NAVSEA
STANDARD ITEM

FY-27

ITEM NO: 009-008
DATE: 01 OCT 2024
CATEGORY: I

1. SCOPE:

1.1 Title: Shipboard Fire Protection and Fire Prevention; accomplish

2. REFERENCES:

2.1 29 CFR Part 1915, Occupational Safety and Health Standards for Shipyard Employment

2.2 National Fire Protection Association Codes and Standards 13, Standard for the Installation of Sprinkler Systems

2.3 Underwriter Laboratories Standard 199, Automatic Sprinklers for Fire-Protection Service

2.4 Underwriter Laboratories Standard 864, Control Units and Accessories for Fire Alarm Systems

2.5 Underwriter Laboratories Standard 268, Smoke Detectors for Fire Alarm Systems

2.6 EN-54-7 Part 7, Fire Detection and Fire Alarm Systems - Part 7 - Smoke Detectors

2.7 EN-54-2 Part 2, Fire Detection and Fire Alarm Systems - Part 2 - Control and Indicating Equipment

2.8 EN-54-5, Part 5, Fire Detection and Fire Alarm Systems - Part 5 - Heat Detectors

2.9 National Fire Protection Association Codes and Standards Standard 10, Standard for Portable Fire Extinguishers

2.10 NAVFAC Unified Facilities Criteria 4-150-02, Dockside Utilities for Ship Service

2.11 National Fire Protection Association Codes and Standards 25, Standard for the inspection, Testing, and Maintenance of Water-Based Fire Protection Systems

2.12 National Fire Protection Association Codes and Standards 1962, Standards for the Care, Use, Inspection, Service Testing, and Replacement of Fire Hose, Couplings, Nozzles, and Fire Hose Appliances

2.13 MIL-H-24580, Military Specification: Hose Assemblies, Synthetic Rubber, Noncollapsible, Firefighting

2.14 S9086-CN-STM-020, Navy Ships' Technical Manual, Chapter 079, Volume 2 Damage Control, Practical Damage Control

2.15 NAVFAC Drawing Number SD1405000

2.16 NAVFAC Unified Facilities Criteria UFC 4-152-01, Design: Piers and Wharves

2.17 ANSI Standard A10.11, Selection, Installation, Testing, and Use of Personnel Nets

2.18 46 CFR 164, Materials

2.19 National Fire Protection Association Codes and Standards 312, Standard for Fire Protection of Vessels During Construction, Conversion, Repair, and Lay-up

2.20 Resolution MSC.307(88), International Code for Application of Fire Test Procedures, 2010 (2010 FTP Code)

2.21 ASTM E814, Fire Tests of Penetration Firestop Systems

2.22 MIL-C-24576, Military Specification: Cloth, Silica Glass, Cloth, Coated, Glass, Silicone

2.23 ANSI/FM 4950, Evaluating Welding Pads, Welding Blankets and Welding Curtains for Hot Work Operations

2.24 CNIC M-3440.18, Navy Dispatch Center Management

2.25 NAVSEA OP-4, Ammunition and Explosives Safety Afloat

2.26 Association for Materials Protection and Performance (AMPP) Standards, Including Legacy NACE and SSPC Standards

2.27 S9086-WK-STM-020, Naval Ships Technical Manual Chapter 670, Volume 2, Afloat Hazardous Material Control and Management Guidelines Hazardous Material Users Guide

2.28 MIL-L-19140, Military Specification: Lumber and Plywood, Fire Retardant Treated National

2.29 National Fire Protection Association Codes and Standards 30, Flammable and Combustible Liquids Code

3. REQUIREMENTS:

3.1 Develop and implement a written Fire Safety Plan in accordance with 2.1. In addition to the requirements of 2.1, the plan must address, at a minimum the following elements;

3.1.1 Control of flammable, combustible and hazardous material.

3.1.2 Control of ignition sources.

3.1.3 Maintaining each unobstructed fire lane.

3.1.4 Maintaining unobstructed shipboard access and egress routes.

3.1.5 Maintaining unobstructed access to Damage Control equipment.

3.1.6 Submit one legible copy, in hard copy or approved transferrable media of the Fire Safety Plan to the SUPERVISOR no later than 10 days prior to commencement of work and whenever updated.

3.1.7 Train employees and subcontractors prior to working shipboard, annually thereafter, and when the plan is updated. Submit one legible copy, in hard copy or approved transferrable media of the training muster to the SUPERVISOR upon request. (See Note 4.1)

3.1.8 Execute the Fire Safety Plan when each exercise is coordinated by ship's force and the SUPERVISOR.

3.2 Plan and execute work when the ship's permanently installed lighting and power systems will be out of service for the minimum amount of time.

3.3 Notify the vessels Quarterdeck and the SUPERVISOR immediately by verbal means of each fire, which occurred, or is occurring on the vessel, dry dock, marine railway where a naval vessel is docked or a pier/berth where the vessel is moored. (See Note 4.2)

3.3.1 Secure and preserve the scene until released by the SUPERVISOR.

3.3.2 Submit one legible copy, in approved transferrable media, of a formal written report, Attachment A, of the incident to the SUPERVISOR within one day of each fire. Provide daily updates within one day upon request by the SUPERVISOR, until the final report is submitted. The written report must contain the date and time of incident, extent of each personnel injury or property damage, contractor/subcontractor name, Job Order/Work Item Number, type of fire, location of event (ship name and hull number, space, compartment), a brief description of the event including occurrences leading up to the incident, equipment involved,

Contract Number, witness and/or individuals involved, short term and long term corrective action, and root cause analysis must be in accordance with Attachment B.

3.4 Conduct a joint fire prevention and firefighting conference no later than 5 days after start of the availability for availabilities in excess of 60 days. This conference must familiarize Ship's Force with the contractor's fire safety plan and with the procedures that will be in use by the contractor and the region/installation or municipal fire and emergency services and familiarize all parties with the scope of work and aspects of the work or ship conditions that have significance in fire prevention and firefighting.

3.4.1 The conference must specifically address the following matters:

3.4.1.1 Fire alarm and response procedures.

3.4.1.2 Contractor, Ship's Force firefighting capability and procedures.

3.4.1.3 Region/installation or municipal fire and emergency services firefighting capability and procedures.

3.4.1.4 Firefighting jurisdictional cognizance and incident command procedures.

3.4.1.5 Communication system for fire reporting and control of firefighting efforts.

3.4.1.6 Shipboard arrangement including access routes, availability or firefighting systems (installed and temporary), fire zone boundaries, and communication systems.

3.4.1.7 Each shipboard firefighting organization, system, exercises/drills, and equipment to include rehabilitation procedure.

3.4.1.8 Ship, space, and equipment security consideration.

3.4.1.9 Compatibility of ship, contractor, and region/installation or municipal fire and emergency services firefighting equipment.

3.4.1.10 Industrial work scope, including location of ship, and effect on firefighting systems, access, and communications.

3.4.1.11 The roles, responsibilities, and membership of the Fire Safety Council (FSC). Include the requirement to obtain permission from the FSC to perform work that affects the fire safety posture (e.g., securing the fire main, securing the 1MC, undocking, transferring fuel/lube oil) of the ship.

3.4.1.12 Hot work procedures and monitoring of hot work sites and confined space practices.

3.4.2 Conduct a tour of the ship with region/installation or municipal fire and emergency services personnel, the SUPERVISOR, Ship's Force, and key contractor personnel assigned specific responsibilities during fires to familiarize personnel with the ship's normal access, ship arrangement, shipboard fire prevention, and firefighting systems, equipment, and organization and anticipated condition while industrial work is in progress.

3.5 Provide cognizant management representation to participate in reoccurring FSC meetings.

3.5.1 Cognizant management representation must be prepared to address fire safety, work, and energy control problems, and offer a reasonable solution to each problem, which may have impact on fire safety posture during the availability.

3.5.2 The representative(s) must be authorized to make each management decision relative to each routine fire safety decision of the FSC that, in good faith, commit the contractor.

3.6 Provide a shipboard temporary structure and laydown area plan. Plan will include all Repair Activity (RA) equipment. The Plan must include the following elements:

3.6.1 Location of each temporary structure, job/toolboxes, staging of compressed gas cylinders, and each laydown area.

3.6.2 RA responsible for each temporary structure, job/toolbox, and laydown area.

3.6.3 Contents (quantity and type of combustible and flammable material) to be stored in temporary structures, job/toolboxes, and laydown areas.

3.6.4 Submit one legible copy, in hard copy or approved transferrable media, of a Shipboard Temporary Structure and Laydown Area Plan 5 days prior to the on loading of shipboard temporary structures and laydown areas to the FSC via the SUPERVISOR for endorsement. (See Note 4.3 and 4.4)

3.6.5 Update the plan weekly and post a copy on each status board, quarterdeck, and damage control central.

3.7 Position each temporary structure and each laydown area such that a 6 feet wide unobstructed area is maintained on all sides. Temporary structures and laydown areas must not be located within 6 feet of bulkheads and deck edges.

3.7.1 Non-combustible walkways, scaffolding, and other non-combustible structures may be installed to provide access to each level of a structure within the 6 feet aisle of the ground level as long as a minimum 6 feet wide and 7 feet high area is maintained free and clear along the entire length, the first level of the structure must be accessible from both ends of the walkway, and the adjacent laydown area must not be a combustible or flammable material storage area.

3.8 Each temporary structure and laydown area must not interfere with personnel access or access to firefighting equipment.

3.9 Each temporary structure and laydown area must be sized and positioned such that all sides and interior areas of the structure are reachable by 2 of the vessel's installed fire hose stations or temporary hose stations.

3.10. Each temporary structure and combustible laydown area internal to the ship must be in areas with overhead sprinkling.

3.11. The footprint of a temporary structure or laydown area must be less than 50 feet in any direction and less than 625 square feet total, except:

3.11.1 Where total combustible material storage within a temporary structure exceeds 625 square feet, the stowage must be subdivided into footprint areas less than 625 square feet (not greater than 50 feet in any direction) separated by aisles of at least 6 feet in width with no combustibles stored within 24 inches of the temporary structure's overhead.

3.11.1.1 Where multiple combustible areas exist and it is necessary for combustibles to be stored within 24 inches of the structure's overhead, draft stops must be installed above the dividing aisles to prevent a rapid spread of the fire between the stowage areas via fire ceiling jets. (See Note 4.5)

3.11.1.2 Draft stops must be constructed of rigid noncombustible or flame-retardant material with a minimum depth of 18 inches below the overhead.

3.12 To prevent blockage of sprinkler system flow, non-combustible materials stored in each temporary structure and laydown area without closed overheads must not be stored within 24 inches of the overhead of the space.

3.13 Combustible materials stored in each laydown area and temporary structure without closed overheads must be stored no higher than 8 feet and not within 12 feet of the space overhead.

3.14 The total footprint of each enclosed temporary structure used for combustible materials and offices, located in a vessel's interior space must not exceed 50 percent of the total surface area of the space.

3.15 Storage of material aboard ship must be limited to that which is required for work in progress.

3.16 Storage of Hazardous Material is only permitted on large deck ships (LHA/LHD/CVNs) with the endorsement of the FSC via the SUPERVISOR.

3.17 Only class "A" type combustibles and non-combustibles are permitted to be stored within each closed overhead structure.

3.18 Temporary structure staging supports and bracing must be made of non-combustible materials.

3.19 Label temporary structure or laydown area with POC and emergency contact numbers.

3.20 Ensure immediate access is available to temporary structures by ship's force and other responders (e.g. unlocked, manned 24 hours, or keys/ codes are provided to SF).

3.21 Close each steel structure when left unattended.

3.22 Comply with Attachment C for each temporary structure used for offices, operating space, or combustible material storage.

3.22.1 When automatic sprinklers must be installed inside each temporary structure, comply with the requirements defined in 2.2 using equipment listed in 2.3.

3.22.1.1 Sprinkling density must be 0.1 gallons per minute per square foot minimum. Each sprinkler must be arranged in such a way that the entire temporary structure and all its contents are covered.

3.22.1.2 The sprinkler system must be a wet automatic type.

3.22.1.3 The sprinkler system must be continuously charged from shore or the vessel's fire main up to the sprinkler head.

3.22.1.4 A placard must be located at the sprinkler valve that provides instructions on operating the valve and identifies the sprinkler-protected area.

3.22.1.5 Water supply to the sprinklers must be fitted with freeze protection when necessary.

3.22.1.6 Actuation of the sprinkler system must sound an audible alarm outside the temporary structure.

3.22.2 When manual sprinklers must be installed inside each temporary structure, comply with the requirements defined in 2.2 using equipment listed in 2.3.

3.22.2.1 Sprinkling density must be 0.2 gallons per minute per square foot minimum. Sprinklers must be arranged in such a way that the entire temporary structure and all its contents are covered.

3.22.2.2 Sprinkling system must be comprised of open pendent, upright, or sidewall-type sprinklers installed per the manufacturer's instructions. Automatic sprinklers, with heat responsive and activating elements removed, may be substituted for open deluge-type sprinklers.

