BP OIL -- TOLEDO REFINERY

	Refinery Wide	**Procedure No.:** SAF 038
Effective Date: December 7, 2009	Activating Steam Lines	**Rev. No.:** 4 MOC#: M20094581-001
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SCOPE	This procedure describes the steps required to activate steam lines (600, 330, 150, 100, 50 and 10 psig) which have been deactivated for maintenance or equipment associated with the steam line.
HEALTH **Special PPE & Special Hazards**	N/A
SAFETY	High pressure steam can be invisible while escaping from bad flanges or cracks in piping. Hot surfaces Hot water
REFERENCE DOCUMENTS	N/A
SPECIAL MATERIALS & EQUIPMENT	N/A
QUALITY	Activation of steam line
ENVIRONMENTAL	NA

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OVERVIEW

When a steam header or line is shut off, steam condenses to water. This water collects in the low points of piping. If this water is not removed before full flow is resumed, it will place a great force against the pipe. This force causes “water hammer” which can rupture piping or damage fittings and equipment. To prevent damage, water must be removed before steam lines are fully activated.

Activating steam lines is a slow process of adding steam once the line has been drained of water. The piping must be allowed to expand slowly to prevent damage. Expansion loops are added to piping to help relieve the expansion. Piping should be checked periodically while heating up to verify that the piping is not being restricted in its expansion.

Steam traps are used to remove water from the system. These steam traps may not always remove the water from the system, especially in isolated legs of the steam lines. Steam traps may also become inoperative because of freeze damage or broken parts. Traps should be periodically inspected for good operation by placing a small stream of water on the trap. If the water boils, the trap is working.

When activating steam lines, it is very important to stay in communication with associated units and boiler operator. Taking steam too rapidly may cause the boiler to bog down or shut down, resulting in unit upsets or shutdowns.

1.0 Verify Steam Lines are Ready for Activation.

__1.1 Verify the work list items are complete and the WCC-Permit is signed off as complete.

__1.2 Verify all blanks are pulled.

__1.3 Verify the following:
- Parted flanges are tight and have the correct gasket material
- Valves pulled for repair are re-installed
- Safety valves pulled for repair are re-installed

WARNING

Before removing any chains and locks in De-LOTOing, verify all work has been completed to prevent serious injury.

__1.4 Remove chains and locks of LOTO’d equipment which has been verified as ready for use.

2.0 Remove Water from System and Heat Up Lines.

__2.1 Open all low point and dead leg bleeds to remove water.

__2.2 Notify boiler operator (x-6343) and associated unit operators that steam will be cracked into steam lines.

CAUTION

Opening the steam into cold lines too quickly will cause severe damage to piping and equipment.

NOTE: Large lines and/or high pressure steam have bypasses around the supply line block valve. These bypasses should be used

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until line is hot and free of water.

2.0 Remove Water from System and Heat Up Lines (continued)

__2.3 Unseat supply block valve into steam line.

NOTE: If the line is long or in very cold weather, the block valve will have to be opened several turns over time to heat and remove all water.

__2.4 Allow water to drain from the lines while steam is being put into the line.

__2.5 As steam becomes dry (no water) pinch off the bleeds and continue to vent steam until piping is approximately the same temperature as the steam.

__2.6 Slowly open the supply valve while closing bleeds until supply is open and bleeds are closed.

__2.7 Verify all steam traps are operational.

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