

NAVSEA  
STANDARD ITEM

FY-14

ITEM NO: 009-107  
DATE: **17 JAN 2013**  
CATEGORY: II

1. SCOPE:

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

2. REFERENCES:

2.1 Standard Items

2.2 S9AAO-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, Piping Systems

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

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

2.7 MIL-STD-1622, 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 shall 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 shall be reasonably free of contamination and any remaining residue on the surface does not interfere with system operations or damage system components.

3.2 Accomplish local cleaning to areas where existing system cleanliness has been lost in a localized area (such as metal shavings deposited in a pipeline while removing a section for replacement). Restore cleanliness by locally swabbing, wiping, vacuuming, etc., the area to meet existing system cleanliness.

(V) "VERIFY CLEANLINESS"

3.2.1 Verify that existing system cleanliness was maintained.

3.3 Accomplish the requirements of 009-09 of 2.1 for cleaning, flushing, and acceptance criteria of compressed air systems in accordance with Section 551 of 2.2 and 2.7.

(I) (G) "VERIFY CLEANLINESS"

3.3.1 Verify cleanliness in accordance with acceptance standards.

3.4 Accomplish the requirements of 009-09 of 2.1 for cleaning, flushing, and acceptance criteria of oxygen, nitrogen, and helium systems in accordance with Section 552 of 2.2 and 2.5.

(I) (G) "VERIFY CLEANLINESS"

3.4.1 Verify cleanliness in accordance with acceptance standards.

3.5 Accomplish the requirements of 009-09 of 2.1 for cleaning, flushing, and acceptance criteria of hydraulic **systems** in accordance with Section 556 of 2.2 and 2.6.

(I) (G) "VERIFY CLEANLINESS"

3.5.1 Verify cleanliness in accordance with acceptance standards.

3.6 Accomplish the requirements of 009-09 of 2.1 for cleaning, flushing, and acceptance criteria of fuel oil systems in accordance with Section 541 of 2.2.

(I) (G) "VERIFY CLEANLINESS"

3.6.1 Verify cleanliness in accordance with acceptance standards.

3.7 Accomplish the requirements of 009-09 of 2.1 for cleaning, flushing, and acceptance criteria of steam systems in accordance with Section 253 of 2.2.

(I) (G) "VERIFY CLEANLINESS"

3.7.1 Verify cleanliness in accordance with acceptance standards.

3.8 Accomplish the requirements of 009-09 of 2.1 for cleaning, flushing, and acceptance criteria of condensate systems in accordance with Section 255 of 2.2.

(I) (G) "VERIFY CLEANLINESS"

3.8.1 Verify cleanliness in accordance with acceptance standards.

3.9 Accomplish the requirements of 009-09 of 2.1 for cleaning, flushing, and acceptance criteria of lube oil systems in accordance with Section 262 of 2.2.

(I) (G) "VERIFY CLEANLINESS"

3.9.1 Verify cleanliness in accordance with acceptance standards.

3.10 Accomplish the requirements of 009-09 of 2.1 for cleaning, flushing, and acceptance criteria of fresh and potable water systems in accordance with Section 532 of 2.2.

(I) (G) "VERIFY CLEANLINESS"

3.10.1 Verify cleanliness in accordance with acceptance standards.

3.11 Accomplish the requirements of 009-09 of 2.1 for each cleaning operation of refrigerant systems in accordance with the requirements of 2.8.

(I) (G) "VERIFY CLEANLINESS"

3.11.1 Verify cleanliness in accordance with acceptance standards.

3.12 Accomplish the requirements of 009-09 of 2.1 for cleaning, flushing, and acceptance criteria of HP/LP steam drains in accordance with Section 534 of 2.2.

(I) (G) "VERIFY CLEANLINESS"

3.12.1 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.**

**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 DESIGN AGENT**

**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 DESIGN AGENT***