3.22.2.3 The system must be of a dry deluge-type that is manually operated by a quarter-turn sprinkler valve located outside and near the access to the structure.

3.22.2.4 The sprinkler system must be continuously charged from shore or the vessel's fire main up to the quarter-turn sprinkler valve.

3.22.2.5 A placard must be located at the normally open sprinkler valve that provides instructions on operating the valve and identifies the sprinkler-protected area.

3.22.2.6 Water supply to the sprinkling system must be fitted with freeze protection when necessary.

3.23 Comply with 2.4 and 2.5 or 2.6, 2.7, and 2.8 when a smoke detection system must be installed per Attachment C inside each temporary structure.

3.23.1 Install audible alarms inside and outside each temporary structure.

3.24 Install ABC-type dry chemical fire extinguisher(s) meeting the requirements of 2.9, with a 5 pound capacity in each temporary structure's interior near the access point when portable fire extinguishers are required per Attachment C.

3.24.1 Install portable 2 1/2 gallon (2A rating) stored-pressure water fire extinguisher(s), meeting the requirements of 2.9, on the exterior of the temporary structure within 10 feet of the access point when portable fire extinguishers are required per Attachment C.

3.24.2 Temporary structures may share a fire extinguisher if the structure is within 10 feet of each other.

3.25 Maintain a minimum of 7 inches of clearance between the vessel's deck and the structures decking or floor. Clearance must not be used for storage.

3.26 Stage dust collectors off the ship.

3.26.1 Submit each request for deviation to the FSC via the SUPERVISOR for adjudication. Deviation request must include a written risk mitigation plan.

3.27 Ensure access to temporary and Ship's Force firefighting equipment is not obstructed or restricted.

3.27.1 Ensure Ship's Force firefighting equipment is not relocated without endorsement from the FSC via the SUPERVISOR. Provide a secure, Ship's Force accessible temporary storage facility for firefighting equipment that is moved from its original location.

3.28 Plan and execute all work to minimize the use of temporary firefighting systems. When the scope of work allows, the ship's fire main system must provide the ship's firefighting capability.

3.28.1 If the ship's fire main system is unable to meet the requirements listed below, a temporary fire main system must be provided, or a shore firefighting supply must be connected to fulfill fire main system requirements.

3.28.2 Installed ship's fire main must maintain sufficient fire pumps to supply daily system cooling and flushing (i.e. auxiliary) loads plus the fire protection water supply requirements contained in Attachment D.

3.28.3 Installed available ship's fire pumps must be physically located in different spaces and each fire zone.

3.28.4 For ships requiring more than 3 operational pumps, these pumps will be separated and must be situated in at least 3 separate compartments in different fire zones.

3.28.5 Each fire main system repair or modification that reduces the coverage or damage control capability of the ship's fire main must be coordinated with jumpers, temporary manifolds and fire hose stations, or their combination, in affected areas to restore firefighting capabilities.

3.29 Use of temporary firefighting system must be endorsed by the FSC via the SUPERVISOR.

3.30 Establish, document, implement, and maintain a Temporary Fire Protection Plan when a temporary firefighting system is needed. The plan must include, at a minimum, the following elements:

3.30.1 Temporary firefighting and dewatering equipment inventory.

3.30.2 Identification of which hoses/pipes are charged/not charged.

3.30.3 Diagram of temporary fire main system, to include the following elements:

3.30.3.1 Diameter, length, and connection path of each distribution hose/pipe.

3.30.3.2 Location of each temporary hose station and each space protected.

3.30.3.3 Location of each temporary fire main manifold and each temporary hose station that is supplied.

3.30.3.4 Location of each connection to shore side water supply.

3.30.3.5 Coverage for all spaces where ship’s fire main is inoperative.

3.30.4 List of each affected space and the 2 temporary hose stations providing coverage.

3.30.5 Fuel plan to ensure continuous operation capability of each diesel driven pump.

3.31 Submit one legible copy, in hard copy or approved transferrable media, of the initial Shipboard Temporary Fire Protection Plan to the FSC via the SUPERVISOR for endorsement and posting no later than 10 days prior to placing any section of the ship’s fire main out of service.

3.31.1 Submit one legible copy, in hard copy or approved transferrable media, of an updated Shipboard Temporary Fire Protection Plan prior to any modification to the plan after initial endorsement.

3.32 Firefighting System General Requirements:

3.32.1 Provide 2 sources of reliable power, meeting the requirements of 2.10 to support each firefighting system.

3.32.1.1 When all fire pumps are electric, one source must be an automatic-starting emergency generator(s) with automatic bus transfer switches installed to align power.

3.32.1.2 Establish a fuel plan where diesel-driven pumps or generators are used to ensure continuous operational capability.

3.32.1.3 Protect each firefighting component (e.g., pumps, hose stations) from industrial work.

3.32.1.4 Paint each firefighting component red with a label identifying the component.

3.32.1.5 Each pump, pump engine, and controller must be listed for fire protection service i.e. UL-listed, Factory Mutual Labs (known as “FM-approved”), or alternatively nationally recognized testing laboratory approved by NAVSEA.

3.32.1.6 Electrical redundancy requirements of 3.32.1 must be met.

3.32.1.7 Provide redundant pumping capability such that the failure of any one pump does not result in loss of required pumping capacity. If a primary pump fails, a redundant pump must start automatically.

3.32.1.8 Each pump must maintain system-designed operating pressure by starting and stopping automatically.

3.32.1.9 Primary and initial redundancy Pumping equipment must include the minimum audible and visual alarms for remote monitoring of pump running, low and high pressure, power trouble (e.g., loss of power, phase reversal and loss of phase) for electric pumps or engine trouble for diesel pumps and control of switch manual.

3.32.2 Booster Pumps are authorized for a temporary firefighting system or shore fire main.

3.32.3 A jockey pump sized below the flow rate of an attack hose (95 gallons per minute), water pressure tank, or both may be installed to maintain system standby pressure to preclude fire pump or booster pump cycling.

3.32.4 Install precautions for each exposed temporary fire main component to prevent freezing when subject to ambient temperature below 40 degrees Fahrenheit (4.4 degrees Celsius).

3.33 Temporary Firefighting System:

3.33.1 The water supply to the temporary fire main must be capable of supplying the hose demands (as applicable) without the assistance of shore-based pumping equipment. This includes:

3.33.1.1 Supporting any dewatering demands required from each temporary system must be accounted for in system capacity.

3.33.1.2 Flow capability must support the simultaneous use of the four hydraulically most remote 1-3/4 inch hoses demonstrated by the test in para 3.41.7.

3.33.2 Each temporary fire main component (supply hose, pipe, valve, manifold, and hose station) connected to the ship's fire main system or temporary fire main system coming from the pier connection of the permanent system in the facility, the pier connection coming from a temporary fire pump, or the pier connection coming from the FDC must be designed for a minimum allowable working pressure of 175 pounds per square inch gauge unless the minimum allowable working pressure must be increased if system design requires a fire department apparatus supply pressure of more than 175 pounds per square inch gauge at the FDC. Components will be tested during the "POST-INSTALLATION HYDROSTATIC TEST" per 3.41.6.

3.33.2.1 The use of aluminum piping for fire main is prohibited.

3.33.2.2 Fire main is considered a critical system and must be annotated as such on the temporary service diagram. (See Note 4.6)

3.33.2.3 The initial responding shore-based fire department must be provided the opportunity to inspect the final installation and testing of temporary firefighting systems.

3.33.2.4 Each temporary fire main hose and piping must be labeled "TEMPORARY FIRE MAIN" at a minimum of every 25 feet.

3.33.2.5 Install isolation valves in each supply line. Surface ship temporary fire main must be configured in a loop with isolation valves in between each temporary fire main manifold and temporary hose station supply line.

3.33.2.6 Install calibrated pressure gauge at each FDC, pier connection, and topside temporary fire main manifolds. Ensure each gauge is accessible to validate pressure.

3.34 Temporary Fire Main Manifold:

3.34.1 Continuously charge fire main up to the temporary fire main manifold.

3.34.2 Each temporary fire main manifold must have 2, 2 1/2 inch outlets. Each outlet must have a 2-1/2 inch normally closed isolation valve (1/4 turn) and a removable 2 1/2 inch by 1 1/2 inch by 1-1/2 inch wye-gate.

3.34.2.1 Each isolation valve must be installed immediately prior to the wye-gate.

3.34.2.2 Each isolation valve and wye-gate must be installed 24 to 36 inches above an adjoining grade and remain unobstructed. In this case, the measurement is taken from grade to the center of the outlet. Install each wye-gate so each connected hose will be horizontal or angled downward to prevent kinking of the charged hose.

3.34.2.3 One wye-gate will be used for Ship's Force (SF) response using a temporary hose station.

3.34.2.4 The second wye-gate must be reserved for use by shore-based fire-department. For surface ships, one outlet on the second wye-gate may be utilized to facilitate freeze protection. Freeze protection must be capable of being disconnected with the provided spanner wrenches.

3.34.2.5 Provide 2 spanner wrenches for each size coupling at each temporary fire main manifold.

3.34.2.6 Post operating instructions next to each wye-gate. Instructions must note: "Open Valve to Pressurize Hose."

3.34.2.7 Temporary fire main manifold equipment threads must meet National Pipe Straight Hose (NPSH) requirements except for connections 2 1/2 inches or larger must meet National Hose (NH) requirements. Provide suitable thread adaptors when system threads are not compatible with local shore-based fire-department equipment.

3.35 Temporary Hose Station:

3.35.1 Connect each exterior temporary hose station (surface ship weather deck, flight deck, well deck, vehicle deck, and hangar bay) to the 1 1/2 inch wye-gate on the adjacent temporary fire main manifold.

3.35.1.1 Each temporary hose station must consist of a hose rack containing 2 faked attack hoses. Each attack hose must consist of 100 feet of hose (1 3/4 inch with each 1 1/2 inch connection, 2, 50 feet individual length) and one and 1 1/2 inch combination straight stream

and spray pattern nozzle, conforming to MIL-N-24408, rated for 125 gallons per minute at 100 pounds per square inch.

3.35.1.2 Provide sufficient temporary exterior hose stations to reach all parts of the vessel with 2 hoses from 2 each separate temporary hose stations without allowance for stream reach. This includes the interior of each temporary structure.

3.35.2 Connect each interior temporary hose station (e.g. surface ships gallery deck, DC deck, and other locations identified by the temporary fire protection system plan endorsed by the FSC via the SUPERVISOR) by an interior temporary fire main manifold meeting the requirement of para 3.34.2 with the exception that it can be supplied by a minimum 3 inch hose with 2 1/2 inch couplings.

3.35.2.1 Each temporary hose station must consist of a hose rack containing 2 faked attack hoses. Each attack hose must consist of 100 feet of hose (1 3/4 inch with 1 1/2 inch connection, 2 each 50 feet individual length) and one and 1 1/2 inch combination straight stream and spray pattern nozzle, conforming to MIL-N-24408, rated for 125 gallons per minute at 100 pounds per square inch.

3.35.2.2 Provide sufficient interior temporary hose stations to reach all parts of the vessel with 2 hoses from 2 separate interior temporary hose stations without allowance for stream reach. This includes the interior of each temporary structure and opened tank and void.

3.35.2.3 Locate each interior temporary hose station on any sponson or superstructure level or below deck platform that cannot be reached by a main deck, gallery deck, or DC deck temporary hose station with 100 feet of hose, without allowance for stream reach.

3.35.2.4 Each interior temporary hose station located in unmanned space(s), in which an unmonitored hose rupture would affect stability, may be supplied by a normally unpressurized supply line, minimum 2 1/2 inch hose connected to the temporary fire main, near the closest charged hose manifold, with a normally closed isolation valve (1/4 turn). Place a placard at the interior temporary hose station which includes operating instructions and identifies the deck, frame, and compartment number of the fire main isolation valve. Place a placard at the fire main isolation valve identifying the location (e.g., deck, frame, compartment number) of the interior temporary hose station it serves.

3.35.2.5 Avoid locating an interior temporary hose station within a space with significant amounts of unprotected installed electronic components where possible. Where such cannot be avoided, a normally closed isolation valve may be installed, but must be positioned immediately outside the affected space. Place a placard at the interior temporary hose station which includes operating instructions and identifies the deck, frame, and compartment number of the fire main isolation valve. Place a placard at the fire main isolation valve identifying the location (e.g., deck, frame, compartment number) of the interior temporary hose station it serves.

3.35.2.6 The supply hose (i.e. supply line) to the hose station may be normally unpressurized with an isolation valve (1/4 turn) at the connection to the fire main.

