UNIT TRIPPING REPORT

UNIT No: 1 STATION: NTPL, TUTICORIN.

OUTAGE: NO.51

REPORT NO: 51

1.Date of tripping : 07-07-2020

2.Time of tripping : 20:33:56 Hrs

3.Status before tripping

a) Unit load : 500 MW

b) Mills in service : C, D, E, F, G & H

c) Oil guns in service : Nil

d) Boiler feed pumps in service : TDBFP A & B

e) CEPs in service : A & B

f) ID fans in service : A & B

g) FD fans in service : A & B

h) PA fans in service : A & B

i) CWP in service : A & B

4.First Up protection acted : Boiler hand tripped

5.Similar occurrences in the Financial Year : Nil

6.Other relays/protection acted : TG tripped on MFT.

7.Supporting documents attached : S.O.E

8.Any operation done prior to tripping : RAPH-B Speed low occurred.

9.Analysis of tripping :

The running motor - A of RAPH B speed has got reduced suddenly and the board operator started the Motor-B of RAPH B. During starting of this motor the following incidents happened in the 0.4KV annexe at 12ML.

- Heavy flash over occurred in the RAPH-B Motor-B module and adjacent modules of Unit1 220V DC FCBC feeder-1 and LOP-B OF PA Fan-B
- During flash over heavy fault current drawn by 1DG Incomer-B breaker and the voltage dipped to alarmingly low level. The voltage and current levels are tabulated below

Sl.No.	FAULT CURRENT	VOLTAGE AT THE TIME OF FAULT
1	I-R: 19210 AMPS	V-RY: 170.6V
2	I-Y: 21070 AMPS	V-YB: 135.5V
3	I-B: 15095 AMPS	V-BR: 228.6V

- The fault was cleared after 0.482 Sec as per IDMT over current relay characteristics of 1DG Incomer-2 breaker.
- However, due to heavy fault, the voltage disturbance observed in 1DA Section-B bus. As a result of this voltage disturbance majority of loads in Section-B buses which are fed from 1DA Section-B bus got tripped.
- Running Mills D, F, H got tripped on PLOS protection (Since both LOP-A and LOP-B are fed from Section-B of 1HA and 1DG respectively)
- Gravimetric feeders of Mill E & G got tripped due to power supply failure as these are fed from section B of 1HC. (But mills have not tripped).

Mill- C was tripped during hand tripping of boiler.

10.Root cause :

RAPH-B Motor-B has drawn heavy current during starting due to suspected mechanical hardness in RAPH-B and Y- Phase finger power contact has melted due to arcing and short circuited the neighbouring B-Phase which resulted in heavy flash over of this module and neighbouring modules (1 below and 1 rear). Dust in the panel could have aggravated the situation.

11.Remedial measures taken/to be taken:

- ✓ Preventive maintenance of panels is to be carried out periodically at least once in a year depending upon unit shut down programme.
- ✓ The following modifications are proposed to avoid the tripping of unit/damage of equipments
- ✓ Power supplies to Mill feeders of ACEG mills are to be provided from section-A of 1HC and Mill feeders of B, D, F, H mills are to be provided from Section-B of 1HC in line with mill motor supply arrangements.
- ✓ Primary water pump-1 power supply is to be shifted from Section-B of 1DG to Section-A of 1DG

12. Time/Date of boiler light up and sync:

Light Up: : 01:17 Hrs on 09-07-2020

Sync'd: : 05:03 Hrs on 09-07-2020

13.Delay for light up : S/D extended for BTL works.

14.Recommendation / Action plan :

Sl.No.	Recommendations/Action plan	Responsibility	Time line
1)	Preventive Maintenance of panels to be carried out yearly	EM-I	Opportunity
2)	Power supply for Mills, Feeders and PW pumps to be staggered between Sections A & B of 1HC & 1DG buses	EM-II	Opportunity

15.Any specific learning / feedback :

Healthiness of panels to be ensured through regular maintenance practices. Also load distribution among bus sections are to be studied and corrected for minimum process disturbances during fault conditions.

ADGM / OS DGM/EEMG DGM / C&I DGM / ELECT

DGM / O&C

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