



## DALMIA CEMENT (B) LIMITED –DPM



### MECHANICAL SOP

Issue No. 02	Rev. No: 01	Effective Date: 22.05.2015	SOP/MEC/31
Issued By: S & P		Approved By: Head - Mech	

### MAINTENANCE OF WTP PUMPS (BEARING REPLACEMENT)

**Scope:** To make pump overhauling by maintenance

**PPE:**

1. Safety helmet
2. Safety shoe
3. Safety goggles
4. Gloves

**TOOLS:**

1. spanner set
2. chain blocks
3. Slings
4. D-shackles
5. Hydraulic jack

**Hazard Analysis:**

**Risks associated:**

Fall of motor/pump

Fall of tools,

Fall of Hydraulic puller

**Mitigating Measures**

Use correct methods to remove

Carry the tools in tool bags

Use correct methods

**Procedure:**

1. Take the electrical permit for pump and remove the electrical connection.
2. Clean the outer surface thoroughly.
3. Remove the motor from base frame.
4. Remove the pump casing by unscrewing the casing nut and bolts.
5. Remove the coupling with hydraulic puller.
6. Remove the gland / mechanical seal
7. Remove impeller by unscrew the locking nut.
8. Remove the shaft sleeve by using brass rod and hammer.
9. Remove the circlip provided to the shaft at the pump side.
10. Remove the bearing and shaft assembly by unscrewing the bolts provided to the bearing housing.
11. Remove the external circlip provided to the bearing housing.
12. Remove the oil seals from bearing housing.



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### **MAINTENANCE OF WTP PUMPS (BEARING REPLACEMENT)**

13. Remove the bearings from the bearing housing and shaft by means of hammer and brass rod.
14. Check the pump casing visually for any holes/damages.
15. Check the impeller, shaft and sleeve if any cracks or damage replace with new one.
16. Check the shaft at bearing steps by pressing the bearing, if the bearing is loosely fitted to the shaft do knurling to the shaft.
17. Check the shaft for bend, if any bends is observed replace the shaft.
18. Clean all parts thoroughly with diesel.
19. Replace with all new gaskets and oil seals.
20. Fit the bearings to the shaft with the help of brass rod and hammer or bearing heater.
21. Fit the bearing housing to the drive end bearing shaft.
22. Fit circlip to the bearing housing with the help of circlip player.
23. Insert the bearing housing and shaft assembly in bearing frame.
24. Fit oil seal to the bearing housing.
25. Fit the pump side circlip of the shaft by means of circlip plyer.
26. Fit the shaft sleeve, gland follower / mechanical seal to the shaft.
27. Tight the impeller to shaft.
28. Fit the pump casing to the bearing frame.
29. Fit the coupling for pump shaft.
30. Fit the motor at base and do the realignment of motor and pump.
31. Give the electrical connection and clear the line clearance.
32. Open the pump inlet and out let valves.

#### **Emergency Shut- off:**

If body injury is there, First aid will be given and inform to the Safety department or Call Emergency number - 222/9865125176/9865177444.

#### **Records/Annexure:**

Refer LOTO standards/permit & JSA is enclosed below.



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### MAINTENANCE OF WTP PUMPS (BEARING REPLACEMENT)

### JOB SAFETY ANALYSIS :( JSA)

Job Safety Analysis	Job: Replacement of Blow Bars	Date: 01 – 06 - 2012	Analysis by SECTION ENGINEER	Reviewed by: SECTION HEAD
Title of employee doing job : Section engineer	Supervisor: Section In charge	Department: Mech	Section: LS Crusher	Approved by: HOD

Reqd./recommended PPE's : Safety Helmet, Safety shoe, Hand Gloves, Safety goggles. Nose mask.

Sl.No	Sequence of Basic Job Steps	Potential Hazards	Recommended Safe Job Procedure	What could go wrong	Corrective action
1	Removal of motor from base frame	Major injury	Use correct load tools for removing	At the time of handling motor it may slip and fall on to any body	Use proper tools for shifting
2	Remove the coupling	Hyd system failure and may cause injury	Check all the connections of hydraulic system and give load from one side	Hose pipes may cut and pressured oil may harm the body	Check all hose condition and connections
3	Removal of bearing and sleeve	Tools may slip	Using proper tools . not to do short cuts	Improper size spanners may cause slip	Use correct size tools
4	Removal of bearing and sleeve	Chip may enter into body	Do not stand opposite at the time of hammering	By using M.S. tools for removing , chips may release from the shaft or other parts	Use Brass rod for removal of bearing

HEAD MECHANICAL

HEAD TECHNICAL