3.35.2.7 The fire main isolation valve must be positioned immediately outside the affected space.

3.35.3 Each Temporary and Permanent hose subject to damage (e.g. painting, hydro/sand blasting, and hot work) must be protected by an enclosure or covering. The enclosure or covering must be fire retardant, red in color, and must not significantly restrict access to the hose or hose reel for firefighting. The use of hook and loop fasteners and doors are acceptable. (See Note 4.7)

3.36 Dry Dock Firefighting Requirements:

3.36.1 Install a firefighting system in each dry dock, floating dry dock, graving dock, marine railway, or vertical lift. These systems are used when responding to exterior hull fires consisting of combustible hull materials or treatments, industrial fires within 35 feet of the vessel, or for hull cooling during interior fires.

3.36.2 Position each hose station no more than 200 feet apart along the dry dock floor (or next to the marine railway and vertical lift).

3.36.3 Position each hose station to ensure all portions of the hull or each structure can be reached by straight streams of water from 2 100 feet hoses from 2 different dry dock hose stations. Positioning must account for staging, structure, and industrial process.

3.36.4 Position each hose station to ensure response personnel do not have to pass under the vessel during the casualty.

3.36.5 Each hose station must include:

3.36.5.1 A minimum 2 1⁄2 inch supply to each dry dock hose station;

3.36.5.2 One 2 1⁄2 inch outlet (NH thread) for Fire and Emergency Services (F&ES) connection;

3.36.5.3 One 1 1⁄2 inch hose outlet (NH thread) with quick-acting manual valve (fireplug);

3.36.5.4 A pre-connected 100 feet attack hose consisting of 100 feet of hose (1 3/4 inch with each 1 1/2 inch connection, 2, 50 feet individual length) and one and 1 1/2 inch combination straight stream and spray pattern nozzle, conforming to MIL-N-24408, rated for 125 gallons per minute at 100 pounds per square inch. Provide 2 spanner wrenches for each size coupling at each temporary fire main manifold.

3.36.5.5 A red, fire retardant enclosure or covering that does not significantly restrict access to the hose or hose station with a label “Firefighting Hose Station”. The use of hook and loop fasteners and doors are acceptable.

3.36.5.6 Spare hose (minimum one hose of the longest length installed) and 2 spanner wrenches for each size coupling at each hose station.

3.36.6 Provide a constantly available shipyard water source capable of supporting a minimum of 2 flowing hose stations, each with a minimum 95 gallons per minute flow rate at a 60-pounds per square inch gauge (dynamic) at each nozzle at their highest elevation.

3.36.7 Each vessel constructed of combustible hull material (e.g., composites, wood) or are subject to melting (e.g., aluminum), or that are fitted with a combustible external hull or structure treatment (e.g., special hull treatment, radar absorbent material, or passive countermeasure system) must have additional hose stations installed on the dry dock wing wall, coping wall, or other raised platform. In this case, there must be a maximum of 200 feet spacing between stations. Each hose station on the dry-dock floor must be located away from the hull material or special hull treatment.

3.36.7.1 Each floating dry dock containing each vessel constructed of combustible materials (fitted with combustible external hull treatment) or subject to melting must have sufficient hose coverage to ensure that all areas of the pontoon deck and top deck of the wing wall can be reached with 100 feet of hose and a maximum 20 feet fog stream.

3.37 Sprinkling Systems:

3.37.1 Each sprinkling system that protects each space from class “B” fire hazards must remain operational while any type of fuel is present. Flight deck AFFF sprinkling may be secured.

3.37.1.1 Each overhead sprinkler zone may be secured for maintenance as long as each adjacent zone remains operational, flammables and combustibles are minimized in the affected zone, and the required manual firefighting equipment is available and unimpaired. Sprinkling zone is considered secured when 20 percent or more of the sprinkler heads in a zone are blocked by staging or structure coverings or are non-operational for any other reason.

3.38 Provide information on the operation and use of the Temporary Fire main and the Shipboard Temporary Fire Protection Plan at least one day prior to securing ship’s fire main and no later than one day prior to entering dry dock, graving dock, or marine railway.

3.39 The ship’s dewatering capabilities/ equipment must be maintained in an operational condition during the availability. Submit a mitigation plan endorsed by the FSC via the SUPERVISOR prior to start of work that would impair or remove the ship’s dewatering capabilities/ equipment. Provide dewatering equipment to include enough pumps capable of

providing 100 gallons per minute minimum each and a total dewatering capability equal to at least one-half of the supply gallons per minute specified in Attachment D.

3.40 Conduct an orientation brief to Ship's Force no later than 5 days of the availability start to include the following:

3.40.1 Procedures to rapidly secure temporary systems (e.g., air, electrical power, and ventilation) under Ship's Force control.

3.40.1.1 Train Ship's Force personnel on the procedures to operate temporary firefighting systems and equipment, if installed. Provide written operating procedures/instructions to Ship's Force on each type of firefighting system and equipment.

3.41 Firefighting System (inspections and testing):

(I)(G) "PERIODIC SHORE SIDE WATER SUPPLY VALIDATION"

3.41.1 Conduct validation of the shore-side water supply with a flow and pressure test prior to taking down the ship's permanent firefighting system and annually thereafter, after any shore-side water supply system modification or impairment that could adversely affect the vessel, and each time the vessel shifts berths.

3.41.2 Measure and record flow and residual pressure at each most hydraulically remote shore-side fire main outlet that is supplying the ship using a calibrated in-line flow meter and calibrated pressure gauge.

3.41.2.1 Accept/Reject Criteria: Minimum water supply specified in Attachment D, plus flushing and cooling loads is available at the shore side fire main supply outlet(s) and with a minimum of 150 pounds per square inch (175 pounds per square inch for CVN) residual pressure at each flowing outlet.

3.41.2.2 Where the ship's fire main and fireplugs are operational and supplied by the ship's shore connections, proper system alignment must be verified. Discharge water from at least one fire hose after connection.

3.41.2.3 Where the ship's fire main and fireplugs are operational and supplied by the ship's shore connections, conduct a simultaneous discharge test using 4 hoses from the 2 hydraulically most remote fireplugs with 95 gallons per minute nozzles. Each nozzle must provide a minimum of 70 gallons per minute, with 60-pounds per square inch gauge residual measured at the nozzle. (See Note 4.8)

3.41.2.4 Accomplish a retest if the system was modified after initial test.

3.41.3 Inspect and maintain each facility firefighting system per 2.11.

3.41.3.1 A visual inspection of all equipment, plus a flow test per the requirements defined in para 3.41.7 must be conducted no more than 30 days prior to the start to the availability.

3.41.4 Initial response shore-based fire department personnel must be informed of and offered the opportunity to witness all system and component inspections and tests.

3.41.5 Inspect each hose, wye-gate, and nozzle immediately prior to system installation in accordance with 2.11 and 2.12.

3.41.5.1 Remove equipment from service not meeting requirements of 2.11, 2.12 and para 3.42.5.

(I)(G) "POST-INSTALLATION VISUAL INSPECTION"

3.41.6 Inspect temporary firefighting system after installation to ensure the minimum requirements detailed in 2.11, 2.12, and 2.13 are complete.

3.41.6.1 Inspect each hose marking and test records meeting the requirements per 2.12 and 2.13.

3.41.6.2 Inspect all hose couplings for tightness.

(I)(G) "POST-INSTALLATION HYDROSTATIC TEST"

3.41.7 Hydrostatically test the temporary firefighting system at not less than 200 pounds per square inch gauge for surface ships and 225 pounds per square inch gauge for CVNs for a period of 2 hours prior to taking down ship's fire main.

3.41.7.1 Ensure all system supply valves are open, including all drop-line supply valves (if present). Temporary fire main manifold plug valves serving collapsible hose and isolation valves at internal hose reels may remain closed.

3.41.7.2 Hydrostatic test pressure will be measured at the system's lowest elevation point.

3.41.7.3 For each temporary dry-dock firefighting system, the hydrostatic test must be conducted at the system's normal operating pressure.

3.41.7.4 leakage, none.

3.41.7.5 Accomplish a retest if the system was modified after the initial test.

(I)(G) “POST-INSTALLATION FLOW TEST”

3.41.8 Discharge firefighting water from the hydraulically most remote shipboard temporary hose stations or supply line hoses that share the same distribution hose from the pier prior to taking down ship’s fire main.

3.41.8.1 If booster pumps are used, only the primary pump must be on-line for the test. Booster pump (if utilized) must automatically start.

3.41.8.2 Flow test must include simultaneous use of four 1 3/4 inch hoses.

3.41.8.3 Discharge firefighting water from each hose simultaneously for 60 seconds prior to the start of measurement to obtain steady state flow condition.

3.41.8.4 When a steady state flow condition exists, discharge firefighting water for a minimum of 60 seconds. Residual pressure and flowrate at each 1 3/4 inch nozzle must be a minimum of 60 pounds per square inch gauge and 95 gallons per minute during the test.

3.41.8.5 Measure and record flowrate and residual nozzle pressure at each nozzle using an in-line flow meter and calibrated nozzle pressure gauge. The elevation of each nozzle tested must be equal to or greater than the highest elevation compartment served by that hose. When a nozzle cannot be tested at the same or higher elevation as the highest compartment served by that hose, an additional 4 1/2 pounds per square inch gauge and 3 gallons per minute must be added to the residual nozzle pressure and flow acceptance criteria per 10 feet drop in elevation measured from the temporary hose station.

3.41.8.6 Utilize a hose valve at the pier outlet while performing the discharge test to throttle the outlet. This action is taken so that the residual pressure (measured downstream of the throttling valve) while flowing 4 hoses is no more than the residual pressure recorded during the test defined in paragraph 3.41.1

3.41.8.7 Measure and record the residual pressure at the shore-side supply outlet providing the water to the temporary hose stations that are being tested. This action must occur simultaneously while discharging the 4 nozzles being tested.

3.41.8.8 If booster pumps are used, repeat the test using the redundant pump and the same temporary hose stations from the first test.

3.41.8.9 Accomplish a retest if the system was modified after initial test.

3.42 Periodic Inspections, Maintenance, and Testing:

(V) “OPERATIONAL TEST”

3.42.1 Conduct a weekly operational test of the fire pumps and booster pumps to verify proper pump operation.

3.42.2 Inspect each protective cover (e.g., temporary hose stations) weekly for integrity.

3.42.3 Inspect each hose in use for damage and deterioration monthly.

3.42.3.1 Conduct an exterior visual inspection to determine each hose and coupling has not been vandalized, are free of debris, and show no evidence of mildew, rot, or damage by chemicals, burns, cuts, solar exposure, abrasion, or vermin.

3.42.3.2 Conduct a visual inspection for any marks on the hose at the back of each coupling and at each external collar. Look for evidence of coupling slippage.

3.42.4 Conduct a quarterly inspection of each hose nozzle, wye-gate, and hose valve in accordance with 2.12.

3.42.4.1 Conduct each inspection step that can be done without disconnection of the nozzle, wye-gate or hose valve.

(V) "HYDROSTATIC TEST"

3.42.5 Conduct an annual hydrostatic test of each temporary hose station collapsible hose to attack hose in accordance with the service testing procedures of 2.12.

3.42.5.1 Stencil each hose within one foot of each end with the date of annual hydrostatic test.

3.42.5.2 Drain and dry each hose not immediately placed in service after testing.

3.42.5.3 Maintain each hose placed in storage out of direct sunlight and in a well-ventilated location.

3.42.5.4 Protect each hose from abrasion or damage when in storage.

3.42.6 Conduct an annual inspection of each hose nozzle, wye-gate, and hose valve in accordance with 2.11 and 2.12.

3.42.6.1 Cycle each valve from full closed to full open to full close 4 times. Allowable sticking and binding: None.

3.42.7 Perform the flow rate tests when modification alters the system configuration to extend the distance to the hydraulically most remote temporary hose station and when the shore water supply is modified or impaired (e.g., flow or pressure at any pier outlet is reduced).

(I)(G) "OPERATIONAL TEST"

3.42.8 Conduct a monthly operational test of the second source (back-up) of reliable power required per 3.32.1.

(I)(G) "OPERATIONAL TEST"

3.42.9 Conduct a quarterly demonstration of the transfer from primary to secondary (back up) power source. Secondary power source must demonstrate its ability to maintain each firefighting system it is supporting.

3.43 Access and Egress:

3.43.1 Designate each access egress route with concurrence from the FSC via SUPERVISOR. Designate and mark each route prior to start of production work.

3.43.1.1 Label each access and egress route leading to each exit and gangway/ brow with signage to identify exit path in accordance with 2.14.

3.43.2 Ensure each access and egress route is maintained to permit rapid evacuation of the vessel and emergency response access to the vessel.

3.43.2.1 Obstructing or securing an access and egress route must be endorsed by the FSC via the SUPERVISOR.

3.43.3 Maintain at least one completely unobstructed access (i.e. no lines or leads) to each machinery space that has three or fewer accesses. Indicate each unobstructed access by installing a sign adjacent to each designated access entrance that reads "Routing of temporary services prohibited" in 1 inch high red-letter font on a white background.

