NAVSEA
STANDARD ITEM

FY-14

ITEM NO: 009-70
DATE: ***17 JAN 2013***
CATEGORY: I

1. SCOPE:

1.1 Title: Confined Space Entry, Certification, Fire Prevention and Housekeeping for Unmanned Vessels; accomplish

2. REFERENCES:

2.1 Standard Items

2.2 29 CFR Part 1915, Occupational Safety and Health Standards for Shipyard Employment

2.3 29 CFR Part 1910.134, Occupational Safety and Health Standards, Respiratory Protection

2.4 NFPA Standard 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hot Work

2.5 NFPA Standard 312, Standard for Fire Protection of Vessels During Construction, Repair, and Lay-up

2.6 American Conference of Government Industrial Hygienists (ACGIH) Threshold Limit Values for Chemical Substances and Physical Agents

2.***7*** NAVSEA OP-4, Ammunition and Explosives Safety Afloat

3. REQUIREMENTS:

3.1 Comply with the requirements of 2.2 through 2.5 and this item to determine whether or not an explosive or other dangerous atmosphere exists in tanks, spaces, and associated piping, including adjacent tanks, spaces, and piping, aboard the craft and control hot work and entry to those spaces to preclude damage to the craft or injury to personnel during accomplishment of this Job Order.

3.1.1 Submit one legible copy, in approved transferrable media, of a list of tanks or spaces to be opened or certified to the SUPERVISOR at least 24 hours prior to ***opening the tank or void***.

3.1.1.1 Comply with additional requirements of 009-88 of 2.1 when accomplishing work in Collection, Holding and Transfer (CHT) and Mogas tanks, spaces, or associated piping.

3.1.1.2 For fuel tanks or spaces that contain or have contained fuel, including F-76 and JP-5, in addition to the atmospheric testing required by 2.2, test for diesel fuel (CAS No. 68334-30-5; 68476-30-2; 68476-31-3; 68476-34-6, 77650-28-3) as total hydrocarbons in accordance with 2.6, and record total hydrocarbon test results on the Marine Chemist Certificate or competent person's log of tests and inspections.

3.1.2 Provide initial and annual update training for Competent Persons by utilizing a National Fire Protection Association (NFPA) Certified Marine Chemist or NFPA Instructor. The length of the initial training class shall be at least 24 hours. Annual update training shall be at least 8 hours.

3.1.2.1 Maintain a current roster of designated Competent Person(s) and copies of certificates of completion for the training required in 3.1.2 for reference by the SUPERVISOR. Submit one legible copy, in approved transferrable media, of the specific documents when requested by the SUPERVISOR.

3.1.3 Post a copy of the Marine Chemist ***C***ertificate, Certified Industrial Hygienist's test/inspection record, or Competent Person's test/inspection record at each access to the affected space while work in the space is in progress. When requested, a copy of the MCC or test/inspection record shall also be delivered to a location designated by the SUPERVISOR. In the event that the space is found to be NOT SAFE FOR WORKERS ***or*** NOT SAFE FOR HOT WORK, the space shall be posted accordingly and ***other affected contractors,*** the SUPERVISOR and ***Ship's Force (if applicable)*** shall be notified immediately. The posted copy shall be clearly visible and legible.

3.1.3.1 Initial certification of spaces that require a Certified MCC or Certified Industrial Hygienist's test/inspection record in support of work operations shall be effective until conditions change which would void the certificate or test/inspection record. A Competent Person shall conduct the same Atmosphere testing as annotated on the MCC Certified Industrial Hygienist's test/inspection record.

3.1.3.2 For those certified spaces which employees will enter, a Competent Person shall visually inspect, test and record each space certified as ENTER WITH RESTRICTIONS or SAFE FOR WORKERS as often as necessary, and as a minimum, prior to entry by employees on a daily basis. If a space is not to be entered on any given day, it is not required to be inspected and tested by a Competent Person. The initial MCC remains valid if conditions have not changed, unless noted on the MCC.

3.1.3.3 For those certified spaces affected by hot work, a Competent Person shall visually inspect, test and record each space certified as SAFE FOR HOT WORK as often as necessary and, as a minimum, daily prior to

commencement of hot work to ensure that conditions established by the certificate are maintained. When hot work is continuous, the affected spaces shall be visually inspected, tested, and recorded on a daily basis to maintain the SAFE FOR HOT WORK certification.

