

NAVSEA  
STANDARD ITEM

FY-20

ITEM NO: 009-107  
DATE: 01 OCT 2018  
CATEGORY: II

1. SCOPE:

1.1 Title: Piping System Cleanliness Restoration and Flushing (Non-Nuclear); accomplish

2. REFERENCES:

2.1 Standard Items

2.2 S9AA0-AB-GOS-010, General Specifications for Overhaul of Surface Ships (GSO)

2.3 0902-018-2010, General Specifications for Deep Diving SSBN/SSN Submarines

2.4 S9086-RK-STM-010/CH-505, Shipboard Piping Systems

2.5 MIL-STD-1330, Precision Cleaning and Testing of Shipboard Oxygen, Helium, Helium-Oxygen, Nitrogen Systems, and Hydrogen Systems

2.6 MIL-STD-419, Cleaning, Protecting, and Testing Piping, Tubing, and Fittings for Hydraulic Power Transmission Equipment

2.7 MIL-STD-1622, Standard Practice for Cleaning of Shipboard Compressed Air Systems

2.8 S9086-RW-STM-010/CH-516, Refrigeration Systems

3. REQUIREMENTS:

3.1 Accomplish the general cleaning requirements of 2.2 through 2.4 for new, modified, or repaired non-nuclear piping systems and components of nuclear and non-nuclear powered naval vessels. Accomplish the system cleaning requirements of 2.5 through 2.8.

3.1.1 Clean to the following acceptance standard:

3.1.1.1 Cleanliness Level II: Surface **must** be visually free of grease, oil, flux, scale, dirt, loose particles and any other contamination foreign to the base metal. Tap water residues on all metals and light superficial rust on carbon steel surfaces, caused by short time exposure to the atmosphere, are permitted. Light dust on cleaned surfaces is not objectionable, provided that the quantity and size of the particle does not adversely affect system operations.

3.1.1.2 Cleanliness Level III: Surface **must** be reasonably free of contamination and any remaining residue on the surface does not interfere with system operations or damage system components.

3.2 Accomplishment of a Process Control Procedure (PCP) for the cleaning, flushing, and acceptance criteria of compressed air systems **must** be in accordance with NAVSEA Standard Items (See Note 4.3) and Section 551 of 2.2 and 2.7.

(I) (G) "VERIFY CLEANLINESS"

3.2.1 Verify cleanliness in accordance with acceptance standards.

3.3 Accomplishment of a Process Control Procedure (PCP) for the cleaning, flushing, and acceptance criteria of oxygen, nitrogen, and helium systems **must** be in accordance with NAVSEA Standard Items (See Note 4.3) and Section 552 of 2.2 and 2.5.

(I) (G) "VERIFY CLEANLINESS"

3.3.1 Verify cleanliness in accordance with acceptance standards.

3.4 Accomplishment of a Process Control Procedure (PCP) for the cleaning, flushing, and acceptance criteria of hydraulic systems **must** be in accordance with NAVSEA Standard Items (See Note 4.3) and Section 556 of 2.2 and 2.6.

(I) (G) "VERIFY CLEANLINESS"

3.4.1 Verify cleanliness in accordance with acceptance standards.

3.5 Accomplishment of a Process Control Procedure (PCP) for the cleaning, flushing, and acceptance criteria of fuel oil systems **must** be in accordance with NAVSEA Standard Items (See Note 4.3) and Section 541 of 2.2.

(I) (G) "VERIFY CLEANLINESS"

3.5.1 Verify cleanliness in accordance with acceptance standards.

3.6 Accomplishment of a Process Control Procedure (PCP) for the cleaning, flushing, and acceptance criteria of steam systems **must** be in accordance with NAVSEA Standard Items (See Note 4.3) and Section 253 of 2.2.

(I) (G) "VERIFY CLEANLINESS"

3.6.1 Verify cleanliness in accordance with acceptance standards.

3.7 Accomplishment of a Process Control Procedure (PCP) for the cleaning, flushing, and acceptance criteria of condensate systems **must** be in accordance with NAVSEA Standard Items (See Note 4.3) and Section 255 of 2.2.

(I) (G) "VERIFY CLEANLINESS"

3.7.1 Verify cleanliness in accordance with acceptance standards.

3.8 Accomplishment of a Process Control Procedure (PCP) for the cleaning, flushing, and acceptance criteria of lube oil systems **must** be in accordance with NAVSEA Standard Items (See Note 4.3) and Section 262 of 2.2.

(I) (G) "VERIFY CLEANLINESS"

3.8.1 Verify cleanliness in accordance with acceptance standards.

3.9 Accomplishment of a Process Control Procedure (PCP) for the cleaning, flushing, and acceptance criteria of each fresh water system **must** be in accordance with NAVSEA Standard Items (See Note 4.3) and Section 532 of 2.2.

(I) (G) "VERIFY CLEANLINESS"

3.9.1 Verify cleanliness in accordance with acceptance standards.

3.10 Accomplishment of a Process Control Procedure (PCP) for each cleaning operation of refrigerant systems **must** be in accordance with NAVSEA Standard Items (See Note 4.3) and 2.8.