3.43.4 Maintain at least two completely unobstructed accesses (i.e. no lines or leads) to each machinery space that has four or more accesses. Indicate each unobstructed access by installing a sign adjacent to each designated access entrance that reads "Routing of temporary services prohibited" in 1 inch high red-letter font on a white background.

3.43.5 Maintain an unobstructed 20 feet wide fire lane in the center of the hangar bay, vehicle deck, and well deck on large deck ships.

3.43.5.1 Submit one legible copy, in hard copy or approved transferrable media of each completed request for deviation to the FSC via the SUPERVISOR for adjudication. Each deviation request must include a written risk mitigation plan.

3.43.6 Provide one gangway/brow for surface ships located at the ship's quarterdeck. Provide one additional gangway/brow for surface ships less than 700 feet in length. Provide two additional gangways/brows for Surface Ships 700 feet or over in length. Each

gangway/brow must be located in a separate fire zone unless an alternate arrangement is endorsed by the FSC via the SUPERVISOR.

3.43.6.1 Design and install each gangway/brow and landing in accordance with 2.15 and 2.16.

3.43.6.2 Pallets must not be used as steps or deck protection.

3.43.6.3 Each step-up and step-off area must have a maximum 7 inch rise over 12 inch run (up to 12 inch rise is authorized if it remains uniform throughout the entire step-up or step-off area).

3.43.6.4 Illuminate each gangway/brow to a minimum of 5 foot-candles (5 lumens) for the entire crossing length and each adjacent landing area.

3.43.6.5 Ensure handrails are maintained with a smooth surface to protect employees from injury, such as punctures or lacerations, and to prevent catching or snagging of clothing.

3.43.6.6 Each gangway/brow must have guardrails at least 42 inches in vertical height.

3.43.6.7 Install each gangway/brow for access in dry dock, graving dock, marine railway, and on blocks with guardrails at least 42 inches in vertical height, metallic meshing or similar material with small openings approximately 2 1/2 inches and have personnel safety nets under each gangway/brow in accordance with 2.17. Each personnel safety net must extend 6 feet beyond each side of the brow.

3.43.6.8 Install security door on each designated emergency gangway/brow that opens without the use of tools, keys, or force and opens outward from the ship to the pier.

3.43.6.9 Unobstructed access to each gangway/brow and egress path must be maintained to allow for clear passage. Each personnel access gangway/brow must not be obstructed with temporary systems.

3.43.6.10 Notify the FSC via the SUPERVISOR for concurrence when each gangway/brow designated for personnel access/egress must be secured or obstructed.

3.44 Provide one each clearly readable status board at the shore side access to each gangway/brow within two days of services being routed on the ship. Status board must be constructed to protect information/documents from weather conditions (e.g. rain, snow, wind).

3.44.1 Include the following information/documents in the status board(s):

3.44.1.1 The status of access/egress openings and must be updated as conditions change.

3.44.1.2 Space layouts and terminology in the format of a damage control diagram for the ship.

3.44.1.3 Areas where access may be limited due to routing of temporary services, work in progress and/or secured access and egress routes.

3.44.1.4 Shipboard Temporary structure and laydown area plan.

3.44.1.5 Temporary service isolation list and diagram.

3.44.2 Ensure status board dimensions can accommodate the Ship Plan of the Day (SPOD), 8.5 inches by 11 inches and Fire Response Plan (FRP), 8.5 inches by 11 inches.

3.45 Temporary access cuts may be made in Fire Zone Boundaries (FZB) provided they are equipped with fume tight closure that complies with para 3.48.9.1, 3.48.9.2, or 3.48.9.3 when installed. Boundary degradation must be endorsed by the FSC via the SUPERVISOR.

3.45.1 Submit one legible copy, in approved transferrable media, of a record of boundary openings and their locations to the SUPERVISOR and one additional copy to the ship's Commanding Officer designated representative. Resubmit boundary opening information when any changes, additions, or deletions of boundary openings occur.

3.46 Management of Temporary services:

3.46.1 Route temporary services exterior to the vessel to maintain unobstructed passageways.

3.46.2 Temporary services must be suspended using non-combustible high temperature devices, brackets, or material that meets test requirements of 2.18. Plastic tie wraps, string, rope, or other combustible material must not be used.

3.46.3 Install anti-chafing material around services when using wire rope or other abrasive material and in particular areas (e.g. hatches, high traffic areas, wire, vicinity of sharp objects) where there is a risk of damage.

3.46.4 Positively identified each temporary service with durable unique markings that include RA name, service type, location, and shore side shut-off points. Locate each tag (at a minimum) at the source, at the entrance to the ship's structure), at each connection point (including quick disconnect fittings), and each termination point. Designate each vital service as directed by the FSC via the SUPERVISOR.

3.46.5 Route each temporary service (e.g. hoses, electrical lines, welding leads, and temporary lights) clear of decks and other walking working surfaces utilizing temporary support trees or ship's structural members, such as beams, braces, and welded brackets. Temporary service ramps are authorized on weather decks.

3.46.6 Temporary service lines must be routed to allow emergency access and egress to all areas of the ship and must not impede damage control and watchstander performance of duties.

3.46.7 Suspend each temporary service at intervals not to exceed 10 feet.

3.46.8 When necessary, route temporary services interior of the vessel through each:

3.46.8.1 Doorway within the topmost area of the opening so that the unobstructed opening of each doorway with services run must be at least 50 inches high and 26 inches wide.

3.46.8.2 Vertical ladder so that a 500 square inch area of horizontal open space is maintained for the length of the ladder and must not be routed within 4 inches of each vertical ladder. Services must not be routed behind the ladder.

3.46.8.3 Incline ladder (stairwell) so that they are on one side of the stairwell to maintain one unobstructed handrail for the entire length of the incline ladder and maintain an opening that is 26 inches wide for the entire height of the incline ladder.

3.46.8.4 Securing each vertical ladder, door or hatch to facilitate minimizing services in other passageways must be endorsed by the FSC via the SUPERVISOR.

3.46.9 Remove temporary services from the ship when no longer in use.

3.46.10 Provide a representative (Temporary Service Coordinator), whose only function is to coordinate and be responsible for the management of all temporary services, including services provided by other RAs.

3.46.11 Submit one legible copy, in hard copy or approved transferrable media, of a Temporary Service Isolation List (TSIL) and consolidated drawing in the format of a damage control diagram, depicting all services entering the ship to the SUPERVISOR within two days of services being routed onboard the ship.

3.46.11.1 Submit one legible copy, in approved transferrable media of the TSIL and drawing to the SUPERVISOR, conspicuously post at the quarterdeck, damage control central, and on each status board. The TSIL and drawing must include the issue date clearly legible on each page. The TSIL and drawing must be updated weekly, or immediately to reflect significant changes. Each temporary service type on the drawing must be in the same color and have a unique symbol (i.e. red with a square for electrical, yellow with triangles for air) with a legend categorizing each color and symbol.

3.46.12 At a minimum, the TSIL and drawing must include:

3.46.12.1 Type and description of service.

3.46.12.2 Each shore side shut-off point.

3.46.12.3 Route of service through the ship.

3.46.12.4 Location of each quick disconnect fitting.

3.46.12.5 Identification of each critical temporary service and any cautions for each critical service. Temporary fire main is considered a critical system.

3.46.12.6 Status of each temporary access opening, hull opening, access cut and identification and location of closure materials.

3.46.12.7 Each de-watering capability.

3.46.12.8 Each designated fire zone boundary.

3.46.12.9 Each critical temporary service and each shore side shut-off point must be highlighted.

3.46.12.10 Each designated access egress route.

3.46.13 Evaluate temporary services at a minimum during the daily safety, fire prevention, and housekeeping inspection, made jointly with the SUPERVISOR and Ship's Force. Discrepancies must be promptly corrected.

3.46.14 Maintain the ship's permanent and emergency lighting systems unless work requires either system to be secured.

3.46.14.1 Notify the FSC via the SUPERVISOR prior to the securing of any portion of the ship's permanent or emergency lighting system for endorsement.

3.46.14.2 Install temporary lighting that meets the requirements of 2.1 with a minimum of 5 lumens when either the ship's permanent or emergency lighting system cannot be maintained or does not provide 5 lumens.

3.46.14.3 Provide an independent source of power for each temporary lighting system installed.

3.46.15 Crimping or pinching of each fuel gas/ oxygen/ compressed gas hose, air hose, or hose carrying hazardous/ toxic/ flammable materials is prohibited. Each hose must be disconnected at the manufacturer's fitting. Prior to disconnecting each hose from the equipment/tool, pressure must be released by disconnecting the hose from the source, e.g., manifold or gas cylinder.

3.46.16 "Screw type" hose clamps are prohibited on any pressurized hose (e.g., compressed gas and air hose).

3.46.17 Unattended inert gas/oxygen depleting (OD), fuel gas and oxygen hose lines or torches are prohibited in confined spaces.

3.46.17.1 Disconnect each inert gas/oxygen depleting (OD), fuel gas and oxygen hose line at the supply manifold at the end of each shift.

3.46.17.2 Unattended, charged hose lines or torches are prohibited in enclosed spaces for more than 15 minutes.

3.46.17.3 Roll back each disconnected inert gas/ oxygen depleting (OD), fuel gas and oxygen hose line to the supply manifold or to open air to disconnect the torch; or each extended fuel gas and oxygen hose line must not be reconnected at the supply manifold unless the line was given a positive means of identification when it was first connected and the line was tested using a pressure drop test to ensure the integrity of fuel gas and oxygen burning system. Alternate procedures must be endorsed by the FSC via the SUPERVISOR.

3.46.17.4 Accomplish a pressure drop test upon completion of system hook-up to include each torch, hose, and gauge.

3.46.17.5 Apply pressure to the system. Back off pressure by turning off the valve supplying each gas to the system. If the pressure on the gauge drops, a leak in the system exists. If the pressure on the gauge does not drop, the system is tight.

3.46.17.6 Wait 2 minutes after applying pressure to ensure pressure does not drop.

3.46.17.7 The use of gas hose splitters is prohibited.

3.46.18 Locate oxygen, acetylene, fuel gas, toxic, refrigerant, air conditioning gases, oxygen depleting (OD) gas supply systems off the ship. Manifolds connected to pier side 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 pier side shutoff valve must be in addition to the shutoff valve at the inlet to each portable outlet header required by 2.19.

3.46.18.1 Store each oxygen, acetylene, fuel gas, toxic, and OD gas supply system to prevent collisions by trucks, forklifts, falling objects, etc.

3.46.18.2 Stage each liquid oxygen (LOX) tank in designated locations on the quay wall/pier as determined by the FSC via the SUPERVISOR.

3.46.18.3 Locate each compressed gas cylinder and manifold in use on board ship on the weather decks or in a location endorsed by the FSC via the SUPERVISOR. Secure each compressed gas cylinder in cylinder racks and in an upright position. The number of in-use cylinders must be limited to those which are required for work in progress, and which have pressure regulators connected to the cylinder valves. Each on-board reserve gas cylinder must not exceed one-half the number of in-use cylinders and must be located in a remote area of the weather deck or in a location endorsed by the FSC via the SUPERVISOR.

3.46.18.4 Close each valve, disconnect each hose line, install protective cover (cap), and secure each gas cylinder and manifold on board when not in use.

3.47 Temporary Access Openings:

3.47.1 Install quick disconnect fittings (QDF) within 10 feet of each temporary access opening used for personnel access. Where it is necessary to support a service between a QDF and the designated boundary or hull penetration, the type of support must not prevent rapid clearing of services from the opening. (See Note 4.9)

3.47.1.1 Install self-sealing QDFs for each hose containing hazardous, flammable, or combustible gases or liquids (e.g., oily water, gas, oxygen). (See Note 4.10)

3.47.2 Obtain endorsement of the FSC via the SUPERVISOR prior to creating each temporary access opening. (See Note 4.11 and 4.12)

3.47.3 Stage fire retardant material adjacent to the ship to provide for temporary closure of each access cut, hatch, and other temporary access opening penetrations created by

contractor work (e.g., each access cut and open hatch due to running of each temporary service).

3.47.4 Install a temporary self-closing closure system for each temporary access opening made for personnel access.

3.47.5 Secure each hull opening created from industrial work (e.g., valve openings, propulsion shafts) with a closure that complies with para 3.48.9.1, 3.48.9.2, or 3.48.9.3. Closure must be in place when the opening is unattended.

3.47.6 For temporary access openings used for services only, a QDF is not required, provided the opening is fitted with a temporary closure that complies with para 3.48.9.1, 3.48.9.2, or 3.48.9.3 and remains in place around the services.

3.47.7 Construct temporary enclosures erected around each temporary access opening with openings and removable covers to accommodate standard smoke control ventilation fans (e.g., damage control box fans). If the enclosure is constructed with ventilation fans installed, the fans must be equipped with reverse air flow capability.

