

**ENVIRONMENTAL, HEALTH AND SAFETY MANAGEMENT SYSTEM**

**Doc No:**

**JPPL-EHS-19-03-SWP-01**

**Revision No:**

**04**

**Effective Date:**

**15 September 2020**

**Title: OMC Hot Works & Fire Prevention**

<b>Revision No.</b>	<b>Description of Change</b>	<b>Clause No.</b>
02	Change of document numbering Change of company logo Change of EHS to EHS Insertion of content page	NA
03	Revision of document numbering	
04	Review of document format	
<b>Authority</b>		<b>Signature</b>
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## **1 PURPOSE**

- 1.1 To ensure that hot works are carried out safely in OMC.

## **2 SCOPE**

- 2.1 The hot work permit system allows proper control of all hot works and ensures that they are carried out in the safest possible way.

## **3 PROCEDURES**

### **3.1 General**

- a) All personnel should be aware of the hazards of working within the boundary of OMC, particularly with regard to fire. All personnel working on or offshore must play a part in reducing the risk of fire.
- b) Scheduled housekeeping inspections and ensure that fire protection equipment and prevention practices are included on the daily checklist.
- c) Smoking shall not be allowed operational areas, except in designated areas only.
- d) Flashback arrestors are to be fitted on all oxy-acetylene equipment, installed as a minimum between the hose and regulator and the hand piece and hoses and where additionally specified by the manufacturer.
- e) Paint and/or oil-soaked rags should be discarded in metal trash containers and any rags or easily combustible material such as paper or packing are removed from the work place at the end of each shift. Disposal should be in accordance with OMC Environment Management Plan.
- f) All hot work must be conducted under a Hot-work Permit to Work.
- g) The use of light oils, gasoline and diesel for cleaning is prohibited.
- h) Burning of rubbish is strictly forbidden on site.

### **3.2 Hot Work**

- a) Hot work is defined as burning, welding, and grinding. (However when on vessels, any activity which could generate a spark is considered hot work). All welding and cutting equipment shall comply industry standards, and be maintained in good condition.
- b) All Contractor welders or welding operators shall be qualified and certified for the work they will be doing.

- c) An adequate amount of dry power fire extinguishers shall be located within close proximity to hot work areas.
- d) A dedicated trained fire watcher shall be positioned at each hot work site or risk area. When performing hot work, the fire watcher shall be stationed at the workface to monitor for potential fire and personnel interface.
- e) Temporary fabrication shelters of flame retardant material (Heatex or equipment) shall be utilised for all hot works, which must allow sufficient air flow to clear fumes. Where this cannot be achieved, forced ventilation shall be used.
- f) Welding certain materials may give rise to hazardous fumes. In certain areas local exhaust ventilation will be used as agreed between the Contractor and OMC. In other more open areas respiratory protective equipment shall be worn. (Welding of galvanised fittings is to be avoided, but when required, respiratory protection must be worn).
- g) Flashback arrestors are to be fitted on all oxy acetylene equipment preferably installed between the hose and regulator or where specified by the manufacturer.
  - Welding
    - Welding shall, as a minimum, comply with SS510:2005: Singapore Standard for safety in welding and cutting (and operations involving the use of heat.)
    - Welding sets shall be in good condition, properly maintained, inspected by OMC.
    - Welding machine shall be earthed using an earth strap connected to a recognised ear.
    - Cables shall be frequently inspected to ensure the insulation is intact.
    - Proper cable connectors shall be used when connecting runs of cables.
    - Welders shall wear:
      - Dark lenses face-shields.
      - Welders gauntlets.
      - Long sleeved flame retardant overalls.
      - Safety glasses will be worn at all times.
- h) Welders shall wear safety helmets at all times, except whilst welding, when it is agreed as impractical, and written permission is granted by OMC.

- i) For overhead and positional welding, the Contractor shall provide leather aprons, sleeves etc as appropriate.
- j) Welding areas should whenever possible be screened off using flame retardant blanket (Heatex fire blanket or equipment) or other suitable material e.g. catch pans.
- k) All welding areas shall have sufficient flow in order to clear welding fumes. Where this cannot be achieved, force ventilation shall be used.

