JOSOP 607- Repair Procedure for Flowlines, Pipelines, Vessels, Tanks, Separators and other equipment

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Version 1.0
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1.0 Purpose, Objectives and Scope

1.1 Purpose
This procedure is established to provide guidance on the effective repair of trunkline, flowlines and other equipments that contain crude oil products. It is intended to optimize incidence response resources and provide pro-active maintenance to preclude additional leaks.

1.2 Objective
This procedure applies to all oil or product containing equipment

1.3 Scope
This standard covers work performed by JO employee and their delegates and contractors within JO operation control.

2.0 Requirements
Achieve zero products on the ground

3.0 Roles, Responsibilities and Training Requirements
Roles must be clearly defined, and personnel must meet the training and competency requirements of this standard prior to starting work. JO or country regulations may specify additional training and competency requirements. All staff who handles oil or hydraulic fluids is responsible for following this practice.

All staff in these four divisions who handle oil or hydraulic fluids are responsible for following this procedure.

POD
- Isolated
- Schedule the work
- Excavation permit
- MSW- managing safe work

Mechanical Maintenance Division
- Piping maintenance
- Static Equipment maintenance
- Heavy equipments
- Vacuum trucks

Contractors
- Contractors invited on field to perform a service involving handling, providing or transferring of oils

EHS
- Maintain the documents
4.0 Standard Instructions

4.1 Procedure

The following list summarizes the minimum required safety equipment during pipeline repairs:

- Fire extinguisher
- Fire retardant clothing
- Eye goggles
- Ear plugs
- Full or Air mask
- Safety Boots
- Bell hole liner material
- Vacuum Trunks

Five phases can be engrossed to achieve the procedure:
1. Isolation
2. Excavation
3. Visual inspection
4. Repair
5. Backfill and completion.

These phases are initiated immediately following these emergency response and notification measures. For Procedures regarding pipe line fabrication and installation in field.

4.1.1 Isolation

Isolation and securing the proper emergency response to a line failure is of utmost importance.

- Secure the safety of the area
- Isolate the source of the release and commence draining of the line
- As appropriate, for spills more than 1 barrel notify fire and security emergency dispatcher
- Check for gas presence prior to welding in areas containing flammable gas or liquids
- Notify production operation division and corrosion control section (contact numbers are at the end of this procedure)

Prudent excavation may be conducted as part of the initial emergency response. However, once the operation becomes a controlled worksite following the initial emergency response, safe work planning as provided by JOSOP 400 WORK PERMIT PROCEDURE and (for excavations deeper than 30 cm) JOSOP 401 EXCAVATION AND ENGINEERING WORK PERMIT Apply.
4.1.2 Excavation

1. A lined bell-hole may be dug initially to drain the line and install a clamp as a temporary repair measure. This allows the line to return to operation. However, the entire underground section shall be excavated and exposed when it is safe to do so.

2. Excavate the entire underground section for visual inspection.

3. In case of multiple lines adjacent to each other, all lines shall be exposed for visual examination and onsite determination of repair requirement. Hand shovels may be use to expose the lines.

4. Clean the external surface of the pipe for visual inspection. Corrosion personal shell be onsite at this stage.

4.1.3 Inspection

Corrosion personnel shall be onsite to inspect and determine the root cause of the leak. (External corrosion, Internal corrosion, Welding defects, Mechanical damage. etc). Inspection may also include Ultrasonic Wall thickness measurements if internal corrosion is deemed to be the case. Leak testing must include all the new joints of a piping system. Even if new piping subassemblies are tested in the shop, the field joints between these subassemblies must be tested in the field. A leak or hydro test has to be done as specified by the responsible engineer and will done according to the reference JO Engineering Standards. All items must receive a leak or hydro test before commissioning or a written deviation is required.

4.1.4 Repair

The first consideration when planning a repair is understanding the root cause of the problem that led to the repair. On the basis of this understanding, a repair strategy is established.

A. Accidental Spill of Oil / Hydraulic Fluid

1. When possible, temporarily block off the area so that people or equipment will not come in contact with the oil/ fluid.

2. Polyethylene lined bell holes or trenches should be integrated. Once the spill is contained, any standing fluid is removed by pumping or vacuumed into a tank.

3. If the oil or fluid spill is the result of a leak from fixed equipment (eg. Transformer, Vessel, Tank. Seperator), place a container under the leak to capture drips.

4. If the Oil or fluid is from a mobile equipment, contain the oil with booms or temporary curbing to limit movement of the equipment until repairs are made.

5. Dispose of any waste materials properly, refer to JOSOP 602.
B. All other Hazards

1. Proper grounding shall be used to reduce hazards of possible Static discharge, non-sparking tools are to be used at all times.
2. Any Pyrophoric materials found in location like Sulphur deposits shall be drenched with water and isolated.
3. If the spilled material is potentially flammable or corrosive, or is fuming, smoking or exhibiting other unusual properties, the reporting employee (or her/ his manager) should evacuate the immediate area and prevent others from entering the area, when it is safe to do notify fire and security emergency dispatcher.
4. Any Hydro testing fluids should be treated/disposed according to table 2 of Waste Management Methods found in JOSOP 602.

4.1.5 Backfill & Completion

1. All contaminated soil shall be removed from the site. The appropriate stockpile location for this material is the oily soil stockpile located south east of the MGC Evaporation pits along the Sub-Center 19 roadway. The soil shall be managed in accordance with the provisions of JOSOP 602 – Waste Management and Minimization Plan.

2. Backfill of the location shall be with clean, uncontaminated soil.

3. Upon completion the location shall be returned to its original status for production operations.

4. For disposal of contaminated bell hole liner material refer to JOSOP 602.

5.0 References

The following is a complete list of the documents referenced by this standard:

Table 1. Document List

<table>
<thead>
<tr>
<th>Title</th>
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<tr>
<td>Onshore Oil Production Facilities -- 40 CFR 112.7(e)(5)</td>
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<tr>
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<td>JO Engineering Standards, 015-IH-1004 Pipeline pigging and Hydrostatic test, 015-CG-1001 THE USE OF BRACKISH WATER FOR SITE HYDRO TESTING EQUIPMENT, ASME B31.3 and B31.8</td>
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## 6.0 Document Control

### Table 1: Document Control Information

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