

	<b>HOT OILING OPERATIONS</b> ALL-HSE-PRC-172	<b>Retention Code:</b> <i>CG01 - CA</i>
		<b>Revised:</b> <i>March 2015</i>
<b>Owner:</b> <i>HSE Performance Assurance</i>	<b>Approved By:</b> <i>Manager, HSE Performance Assurance</i>	<b>Review Frequency:</b> <i>Five years or less</i>

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## 1.0 Purpose

This Procedure establishes the minimum requirements for performing hot oiling operations across all ConocoPhillips Canada (CPC) operations. This procedure includes hot oiling operations for wells (wellheads and tubulars), equipment (dehydrator towers and other vessels) and pipelines/flowlines.

## 2.0 Hazards to Mitigate

- Chemical exposure
- Exceeding the maximum allowable working pressure or temperature of surface and downhole equipment
- Flammable liquids and gases
- Hot fluids and surfaces
- Line of fire
- Potential ignition sources
- Rotating equipment
- Slips, trips and falls
- Static electricity
- Toxic gases
- Trapped pressure

## 3.0 Procedure-Specific Roles and Responsibilities

### 3.1. Work Site Supervisor/Worker in Charge

- Ensure equipment placement follows Equipment Spacing Procedure (ALL-HSE-PRC-SOP-173).
- Complete Hot Oil Checklist (ALL-HSE-FRM-2039).
- Inspect hot oiling equipment prior to starting work.
- Inspect equipment to be hot oiled to ensure the job can be done safely.
- Pressure test piping systems to 1.5 times the maximum anticipated pumping pressure.
  - Once the pressure has stabilized, hold the test for 10 minutes.
  - Do not exceed the maximum allowable working pressure rating of the equipment.
  - While filling lines for the test, vent all air from the lines before pressuring them up.
- Witness or verify the pressure testing of the temporary piping system to be used in the work.
- Ensure the maximum test pressure and working temperature of the equipment is not exceeded.
- Verify that the communications equipment is available and working.
- Remain on site from the time the hot oil unit begins pumping until circulation is complete.
- Ensure there is some type of wind indicator (sock) so that the wind direction is known at all times during the hot oiling operation.
- Ensure lease is clear of hazards (e.g. H<sub>2</sub>S, gas leaks, spills, etc.).

- Ensure metal drip containers used under hose or piping connections are electrically bonded to the system.
- Ensure compliance with the Controlled Products procedures (ALL-HSE-PRC-153).

## **4.0 Procedure**

- Prior to commencing work, consider Hot Work (ALL-HSE-PRC-175) requirements.
- The work site supervisor must be on site at all times during the hot oiling job (from the time the hot oil unit begins pumping until circulation is complete); however, in case of temporary absence, ensure two-way communication is in place during the entire job and all relevant information is communicated before starting the work.
- A Pre-Job Hazard Assessment (PJHA) (ALL-HSE-FRM-SOP-2105) or permit must be completed prior to all hot oiling operations.
- A Hot Oil Checklist (ALL-HSE-FRM-2039) is required for all hot oiling operations and must be attached to the PJHA/permit.
- Obtain material safety data sheets (MSDSs) for any chemicals or fluids to be used in the work.
- The PJHA/Permit Issuer will determine the atmospheric testing requirements (i.e. interval or continuous).
- Ensure signs are conspicuously placed to warn people approaching the work site of a potentially hazardous condition (e.g. H<sub>2</sub>S).
- Provide suitable lighting for work that will take place after dark.
- All hatches must be closed and latched prior to beginning to pump the fluids.
- Hot oil unit must be vented to a safe area (e.g. downwind). Vent line must be placed a minimum length of 10 m (33 ft) downwind of the hot oiler away from sources of ignition
- Read and record tubing, casing and facility pressures before treatment.
- In the event of vapor locking of the heater or pump, shut down the hot oil unit immediately and block in the well or facility.

### **4.1. Additional Equipment Required**

#### **4.1.1. Additional Personal Protective Equipment (PPE)**

- Goggles and face shield.
- Appropriate hand protection for heat and chemicals.
- Self-contained breathing apparatus (SCBA) where applicable.
- Minimum of three 80 B-C dry chemical fire extinguishers.
- Burn kit, including a water-jel fire blanket.
- Eye wash station/unit.

#### **4.1.2. Additional Equipment**

- Grounding/bonding cable (for grounding).
- Warning signs.

- Hoses or liner secured.
- Positive shut-off on diesel units.
- Mobile communication equipment (as required).
- Atmospheric testing equipment, where required.