3.48 Management of Fire Zone Boundaries (FZB):

3.48.1 Designate each FZB as defined in the respective vessel class general arrangement drawing and the book of general plans prior to start of production work. This includes each vertical rolling door and each operable ramp that segregate each vehicle deck, each well deck, and hangar bay on each Amphibious Assault Ship. Designated FZBs must be endorsed by FSC via the SUPERVISOR.

3.48.2 Establish each FZB endorsed by FSC via the SUPERVISOR prior to start of production work for each surface ship that does not have FZBs by design or are not reflected on vessel class drawings.

3.48.3 Fire zone boundaries must be continuous through the vertical extent of the ship, from the keel up to the highest weather deck, excluding the superstructure.

3.48.4 Identify each FZB opening used for passage with a sign that reads “FIRE ZONE BOUNDARY” in 1 inch high red-letter font, on a white background with an international orange border.

3.48.5 Identify each FZB service opening (i.e. opening not designated for personnel transit) with a sign that reads “FIRE ZONE BOUNDARY” in 1 inch high red-letter font on a white background with an international orange border.

3.48.6 Post each sign so that they are easily visible (not blocked by a door/hatch) on each side of an opening that passes through each FZB.

3.48.7 Maintain the integrity of each FZB. Minimize each intrusion through each designed FZB. This includes maintaining the capability of fire insulation where installed, each fire-rated penetration such as a multi-cable transit (MCT) and each pipe penetration, fume-tightness of the boundary, etc.

3.48.8 Degradation (e.g. access cut or removal of permanent FZB closure) of each FZB and CVN hanger bay division door must be endorsed by the FSC via the SUPERVISOR prior to impairment.

3.48.9 Stage a temporary boundary closure with a high temperature-resistant fastening system when a vessel's permanent FZB closure is removed or impaired so it can be sealed quickly by personnel leaving the space or rapidly deployed by watch standers.

3.48.9.1 Construct each temporary FZB closure from the following material;

3.48.9.2 Steel with equivalent fire resistance rating as the FZB bulkhead or deck insulation (when present). Steel backing must be adequate thickness to support the closure and facilitate a fume tight connection to the bulkhead or deck. Install a high temperature resistant fastening system (no magnets or aluminum) to install the temporary steel closure. Means must be readily available to install closure plates. Or;

3.48.9.3 Firestop closure and associated fastening system (if applicable) must meet an "A-60" classification when tested in accordance with 2.20 or "T-rating: 1 hour" classification when tested in accordance with 2.21. Hose stream tests and hose stream performance criteria are not required. Each firestop closure must be installed per manufacturer installation requirements. Or;

3.48.9.4 Non-Combustible Fire Barrier Closure. Non-combustible fire barrier closures must be compliant with type-I, class-1 closures in accordance with 2.21 or meet performance requirements of welding pads when tested in accordance with 2.21 and 2.23. Install a high temperature resistant fastening system (no magnets or aluminum) to mount the temporary non-combustible fire barrier closure. The non-combustible fire barrier closure must be able to be sealed to the hull or bulkhead.

3.48.10 Each temporary service line/ hose must not be run through each FZB unless a quick disconnect is installed in each temporary service line/ hose within 10 feet of the opening, door, or closure. Each QDF must be marked with international orange tape and be positively identified with durable unique markings that include the maintenance activity name, service type, location, and each shore side shut-off location. Route each temporary service so that each FZB is able to be secured within 3 minutes. Routing of each critical temporary service, fuel gas/oxygen/compressed gas line/ hose, steam line/ hose, line/ hose pressurized above 140 pounds per square inch, temporary general announcing/alarm system wiring, temporary heat and smoke sensor system wiring, temporary drain and dispose line/ hose, and line/ hose carrying hazardous substances and flammable liquids (as defined in Subpart P of 2.1) is prohibited through each FZB. The number of temporary services or their size must not restrict free and easy access or closure of each FZB door or closure.

3.48.10.1 Ensure each temporary service suspended within 10 feet of each FZB are not run through the vessel's structural elements (cableway, light stanchion) to ensure emergency responder's ability to readily clear an opening (i.e. no tools or ladders required) to isolate during each casualty.

3.48.10.2 Request for deviation must be in writing to the FSC via the SUPERVISOR and must include the following; rational for deviation, location(s) and

duration of each deviation, description of services that will violate each FZB, hazards associated with services, and a hazard mitigation plan.

3.48.11 Provide a hands on demonstration and turn over physical training aids for the duration of the availability to ship's force for each version of QDF used by each RA in coordination with the fire prevention and firefighting conference.

3.48.12 Demonstrate that all service lines are able to be pulled back within 3 minutes in coordination with each SUPERVISOR scheduled Validation Exercise. The FSC via the SUPERVISOR will determine the FZB.

3.49 Walkthroughs and Metrics:

3.49.1 Accomplish a safety, fire prevention, and housekeeping, inspection during each shift whenever work is in progress. Once each manned/regular workday, the inspection must be made jointly with the SUPERVISOR and the ship's Commanding Officer designated representative.

3.49.2 Submit one legible copy, in an approved transferrable media, of a written report of the discrepancies and corrective actions, using Attachment E, to the SUPERVISOR and the ship's Commanding Officer designated representative within 4 hours after completion of the inspection. All discrepancies, to include discrepancies corrected on the spot, must be documented and assigned responsibility for corrective action (e.g prime contractor, sub-contractor, AIT, and ship's force).

3.49.3 Submit one legible copy or approved transferrable media, of a trend analysis report using the information in each inspection report to the SUPERVISOR every 30 days of the availability and a consolidated report at the end of the availability.

3.49.3.1 Trend analysis report at a must contain at a minimum a graph with the number of deficiencies documented by Type Code and by entity (e.g. prime contractor, sub-contractor, AIT, Ship Force).

3.49.4 Provide a safety representative to accomplish the safety, fire prevention, and housekeeping, inspection who at a minimum has completed competent person training in accordance with 009-07 of NAVSEA Standard Items and the following OSHA Training Institute (OTI) courses or NAVSEA approved equivalents: 5410; Occupational Safety and Health Standards for Maritime Industry, 3095; Electrical Standards, 3115; Fall Protection, 521; OSHA Guide to Industrial Hygiene.

3.49.4.1 Submit one legible copy, in approved transferrable media, of the certificates of completion for the required courses upon request by the SUPERVISOR.

3.50 General Announcing System:

3.50.1 Install a temporary general announcing system which can be heard and seen in each space that is not normally manned and the ship's general announcing system cannot be heard, such as each occupied tank and void, including each tank entered through temporary access opening when in dry dock. Temporary general announcing system must consist of a klaxon, horn, siren, or similar alarm-type device accompanied by flashing lights located on each

alarm box station. System must provide capabilities of separate and distinct tonal alarms for fire, stop hot work, and evacuate vessel. This is in addition to the ship's installed general announcing system. A tank/ confined space watch may be used to satisfy this requirement. The temporary general announcing system must be endorsed by the FSC via the SUPERVISOR prior to the start of work in each space.

3.50.2 The ship's permanently installed general announcing must be maintained in an operational condition during the availability. Submit a mitigation plan endorsed by the FSC via the SUPERVISOR prior to start of work that would impair the permanently installed general announcing.

3.50.3 When the mitigation plan requires a temporary announcing system, the temporary announcing system must consist of;

3.50.3.1 Audible and visual components capable of notifying personnel of shipboard conditions.

3.50.3.2 Separate and distinct tonal alarm for fire, stop hot work, and evacuate vessel. The evacuate vessel alarm must consist of a klaxon, horn, siren, or similar alarm-type device accompanied by flashing lights located on each alarm box station.

3.50.3.3 Speakers and alarms placed in sufficient quantities to be heard above industrial noise throughout the vessel or workspace. The location and quantity of each speaker and alarm must be endorsed by the FSC via the SUPERVISOR.

3.50.3.4 Each temporary structure attached to the vessel, each enclosed structure (e.g., offices) placed inside or on the vessel, and each crew berthing barge must have audibility of the alarm and announcing system. This may require connection to the vessels general announcing or temporary system.

3.50.4 Each announcing system must be capable of notification within the vessel, topside, in the dry dock, inside each tank and void, each temporary structure, and in each berthing barge over the noise level of the space.

3.51 Casualty Reporting System:

3.51.1 The ship's permanently installed casualty reporting system must be maintained in an operational condition during the availability. Submit a mitigation plan endorsed by the FSC via the SUPERVISOR prior to start of work that would impair the permanently installed casualty reporting system.

3.51.2 When the mitigation plan requires a casualty/fire reporting system, the temporary casualty/fire reporting system must consist of the following;

3.51.2.1 A casualty/fire reporting station with a fire alarm pull box and direct line means of verbal communication with the annunciator panel located in the central controlling station. Provide operating instructions and label stating "Casualty/Fire Reporting Device" in 1 inch high red lettering on white background.

3.51.2.2 An annunciator panel with direct line means of verbal communication with each casualty/fire reporting station and capable of identifying the location of the

specific fire alarm pull box in an alarm status and each location must be installed at the central controlling station. (See Note 4.13)

3.51.3 Install each casualty/fire reporting station (Surface Ship) in the following:

3.51.3.1 Each fire zone and located at least every 100 feet of the vessel's length along the weather deck. Each device must be placed on alternating sides and located at an athwart ship's passageway junction.

3.51.3.2 Place at least every 100 feet of the vessel's length along each level that runs for most of the vessel's length and placed on alternating sides and located at an athwart ship's passageway junction.

3.51.3.3 centrally located on each level of the vessel's superstructure.

3.51.3.4 centrally located on each platform of each machinery space.

3.51.3.5 within 10 feet of each exit ladder where each platform is located below the Damage Control Deck or main deck.

3.51.3.6 3 feet to 5 feet above the deck or platform.

3.51.3.7 at each designated access and egress point that leaves the hull.

3.51.3.8 at each temporary access opening used for personnel access and egress.

3.51.4 Include a list by location of each casualty/fire reporting station in the mitigation plan.

3.51.5 The temporary system must be installed and operational at the controlling station before securing the vessel reporting system. The dry dock fire reporting system must be operational at the controlling station prior to conducting hot work in the dry dock.

3.51.6 Provide each casualty/fire reporting station in dry dock, graving dock, or marine railway as follows:

3.51.6.1 Located at each hose manifold station and each access/egress serving the dry dock, graving dock, or marine railway.

3.51.6.2 Separation must not exceed 200 feet horizontally along the dry dock wall, graving dock wall, or marine railway or 100 feet from either end of the dry dock, graving dock, or marine railway.

3.51.6.3 Installed in such a manner that they do not require personnel to travel underneath the vessel to reach them.

3.51.6.4 Connected to the casualty/fire reporting annunciator panel located in central controlling station.

3.51.6.5 When two vessels are sharing a dry dock, graving dock, or marine railway, they may share a single fire reporting system if the system is accessible to both vessels and reports to each vessel's central controlling station.

3.51.6.6 Modifications to the location of each fire reporting device must be endorsed by the FSC via the SUPERVISOR.

3.52 Test each permanent and temporary announcing and casualty/fire reporting system daily.

3.53 Repair each defective or inoperative system immediately.

3.54 Notify the FSC via the SUPERVISOR immediately when each system is defective or inoperative.

3.55 Secure hot work throughout the vessel and dry dock, graving dock, or marine railway when an operational general announcing and casualty/fire reporting system (temporary or permanent) is not available, defective, or inoperative. Conducting hot work must be endorsed by the FSC via the SUPERVISOR.

3.56 Install a temporary fire alarm system on the quarterdeck configured to send a signal directly to the cognizant fire department, shipyard/Naval facility fire department, or a continuously manned location within the shipyard/Naval facility where trained personnel can take immediate action to transmit an alarm.

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

3.56.2 Provide a telephone on the quarterdeck (QD), to the extent practicable, any time contractor work or location of the vessel (shipyard, Naval or contractors facility) affects the ship's casualty reporting system (ship's telephone).

3.56.3 Conspicuously post the emergency reporting procedures at the quarterdeck.

3.56.4 Test the temporary fire alarm system daily. Repair or replace defective or inoperative equipment immediately. Submit one legible copy, in hard copy or approved transferrable media, of the test report for the temporary fire alarm system, when requested by the SUPERVISOR.

3.57 Management of Fire Lanes and Firefighting Equipment:

3.57.1 Maintain each fire lane, hydrant, FDC, and brow free from obstructions and any action that would temporarily block or prevent use.

3.57.2 Maintain a vertical clearance of 13 1/2 feet over the full width of a fire lane.

3.57.3 Maintain the angle of approach and the angle of departure less than 8 degrees at any point along the entire length of the designated fire lane and where fire lane markings intersect with other roads or other fire lanes.

3.57.4 Maintain a minimum of 25 feet for each inside turn radius and 50feet for each outside turn radius of each fire lane with a turn around.

3.57.5 Develop a cold weather maintenance plan (e.g., snow/ice removal) ensuring uninterrupted access to each ship in maintenance by fire department apparatus.

