TRIP ANALYSIS REPORT

TRIP ANALYSIS REPORT /TAR-13/ UNIT 2 / 09.04.17 Dt. 13-04-17

OCCURRENCE:

(a) **Condition:** Load: 445 MW in LP mode and coal flow 256 tph with 6 Mills at 21:27 hrs. on 09.04.17. TDBFP 2A and TDBFP 2B were in service and MDBFP in Auto Standby.

(b) **Incident:** TDBFP 2A instantly unloaded and drum level very low 2/3 protection acted. Unit tripped on MFT (drum level very low) at 21:28:09.283 hrs on 09.04.2017.

OBSERVATIONS FROM SOE OF DDCMIS ALARM PAGES AND BOARD ENGINEER FEEDBACK:

TIME	DESCRIPTION	STATUS
21:27:17.704	BFPA Remote on	Old=Remote; New=Local
21:27:53.775	MDBFP-C Stdby Selection	Old=True; New= N True
21:27:55.274	MDBFP Auto Start Perm	Old=Ok; New=Not Ok
21:27:57	BFP-C Scp Control Auto Loss	
21:28:03	Drum Level V Low	
21:28:03	Drum Level V Low2	
21:28:03	Drum Level V Low3	
21:28:09	TP1 MFT Prot TP CH-1	
21:28:09.298	MFT CH2	
21:28:09.583	MFT CH3	
21:28:09.649	MFT CH1	

ANALYSIS FROM SOE:

From SOE following incidents were observed:

At 21:27:17.704 hrs. TDBFP 2A came to local mode from remote. At 21:27:53.775 MDBFP Scoop was deselected from auto standby selection. Drum level low appeared at 21:28:03 hrs and protection acted through 2/3 logic initiated MFT. Unit tripped on MFT (drum level very low) at 21:28:09.298.

ANALYSIS from BOARD OPERATOR Feedback:

As per board engineer feedback, difference between actual speed and reference speed of TDBFP 2A was more than 100 rpm and MCV didn't operate as per demand. TDBFP 2A unloaded instantly and created disturbance in total FW flow. Drum level reduced below -375 in a split second before MDBFP was started manually. Unit tripped on MFT (drum level very low).

ANALYSIS from TREND:

Unit was in service with 430 MW at 21:23:23 hrs and drum level was maintaining around -17 mm close to operator set point of +10mm. MS Flow and FW Flow was 1296 tph and 1439 tph respectively. Difference between actual speed and reference speed was 2 rpm for TDBFP 2A and 5 rpm for TDBFP 2B at 21:23:23 hrs. At 21:24:18 actual speed was leading with 136 rpm than reference speed for TDBFP 2A whereas for TDBFP 2B the difference was only 5 rpm. MCV of TDBFP 2A was 50.4 % open with respect to demand of 27.1 % and for TDBFP 2B was 51 % with respect to demand of 46.4 %. Further MCV didn't respond in synchronous with demand for TDBFP 2A and suction flow reduced from 729 tph at 21:23:23 hrs to 244 tph at 21:25:51 hrs. TDBFP 2B suction flow increased from 698 tph at 21:25:51 hrs to 950 tph at 21:27:39 hrs to maintain drum level as TDBFP 2A unloaded. However, TDBFP 2B didn't load further as actual speed didn't increase more than 5091 rpm whereas reference speed increased to 6206 rpm. FW water flow reduced from 1460 tph at 21:24:18 hrs to 923 tph at 21:27:20 hrs and Drum level reduced from +7 to –379 at 21:28:07 hrs. Hence MFT acted through drum level very low protection.

CONCLUSION:

Following points were concluded:

- Actual speed didn't vary in synchronous with reference speed and it lead to unloading of TDBFP 2A because of Pilot valve problem.
- TDBFP 2B didn't load more than 950 tph because speed controller O/P didn't increase more than 33.5 %.
- MDBFP was also not started manually in appropriate time after observing speed haunting in TDBFP 2A.
- Also load reduction was not made in appropriate time with reduction in drum level.

After getting clearance, the boiler was light up at 21:45 hrs and the unit was synchronized at 23:01 hrs on 09.04.2017.

RECOMMENDATIONS:

- Continuous monitoring of drum level shall be ensured.
- In case of speed haunting noticed more than 100 rpm, the corresponding TDBFP shall be unloaded after loading MDBFP on operator convenience.
- If time doesn't permit for manual starting of MDBFP, then corresponding TDBFP shall be tripped so that MDBFP will start in auto.

- Alarm may be included for difference between actual speed & reference of corresponding TDBFP reaches more than 100 rpm.

CM/OS(T) ADGM/C&I DGM/Elec DGM/O&C