


EVENT ANALYSIS REPORT				
UNIT NO : 02	TPS : Khaperkheda TPS		Unit Capacity : 210 MW	
1. *HO Code :	Station Code : T003	Time - 14:05 Hrs	Date - 01/09/2016	No. of days from last sync. : 9 days
2. Operating conditions at the time of Event :-				
Load		Coal Cycles in service	Oil Support	
155 MW		A,C,D,E & F	NIL	
3. Nature of Event : Set tripped on Generator Protection.				
4. Name of First Up , Main Protections & Protection on which GCB tripped : Generator Trip [First Up], Turbine Tripped, MFT Operated.				
5A) Observations. On Dt-01/09/2016 Unit-2 was sharing 155 MW load, with A, C, D, E & F mills in service. At 13:34 hrs rising trend in generator terminal voltage observed. Fluctuations also observed in MVAR. Suddenly, Unit tripped on Generator Protection "Master trip relay operated" & Generator over frequency relay found operated.				
5B) Remedial Action/Work done: 1) Generator Over Frequency Relay MICOM P922 tested and found ok. 2) Generator Over Voltage Relay VTU 21 flag operation checked and found ok. 3) AVR circuit checked and found ok.				
6. Root Cause Analysis: Generator terminal voltage found increased from 15.75 KV to 17 KV. Accordingly, RMVA sharing also increased from 20 MVAR to 170 MVAR (Lagging). AT 14:05 hrs Generator Clas- A & C master trip protection relay operated. GCB tripped. Subsequently, turbine tripped. Due to sudden load thrown off, Turbine speed rose to 3200 rpm and generator over frequency relay operated (setting 53.2 HZ). Generator Class-B protection operated on over frequency.				
7. Preventive action suggested (Short Term) :- " Generator terminal voltage high " alarm has been provided on DAS at 16 KV of Generator terminal voltage.				
8. Preventive action suggested (Long Term) :-				
9. Similar event occurred last time:-	Unit No # 2 , 210 MW	Time : Hrs	Date:	
Event: No similar event found. Remedial Actions				
9A. Implementation Status of Long Term/Short Term measures stated at Sr. No 7 & 8 :-				
10. Boiler lighted up	Time - 14:50 Hrs	Date - 01/09/2016		
11. T-A Set Synchronized	Time - 18:49 Hrs	Date - 01/09/2016		
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)				

Tripping Event Date: 01.09.2016

EVENT – Unit 2 was sharing @ 155MW. At @ **1334 Hrs** rising trend in Generator terminal voltage observed. Generator terminal voltage rise from 15.75 KV to @ 17 KV. Accordingly RMVA sharing increased from @ 20 MVAR to @ 170 MVAR and fluctuation observed in MVAR.

At @ **14.05.08 Hrs** – Generator class A & C master trip protection relay operated. GCB tripped. Subsequently Turbine tripped. Due to sudden load throw off, Turbine speed rise up to 3200 rpm and Generator over frequency relay operated (setting 53.2 Hz) and at @ **14.05.12 Hrs** Generator class B protection operated on over frequency.

Observation –

During operation of Generator Class A & C Master trip relay no any other relay protection flag found operated, hence exact cause of operation of Class A & C Master trip relay could not be ascertained.

Corrective Action –

- Generator Over frequency relay MICOM P922 tested, found ok.
- Generator Over voltage relay VTU 21 flag operation checked found ok.
- AVR Circuit checked, found ok.

Hence clearance given for rolling and voltage build up and subsequently for synchronizing.



Executive Engineer (TIC-I)

Khaperkheda TPS