3.57.5.1 Submit one legible copy, in approved transferrable media, of the plan upon request by the SUPERVISOR.

3.57.6 Request for deviation must be in writing to the FSC via the SUPERVISOR and must include the following: rational for deviation, each location and duration of each deviation, and the hazard mitigation plan.

3.57.7 Provide a temporary stowage bracket that does not delay access to the extinguisher when work requires the relocation of a ship installed fire extinguisher. Install a placard at the original extinguisher location to direct personnel to the temporary extinguisher location.

3.58 Management of Ship's Force Fire Detection System:

3.58.1 Provide a plan for protecting each permanently installed fire detection device to the FSC via the SUPERVISOR for endorsement prior to commencing work that has the potential to damage or render fire detection devices nonresponsive (e.g. grinding, painting, hot work, and other dust, vapor, fume, and mist operations).

3.58.2 Maintain the ship's permanently installed fire detection system in an operational condition during the availability. Impairment to the permanent-installed fire detection system must be endorsed by FSC via the SUPERVISOR.

3.59 Management of Hot Work:

3.59.1 Submit one legible copy, in hard copy or approved transferrable media of the Hot Work Safety Plan to the SUPERVISOR no later than 10 days prior to commencement of hot work and whenever updated. At a minimum, the plan must include the following elements:

3.59.1.1 Process for identifying hazards and reporting unsafe conditions as required by 2.1.

3.59.1.2 Process for assessing risk associated with leaving flammable or combustible material in place.

3.59.1.3 Each method for minimizing or controlling heat input control methods.

3.59.1.4 Each cooling method.

3.59.1.5 Temperature monitoring requirements.

3.59.1.6 Minimum strip back distances.

3.59.1.7 Means to protect combustible materials.

3.59.1.8 Means to inhibit sparks and slag from being drawn into the ventilation.

3.59.1.9 Placement and each fire response action of each fire watch.

3.59.1.10 Communication requirement between each fire watch and each hot work operator.

3.59.1.11 Each fire extinguisher type to be used.

3.59.1.12 Local exhaust ventilation used to control smoke or off-gassing from heated materials.

3.59.1.13 Each respiratory protection requirement.

3.59.1.14 Stop point.

3.59.1.15 Each emergency action.

3.59.1.16 Means to ensure operability of hot work equipment.

3.59.1.17 Means to document each mitigation recommended by a certified marine chemist.

3.59.2 Provide a representative whose only function is to coordinate hot work notification and execution, known as the Hot Work Coordinator, for each RA work performed during the contract performance period.

3.59.2.1 Hot Work Coordinator must:

3.59.2.2 Receive, review, and coordinate each hot work authorization form submitted by each RA.

3.59.2.3 Complete Attachment C for each approved hot work authorization form and sign after verifying with Hot Work Supervisor that hot work is ready to commence and after hot work has ended. Each signature affirms requested hot work authorization form will be worked each shift and that the hot work has ended.

3.59.2.4 Meet daily, when hot work is scheduled with each designated representative from each RA, the ship’s Commanding Officer designated representative, and the SUPERVISOR to eliminate each hot work conflict, and to advise the SUPERVISOR of each hot work problem that could impact the RA's or any ship's work operation.

3.59.2.5 Participate in each FSC meeting when needed to support adjudicating each request for deviation.

3.59.2.6 Ensure that each RA submits a properly filled out hot work authorization form.

3.59.2.7 Submit each hot work authorization form to the ship’s Commanding Officer designated representative responsible for maintaining Attachment F at a location agreed upon by the FSC.

3.59.2.8 Ensure each hot work authorization form revision submitted by the cognizant RA is processed prior to proceeding with the work necessitating the revision to the hot work authorization form.

3.59.2.9 Prioritize allocation of hot work authorization forms each shift based on the integrated production schedule.

3.59.3 Provide notice for each job or separate area of hot work aboard ship using a hot work authorization form. (See Note 4.14)

3.59.3.1 Submit one legible hard copy or approved transferrable media, to the Hot Work Coordinator for submission to ships force by 1400 the day prior for high confidence hot work.

3.59.3.2 A smaller number of hot work authorization forms may be submitted after the arrival of the first shift on the day of execution. This number must not exceed 20 percent of the total hot work submitted for execution that day.

3.59.3.3 Hot work authorization form provided to the Hot Work Coordinator must, at a minimum, include a serial number, a description of the work to be done, specific location compartment number, and each compartment adjacent to each deck, bulkhead, and similar structure upon which hot work is to be accomplished and the time hot work will commence.

3.59.3.4 Notify Hot Work Coordinator if a condition changes and a hot work authorization form will not be performed, needs to be modified, or substituted with another hot work authorization form.

3.59.3.5 The amount of hot work authorization forms submitted must not exceed each parameter identified in Attachment G.

3.59.3.6 Submit one legible copy, in approved transferable media, of each request for deviation to the SUPERVISOR.

3.59.3.7 Each request submitted must include rationale for the deviation, the quantity of hot work authorization forms exceeding the thresholds identified in Attachment G, and duration of deviation.

3.59.4 Inspect and authorize each hot work area aboard ship.

3.59.4.1 Post the submitted hot work authorization form conspicuously at the entrance to each compartment or area where hot work is being performed. Provide a copy of each hot work authorization form to the SUPERVISOR upon request.

3.59.4.2 Hot work authorization form must include, in addition to each requirement listed in 3.59.3.3, current gas-free status of the area, any presence of combustible material within 35 feet in any direction of the operation, or further if affected by the operation, and if any combustible material is present, each action that must be taken to protect the material from hot work, provision and assignment of each fire watch, and affirmation that the condition at the work site includes ventilation, temporary lighting, accesses, and permits each fire watch to have a clear view of and immediate access to each affected area.

3.59.4.3 Hot work authorization form must affirm each fully charged fire extinguisher suitable to the type and location of hot work being performed in accordance with 2.1 is available at the work site. Inspect each area 30 minutes after completion of hot work unless the contractor's Hot Work Supervisor surveys each affected work area and determines that there is no further fire hazard.

3.59.4.4 Hot work authorization form must be signed by a Hot Work Supervisor specifically designated as responsible for the execution of hot work for each shift

where hot work is being accomplished after the Hot Work Supervisor has physically verified the exact location and extent of hot work with each Hot Work Operator.

3.59.4.5 Hot work authorization form is effective for 24 hours unless a shorter period is specified in the contract, or the gas-free status of the work area or system requires work stoppage.

3.59.4.6 A new hot work authorization form is required if work is interrupted due to loss of gas free status.

3.59.5 Submit a weekly hot work report in approved transferable media no later than the following Tuesday that will be reviewed during the weekly production meeting. The report must include:

3.59.5.1 Daily recap of the number of hot work authorization forms submitted, number of hot work authorization forms executed, percent of hot work authorization forms executed compared to submitted, and reason (e.g. excess form submitted, lack of material/equipment or personnel, weather, reprioritization of personnel, change in gas-free status) for each hot work authorization form not executed.

3.59.5.2 Two-week forecast of planned hot work to include the date, shift, work item number, and location of hot work.

3.59.6 Provide trained fire watches, at all affected areas where hot work is being accomplished. Provide fire extinguishing equipment as described in 2.1 and 2.19.

3.59.6.1 The program utilized to train fire watches must be in accordance with the requirements of 2.1, and include steps to be taken by the fire watch and hot work operator prior to accomplishment of hot work, proper selection and use of fire extinguishing equipment and other safety equipment, relationship between the fire watch and hot work operator, proper fire reporting procedures and other sounding of fire alarms, and reporting of fires to the ship's Quarterdeck. Methods of communicating between all fire watches and their corresponding hot workers must be provided. This training must include theory and practical (hands-on) fire suppression techniques. Provide training to all newly assigned fire watches, with annual updates provided to personnel. Provide visible means of identifying trained fire watches, (e.g. badge/ card, sticker, or vest).

3.59.6.2 Submit one legible copy, in approved transferrable media, of the training program when requested by the SUPERVISOR.

3.59.6.3 Each fire watch attending worker(s) accomplishing hot work must be equipped with a fully-charged and operable fire extinguisher, meeting the requirements of 2.9, have immediate access and an unobstructed view of the affected hot work area to which they are assigned and must remain at the job site for 30 minutes from the time the hot work is completed unless the contractor's Hot Work Supervisor surveys the affected work area and determines that there is no further fire hazard.

3.59.6.4 The fire watch must not accomplish other duties while hot work is in progress.

3.59.6.5 Where several workers are accomplishing hot work at one site, the fire watch must have a clear view of and immediate access to each worker accomplishing hot work.

3.59.6.6 No more than 4 workers must be attended by a single fire watch.

3.59.6.7 In cases in which hot material (e.g. sparks and slag) from hot work may involve more than one level, as in trunks, machinery spaces, and on scaffolding, a fire watch must be stationed at each level unless fireproof or fire-retardant containment meeting para 3.59.11 is available to prevent the spread or fall of hot material. A fire watch must be posted below ensuring effectiveness of the containment.

3.59.6.8 In cases where hot work is to be accomplished on a bulkhead or deck, combustible material must be removed from the vicinity of the hot work on the opposite side of the bulkhead, overhead, or deck, and a fire watch must be posted at each location.

3.59.6.9 If multiple blind compartments are involved in any hot work job, fire watches must be posted simultaneously in each blind area. A means of communicating between all fire watches and their corresponding hot workers must be provided.

3.59.7 Remove combustible materials within 35 feet of the hot work site prior to hot work. This includes adjacent spaces when welding on bulkheads, overhead, and decks. Clean up residues and standing liquid must be completed. Clean or remove contaminated lagging or insulation within 35 feet. Protect these materials if they cannot be removed per the requirements described in para 3.59.11.

3.59.8 Install non-combustible coverings per the requirements described in para 3.59.11to protect piping, wire ways, structures, and equipment within the heat-affected area.

3.59.9 Remove installed combustible material (e.g., lagging and paint) located on the opposite side of bulkheads, overheads, or decks where hot work is to be done no less than 4 inches per 2.1, and as directed by a Certified Marine Chemist (CMC) or Shipyard Competent Person (SYCP).

3.59.10 Comply with the firefighting and fire prevention requirements of 2.25 prior to hot work operations in or adjacent to areas containing ammunition or explosives.

3.59.10.1 Secure hot work during logistics or maintenance movement of ammunition or explosives.

3.59.11 Use fireproof or fire-retardant covering in accordance with MIL-C-24576, Type-I, Class-1 or compliant with ANSI/FM 4950 Welding Pad criteria, such as fireproofed canvas, fire-resistant synthetic fabrics, non-combustible fabrics, metal covers or other suitable materials, to protect ship’s equipment from falling sparks or other potential sources of fire. Install coverings prior to commencing hot work and maintain throughout the hot work evolution. Fire Retardant Gel (FRG) products in accordance with Commercial Item Description (CID) A-A-60022 may be used in conjunction with approved fireproof or fire-retardant covering for additional fire and thermal protection. FRG products cannot be used as stand-alone fire protection. FRG products cannot be used for submarine construction, maintenance, repair, and modernization or in ship areas under the cognizance of NAVSEA

08. Remove FRG residue from ship's equipment in accordance with SSPC-SP 1 of 2.26 at the completion of hot work. Proper documentation of fire retardancy must be available for review upon request.

3.59.11.1 FRG products may be used on welding blankets, curtains or pads when performing hot work in areas with combustible materials that are not movable (such as cable ways) and to protect equipment. Remove all non-stationary combustible material within 35 feet where possible. FRG or coated blankets, curtains or pads must not be used in direct contact of the backside of welds or in close proximity to welds. FRG or coated blankets, curtains or pads must not be placed closer than the minimum required stripback distance for heat sensitive material (e.g. paint) or 6" whichever is greater. For applications where stripback is not required, FRG or coated blankets, curtains or pads must not be placed closer than 6" to a weld. FRG or coated blankets, curtains or pads must not be used in direct contact with materials to be welded that are subject to Hydrogen Induced Cracking (HIC), are hardenable, have toughness testing requirements, are subject to elevated preheat temperatures (greater than 60 degrees Fahrenheit minimum) or interpass temperature controls, or require specific welding procedure qualification involving high and low cooling rate testing (e.g. high carbon or alloy steel, HY steel, HSLA steel, and duplex stainless steels).

3.59.12 Submit in approved electronic transferable media a hot work mitigation plan to the FSC via the SUPERVISOR for endorsement prior to the start of hot work in affected areas associated with the following conditions:

3.59.12.1 In each area where combustible material cannot be stripped back, relocated, protected, or otherwise removed from the heat-affected area and;

3.59.12.2 In each area during the transfer of combustible liquids through permanently installed, intact systems or piping. (See Note 4.15 and 4.16)

3.59.12.3 Designated diesel fuel storage and designated fueling locations for vehicles and other equipment shipboard.

3.59.12.4 In the area of the pressurized transfer of combustible liquids through temporary systems/ hoses. (See Note 4.17)

3.59.13 Secure hot work during fueling operations. (See Note 4.18 and 4.19)

3.59.14 Depressurize and drain each pressurized permanent system/ piping containing combustible liquids prior to the commencement of hot work on the system or piping unless mitigations are provided in writing by a Certified Marine Chemist and endorsed by the FSC via the SUPERVISOR. Protect each combustible liquid pressurized system within 35 feet of hot work operations.

