



NLC TAMILNADU POWER LIMITED

DEPARTMENTAL PROCEDURE MANUAL

STANDARD OPERATING PROCEDURE

TITLE:- SOP FOR STATION BLACKOUT		Doc. ID: NTPL/OPRN/SOP-01
Revision No.-02	Revision Date: 04-04-2020	

PURPOSE: To define a procedure of Station Blackout

SCOPE: This SOP is applicable at NTPL

RESPONSIBILITY: Shift Engineer / Operation Engineer

ACTIVITIES:

- IDENTIFICATION OF TOTAL AC FAILURE Simultaneous occurrence of the following:
 - Unit tripping.
 - All HT, LT drives tripping.
 - 400KV, 11KV, 3.3 KV Bus dead.
 - DC lights getting on.
 - DG set starting in auto.
- ACTION TO BE TAKEN Responsibility

Ensure starting of following equipments on auto :-

 - Main TG DCLOP TG engineer
 - DC Seal oil pump. TG engineer
 - DC LOP of TDBFP – A & B. TG engineer
 - DC Scanner fan. Boiler engineer
 - JOP TG engineer
 - All RAPH motor. Boiler engineer
 - Switch on DC lighting if not coming on auto. S/G operator
- To avoid rupturing of LPT and TDBFPT diaphragms: -
 - Ensure opening of vacuum breaker. TG . engineer
Give manual open command also.
Close HP/LP Bypass.
 - Close Turbine & TDBFPs shaft seal steam supply manual valves. TG . engineer
- DG set 1 & 3 will start on auto, if not start them manually. Charge UCE / S/G operator emergency bus from respective DG set. Ensure normal incomer breaker from unit service switchgear has tripped on auto.
If DG set 1 or 3 fails to start, ensure starting of DG set no.2 common for both U#1 & 2 on auto.
DG #2 should be loaded for one unit only.
After charging of Emergency Bus from DG Set change over



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Ensure the following equipments are running: -

i) Main TG: AOP, AC seal oil pump, H2 side SOP, AC JOP, Vapor extraction fans of MOT and Gen. Brg.

ii) TDBFP : AOP, JOP, Vapor extraction fan.

Turbine. engineer

iii) Boiler : AC Scanner air fan, AC lighting.

Boiler. engineer

iv) Electric motors of all APHs.

v) Close MS – 1 & 2 valves.

vi) Stop DC equipments whose corresponding AC have taken start.

5. Charge Cooling water of all the three BCW pumps from Emergency overhead tank. Open vent in the cooling water return line to establish flow. Keep close watch on cavity temp. of all CC pumps.

Boiler engineer.

Put Main TG on barring. Do hand barring if it does not come on barring.

TG. engineer

Put TDBFP-A & B on barring Run DG fire pump.

TG. engineer

6. Note down relay flags on: -

a) 11KV / 3.3KV buses.

b) Generator protection panel.

c) Boiler first up monitoring on FSSS ..

7. Ensure SOE / pre-post trip logs from DAS observe the following parameters closely: -

UCE /TG engineer.

a. Hydrogen pr. from local gauge.

b. Purge Hydrogen by CO₂ in case of problem in maintaining Seal oil DP.

UCE

8. Normalize / check 220 Volt and +24V battery charger and UPS battery charger.

S/G operator



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After restoration of 220 KV and charging of station transformer :-

1. Ensure all HT breakers / equipments i.e. 11KV and 3.3KV are in tripped condition UCE / S/G operator
2. Normalize 11KV station buses 0BA,0BB, 0BC, 0BD. Normalize Unit buses 1BA, 1BB, 2BA, 2BB. UCE / S/G operator
 Normalize 3.3 KV switch gear 1CA & 2CA.
3. Normalize Emergency Bus from 1DA/2DA & all 0.4KV unit Buses/MCC UCE / S/G operator
4. Normalize DM plant MCC, DM make up pumps. DM Plant operator
 Start DM Transfer pumps. / SCE
5. Run Raw water make up pump as per requirement. DM Plant operator
 / SCE
6. Run Main Plant A/C System. UCE
7. Normalize supply of PT plant, Fire pump house, CW Pp house MCC. SCE
8. Run CLW pumps for OAC make up. SCE
9. Prior to start 11.0KV equipments, take permission from Switchyard Control Room. This is to avoid overloading of station Transformer / 220KV line. UCE
10. Start CW pumps (Before starting ensure discharge valves are closed and vent valves in condenser inlet / outlet ducts are open). SCE
11. Start ACW and DMCW pumps.
12. Start Instrument and Service air compressor. TG engineer
 UCE / Compressor
13. Start CEP. house operator
14. Normalize supply to FOPH, charge oil lines on the long recirculation. TG engineer
 S/G operator /
15. Start MDBFP and fill the Boiler drum up to normal level. FOPH operator
16. Charge aux. PRDS from Main Steam. Boiler engineer
17. Normalize the system further. Boiler engineer



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Emergency Response Plan for Charging NTPL station through 400/230 KV during 400 KV D/C Line Pull out:

Charging of NTPL Station in case of failure of 400 KV D/C line and 230 KV Auto SS feeder Supply.

1. In case of outage of both 400 KV lines and Start up supply from NTPL Auto SS feeder, the following procedures may be adopted until the availability of 400 KV line.
2. Ensure that both DG1 and DG2 started in auto if any of the DG set not started then check if standby DG started in auto. If standby DG started then close either 47(unit-1) or 50 CB(Unit-2) at the local and feed the standby DG supply to either unit-1 or unit-2 only.

Charging Station through 400 KV Line:

1. Ensure both 400 KV Line-1 and Line-2 feeder in open condition with Bus coupler breaker in open condition or else open the breakers manually.
2. Ensure isolation of 400 KV breakers feeding 220 KV GIS.
3. