

# **TRIP ANALYSIS REPORT**

**TRIP ANALYSIS REPORT /TAR-8/ UNIT 1 / 21.03.17**

**Dt. 27-03-17**

## **OCCURRENCE:**

- (a) **Condition:** Load: 145 MW at 21::00 hrs. on 21.03.17 with 3 Mills in LP mode and coal flow 90 T/hr with 6 oil burners.
- (b) **Incident:** Boiler tripped on MFT (Both ID Fans Off) followed by Turbine tripped at 19:44 hrs on 21.03.17.

## **OBSERVATIONS FROM SOE OF DDCMIS ALARM PAGES:**

### **SOE Details:**

21:19:39.717	1BA-0BA Tie Opened
21:19:40	11 kV CB Auto Trip
21:19:43	0.415kV CB Auto Trip
21:19:43.517	Both ID Fans Off
21:19:43.557	MFT CH 2
21:19:43.588	MFT CH 3
21:19:43.799	MFT CH3 TP1 operated
21:19:43.944	MFT CH2 TP2 operated
21:19:43.944	MFT CH1 TP2 operated
21:19:44	TURB Trip CH2.3 CMD
21:19:44	TURB Trip CH2.2 CMD

## **OBSERVATIONS FROM SOE OF BUS TRANSFER SCHEME**

### **SOE DETAILS:**

#### **DISTURBANCE ZONE COMPLETED:**

028	17/03/21	21:26:01.561	UNIT IC CLOSE vv
029	17/03/21	21:26:01.561	UNT TIE NC Pick
030	17/03/21	21:26:01.554	UNT TIE NO Drop
031	17/03/21	21:26:01.546	UNIT IC TR-Mon v
032	17/03/21	21:26:01.539	UNIT IC NC Pick
033	17/03/21	21:26:01.539	UNIT IC NO Drop
034	17/03/21	21:26:01.531	UNT TIE CL-Mon v

#### **DISTURBANCE ZONE STARTS:**

#### **BTS LIVE TRANSFER PROCESS COMPLETED:**

035	17/03/21	21:26:01.516	Rdy Man. Txfr vv
036	17/03/21	21:26:01.516	UNT TIE TR-Mon v
037	17/03/21	21:26:01.509	UNT TIE TRIP ^^
038	17/03/21	21:26:01.501	UNIT IC NO Pick
039	17/03/21	21:26:01.494	UNIT IC NC Drop
040	17/03/21	21:26:01.494	UNIT IC TR-Mon ^
041	17/03/21	21:26:01.449	Txfr Request v
042	17/03/21	21:26:01.449	UNIT IC CL-Mon v
043	17/03/21	21:26:01.441	Txfr Request Rcd
044	17/03/21	21:26:01.441	UNIT IC CLOSE ^^
045	17/03/21	21:25:53.980	Rdy Man. Txfr ^^

#### **BTS LIVE TRANSFER PROCESS STARTS:**

**BTS TEST TRANSFER PROCESS COMPLETED:**

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046      17/03/21      21:25:53.980      Rdy Test Txfr vv
047      17/03/21      21:25:47.605      UNT TIE TR-Mon ^
048      17/03/21      21:25:47.582      UNT TIE TRIP vv
049      17/03/21      21:25:47.470      UNT TIE TR-Mon v
050      17/03/21      21:25:47.462      UNT TIE TRIP ^^
051      17/03/21      21:25:47.207      UNIT IC CL-Mon ^
052      17/03/21      21:25:47.185      UNIT IC CLOSE vv
053      17/03/21      21:25:47.072      Txfr Request v
054      17/03/21      21:25:47.072      UNIT IC CL-Mon v
055      17/03/21      21:25:47.065      Txfr Request Rcd
056      17/03/21      21:25:47.065      UNIT IC CLOSE ^^
057      17/03/21      21:25:47.065      Auto Fast Txfr
058      17/03/21      21:25:42.551      Rdy Man. Txfr vv
059      17/03/21      21:25:42.551      Rdy Test Txfr ^^
060      17/03/21      21:25:23.326      Rdy Man. Txfr ^^
061      17/03/21      21:25:23.259      BTS Ready+++++

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**BTS TEST TRANSFER PROCESS STARTS:****SOE DETAILS FROM NUMERICAL RELAY AT UT INCOMER(1BA)**

DATE	TIME	ELEMENT	STATE
21/3/2017	21:14:36:720	52A	Asserted ( Breaker ON status)
21/3/2017	21:14:36:720	IN 101	Asserted ( SEL Relay contact )
21/3/2017	21:14:36:755	52A	Deasserted ( Breaker OFF status)
21/3/2017	21:14:36:755	IN 101	Deasserted ( SEL Relay contact )

**ANALYSIS:**

Unit was synchronized at 21:19 hrs and load raising was under progress. Before tripping load was 145 MW in LP mode with 3 mills, coal flow 90 Tph and 6 oil burners. As per the feedback from the board engineer, there was 11 kV & 0.415 kV supply disturbance and it lead to tripping of many running equipments. Mean time boiler tripped on MFT with first up cause (Both ID Fans Off).

As per SOE and trend OF DDCMIS at 21:19:39.717, 1BA-0BA Tie opened and at 21:19:40 11kV INCOMER circuit breaker tripped. As per BTS SOE INCOMER BREAKER has closed at 21:26:01.501 (BTS TIME) and subsequently tripped at 21:26:01.539 (BTS TIME). Unit incomer breaker got opened on its own and TIE INCOMER has opened on 21:26:01.554. 0.4 KV breaker also tripped. This has led to tripping of both ID Fans at 21:19:43.517. In turn MFT Acted at 21:19:43.799 & 944 leading to trip boiler and subsequently turbine on MFT at 21:19:44.

On analysis it was found that Unit-1 Unit Bus 1BA become dead while taking normal incomer into service in momentary paralleling mode. Hence both 11kV and 0.415kV supply was disturbed.

**CONCLUSION:**

Following points were concluded:

- 11 kV & 0.415kV circuit breaker tripped due to unsuccessful BTS.
- Boiler tripped on MFT (both ID Fans Off) and followed by Turbine tripped.
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- BTS SOE details were sent to the OEM and their observations are failure of mechanical latching of breaker or any other trip for the unit breaker.
- The healthiness of the trip circuit and the mechanical latching of the breaker were checked subsequent to the tripping of unit and found alright.

After getting clearance from Electrical Maintenance, the boiler was light up at 22:08 hrs and the unit was synchronized at 23:19 hrs on 21.03.16.

**RECOMMENDATIONS:**

- Care shall be taken while taking unit bus into service in the presence of senior experienced executive.
- BTS transfer has to be taken into service after informing SHIFT ENGINEER and other board engineers.
- During available opportunity the unit incomer breaker has to be racked out and manual healthier operations of the breakers are to be ensured.
- The BTS on unit BUS A may be taken into service at low load or during available opportunity

CM/OS(T)

ADGM/C&I

DGM/Elec

DGM/O&C