3.59.15 Refueling of diesel powered equipment must be conducted by gravity fed containers. Secure hot work within 50 feet of the fueling location. All areas within 50 feet of

each fueling point must be clear of penetrations or vertical accesses that would allow fuel to travel into the skin of the ship if a spill occurred.

3.59.16 Secure hot work within 50 feet of each temporary system/ hose used for the transfer of combustible liquids. Routing of each temporary system/ hose must be endorsed by the FSC via the SUPERVISOR.

3.59.17 The quantity of flammable and combustible liquids brought onboard must be kept to a minimum, must not exceed that necessary for one shift's use, and must not be left unattended.

3.59.18 Smoking, including electronic cigarettes (e.g., "E-cigs," vaping), is prohibited onboard ships and within 35 feet of the vessel and dry dock, graving dock, or marine railway.

3.60 Management of Nested Vessels:

3.60.1 Maintain at least one brow path located adjacent to another to allow direct access and egress from the outboard vessel to pier or wharf (e.g., forecastle to forecastle to the pier) for each nested vessel.

3.60.1.1 Submit each request for deviation to the FSC via the SUPERVISOR for adjudication. Deviation request must include a written risk mitigation plan.

3.60.2 The outboard vessel of each nested vessel must maintain a self-sufficient operational ship's installed fire main system and required number of operational (e.g., in standby or auto-start configuration) ship's generators to supply power to each fire pump. A temporary fire main system requiring supply from ashore is not permitted.

3.61 Management of Shipboard Industrial Material and Equipment:

3.61.1 Limit the quantity of HAZMAT (e.g. flammable and combustible liquids, flammable gases, oxidizers) brought on the vessel to the amount necessary for one shift's work or of a sufficient quantity to complete the job (whichever is less).

3.61.1.1 Maintain HAZMAT brought to the worksite in approved containers and handled in accordance with 2.27.

3.61.1.2 Label each HAZMAT container with a unique identifier (e.g., company name or logo) in addition to labeling requirements in accordance with 2.1.

3.61.1.3 Do not leave HAZMAT unattended.

3.61.1.4 Request for deviation must be endorsed by the FSC via the SUPERVISOR.

3.61.2 Store each consumable material and waste (e.g., combustible cleaning materials such as paper and cleaning wipes) in an approved metal container and limited to the amount necessary for one shift's work.

3.61.3 Dispose of combustible waste in a metal container.

3.61.3.1 Remove combustible waste from the vessel upon completion of job each shift.

3.61.3.2 Dispose of combustible waste associated with HAZMAT cleanup (such as soiled rags and oil-soaked articles) in lidded metal containers immediately following cleanup and removed from the vessel as soon as practicable, but no later than the end of shift.

3.61.4 Prior to bringing equipment or working material aboard ship, its crating and packing must be removed. If the equipment or material may be damaged during handling, the crating and packing must be removed immediately after the equipment or working material is brought aboard and taken ashore for disposal.

3.61.5 Stage each temporary firefighting support system installed shipboard or pier side on non-combustible material.

3.61.6 Non fire retardant (FR) temporary wooden structures located on the pier, dry dock edge, or in the dry dock (not including dry dock blocks) must be a minimum of 35 feet from the ship to prevent spread of fire.

3.61.7 Lumber, plywood, and each staging board, except that used for pallets, must be fire retardant in accordance with Category Two, Type II, of 2.28.

3.61.7.1 Maintain visibility of each marking from the manufacturer, unless wrapped in FR material.

3.61.7.2 Each lumber product larger than 1 square foot must show some part of the original FR mark, or staining, or must be remarked to indicate that it is fire retardant treated.

3.61.7.3 Replace each worn or damaged lumber product.

3.61.7.4 Prohibit the use of each lumber product as decking along each designated access egress route unless endorsed by the FSC via the SUPERVISOR.

3.61.7.5 Non-FR wood may not be used as decking, temporary service support, or in a structural capacity of any type.

3.61.8 Use fire retardant ventilation ducting. Proper documentation of fire retardancy must be available for review upon request of the SUPERVISOR.

3.61.8.1 Install each spark arrestor at the inlet side of each ventilation used for hot work.

3.61.8.2 Install shipboard temporary ventilation systems used for exhausting toxic contaminants and/or flammable vapors so that ducting within confined and enclosed spaces is under negative pressure.

3.61.9 The use and storage of gasoline is prohibited onboard each ship.

3.61.10 Each vehicle and equipment (compressor, generator, and similar industrial equipment) that are used shipboard must be diesel powered.

3.61.11 Locate each diesel powered vehicle, generator, compressor, and similar industrial equipment that is used aboard the ship on the flight deck, deck edge elevators, or other exposed weather deck. (See Note 4.20)

3.61.11.1 Storage of each diesel-powered vehicle and equipment within the ship (e.g., hangar bay, well deck, or vehicle deck) must be endorsed by the FSC via the SUPERVISOR.

3.61.12 Notify ship's Officer of the Deck prior to each fueling operation.

3.61.12.1 Bond and ground each container when diesel fuel is transferred between each container to prevent static discharge. Transfer diesel fuel aboard ship in an approved metal safety container.

3.61.12.2 Avoid direct fueling of each vehicle and equipment or transfer of diesel fuel between each container aboard ship. Fueling may be accomplished at a location designated by the FSC via the SUPERVISOR via an approved fuel storage tank on the exposed weather deck (flight deck, Helo deck, or deck edge elevator) provided the following safety precautions are provided and maintained by the performing activity:

3.61.12.3 Diesel fuel storage tank must not exceed 300 gallons and be either double wall construction or have integral cofferdam sized to exceed tank capacity.

3.61.12.4 Locate each diesel fuel storage tank in the open to the atmosphere on an exposed weather deck endorsed by the FSC via the SUPERVISOR.

3.61.12.5 Each diesel fuel storage tank fuel transfer nozzle must be manually operated and have an automatic shut-off switch. Hold open clips or similar means must not be used.

3.61.12.6 Perform and document weekly inspection of the diesel fuel storage tank.

3.61.12.7 Provide 2 dry chemical fire extinguishers, meeting the requirements of 2.9, each with an Underwriter's Laboratory rating of at least 60 B:C, within 20 feet of each diesel fuel storage tank.

3.61.12.8 Post signs at each diesel fuel storage tank designating ownership and contact numbers in the event of an emergency.

3.61.12.9 Stage an Oil and Hazardous Substance Spill Response Kit at each diesel fuel storage station.

3.61.12.10 Install each metal coaming 4 inches high that is tack welded and caulked to the deck around all through-deck access openings to control spills. Deviations from this requirement based on location of the access openings may be endorsed by the FSC via the SUPERVISOR.

3.61.13 Use metal canister vacuum cleaners aboard the ship, except those used for regulated and controlled radiological and hazardous waste or hazardous material.

3.61.13.1 Empty vacuum cleaners of all debris at the end of each shift at a minimum.

3.61.13.2 Permanently and legibly mark each vacuum cleaner with a company name or unique identifier.

3.61.14 Prohibit the use of plastic trash cans for trash collection onboard where industrial work is being performed. Plastic trash bags may be used onboard as a liner for metal trash cans.

3.61.14.1 Install trash can lids in machinery spaces.

3.61.15 Store each plastic bodied tool and equipment in metal toolboxes and stored in a designated combustible storage area endorsed by the FSC via the SUPERVISOR 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.

3.61.16 Provide a portable 300 Kilo Watt diesel generator with associated cables, lugs/plugs to supply emergency power during transits to and from contractor facilities, dry docks, marine railways, and graving docks when ship's emergency power cannot be used.

4. NOTES:

4.1 The term "annual" means once a year, not-to-exceed 12 months.

4.2 Fire is the state, process, or instance of combustion in which fuel or other material is ignited and combined with oxygen to burn giving off either light, heat, flame, or all these elements.

4.3 A Temporary structure is any designated area bounded with structure (e.g., fencing, walls), building, room, or stand-alone enclosure dedicated or erected to fill a temporary need. These areas and structures serve a specific purpose (e.g., combustible storage, office, or operating space).

4.4 Laydown area is defined as an area of deck space used for storage that is not bounded by any structure (e.g., lattice, chain link, fence, or walls) and is completely open to the overhead of the space that it is located. Areas of deck space used for storage that are bounded by a structure (e.g., lattice, chain link, fence, or walls) are considered temporary structures.

4.5 A draft stop is a material, device, or construction that restricts the movement of air in concealed areas of a structure or in-between structures. Draft stops are used to prevent the horizontal spread of smoke, gas, and flames through these spaces.

4.6 A Critical system is a permanent or temporary service designated as essential to personnel and vessel safety.

4.7 Fire Retardant: A liquid or gas that tends to inhibit combustion when applied to, mixed in, or combined with combustible materials.

4.8 “Hydraulically Most Remote” is defined as an area/location that will encounter the highest pressure loss, from both flow friction and elevation change, while encountering maximum possible flowrate.

4.9 A “quick disconnect” is a coupling or connecting device/system designed to permit easy and immediate separation of lines without the use of tools and to ensure the contents do not escape.

4.10 A “self-sealing quick disconnect” is a coupling or connecting device/system designed to permit easy and immediate separation of lines without the use of tools or the physical closing of valves to ensure the contents do not escape.

4.11 A temporary access opening is any removal of the vessel’s hull to provide access for personnel, services, or industrial activities.

4.12 A hull opening is any hull opening resulting from industrial work (e.g., removed hull valves, propulsion shafts).

4.13 Controlling Station is a constantly staffed location either shipboard or pier side must be established to receive automatic alarms including location of the fire. The controlling station must have the capability to make notifications off hull and in hull, direct egress, and relay fire response orders. This area is also commonly referred to as casualty control (CASCON) watch station, Damage Control Central (DCC), central control station (CCS), or quarterdeck.

4.14 Hot work is defined as any activity or process that includes flame heating, welding, torch cutting, brazing, carbon arc gouging, plasma arc cutting or gouging, metal grinding when producing sparks (grinding for the purposes of sanding, feathering, or buffing can be evaluated as cold work and must be controlled per 29CFR1915 subpart B), and operations that produce heat of 400 °F (204 °C) or more.

4.15 Combustible liquid is a liquid that has a closed cup flash point at or above 140 °F as defined by 2.29.

4.16 Permanent pressurized system is the pressurized transfer of combustible liquids through permanently installed, intact systems or piping.

4.17 Temporary pressurized transfer is any operation involving the pressurized transfer of combustible liquids through temporary installed systems/ hoses.

4.18 Fueling operations are any operation involving the on load or offload of flammable liquids, or pressurizing of uncleaned compensated fuel tanks, through ship or temporary installed systems/ hoses/ piping.

4.19 Flammable liquid is a liquid that has a closed cup flash point below 140 °F as defined by 2.29.

4.20 An exposed weather deck (e.g., flight deck, open sponson, or catwalk outside the skin of the vessel) has no overhanging vessel structures or overhead protection and is typically exposed to the environment (i.e. in the weather). For the purpose of this definition, the hangar deck of a LHA, LHD, LPD, and CVN is deemed to be inside the skin of the vessel and therefore not an exposed weather deck, conversely, aircraft elevators are deemed to be exposed weather decks.

FIRE INCIDENT REPORT		
Report #		
INITIAL REPORT ☐	REQUESTED UPDATE ☐	FINAL REPORT ☐

CLASS OF FIRE: NAME(S) OF INJURED (if applicable):	
FIRE INCIDENT DATE: TIME:	COMPANY: SUPERVISOR:
LOCATION(S) OF INCIDENT:	WAF NUMBER:
CAUSE OF FIRE INCIDENT:	EQUIPMENT INVOLVED:
WORK ITEM NUMBER:	CONTRACT NUMBER:

WITNESS AND/OR INDIVIDUALS INVOLVED

NAME(S)	DEPT.	COMPANY

DESCRIPTION OF FIRE INCIDENT

DISPOSITION OF INJURED (if applicable)

IMMEDIATE CORRECTIVE ACTION

INVESTIGATED BY (NAME):	TITLE:
SIGNATURE OF INVESTIGATOR:	DATE:
FIRE INCIDENT REPORT	
Report #	

SHORT TERM CORRECTIVE ACTION

LONG TERM CORRECTIVE ACTION

ROOT CAUSE ANALYSIS

INVESTIGATED BY (NAME):	TITLE:
SIGNATURE OF INVESTIGATOR:	DATE:

Incident Report Instructions

REPORT NUMBER- Unique tracking number created by contractor.

CLASS OF INCIDENT- i.e. Alpha, Charlie, Delta, Echo.

