of full-time workers based on the number of hours spent/scheduled during a finite period of time. An FTE unit assumes an 8-hour work day and a 5-day work week (Monday-Friday) except when accounting for holidays. For example, if the hours spent or scheduled during a week with one holiday was 160 hours, then the FTE value representing that week would be equal to 5 FTE (160 hours divided by 8-hour days divided by 4 works days equals 5 FTE).

RATIONALE : (Added definition of Schedule Model Review (SMR))

4.6: CMWD Countermeasures Wash Down

RATIONALE : (Corrected acronym for Countermeasure Wash down to CMWD)

CP 003-009-111 009-111 Schedule and Associated Reports for non-CNO Availabilities; provide and manage

List of affected paragraphs:

1.1 Title: Schedule and Associated Reports for non-CNO Availabilities; provide and manage



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RATIONALE : (New Title)

2.1 Standard Items

RATIONALE : (Added, Standard Items)

3.1.1.2 Integrate all provided Alteration Installation Team (AIT), Government-Contracted Third Party Maintenance Provider, Ship's Force, Commercial Industrial Services (CIS), and Fleet Maintenance Activity (FMA) work. The SUPERVISOR will provide, or direct provision, of the AIT, Government-Contracted Third Party Maintenance Providers, Ship's Force, CIS, and FMA availability data required for schedule integration.

RATIONALE : (Added the statement "The SUPERVISOR will provide, or direct provision, of the AIT, Government-Contracted Third Party Maintenance Providers, Ship's Force, CIS, and FMA availability data required for schedule integration." to match the verbiage in 009-60.)

Deleted 3.1.1.3 Each Work Activity must be scheduled by location and system, and integrated into the IPS.

Deleted 3.1.2 The latest allowable receipt date for contractor and government furnished material (CFM and GFM) to maintain production schedule.

RATIONALE : (Deleted previous GFM/CFM statement requirement. Subsequent paragraphs renumbered.)

3.1.4 Scheduled start and completion dates of all Stage 3 through Stage 6 required tests. Test Stages are defined in Section 092 of 2.2.

RATIONALE : (Added, Test Stages are defined in Section 092 of 2.2.)

3.2 Revise Production Schedule/IPS at the Work Activity level weekly to include info provided in 3.1.1.2 for AIT work, additions, deletions, modifications, actual start and finish dates, progress, and completion of Work Items. Progress must be based on degree of completion of physical work or accomplishment of the Work Activity.

RATIONALE : (Added requirement to include AIT information of 3.1.1.2 in schedule revisions.)

Deleted 3.3 Coordinate and schedule AIT, Government-Contracted Third Party Maintenance Providers, Ship's Force, CIS, and FMA work with contractor work into the IPS for work packages identified in 3.1 when the SUPERVISOR has identified such work to take place during the availability. (See 4.2)



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Deleted 3.3.1 Develop a report identifying missing or incomplete schedule integration data for known participants in the availability when the IPS is submitted. Identification of missing or incomplete schedule integration data is required to highlight areas of elevated IPS uncertainty, but must not be cause for delay in establishing the IPS nor the delivery of reports required under this Standard Item.

RATIONALE : (Deleted paragraph (requirements shifted to 3.1.1.2 and 3.2).)

3.4: (Renumbered and added all new Table 1 Activity Data Elements and Descriptions)

Table one, (Added , (See 4.1.7))

3.5 If requested by the SUPERVISOR, provide contractor representation to participate in a review conference to be held at the 50 percent progress in the availability.

RATIONALE : (Renumbered and revised to reflect the 50 percent conference is upon request of the Supervisor and eliminated the completion conference.)

3.6 Submit the following reports to the SUPERVISOR as listed in Table 2 in the specified format and timeline.

RATIONALE : (Renumbered and provided clarification of required format (.xls or native format vice .pdf and .doc) and due dates.)

4.1.1 Critical Path Method: A step-by-step network-based method for planning and executing complex, interdependent projects that identifies the Critical Path to each Key Event and Milestone using automated Network Analysis Tools. CPM is an important tool for project management because it identifies critical and non-critical tasks to prevent conflicts and bottlenecks. CPM is applied to the analysis of a project network precedence diagram to produce maximum practical efficiency and a focus on the most critical Work Activities in the project based on Total Float.

4.1.2 Stage Testing: Conducted by using stages of testing for the progressive validation of the proper installation and performance of equipment and systems. Test Stages are identified in 009-67 of 2.1.

4.1.5 Duration: The total number of work periods (not including holidays or other nonworking periods) required to complete a scheduled Work Activity.

4.1.7 Milestone: Milestones are used as a scheduling aid and establish significant points where progress must be evaluated and confirmed. Accumulated failure to achieve Milestones on schedule may result in missed Key Events.



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4.1.10 Total Float: The total number of days that the Contractor can delay a Work Activity without affecting the project finish date. A path of Work Activities is established by predecessor and successor relationships.

4.1.11 Logic Relationship: Defines an interdependence between Work Activities. It is established by assigning predecessor and successor relationships to Work Activities using the functionality provided by project scheduling software. An individual Work Activity will frequently have more than one predecessor or more than one successor.

4.1.12 Baseline Start or Baseline Finish. The date identified in the IPS when the contractor plans to start or finish (respectively) the Work Activity. This may be established by a controlled schedule baseline (preferred method) or by manual entry into the scheduling software according to contractor policy/practice.

4.1.13 Planned progress percent. Baseline progress of work to be completed based on planned start and planned finish dates.

4.1.14 Actual Progress percent. Degree of completion based on the Work Activity's work scope and degree of accomplishment of production labor.

4.1.15 Early Start: The earliest point in time that a Work Activity may start based on the IPS network logic and any other schedule constraints. Early start dates may change as the availability progresses.

4.1.16 Early Finish: The earliest point in time that a Work Activity may be completed based on the IPS network logic and any schedule constraints. Early finish dates may change as the availability progresses

4.1.17 Integration: The incorporation of all work (including testing and availability work certification) for all organizations involved in an availability.

4.1.18 Negative Float: The amount of time by which the early start or finish dates of a Work Activity exceeds its late start or ending dates. The quantity of float then indicates the amount of time that must be recovered in order to achieve an imposed date.

4.1.19 Hard Constraint: A Mandatory Start or Finish date imposed on an activity, i.e. the activity becomes fixed to that date. Typically expressed as the activity Must Start On (MSO) or Must Finish On (MFO) the given date. Hard Constraints prevent their associated activity from being logic-driven.

4.1.20 Lags and Leads. Lags and Leads are scheduling functions used to represent a gap (Lag) or overlap (Lead) between activities. The use of Lags and Leads must be controlled to ensure they support an accurate and logical work flow. Improper and overuse of Lags and Leads can have a detrimental effect on a logic driven schedule and adversely affect float and the Critical Path.



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Typical examples where their use may be warranted include: insertion of time delay to represent report cycle time, staggering unrelated work item start dates, or drive work based on material receipt projection.

4.1.20.1 Lag: The delayed start of a successor activity and represents time that must pass before the second activity can begin.

4.1.20.2 Lead: The accelerated start of a successor activity where there is a finish to start relationship. The second activity can begin and be conducted in parallel with the first activity.

RATIONALE : (Definition Section: Added applicable definitions to align with 009-60 (Critical Path Method, Stage Testing, Duration, Milestone, Logic Relationship, Baseline Start or Baseline Finish, Planned Progress %, Actual Progress %, Early Start, Early Finish, Integration, Negative Float, Hard Constraint, and Lags and Leads).)