(I) (G) "VERIFY CLEANLINESS"

3.10.1 Verify cleanliness in accordance with acceptance standards.

3.11 Accomplishment of a Process Control Procedure (PCP) for the cleaning, flushing, and acceptance criteria of HP/LP steam drains **must** be in accordance with NAVSEA Standard Items (See Note 4.3) and Section 534 of 2.2.

(I) (G) "VERIFY CLEANLINESS"

3.11.1 Verify cleanliness in accordance with acceptance standards.

**3.12 Accomplishment of a Process Control Procedure (PCP) for the cleaning, flushing, and acceptance criteria of divers air systems must be in accordance with NAVSEA Standard Items (See Note 4.3) and Section 592 of 2.2.**

(I) (G) "VERIFY CLEANLINESS"

**3.12.1 Verify cleanliness in accordance with acceptance standards.**

**3.13 Accomplishment of a Process Control Procedure (PCP) for the cleaning, flushing, and acceptance criteria of gasoline and JP-5 systems must be in accordance with NAVSEA Standard Items (See Note 4.3) and Section 542 of 2.2.**

(I) (G) "VERIFY CLEANLINESS"

**3.13.1 Verify cleanliness in accordance with acceptance standards.**

**3.14 Accomplishment of a Process Control Procedure (PCP) for the cleaning, flushing, and acceptance criteria of distillate piping systems must be in accordance with NAVSEA Standard Items (See Note 4.3) and Section 531 of 2.2.**

**(I) (G) "VERIFY CLEANLINESS"**

**3.14.1 Verify cleanliness in accordance with acceptance standards.**

4. NOTES:

4.1 This Standard Item does not apply to systems of nuclear-powered ships covered by NAVSEAINST 9210.36, Steam Plant Cleanliness Control, or nuclear piping systems on nuclear-powered ships.

4.2 See Attachment A for Level II and Level III piping systems.

4.3 If a Process Control Procedure (PCP) of 3.2 through 3.11 is required; the use of Category II Standard Item 009-09 "Process Control Procedure (PCP); provide and accomplish" of 2.1 will be specified in the Work Item.

ATTACHMENT A  
CLEANLINESS LEVEL II AND III

CLEANLINESS LEVEL II PIPING SYSTEMS:

- DIVERS AIR (NOTE 1)
- ELECTRONICS DISTILLED WATER COOLING (NOTE 1)
- HIGH PRESSURE AIR (NOTE 1)
- HYDRAULIC PIPING SYSTEMS (NOTE 1)
- LUBRICATING OIL SYSTEMS (NOTE 1)
- MISSILE HEATING AND COOLING
- REFRIGERANT SYSTEM (FREON AND LITHIUM BROMIDE) (NOTE 1)
- OXYGEN SYSTEM (NOTE 1)
- AIR CONDITIONING CHILLED WATER SYSTEM
- AUXILIARY STEAM SYSTEM
- CONDENSATE SYSTEM (NOTE 1)
- DIESEL FRESHWATER COOLING
- AIR FOR DIESEL CONTROL, VITAL AIR, ELECTRONICS SYSTEMS, ABC SYSTEMS AND PNEUMATIC CONTROL (NOTE 1)
- EXHAUST PIPING (STEAM)
- FEEDWATER SYSTEM (NOTE 1)
- POTABLE WATER SYSTEM (NOTE 1)
- FUEL SERVICE SYSTEM (NOTE 1)
- DISTILLATE PIPING SYSTEMS
- FUEL TRANSFER SYSTEM (NOTE 1)
- GASOLINE SYSTEM
- HIGH AND LOW PRESSURE DRAIN SYSTEM (NOTE 1)
- MAIN STEAM SYSTEM (NOTE 1)
- MEDIUM PRESSURE AIR (ABOVE 250 PSI AND BELOW 1500 PSIG) (NOTE 1)
- NITROGEN PIPING SYSTEM (NOTE 1)
- JP-5 PIPING SYSTEM
- OTHER SYSTEMS AS SPECIFIED BY THE SUPERVISOR

NOTE 1: SEE INDIVIDUAL GSO SECTIONS FOR ADDITIONAL SPECIAL CLEANING REQUIREMENTS

CLEANLINESS LEVEL III PIPING SYSTEMS:

- AIR ESCAPE (TANK VENT)
- AIR CONDITIONING SEAWATER COOLING SYSTEM
- AFFF CONCENTRATE AND AFFF/SW SYSTEMS

- AUXILIARY SEAWATER SYSTEM
- CO2 SYSTEM
- DIESEL EXHAUST SYSTEM
- DIESEL SEAWATER COOLING SYSTEM
- DISTILLING PLANT, BRINE OVERBOARD DISCHARGE SYSTEM
- DISTILLING PLANT, SEAWATER FEED SYSTEM
- ESCAPE PIPING (STEAM)
- FIREMAIN SYSTEM
- HALON
- MAIN SEAWATER COOLING SYSTEM
- PLUMBING SYSTEM
- SANITARY AND FLUSHING PIPING SYSTEM
- SHIP SERVICE LOW PRESSURE AIR SYSTEM (NON-VITAL)
- OTHER SYSTEMS AS SPECIFIED BY THE SUPERVISOR