NAME(S) OF INJURED- Self Explanatory.

FIRE INCIDENT DATE: - Self Explanatory.

TIME: - Self Explanatory.

COMPANY: - Prime and subcontractors involved.

SUPERVISOR – Supervisor of employee(s) involved.

LOCATION(S) OF FIRE INCIDENT: - Installation, private yard, Ship name and hull number, space number(s) and compartment name(s).

WAF NUMBER – WAF assigned to the hot work being conducted or equipment being worked.

CAUSE OF FIRE – i.e. Hot Work, industrial process, temporary service damage, temporary service malfunction.

EQUIPMENT INVOLVED – Equipment working on and equipment being used to cause fire incident.

WORK ITEM NUMBER – Work Item being accomplished when fire incident occurred.

CONTRACT NUMBER: - Contract Number assigned by government agency i.e. RMC, Alteration Installation Team (AIT) Sponsor.

WITNESS AND/OR INDIVIDUALS INVOLVED – Name, company of witnesses and or individuals involved with the fire incident.

DESCRIPTON OF FIRE INCIDENT OR NEAR MISS – Short description of events leading up to the fire incident and extent of injuries and or damage to equipment.

DISPOSITION OF INJURED – i.e. Transported to hospital via ambulance or POV, transported to clinic, released from hospital, name of hospital or clinic, limited duty or loss time (if known).

IMMEDIATE CORRECTIVE ACTION – i.e. Scene/space secured, ship notified (who and when), RMC notified (who and when) clean up of fire debris, equipment secured.

INVESTIGATED BY – Self Explanatory.

TITLE – Self Explanatory.

SIGNATURE OF INVESTIGATOR – Self Explanatory.

DATE – Self Explanatory.

SHORT TERM CORRECTIVE ACTION – Interim actions that address the problem while long term corrective actions are being implemented.

LONG TERM CORRECTIVE ACTION – What action(s) were taken so that the fire incident does not reoccur, i.e. training, safety stand down or process/policy change.

ROOT CAUSE ANALYSIS – Process by which you will identify the cause or contributing factors of the fire incident.

Note: Attach additional information as necessary.

Attachment B

Root Causes	Category Description

• Personnel
  ○ Work Practices
  ○ Training
  ○ Supervision
• Procedures
• Design
  ○ Technical Documentation
• Material
	• Work Practices- Craftsman knows or understands the requirements, but fails to follow them.
	• Training- Training of employees and subcontractors.
	• Supervision- Lack of preparation or follow through for the original planned event.
	• Procedures- Issues with procedures provided by outside agency or another activity utilized during the unplanned event.
	• Tech Documentation- Issues with DWGs, Specifications or Design aspect.
	• Material- Failure of material to perform under designed conditions and uses.

Category	Attribute
Work Practices	• Failure to follow Procedure. • Use of incorrect or outdated Procedures. • Inattention to detail. • Improper tools/use of tools.
Training	• Nonexistent training or qualification. • Content is inadequate. • Inadequate training or qualification frequency.
Supervision	• Assignment of unqualified personnel. • Inadequate direction provided. • Inadequate review of worksite or Documents.
Procedures	• Procedure contains inadequate or unclear direction. • Procedure contains incorrect direction.
Technical Documentation	• Error in Drawing or Technical Document. • Design deficiency.
Material	• Material Failure.

Structure Type and Use	Ships Sprinkler System (Operational)	Smoke Detection System (Detector)	Automatic Sprinkler System	Manual Sprinkler System	Portable Fire Extinguishers (Interior)	Portable Fire Extinguisher (Exterior)
Laydown Area for combustible storage	X					
Temporary structures without a closed overhead used for combustible storage	X					X
Temporary structures with a closed overhead and open sides meeting	X					X
Temporary structures with a closed overhead used for combustible storage				X		X
Temporary structures with a closed overhead used for office or operating space		X	X		X	
Sealable (airtight) steel structure used for combustible material storage						X
Sealable (airtight) steel structure in weather used for HAZMAT						X
Non-sealable steel structure used for combustible storage				X		X
Steel structure used for office or operating space		X			X	

Temporary Structures used for Offices, Operating Space, or Combustible Material Storage

ATTACHMENT D
FIRE PROTECTION WATER SUPPLY REQUIREMENTS

SHIP CLASS	SHIP TYPE	FLOW (GPM)*
AD	Destroyer Tender	1,500
ADG	Degaussing Ship	500
AE	Ammunition Ship	1,500
AF	Store Ship	1,500
AFS	Combat Store Ship	1,500
AG	Miscellaneous Auxiliary Ship	1,500
AGEH	Hydrofoil Research Ship	500
AGF	Miscellaneous Flagship	2,000
AGFF	Frigate Research Ship	1,000
AGM	Missile Range Instrumentation Ship	1,500
AGMR	Major Communications Relay Ship	1,500
AGOR	Oceanographic Research Ship	500
AGP	Gunboat Support Ship	2,000
AGS	Surveying Ship	1,000
AH	Hospital Ship	1,000
AK	Cargo Ship	1,500
AKS	Store Issue Ship	1,500
AKR	Vehicle Cargo Ship	1,500
ANL	Net Laying Ship	500
AO	Oiler	1,500
AOE	Fast Combat Support Ship	1,500
AOG	Gasoline Tanker	1,000
AOR	Fleet Replenishment Oiler	1,500
AP	Transport Ship	1,000
APB	Self-propelled Barracks Ship	500
AR	Repair Ship	1,500
ARB	Battle Damage Repair Ship	500
ARC	Cable Repair and Laying Ship	1,000
ARG	Internal Combustion Engine Repair Ship	1,500
ARL	Landing Craft Repair Ship	1,000
ARS	Salvage Ship	500
ARST	Salvage Tender	1,000
ARSD	Salvage Lifting Ship	500
ARVA	Aircraft Repair Ship	1,000
ARVE	Aircraft Engine Ship	1,000
ARVH	Helicopter Tender	1,500
AS	Submarine Tender	1,500
ASR	Submarine Rescue Ship	600

ATTACHMENT D
FIRE PROTECTION WATER SUPPLY REQUIREMENTS (Con't)

SHIP CLASS	SHIP TYPE	FLOW (GPM) *
ATA	Ocean Tug	500
ATF	Ocean Tug Fleet	500
ATS	Salvage and Rescue Tug	500
AVM	Guided Missile Ship	1,500
CV, CVN	Aircraft Carrier	2,400
CG	Guided Missile Cruiser	1,600
DDG	Guided Missile Destroyer	1,600
FFG	Guided Missile Frigate	1,600
IX	Unclassified Miscellaneous	1,500
LCC	Amphibious Command Ship	1,600
LCS	Littoral Combat Ship	1,600
LHA**	Amphibious Assault Ship	2,400
LHD**	Amphibious Assault Ship	2,400
LPD***	Amphibious Transport Dock	1,600
LSD***	Landing Ship Dock	1,600
YRB	Repair and Berthing Barge	500
YRBM	Repair, Berthing and Messing Barge	500
YRBL	Repair, Berthing and Messing Barge (large)	500
LST	Landing Ship Tank	1,500
MCM	Mine Counter Measures Ship	1,000
PCH	Hydrofoil Patrol Craft	500
PG	Patrol Combatants	500
PGH	Hydrofoil Gunboat	500

* All flows are from the pier or dry dock outlet and are available at adequate residual pressures from those systems in compliance with present design criteria for dry docks and piers as reflected in NAVFAC design manuals (UFC 4-213-10, UFC 4-213-12, UFC 4-152-01, UFC 4-150-02, and UFC 4-150-06).

** Includes supply to operate 2 hangar sprinkler groups and 2, 2 and one-half-inch hose lines.

*** Includes supply to operate one sprinkler group and 2, 2 and one-half-inch hoses.

Fire Zone Boundaries

Safety, Fire Prevention, and Housekeeping
Discrepancy and Corrective Action Log

Attendees

Ship name/hull number:
Location:
Prime Contractor:
Date: Time:

No.	Point of Contact	Date Identified	Date Corrected	Location	Discrepancy	Corrective Action	Code

Type Codes: 1-Housekeeping, 2-Fire Prevent./Fire Equipment, 3-Hot Work, 4-FZ Boundary, 5-Electrical, 6-Compress Gas/Hoses/Bottles/Manifolds, 7-Scaffolding, 8-Egress/Exit, 9- Walking/Working Surfaces, 10-PPE, 11- Containment, 12-Unguarded/Edges/Holes/Openings/Fall Protection, 13-Confined/Enclosed Spaces, 14-Lines & Leads Hazards, 15-Equip. Adrift & Rollback, 16-Ventilation, 17-Machine Guarding/Hand Tools, 18-Crane/Rigging, 19-Environmental & Hazardous Material/Communication, 20-Environmental Protection, 21-General Safety

SAFETY, FIRE PREVENTION, AND HOUSEKEEPING DISCREPANCY AND CORRECTIVE ACTION LOG INSTRUCTIONS

1- Fire Zone Boundaries: List the designated Fire Zone Boundaries.
2- Attendees: List Company and or Command and names of personnel present for walk thru.
3- Ship Name/Hull Number: Indicate ship name and hull number of the location of the walk thru.
4- Location: Indicate location where ship is moored or docked, i.e. name of contractor facility or pier at Naval Base or Station.
5- Prime Contractor: Indicate prime contractor who has the contract with the SUPERVISOR.
6- Date: Indicate date of walk thru being accomplished.
7- Time: Indicate start time (24 hour clock) of walk thru being accomplished.
8- No. (number): List sequentially, each discrepancy noted during the walk thru. Number will continue where the numbering left off the previous day, until the end of the availability.
9- Point of Contact: Indicate Company/Command identified with the discrepancy (i.e. prime contractor, sub-contractor, AIT, RMC, ship's force).
10- Date Corrected: Date condition was corrected. If condition is not corrected, condition will be carried over to the next walk thru until condition is corrected.
11- Location: Indicate location of the condition, i.e. space number or frame number.
12- Discrepancy: Indicate condition that needs corrective action. Be as specific as necessary.
13- Corrective Action: Indicate corrective action taken to correct the condition and who is responsible for the corrective action.
14- Code: Indicate code, located at the bottom of ATTACHMENT A that condition can be grouped with, i.e. lines on deck causing trip hazard would use code 14- Lines and Leads Hazards.

ATTACHMENT F

Hot Work Notification Log	
Ship name/hull number:	Location:
Date:	Log sheet #

Company/Command	HW Coordinator (Print Name)	HW Auth Form Serial #	Time Released	HW Coordinator Signature	End Time	HW Coordinator Signature	HW Location

ITEM NO: 009-008
FY-27

HOT WORK NOTIFICATION LOG INSTRUCTIONS

1- Ship Name/Hull Number: Indicate ship name and hull number.
2- Location: Indicate location where ship is moored or docked, i.e. name of contractor facility or pier at Naval Base or Station.
3- Date: Indicate date of when the log was put into service. A new log will be used each day.
4- Log Sheet #: Indicate the log sheet number by keeping a running total throughout the availability.
5- Company/Command: Indicate Company/Command conducting the hot work (i.e. prime contractor, sub-contractor, AIT, RMC, ship's force).
6- HW Coordinator: Indicate by printing legibly the name of the Hot Work Coordinator responsible for managing HW authorization forms.
7- HW Authorization Form Serial Number: Indicate the serial number of the hot work notice for the hot work commencing.
8- Time Released: Indicate the time HW Coordinator releases the HW Authorization Form to HW Supervisor.
9- HW Coordinator Signature: Signature of the Hot Work Coordinator affirming requested hot work authorization forms will be worked each shift.
10- End Time: Indicate the time the HW Supervisor reports to the HW Coordinator that HW has ended.
11- HW Coordinator Signature: Signature of the Hot Work Coordinator affirming hot work has ended and space is in a safe condition.
12- HW Location: Compartment number and noun name of location where HW will be accomplished.

ATTACHMENT G

LIMIT OF SUBMITTED HOT WORK AUTHORIZATION FORMS PER DAY PER SHIP CLASS

Ship Class	Hot Work Limit Per Day
Amphibious Assault Ship (LHD, LHA) waterborne	100
Amphibious Assault Ship (LHD, LHA) in drydock	150
Command Ship (LCC) waterborne	75
Command Ship (LCC) in drydock	125
Amphibious Transport Dock (LPD) waterborne	75
Amphibious Transport Dock (LPD) in drydock	125
Dock Landing Ship (LSD) waterborne	100
Dock Landing Ship (LSD) in drydock	150
Guided Missile Cruiser (CG) waterborne	75
Guided Missile Cruiser (CG) in drydock	125
Guided Missile Destroyer (DDG) waterborne	75
Guided Missile Destroyer (DDG) in drydock	125
Littoral Combat Ship (LCS) waterborne	50
Littoral Combat Ship (LCS) in drydock	75
Mine Countermeasures Ship (MCM) waterborne	50
Mine Countermeasures Ship (MCM) in drydock	75