EVENT ANALYSIS REPORT

UNIT NO : 03	TPS : Khaperkheda TPS		Unit Capacity : 210 MW	
1. *HO Code :	Station Code : T003	Time – 19:07 Hrs	Date - 19/12/2015	No. of Days from last sync. : 08 days

2. Operating conditions at the time of Event :-

Load	Coal Cycles in service	Oil Support
78 MW	A, B, C & D	Nil

3. Nature of Event: T.A. Set withdrawn to attend Boiler Tube Leakage at Economiser Zone.

4. Name of First Up , Main Protections & Protection on which GCB tripped :

Turbine Hand Tripped **(First Up)**, MFT Operated, Trip Gear Operated, Generator Protection Operated.

5A) Observations: At 18:30 hours on dt 19/12/15, set was on load at 158 MW with five coal cycles (A, B, C, D &E) in service. Coal cycle-E withdrawn at 18:55 Hrs to reduce load in order to withdraw the set for attending boiler tube leakage on economiser side. Finally Set withdrawn at 19:07 hrs on dt. 19/12/15. when load was 78 MW with 4 coal cycles (A, B, C & D) in service.

5B) Remedial Action/work done: - Economiser upper bank coil no. 124 & 125 plugged by providing hemispherical spool (Total 4 Nos of HP weld joints) at Economiser inlet & Economiser intermediate header. Water washing at second pass from LTSH to economiser lower bank coils is carried out.

6. Root Cause Analysis: Localized flue gas erosion might be the root cause of failure of tube no. 3 of economiser upper bank coil no. 125 as thin lip burst was observed at the failure area. Secondary failure observed at tube no. 3 of coil no. 124, which occurred due to steam erosion.

7. Preventive action suggested (Short Term):-

8. Preventive action suggested (Long Term) :-

1. Dummied economiser coils (No. 124 &125) will be normalized during forthcoming AOH.
2. Erosion profile mapping of economiser coils will be carried out in RLA study during forthcoming AOH.

9. Similar event occurred last time:-	**U - 3, 210 MW**	**Time- 19:55 Hrs**	**Date: 08/12/2015**

Event: T.A. Set withdrawn to attend Boiler Tube Leakage at Economiser Zone.
Remedial Action/work done: - Economiser upper bank coils (No. 56 & 41) plugged by welding (4 No of HP weld joints) hemispherical spools at Economiser inlet & intermediate header.

9A. Implementation Status of Long Term/Short Term measures stated at Sr. No 7 & 8 :-

10. Boiler lighted up	**Time – 04:52 Hrs**	**Date- 21/12/2015**
11. T-A Set Synchronized	**Time – 08:49 Hrs**	**Date- 21/12/2015**

12. Remark: -

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)

MAHAGENCO
Maharashtra State Power Generation Co. Ltd.
Reg. No. U-40100 MH 2005 PLC 153648

MAHARASHTRA STATE POWER GENERATION CO. LTD.
KHAPERKHEDA THERMAL POWER STATION
(ISO 9001:2008, ISO 14001:2004 & ISO 18001:2007)
Office of: Chief Engineer, T.P.S., Khaperkheda,
Dist. Nagpur, PIN – 441102
Phone: (07113) 268168 to 172,268236,268131
FAX: 268239(Off)/268123(Site)
Email – cegenkpkd@mahagenco.in

Ref. No.: KHG / BM-I / CORR. / SB / 2015 / 82 / **Date :**

→ EE(OS)

BOILER TUBE FAILURE UNIT NO. 3

01	Date & Time of unit withdrawal	:	Dtd.19/12/2015 at 19:07 Hrs.
02	Date & Time inspection	:	Dtd. 20/12/2015 at 08:30 Hrs.
03	Zone	:	Economizer
04	Location	:	Economizer upper bank.
05	Primary Failure	:	Economizer upper bank coil no. 125 Tube no. 3 found thin lip punctured.
06	Root cause of failure	:	Thin lip punctured of Tube no. 3 of Economizer upper bank coil no. 125 localized flue gas erosion might be the root cause of failure.
07	Secondary failure	:	Economizer upper bank coil no. 124 Tube no. 3 found secondary punctured due to steam erosion. More ash accumulation observed at the top of economizer upper bank & bottom of the economizer upper bank coil near rear steam cooled wall side.
08	Works carried out	:	Economizer upper bank coil no. 124 & 125 plugged by providing hemispherical spool at economizer Intermediate and economizer Inlet header. Water washing at second pass from LTSH to economizer lower bank coils is carried out. After washing physical inspection is carried out with M/s. Mecwell industries representative.
09	Total No. of H.P. weld joints.	:	04 Nos.
10	a) Clearance given for Hydraulic test	:	Dtd. 20/12/2015 at 16:50 Hrs.
	b) Hydraulic test taken	:	Dtd. 20/12/2015 at 21:00 Hrs.
	c) Clearance given for boiler lighted up	:	Dtd. 21/12/2015 at 04:05 Hrs.
	d) Boiler lighted up	:	Dtd. 21/12/2015 at 04:52 Hrs.
11	Date & Time of unit synchronization	:	Dtd. 21/12/2015 at 08:49 Hrs.
12	Total Outage hours	:	**37.7 Hrs.**
13	Loss in generation due to tube failure	:	**7.917 Mus.**
14	Down time analysis regarding bench mark for BTL	:	**<u>As per bench mark :</u>** **A) Time required for cooling, hydraulic test, radiography & evaluation of H.P. weld joints and boxing up of the Boiler at Economizer = 24 Hrs.** **B) Time required for HP weld joints of Eco. = 0.75 x 4 = 3 Hrs.** **C) As per bench mark time required = 24 hrs. + 3 hrs. + 07 hrs. of synchronization= 34 Hrs.** **Actual time taken for carrying out the BTL= 37.7 Hrs.** **Delay in synchronization = 3.7 Hrs. due to Bottom ash hopper leakages attending work, heavy leakage was not possible to attend in running plant.**
15	Corrective & Preventive action	:	1) Dummied economizer coil no. 124 & 125 will be normalized during forthcoming AOH of Unit no. 3. 2) Erosion profile mapping of economizer coils will be carried out in RLA study during forthcoming AOH.

22/12/15

Executive Engineer (BM-I)