EVENT ANALYSIS REPORT				
UNIT NO : 01	**TPS : Khaperkheda TPS**		**Unit Capacity : 210 MW**	
1. *HO Code :	**Station Code : T003**	**Time – 03:48Hrs**	**Date - 02/12/2016**	**No. of days from last sync. : 21days**

2. Operating conditions at the time of Event :-

Load	Coal Cycles in service	Oil Support
67MW	A	Nil

3. Nature of Event: T.A. set forced withdrawn to attend boiler tube leakage at LTSH Zone.

4. Name of First Up, Main Protections& Protection on which GCB tripped :
Flame Failure**(First Up)**,Loss of All Fuel, Turbine Trip Operated, Gen. Protection Operated, Gen. Reverse Power Prtn.

5A) Observations: On dt. 02/12/2016 at 03:00 hrs, set was on load at 155 MW with five coal cycles in service (E -S/by) and no oil support. Heavy leakage sound was noticed from LTSH zone, DM make up found increased and drum level found maintaining around(-) 50 mm. Difference between feed flow and steam flow found increased above 50 t/hr. After confirming boiler tube leakage, load reduced gradually by withdrawing coal cycle one by one. At03:48 hrs boiler tripped on 'Flame Failure' protection when load was67 MW with coal cycle A in service. This led to set tripping on boiler interlock. GCB opened on Reverse Power Protection.

5 B) Remedial Action/work done:
Primary Failure - LTSH Lower Bank Coil No.116 Tube No. 1from bottom found punctured near LTSH inlet Header SHH9 and coil connecting tube.
Secondary failure –
(1)LTSH Lower Bank Coil No.116, Tube No. 2 found punctured& Tube No. 3 found eroded.
(2) LTSH Lower Bank Coil No. 117, Tube No. 1 &2 found punctured and Tube No. 3 found eroded.
(3) LTSH Lower Bank Coil No. 114, 115, 118, 119 & 120 Tube No. 1, 2 &3of each found eroded.
Replacement of punctured & eroded tubes carried out. D.P. test of all butt weld joints near SHH9 header stubs carried out. Covering of SHH9to LTSH coil connecting tubes by S.S. half round protective shields also carried out. (Total 42 Nos. HP welds joints).

6. Root Cause Analysis: Pulsating load variation due to cyclic loading & unloading resulted into thermal stress rupture of tube no. 1 of LTSH lower bank coil no. 116 connecting tube between SHH9 header and LTSH Coils.

7. Preventive action suggested (Short Term): Gradual loading & unloading during load variation is to be monitored strictly and necessary instructions have been displayed in control room to carry out loading and unloading within stipulated time period. Circular (No.618 dated 03.12.16) in this regard issued to all the concerned.

8. Preventive action suggested (Long Term) :-
(1) Replacement of connecting tubes between LTSH inlet header SHH9 and coil connections will be carried out during forthcoming AOH of Unit No.1
(2) DP test & ultrasonic test of all stubs connection joints of LTSH coils with header SHH9 will be carried out during forthcoming AOH of Unit No.1
(3)Erosion profile mapping & CAVT of LTSH zone will be carried out during forthcoming AOH of Unit No.1

9. Similar event occurred last time:-	**Unit No # 1, 210MW**	**Time:**14:51 hrs.	**Date:**11/11/2016

Event:-T.A Set withdrawn to attend "Boiler Tube Leakage "at 'LTSH Zone'.
Remedial Actions: Primary Failure- LTSH Lower Bank Coil No. 87 Tube No. 1 from bottom, found fish mouth opening punctured.
Secondary failure – (1) LTSH Lower Bank Coil No. 87, Tube No. 2 & 3 found eroded.
(2) LTSH Lower Bank Coil No. 88, Tube No. 2 found punctured and Tube No. 1 & 3 found eroded.
(3) LTSH Lower Bank Coil No. 89 Tube No. 1 found punctured near 90 degree bend.
(4) LTSH Lower Bank Coil No. 86 Tube No. 1 found punctured and Tube No. 2 & 3 found eroded.
Replacement of punctured & eroded tubes carried out. (Total 20 Nos. HP welds joints).

9A. Implementation Status of Long Term/Short Term measures stated at Sr No 7&8 :- The above short term measure will be implemented by shift I/C of Unit-1 to Unit-4.

10. Boiler lighted up	**Time** –23:45 hrs.	**Date**- 03/12/2016
11. T-A Set Synchronized	**Time** –05:52 hrs.	**Date**- 04/12/2016

12. Remark: -Preventive maintenance of ID Fan – A & B motors carried out.

Chief Engineer

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