### 3.3 Other Operational Requirements

- Accumulation of combustible material and flammable products from the hot work area will not be permitted and shall be removed;
- All machinery and equipment will be kept in good running order to prevent fires caused by overheating or sparks;
- Ensure personnel use all chemicals only according to safety training instructions. Follow all precautions on the label and Safety Data Sheet (SDS) to prevent fires, explosions and other accidents;
- All fire detection and fire-fighting equipment will be maintained in good condition. Fire extinguishers shall be serviced according to the base plant requirements;
- Ensure that fire protection equipment is placed and maintained in proper locations as work progresses according to fire hazards identification in the JSA for the work scope.
- Prior to storing any fuels on the early works site, contractor shall have assessed the potential risks using the JSA process.

### 3.4 Storage of Materials

- a) The Contractor field supervisor shall ensure that flammable materials are stored properly, and areas designated for these activities are maintained in an environmentally sound and safe fashion.
- b) The Contractor shall also maintain on site a copy of the material's SDS and must ensure employees are trained to control a fire according to the recommendations on the data sheet.
- c) Compressed gases shall be stored in properly ventilated areas, keeping cylinders upright by securing / tightening them with a chain. Mixed gasses shall not be stored together.
- d) Oxygen and acetylene cylinders will always be stored segregated and separately by a minimum of 5 meters. Never handle oxygen cylinders

with greasy hands or gloves because oxygen and oil are an explosive combination.

- e) Store reactive chemicals with caution. Some chemicals are incompatible with others, so store them separately.
- f) Combustible materials shall not be stored within structures under construction. A proper and adequate area outside the structures under construction area must be designated for this purpose.
- g) Adequate ventilation must be ensured to prevent dangerous levels of gases accumulating, by ensuring high and low vents are located in external walls.
- h) The Contractor must designate a person to be in charge of controlling access to stores to ensure material does not accumulate on areas of the site where a fire potential could be created.
- i) Materials in work areas will be limited to actual needs and will be stored in a manner to protect combustible material from ignition sources.
- j) Storage areas will be kept clean, and materials will be neatly stacked or placed in an orderly manner.

### 3.5 Refuelling and Recharging Operations

- a) All personnel operating, or responsible for, machinery or vehicles shall switch off engines and engine driven equipment when refuelling. (This included diesel driven static equipment such as generators or welding machines).
- b) All vehicles and bulk vessels need to be grounded when transferring flammable liquids.
- c) Refuelling shall not be done when hot work using open flames, torches, arc welding, or other sources of ignition are nearby. Refuelling must be done outside in the area designated for this purpose.
- d) Do not vent, bleed or drain hoses, lines or equipment in the vicinity of hot work.
- e) Batteries for forklifts and other plant vehicles should be charged and changed in the designated area away from any hot work operations.

### 3.6 Fire Fighting Mediums

- a) OMC will ensure all fire protection and prevention equipment necessary for its construction activities is provided, including, but not limited to fire hoses, nozzles, extinguishers and fire retardant blankets.

b) The contractor will provide an adequate number of fire extinguishers of the correct size and type for its work activities as identified in the JSA for the scope of work. Extinguishers shall be maintained as per manufacturer's recommendations and inspected monthly, and tested annually.

- Fire Extinguishers

- Fire extinguishers used on OMC Operational shall comply with Singapore Standard Use and Maintenance of Portable Fire Extinguishers.[SS 578]
- Fire extinguishers must be located within easy access of all hot work and refuelling activities, including other fire prevention or control measures as specified by the JSA for the scope of work.
- Fire extinguishers shall be selected for the potential fire type. As a minimum they will be 9 Kg ABC type.
- All fire extinguishers used for hot work standby shall be Inspected and serviced prior to being mobilised to site.
- After mobilization, all fire extinguishers shall be inspected in a scheduled frequency, and expired/broken extinguishers must be replaced immediately.
- Any discharge of a fire extinguisher by the Contractor shall be reported to the OMC WSH Supervisor immediately

- Firewater Hoses

- Firefighting hoses shall be the regular red water hose.
- For hot work standby or any other utility use where the hoses may be connected to the firewater mains, regular firewater hoses shall be used.

## **4 RECORDS**

4.1 PTW - Hot Work on Vessel/Land Based

## **5 ATTACHMENTS**

5.1 NIL

## **6 REFERENCES**

- 6.1 Workplace Safety and Health (General Provisions) Regulations
- 6.2 All applicable legislation & other requirement