## **4.2. Equipment Placement**

- Ensure equipment spacing follows the guidelines contained within the Equipment Spacing Procedure (ALL-HSE-PRC-173).
- If lease size restrictions create deviations from those in the Equipment Spacing Procedure, take additional precautions due to the flammability of the liquids and pressures involved.

### **4.2.1. General Placement Recommendations**

- Do not park equipment under power lines.
- Ensure easy access around all equipment on location.
- Park the unit upwind of the well or facility at a distance of no less than 25 m from the well or facility being serviced or any other facility that is in service.
- Ensure wheels, on at least one axle, are blocked with chocks both in front and rear.
- When return fluids are hot or contain flammable vapors (e.g. heating frac tanks) and are to be sent to a vented storage tank, ensure the tank is in compliance with the Equipment Spacing
- A minimum of three 80 B-C dry chemical fire extinguishers must be strategically placed around hot oiler at points of egress for ease of access in emergency evacuation/rescue situations.
- If required, breathing apparatus is to be positioned at the work stations of all essential personnel.
- Extra breathing apparatus must be positioned at a designated safe area.

## **4.3. Equipment Inspection**

### **4.3.1. Hot Oil Unit**

- Check to ensure all belts, pulleys and rotary shafts are properly guarded.
- Ensure the heater has an appropriate flame arrestor in place as applicable. Check flame arrestor for test records.
- Ensure all hot surfaces of the heater are properly guarded.
- Determine how tanks will be gauged during the procedure. External gauges are preferred.
- Check for a fully charged fire suppression system (CO<sub>2</sub> or N<sub>2</sub>) and an air shutdown system, which can be activated by the hot oil unit operator at the control console.
- Ensure the unit is equipped with an automatic shutdown of the fuel supply to the heater should the fluid discharge exceed 150°C.

- Confirm hot oil unit's function test of burner shutdown switches.
- Verify that the heater stack is in position.
- Verify that equipment bonding is completed.
- Check for a pressure relief valve after the pump discharge and ensure that it is working and can be reset. Check for calibration certificate of equipment.
- Inspect the piping for condition. Dented or deformed pipe must not be used.
- All piping should be suitable for the operation to be performed with appropriate swivel joints where pump discharge pressure will exceed 1,034 kPa. Do not use flexible line.
- Ensure the lines between the pump and the equipment are hydraulically pressure tested.

#### **4.3.2. Transfer Equipment (Tank Trucks, etc.)**

- Inspect the grounding/bonding equipment from the transfer equipment to the hot oil unit.
- Inspect the condition of any transfer piping for use between the tank truck and the hot oil unit.

#### **4.4. Fluid Transfer**

- When tank truck or other bulk units are being used to transfer fluids to hot oil unit, proceed as follows:
  - Transfer unit will be parked downwind from hot oil unit with wheels chock blocked.
  - Transfer unit will be bonded to hot oil unit.
  - Hot oil unit may have to shut down when tank truck is loading from on-site tanks due to gas vapors venting off tank and/or gas surges, sealed tank trucks are preferred.
  - When transferring fluid to hot oiler from tank truck ensure hot oiler gauge is operating properly and hot oiler operator is at the controls and in clear sight and communication with tank truck operator which is transferring fluid to hot oiler unit.

#### **4.5. Line Pipe Safety Recommendations**

- Rig up the hot oil unit to the production facility with swivel joints to allow for expansion and vibration.
- Secure the piping from lateral movement by staking or using another approved method (e.g., cables, safety lines, line blocks under threaded half of the union).
- Install the blowdown valve and check valve in the line pipe near the well or facility. Check valve assembly shall have a minimum ½" bypass.
- Ensure a pressure gauge is in place to monitor flowline and wellhead pressures in case of plugging while pumping. Check gauges for accuracy. Do not exceed maximum allowable working pressure (MAWP) or maximum temperature of piping and facility equipment.

## 5.0 References

- Equipment Spacing procedure (ALL-HSE-PRC-SOP-173)
- Hot Work procedure (ALL-HSE-PRC-175)
- Controlled Products procedure (ALL-HSE-PRC-153)
- Hot Oil Checklist (ALL-HSE-FRM-2039)
- British Columbia OH&S Code, Part 23 Oil and Gas

## 6.0 Document Retention

Records must be retained in accordance with ConocoPhillips' Document Retention Schedule.

Record	Owner	Classification	Retention
Hot Oil Checklist	Business Units	HE11 – CA	2 Years

**Appendix A – Revision Record**

February 17, 2015	Previous Information	Change Assessment
Complete document re-write to update format and content		Low
Removed requirement for 150 lb extinguisher and replaced weights with 80-BC to accurately represent extinguisher specifications.	One 150 pound and/or a minimum of three 30 pound dry chemical extinguishers...	Low – 150 lb extinguishers not utilized by Hot Oiling Companies