3.1.3.4 If a Competent Person finds that the conditions within a certified space fail to meet the applicable requirements for which it was certified, work in the space shall be stopped and may not be resumed until the space has been recertified by a Marine Chemist.

3.1.3.5 For those spaces where only Competent Person tests and inspections are required in accordance with 2.2, a Competent Person shall visually inspect and test each space as often as necessary and, as a minimum, daily prior to entry or commencement of hot work to ensure that conditions are safe.

3.1.3.6 After the Competent Person has determined initially that a space is safe for entry and finds subsequently that the conditions within the tested space fail to meet the requirements of 2.2, work shall be stopped until the conditions in the tested space are corrected, the space is retested, reinspected, and a new record of tests/inspections is recorded and posted.

3.1.4 Tank cleaning personnel shall be trained annually on safety practices to include a discussion of safety information found in Subparts A, B, and Section 1915.152 of Subpart I of 2.2.

3.1.5 Maintain a current roster of the names of the Shipyard/Plant Rescue Team Members, along with contractor certification that training requirements of Subpart B of 2.2 have been accomplished and are current for each Rescue Team Member, or documentation of arrangements made for an outside rescue team to respond promptly to a request for rescue service in a contractor facility. Submit one legible copy, in approved transferrable media, of the specific documents when requested by the SUPERVISOR.

3.1.5.1 At a naval facility, the Navy will respond.

3.1.6 Spaces that are determined to contain Immediately Dangerous to Life or Health (IDLH) atmospheres shall never be entered except for emergency rescue or for short duration for installation of ventilation equipment in accordance with 2.2 and 2.3. When entering IDLH spaces for the purpose of installing ventilation, notify the SUPERVISOR prior to entry. Notifications of rescue shall be made as soon as management becomes aware of such an event.

3.1.7 Confirm that all personnel have exited the space prior to closure of tanks, voids, and cofferdams. Designate one person to account for all personnel who may have entered the space.

3.2 Provide a written notice for each job or separate area of hot work aboard craft.

3.2.1 The notice shall state a description of the work to be done, the specific location, to include compartment number, of the hot work, and compartments adjacent to decks, bulkheads, and similar structures upon which hot work is to be accomplished, the time hot work will commence, current gas-free status of the area (if required), the absence or existence of combustible material within 35 feet in any direction of the operation (or further, if affected by the operation), and if combustible material exists, what action shall be taken to protect the material from fire, the provision and assignment of a fire watch, and the affirmation that conditions at the work site (ventilation, temporary lighting, accesses) permit the fire watch(es) to have a clear view of and immediate access to all areas included in the fire watch.

3.2.2 The notice shall affirm that a suitable, fully-charged fire extinguisher shall be available at the job site and provide for an inspection of the area 30 minutes after completion of the hot work or the cessation of hot work at the job site unless the contractor's Hot Work Supervisor surveys the affected work area and determines that there is no further fire hazard as the final action to complete the notice.

3.2.3 The notice shall be signed by a supervisor specifically designated as responsible for coordination of the hot work and the fire watch requirement.

3.2.4 One copy of each notice shall be given to the SUPERVISOR when requested and at a minimum, one copy of each notice shall also be conspicuously posted at the location where the hot work is being accomplished.

3.2.4.1 Deliver written notification of hot work planned Tuesday through Friday to the SUPERVISOR at least 30 minutes and not more than 24 hours preceding start of work.

3.2.4.2 Deliver written notification of hot work planned over a weekend or Monday following that weekend to the SUPERVISOR no later than 0900 on the Friday immediately preceding that weekend.

3.2.4.3 Deliver written notification of hot work planned on a federal holiday and on the day following the federal holiday to the SUPERVISOR no later than 0900 of the last working day preceding the federal holiday.

3.2.4.4 The notice shall be 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 stopping the work. A new notice is required if work is interrupted due to loss of gas-free status.

3.3 Provide trained fire watches, at all affected areas where hot work is being accomplished. Provide fire extinguishing equipment as described in 2.2, 2.4, and 2.5.

3.3.1 The program utilized to train fire watches shall be in accordance with the requirements of 2.2 and 2.4, 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. This training shall include theory and practical (hands-on) fire suppression techniques. This training shall be provided to all newly assigned fire watches, with annual updates provided to personnel. Provide visible means of identifying trained fire watches, i.e., badge, sticker, vest, etc.

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

3.3.2 Each fire watch attending worker(s) accomplishing hot work shall be equipped with a fully-charged and operable fire extinguisher, have immediate access and an unobstructed view of the affected hot work area to which they are assigned and shall 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.

3.3.2.1 The fire watch shall not accomplish other duties while hot work is in progress.

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

3.3.3.1 No more than 4 workers shall be attended by a single fire watch.

3.3.4 In cases in which hot material from hot work may involve more than one level, as in trunks, machinery spaces, and on scaffolding, a fire watch shall be stationed at each level unless positive means are available to prevent the spread or fall of hot material.

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

3.3.5.1 If multiple blind compartments are involved in any hot work job, fire watches shall be posted simultaneously in each blind area.

3.3.6 Comply with the firefighting and fire prevention requirements of 2.***7*** prior to hot work operations in or adjacent to areas containing ammunition or explosives.

3.3.6.1 Hot work shall not be conducted during any logistics or maintenance movement of ammunition or explosives.

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

3.4.1 ***O***xygen***, acetylene, fuel gas, toxic, and OD gas supply systems*** shall be stored to prevent collisions by trucks, forklifts, falling objects, etc.

3.4.2 LOX tanks shall be staged in designated locations on the quay wall/pier to be determined jointly by the contractor and the SUPERVISOR.

3.4.3 When gas cylinders are in use on board the craft, they shall be located on the weather decks or in a location determined jointly by the contractor and the SUPERVISOR and shall be secured in cylinder racks, and in an upright position. The number of in-use cylinders shall be limited to those which are required for work in progress and which have pressure regulators connected to the cylinder valves. On-board reserve gas cylinders shall not exceed one-half the number of in-use cylinders and shall be located in a remote area of the weather decks or in a location determined jointly by the contractor and the SUPERVISOR. Reserve acetylene cylinders shall be secured in an upright position.

3.4.4 When not in use, gas cylinders and manifolds on board shall have valves closed, lines disconnected, protective cover (cap) in place, and shall be secured. Acetylene cylinders shall be secured in cylinder racks and in an upright position.

3.5 Each fuel gas and oxygen hose must be positively identified by durable unique markings that include the company name at each end of the hose. If hoses are connected together, then each connection shall be positively identified by durable unique markings that include the company name.

3.5.1 Unattended fuel gas and oxygen hose lines or torches are prohibited in confined spaces.

3.5.2 Unattended charged fuel gas and oxygen hose lines or torches are prohibited in enclosed spaces for more than 15 minutes.

3.5.3 All fuel gas and oxygen hose lines shall be disconnected at the supply manifold at the end of each shift.

3.5.4 All disconnected fuel gas and oxygen hose lines shall be rolled back to the supply manifold or to open air to disconnect the torch; or extended fuel gas and oxygen hose lines shall not be reconnected at the supply manifold unless the lines were given a positive means of identification when

they were first connected and the lines are tested using a drop test to ensure the integrity of fuel gas and oxygen burning system. Alternate procedures must be approved by the SUPERVISOR.

3.5.5 Upon completion of oxygen-fuel gas system hook-up, accomplish a pressure drop test to include the torch, hoses, and gages.

3.5.5.1 Apply pressure to the system. Back off pressure by turning off the valve supplying gases to the system. If the pressure on the gage drops, a leak in the system exists. If the pressure on the gage does not drop, the system is tight.

3.5.5.2 After applying pressure, wait 2 minutes to ensure pressure does not drop.

3.5.6 The use of gas hose splitters is prohibited.

3.6 Inert gas/oxygen depleting (OD) hoses must be positively identified by durable unique markings that include the company name at each end of the hose.

3.6.1 Unattended inert gas/OD hose lines or torches are prohibited in confined spaces.

3.6.2 Unattended, charged inert gas/OD hose lines or torches are prohibited in enclosed spaces for more than 15 minutes.

3.6.3 All inert gas/OD hose lines shall be disconnected at the supply manifold at the end of each shift.

3.6.4 All disconnected inert gas/OD hose lines shall be rolled back to the supply manifold or to open air to disconnect the torch; or extended inert gas/OD hose lines shall not be reconnected at the supply manifold unless the lines were given a positive means of identification when they were first connected and the lines are tested using a drop test to ensure the integrity of inert gas/OD systems. Alternate procedures must be approved by the SUPERVISOR.

3.6.5 Upon completion of inert gas/OD gas system hook-up, accomplish a pressure drop test to include the torch, hoses, and gages.

3.6.5.1 Apply pressure to the system. Back off pressure by turning off the valve supplying gases to the system. If the pressure on the gage drops, a leak in the system exists. If the pressure on the gage does not drop, the system is tight.

3.6.5.2 After applying pressure, wait 2 minutes to ensure pressure does not drop.

3.6.6 The use of gas hose splitters is prohibited.

3.7 Use fire retardant materials aboard or immediately adjacent to the craft for staging, screening, temporary covers, shelters, deck covering, and ventilation ducts. Proper documentation of fire retardancy shall be available for review upon request.

3.7.1 Lumber, plywood, and staging boards, except that used for pallets, shall be fire retardant in accordance with Category Two, Type II, of MIL-L-19140.

3.7.2 Storage of material aboard the craft shall be limited to that which is required for work in progress.

3.7.3 Prior to bringing equipment or working material aboard the craft, its crating and packing shall be removed. If the equipment or material may be damaged during handling, the crating and packing shall be removed immediately after the equipment or working material is brought aboard and taken ashore for disposal. A small quantity of pallets may be staged in a location determined jointly by the contractor and the SUPERVISOR aboard the craft for use in materials handling operations. |

3.7.4 Flammable or combustible liquids with a flash point of 150 degrees Fahrenheit or less, including degreasers, solvents, and fuels, shall be kept in metal safety cans and shall not be left unattended. These liquids shall be limited to one day's supply for on board use.
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3.7.***5*** Ensure at least one unobstructed access to each main and auxiliary machinery space.

3.7.***6*** Shipboard temporary ventilation systems used for exhausting toxic contaminants and/or flammable vapors shall be constructed so that ducting within confined and enclosed spaces is under negative pressure.

3.8 Accomplish a fire prevention and housekeeping inspection on a weekly basis whenever work is in progress. The inspection shall be made jointly with the SUPERVISOR.

3.8.1 Submit one legible copy, in approved transferrable media, of a written report of the discrepancies and corrective actions, using Attachment A, to be taken to the SUPERVISOR within 4 hours after completion of the inspection.

3.9 Develop and implement a written fire safety plan in accordance with 2.2. Review the plan with contractor employees and subcontractors.

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

3.11 Conduct a firefighting and fire prevention conference in conjunction with the arrival conference or no later than 5 calendar days after start of

the availability for availabilities in excess of 30 days. This conference shall cover the contractor's fire safety and fire response plan for fire prevention and firefighting and the procedures that will be in use by the contractor and the region/installation or municipal fire and emergency services, as well as familiarize the contractor and the region/installation or municipal fire and emergency services with the craft arrangement, onboard fire prevention, and firefighting systems, equipment, and organization, and familiarize all parties with the scope of work and aspects of the work or craft conditions that have significance in fire prevention and firefighting.

3.11.1 The conference shall specifically address the following matters:

3.11.1.1 Fire alarm and response procedures

3.11.1.2 Contractor firefighting capability and procedures

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

3.11.1.4 Firefighting jurisdictional cognizance

3.11.1.5 Communication system for fire reporting and control or firefighting efforts

3.11.1.6 Craft arrangement including access routes, availability or firefighting systems (installed and temporary), and communication systems

3.11.1.7 Craft firefighting organization, systems, drills, and equipment

3.11.1.8 Craft, space, and equipment security consideration

3.11.1.9 Compatibility of contractor, and region/installation or municipal fire and emergency services firefighting equipment

3.11.1.10 Industrial work scope, including location of craft, and effect on firefighting systems, access, and communications

3.11.2 The firefighting and fire prevention conference shall include a table top fire drill.

3.12 Provide a portable 300 KW diesel generator with associated cables, lugs/plugs to supply emergency power during transits to and from dry dock when ship's emergency power cannot be used or anytime during the availability that the craft's power is not available as an emergency back-up to installed shore power.

4. NOTES:

4.1 In addition to CHT and Mogas tanks, Hydrogen sulfide (H_2S) may be found in AFFF, seawater, and firemain systems.

4.2 Booklet of General Plans and Tank Sounding Tables are available for review at the office of the SUPERVISOR.

4.3 The term "unmanned" is defined as without the physical presence of people in control; without a human operator.

Fire Zone Boundaries

ATTACHMENT A

ESH Discrepancy and Corrective Action Log

Attendees

Ship name/hull number:
Location:
Prime Contractor:

Date: **Time:**

No.	Point of Contact	Date Corrected	Location	Discrepancy	Corrective Action	Type 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

ATTACHMENT A

ESH 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.
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 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.