UNIT TRIPPING REPORT

UNIT No: 1 STATION: NTPL,

TUTICORIN.

OUTAGE: NO. 41

REPORT NO: 41

1.Date of tripping	: 24-05-2019
2.Time of tripping	: 01:55:46 Hrs
3.Status before tripping	
a) Unit load	: 328 MW
b) Mills in service	: B, C, E, F, & G
c) Oil guns in service	: Nil
d) Boiler feed pumps in service	: TDBFP A & B
e) CEPs in service	: A & C
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 tripped on Fur Pr. V.Low
5.Similar occurrences in the Financial Year	: Nil
6.Other relays/protection acted	: Turbine trip & Generator trip
7.Supporting documents attached	: S.O.E & Trend
8.Any operation done prior to tripping	: PA-1A was stopped due to high current resulting in firing distr.
9.Analysis of tripping	:

At 01:10 hrs on 24-05-2019 U#1 PA Fan 1A current shot up from 80 to 250 Amps even as the PCD auto command was a minimum at 13%. Mill F was stopped, PAF-1A outlet damper closed up to 40% and the fan was stopped immediately due to very high vibrations at local. Since PA-1B PCD command was at a low value of 16% due to very high PA header pressure

and the PAF-1A outlet gate was 40% open, the PA header pressure buckling could not be contained.

This resulted in reduced coal pumping by the running mills, thereby affecting furnace stability and boiler got tripped on furnace pressure very low protection. PA Header pressure was in bypassed condition at the time, to avoid Mills tripping on loss of primary air as PAF-1B was supporting the running four mills.

10.Root cause :

PA Fan1A PCD got fully opened and got stuck in that position due to failure of its internal hydraulic actuating device (HAD) and PA Header pressure was maintaining at a high value of 1069 mmWC whereas the set point was at a normal value of 800 mmWC. This increased PA header pressure caused the PCD command of both fans PCDs to reduce to a minimum value.

In order to stop the PA Fan 1A, which was taking maximum current for no apparent reason, its outlet damper was closed partially to about 40% and the fan was stopped. After the tripping of PA-1A, due to air loss through its partially opened discharge gate and due to response time of PA-1B PCD from a lower position, the actual PA header pressure dropped resulting in reduced fuel injection. This gave rise to disturbances in coal firing and ended up in boiler MFT protection trip on furnace pressure very low.

11.Remedial measures taken/to be taken:

Since the internal hydraulic actuator of PAF-1A PCD failed, the reason for overloading of the fan 1A could not be assessed immediately. Also since the PA header pressure was already very high, even if the root cause becomes clear, further raising of 1B PCD before stopping 1A is still questionable. Any further closing of the discharge gate of a PA fan whose PCD is full open, below 40% was not advisable due to the presence of

abnormal vibrations at local. It is normally observed that in all 500 MW plants, the units are seldom saved after the tripping of one PA fan. A unit tripping can be avoided while stopping one of the PA fans only if we could reduce its PCD to a minimum and close its discharge gate to about 20% before stopping, thus allowing the healthy fan to take up the load and to avert pressure buckling. This option was ruled out in this particular case since the PCD was stuck at 100% open condition.

Therefore, considering all the above aspects, especially those pertaining to boiler and furnace safety, it is advisable to allow the unit to trip on PA header pressure. The option of taking Oil burners and tripping coal mills was also ruled out since HPBP system was not available among other reasons. But HPBP was made ready during the opportunity. Therefore, in this particular instance the chances of saving the unit were bleak.

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

Light Up: 02:47 Hrs on 24.05.2019

Sync'd : 05:06 Hrs on 24.05.2019

13.Delay for light up : No delay.

14.Recommendation / Action plan :

Sl.No.	Recommendations/Action plan	Responsibility	Time line
2)	Exercise Care while bypassing protections and should be avoided if safety of plant or equipments is involved.	Operation	Immediate
3)	Healthiness and Reliability of all PA Fans HADs/PCDs to be checked and ascertained.	BMD	Next Opportunity

15.Any specific learning / feedback :

Healthiness and reliability of PAF components should be given top priority since its tripping is detrimental to unit operation. In this particular case, the unit tripping was unavoidable due to various reasons as mentioned above.

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

DGM / O&C

Copy submitted to CEO / NTPL

Copy submitted to GM/O&M