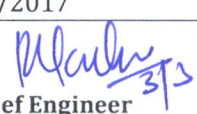


| EVENT ANALYSIS REPORT  |                       |                        |                        |                                       |
|--|-----------------------|------------------------|------------------------|---------------------------------------|
| UNIT NO : 04   | TPS : Khaperkheda TPS |                        | Unit Capacity : 210 MW |                                       |
| 1. *HO Code :  | Station Code : T003   | Time -13:52 Hrs        | Date - 09/02/2017      | No. of days from last sync. : 20 days |
| 2. Operating conditions at the time of Event :-  |                       |                        |                        |                                       |
| Load   |                       | Coal Cycles in service |                        | Oil Support                           |
| 90 MW  |                       | A & C                  |                        | NIL                                   |
| 3. Nature of Event : T. A. set forced withdrawn due to boiler tube leakage at LTSH zone.   |                       |                        |                        |                                       |
| 4. Name of First Up , Main Protections & Protection on which GCB tripped :<br>Hand Tripped (First Up), MFT Operated, Turbine Trip, Trip Gear Operated.   |                       |                        |                        |                                       |
| 5 A) Observations : On dt. 09/02/17 at 13:00 hrs. set was on load at 188 MW with five coal cycles in service (B - U/P) & no oil support. DM make-up found increased to 80 TPH and also abnormal sound was noticed near LRSB No. 77 at 42 mtr level. After confirmation of boiler tube leakage, coal mills - D, E & F were withdrawn one by one for reducing load in order to withdraw the set. Finally, set was withdrawn at 13:52 Hrs. when the load was 90 MW and coal cycle - A & C in service. GCB opened on Reverse Power Protection.   |                       |                        |                        |                                       |
| 5 B) Remedial Action/work done :<br><u>Primary Failure</u> - LTSH Coil No. 120 Tube No. 5 found punctured.<br><u>Secondary failure</u> -<br>(1) LTSH Coil no. 120 tube no. 3 (90° bend), tube no. 4 (90° bend), tube no. 6, 7 & 8 found eroded.<br>(2) LTSH Coil no. 119 tube no. 3, 4 (90° bend) & tube no. 5 found eroded.<br>(3) LTSH Coil no. 118 tube no. 4 (90° bend), tube no. 5 found eroded.<br>(4) LTSH Coil no.117 tube no. 5 found eroded.<br>(5) RHS Steam cooled wall tube no. 8 found punctured and tube no. 7, 9 & 10 found eroded.<br><u>Work Carried Out</u> -<br>(1) Replacement of LTSH Coil no.120 tube no. 5, 6, 7 & 8 and 90° bend of tube no. 3 & 4, carried out.<br>(2) Replacement of LTSH Coil no.119 tube no. 5 and 90° bend of tube no.3 & 4, carried out.<br>(3) Replacement of LTSH Coil no.118 tube no. 5 and 90° bend of tube no. 4, carried out.<br>(4) Replacement of LTSH Coil no. 117 tube no.5, carried out.<br>(5) Replacement of RHS Steam cooled wall tube no. 7, 8, 9 & 10, carried out.<br><b>Total No. of HP welded Joints = 46 Nos.</b> |                       |                        |                        |                                       |
| 6. Root Cause Analysis : Localized Flue gas erosion of tube no. 5 of LTSH coil no. 120.  |                       |                        |                        |                                       |
| 7. Preventive action suggested (Short Term) :<br>S.S erosion control screen in the area between SHH9 header and Economiser intermediate header (Chimney side) will be installed as per C.A.V.T report at the earliest opportunity.   |                       |                        |                        |                                       |
| 8. Preventive action suggested (Long Term) :<br>Complete Replacement of LTSH coils will be carried out during overhaul of Unit No.4.   |                       |                        |                        |                                       |
| 9. Similar event occurred last time:   | Unit No # 4 , 210 MW  |                        | Time : 02:04 hrs.      | Date : 01/06/2014                     |
| Event : T.A. withdrawn to attend "Boiler Tube Leakage" at 'LTSH Zone'.   |                       |                        |                        |                                       |
| Remedial Actions/work done :<br>1. Replacement of LTSH Coil No. 120 of Tube No. 5,6, 7,8,9,10 & 11.<br>2. Replacement of LTSH Coil No. 119 of Tube No. 5,6, 7,8,9 & 10.<br>3. Replacement of LTSH Coil No. 118 of Tube No. 4,5,6, 7 & 8.<br>4. Replacement of LTSH Coil No. 117 of Tube No. 5,6, 7,8 & 9.<br>5. Replacement of LTSH Coil No. 116 of Tube No. 7,8,9,10 & 11.<br>6. Replacement of LTSH Coil No. 115 of Tube No. 10 & 11.<br><b>Total No. of HP Weld Joints = 137 Nos. (62 Repair Joint + 75 End Connection Joint)</b>   |                       |                        |                        |                                       |
| 9A. Implementation Status of Long Term/Short Term measures stated at Sr No 7 & 8 :   |                       |                        |                        |                                       |
| 10. Boiler lighted up  | Time - 09:58 Hrs      |                        | Date - 11/02/2017      |                                       |
| 11. T-A Set Synchronized   | Time - 14:48 Hrs      |                        | Date - 11/02/2017      |                                       |
| 12. Remark :   |                       |                        |                        |                                       |
| <br>Chief Engineer  |                       |                        |                        |                                       |

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| <b>13. Recommendations of Works Section:</b>                                       |
| <b>1. Procurement/Replacement Plan:</b>  |
| <b>2. Operational Error:</b>   |
| <b>3. Delay in Maintenance:</b>  |
| <b>4. Delay in bringing back the Unit:</b>   |
| <b>5. Training of Staff:</b>   |
| <b>6. Whether remedial action is completed satisfactory &amp; point is closed:</b> |
| <b>C E/Dy C E (Works)</b>  |