SOP-GEN-026 Hot Work & Welding

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1.0 Introduction

This SOP provides guidance to ensure that any hot work undertaken on TDI-Brooks vessels is done safely.

2.0 Scope & Applicability

This policy applies to all welding activities by either contractors or TDI-Brooks employees.

3.0 Definitions

Authorized Person- The person empowered by TDI-Brooks to authorize and sign a permit

Alternate Authorized Person- The Port Engineer may authorize any permit in the absence of the Authorized Person.

Hot work- grinding, welding, flame cutting or other fire or spark-producing operation

Fire watchman- a person assigned to stand with fire extinguishing equipment ready to put out any fire that may start. 29 CFR 1915.504 specifies that a fire watch is required if the following conditions are present:

(1) Slag, weld splatter, or sparks might pass through an opening and cause a fire;
(2) Fire-resistant guards or curtains are not used to prevent ignition of combustible materials on or near decks, bulkhead, partitions, or overheads;
(3) Combustible material closer than 35 ft. (10.7 m) to the hot work in either the horizontal or vertical direction cannot be removed, protected with flame-proof covers, or otherwise shielded with metal or fire-resistant guards or curtains;
(4) The hot work is carried out near insulation, combustible coatings, or sandwich-type construction that cannot be shielded, cut back or removed, or in a space within a sandwich type construction that cannot be inerted;
(5) Combustible materials adjacent to the opposite sides of bulkheads, decks, overheads, metal partitions, or sandwich type construction may be ignited by conduction or radiation;
(6) The hot work is close enough to cause ignition through heat radiation or conduction on the following:
(i) Insulated pipes, bulkhead, decks, partitions, or overheads; or
(ii) Combustible materials and/ or coatings;
(7) The work is close enough to unprotected combustible pipe or cable runs to cause ignition; or
(8) A Marine Chemist, a Coast Guard-authorized person, or a shipyard Competent Person as defined in 29 CFR 1915 Subpart B, requires that a fire watch be posted.

4.0 References

- 29 CFR 1915 Subpart P Fire Protection in Shipyard Employment
- 29 CFR 1915 Subpart D Welding, Cutting and Heating (Shipyard)
- 29 CFR 1915.14 Hot Work in Confined Spaces (Shipyard)

5.0 General Responsibilities

The Chief Engineer is the Authorized Person responsible for any hot work operations aboard the vessel. The Chief Engineer is responsible for entering the hot work permit

into a work order in the maintenance program and writing the work order number on the signed permit.

A fire watchman with a fire extinguisher will be on stand-by during welding or any other applicable hot work operations specified by 29 CFR 1915.504 to extinguish any ignited materials. The fire watchman may not have any other duties during fire watch.

6.0 Personal Protective Equipment (PPE)

Required PPE for grinding and welding operations is addressed on the PPE matrix. PPE required for other types of hot work will be determined in the Job Safety Analysis.

7.0 Equipment Inspection

Prior to beginning hot work activities, the worker must inspect the equipment and PPE to ensure it is free of defects or other issues that may compromise the safety of the operation. Equipment should be maintained and inspected according to manufacturer's recommendations.

8.0 Training

Only licensed welders will be allowed to conduct welding activities on load bearing structures. Other affected employees will be trained to recognize the general hazards associated with welding and other hot work and understand the permitting requirements.

9.0 Outdoor Grills

A hot work permit is not required to operate outdoor grills, including those on vessels. A fire extinguisher should be kept nearby, and the fire should not be left unattended.

Like any other work areas, grills and hot work areas should be inspected before use to ensure no fire hazards have been introduced.

10.0 Procedures

Before hot work may begin:

- The Chief Engineer or Port Engineer must
  - review any proposed hot work
  - evaluate the associated hazards

    - ensure that employees know how to conduct the job safely
    - and sign off on the hot work permit
- A copy of the permit must be posted at the work site
- If welding, a fire watchman must be standing by
- Main fire extinguishing system on standby if appropriate

After hot work is complete:

- Monitor work site for 30 minutes after work is complete
- Remove the posted permit copy
- Have Chief Engineer sign off on the permit
- And file completed permit on the bridge
- Note in the work order that permit is complete and filed on bridge

11.0 The Permit

All permits require at least two signatures in order to be valid. No one may write their own permit without notifying and obtaining the signature of a second party.

12.0 Welding Load Tests

Any welding that will bear a load must be load tested prior to use and have load test certificate issued. The certificate is to be filed in the Lifting Gear Register and a scanned pdf of the certificate attached to the work order and emailed to **LiftGear@tdi-bi.com** .