PURPOSE: To define Procedure for Water and Steam charging

SCOPE: This SOP is applicable at NTPL

RESPONSIBILITY: Board Engineer/ Shift Engineers

REFERENCE: As per normal procedures adopted everywhere.

ACTIVITIES:

The following procedures to be followed for charging water or steam in a line, equipment or system before taking it into service. Time for charging will evolve with experienced gained in that procedure so that advance planning becomes more accurate during light ups and shutdowns.

Procedure for charging Water into a pipeline, pump or System:

i) Ensure all drains are closed and air vents kept opened before opening the root valve and charging a line or system.

ii) Use the IBV or charging bypass valves initially to admit water slowly without causing any abrupt pressure rise or water hammering in the line.

iii) During *initial* charging of Feed Water or Main Condensate lines it is always a good practice to open the discharge valve of BFP/CEP and allow filling by gravity making use of the static head available at Deaerator / Hot well, before starting of any pumps.

iv) After air release through vents at lower pressures, they have to be closed. Thereafter start pump and open valves to full gradually. The idea is to transmit pressure gradually after complete filling of the lines.

v) After achieving full pressure rise in the system, give a final check to ensure all vents and drains are in closed condition with no passing.

vi) CW lines also should be gradually charged in this manner with CW7&8 partially choked initially with one pump in service. After air vents closing and starting of the second pump all CW valves should be full open.

vii) In a running unit TGDMCW or SGDMCW pumps are to be charged very gradually at local by opening the suction valves manually. Allow sufficient time for charging of the complete volume. Observe the flow sound to subside after completely charging and also note down the suction or discharge side local pressure indicators to stabilize. Special care is advised here as we have seen a series of unit trips on 08.09.2020 due to complete negligence of procedure.

Procedure for charging Steam into a pipeline or System:

1) Ensure all drains and air vents are open before opening the root valve and charging a line or system with steam.

2) Crack open the root valve for charging and allow sufficient time for the steam to heat up the downstream pipe line metal and equipments body. As the metal heats up the steam gets condensed and drains through the drain lines. Choke the drains to crack open after all the condensate water is drained. Vents also be choked later depending on the pressure rise in the system.

3) As the line pressure builds up, close the vents completely. The vent closing pressure varies with different systems.

4) After fully charging, check completely for any passing in the vents or drains and hot tighten.

5) If the procedure is scrupulously followed, allowing sufficient time for draining the condensate and air release, there won't be any hammering due to condensation.

Note: Isolating and draining a system is also similar but in the reverse order. In water lines isolate pressurizing devices, relieve pressure by opening air vents gradually and finally open the drains and empty the system. In steam lines, after isolating the source kill the pressure by slowly opening the air vents and finally open the drain to empty out the condensate.

RECORDS:

Record Title	Record No.	Location	Responsibility	Retention Time

VERIFICATION, CORRECTIVE AND PREVENTIVE ACTION:

HOD shall ensure adequacy and implementation of the above procedure through periodic interaction with department personnel, and regular review and monitoring of the processes and compliances. In case of any observed deviation, corrective and preventive action shall be immediately undertaken.

HOD