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Office of Chief Executive Officer/NTPL  
TUTICORIN - 628 004

Report Submitted:

DT.16.06.2018

SUB: NTPL – UNIT 2 BOILER – WIND BOX –FIRE ANALYSING COMMITTEE – REPORT-reg

REF: CEO/NTPL/EEMG/67/2018- 19 dt.06.06.2018

A committee has been constituted to study and analyse the causes of fire incident in Unit 2, Boiler left side wind box which resulted in unit shut down on 04.06.2018. The following are the members of the committee.

1. L. SOMASUNDARAM, DGM / SAFETY
2. S.MEENAKSHISUNDARAM, ADGM / M
3. S. RADHAKRISHNAN NAIR, CM /M
4. M. SOMASUNDARAM, CM / C&I

Fire incident in unit 2 boiler.

On 04.06.2018 at 2.50 AM, fire was noticed in unit 2 boiler by Shri S. Saravanan, Shift Contract supervisor @ 24mtr level near corner 2. The wind box left side was in open condition with fire within the wind box and the insulation starting to melt. He reported the fire to unit control room. On receipt of information, The Shift Engineer called in the fire tender and the fire exterior to the wind box was put out by CISF/Fire. Ascertaining the situation, the boiler was tripped at 3.29 Hrs and the fire inside the wind box area was put out by CISF/Fire completely, by 3.50AM. . The Automatic HVWS system came in to service with water falling in all four corners.

Site visit by the Team.

The committee visited the spot affected by fire on 04.06.18 and made a study to ascertain the possible cause of the fire and also the damages to the equipments.

Enquiry by the Team.

The committee had deliberations with Mr.PRATHIK, DEE, Board Engineer and enquired Shri.M.Saravanan, Shift Contract supervisor

### Observations of the Team.

1. Shri.M.Saravanan , Shift Contract supervisor ,on observing the fall of water from boiler at slag conveyor area went up to 40 mtr level to find the source of water which was from mulsifyre system. While coming down he observed the fire at 2.50 am in corner2 at 24 metre level and immediately matter was conveyed to board engineers for further action. Immediately fire tender has been called in
2. The HVWS System for the Burner Block region in all corners including corner 2, came in to service automatically sensing the heat and spraying water on the fire.Major damage to SADC has been avoided.
3. The left side wind Box was heavily damaged by the fire. The external insulation got burnt and the cladding sheet got melted down. The wind box wall of 6mm thick along with the supporting 200 mm channel, 5nos got distorted for about 3 mtrs length to 2 mtrs height from corner 2.The main expansion bellow of wind box ribbed off for about 4 mtrs height. The secondary bellow element four numbers along the wind box got opened. The wind box got opened to about 0.75 meter dia at the bottom.Symptom of fire propagation along the length of the wind box could be observed. The support trusses inside the wind box got distorted by the heat.The burner oil control station was not affected
4. The oil gun of AB elevation got burnt out. The flexible portion of oil & steam hose got burnt completely. The gun was removed from the position.
5. The SADC dampers of corner 2 burner A and B got burnt.
6. The actuators of SADC A & B got affected by fire. Also the flame scanner & Igniter unit of Oil burner, local JB along with cables got damaged.
7. The coal nozzle of A elevation got opened due to fire.
8. Traces of oil observed in the clinkers buildup at A burner mouth (inside furnace).
9. The mill A was taken into service at 1.22 hrs on 04.06.18, and the fire was noticed in corner 2 area at 2.50 hrs.
10. Previously Oil burners 3 nos in CD elevation (CD1, 2, & 3) were in operation on 02.06.18 from 12.50 Hrs to 14.30 hrs,
- 11 AB elevation burners were tried at 12.32 Hrs on 02.06.2018 and since they could not be cut in, CD elevation burners were cut in.
12. The mill 2A was in stoppage from 22.58 hrs of 02.06.18 to 01.22 hrs of 04.06.18.

13. The oil level in HFO tank shows down trend from 1250 hrs of 02.06.18, up to time of fire incident. The oil consumption from 02.06.18 up to fire incident on 04.06.2018 is about 24 tons out of which 10 tons would have been consumed by the 3 oil burners in service for 1hr 40 mins (12.50 to 14.30Hrs)

14. Timely detection of fire by board engineers & Shift engineer and the subsequent action to call fire tender and to trip the boiler has saved the boiler from further propagation of fire and so major fire disaster was averted.

#### Conclusion.

1. The origin of the fire seems to be the oil. From the damages of Oil Burner it is inferred that Oil might have spilled over the burner mouth and coal nozzle due to possible passing in the oil control valve of corner 2 / AB. There is a possibility of consumption of HFO of 14 tons without any Burner in-service from 14.00 hrs of 02.06.18 till Fire started. . The accumulated oil got ignited when the mill A was taken into service by 01.22 AM
2. The generated fire damaged the oil gun A and also the Coal nozzle A of corner 2. The sustained oil fire around coal nozzle damaged the coal nozzle and developed a hole in the coal nozzle.
3. With Mill A in service a part of pulverised coal dust entered into the wind box through the opening generated by fire there by resulting in the coal fire spreading inside the wind box. The Fire developed due to hot air present in the Wind Box. As a result, the wind box walls of 6 mm M.S plate and 1.8 mm bellow material got opened and the fire was visible outside.
4. The mulsifyre has immediately acted by sensing the temperature and water was sprayed in the burner block area. On observing the fall of water from corner 2, board engineers and supervisors went to the local and located the fire. The action of mulsifyre system has not been communicated to the control room panel as there was no alarm.

#### Recommendation for Remedial measures and Action plan

1. Whenever oil burner is taken out of operation, complete closing of oil valves and no passing to be ensured at local along with verification of Tank Level.
2. CCTV cameras to be made available to visualise the fire prone areas.
3. Whenever the DV is operated, the annunciation should be raised at control room Fire panel through alarm. .
4. Oil stock is to be monitored continuously and consumption pattern has to be matched.



5. Periodicity of local inspection in Boiler / furnace area to be improved. Boiler structures and cable racks are to be water washed at regular intervals to avoid any fire hazards.


6. The HFO flow meter readings have to be checked periodically and daily oil consumption in individual Units may be noted from the Totalizer reading in DCS and it may be matched with FOPH tank level.


Special mention

The immediate action of board engineers has avoided the major fire disaster and the committee appreciates the respective group members.


Enclosures.

1. Copy of Operation Log Book Page dated 02.06.2018 & 04.06.2018
2. Oil Consumption chart from 01.06.18 to 10.06.18
3. HFO tank level trend chart (02.06.18 to 04.06.18)
4. Oil burner cut in/cut out SOE details (02.06.18)
5. Photo Copies of damaged Coal Nozzles.

  
1. M. SOMASUNDARAM, CM / C&I

  
2. S. RADHAKRISHNAN NAIR, CM / O&S

  
3. S. MEENAKSHISUNDARAM, ADGM / M

  
4. L. SOMASUNDARAM, DGM / SAFETY

DGM (O&C) / DGM EM2 /  
Pl. submit the action plan taken  
to avoid such incidents and  
the ATR for implementing the  
Recommendations within one week

  
17/06/18

→ DGM (MTR) for necessary follow up

CEO, NTPL

o: 916  
18.6.18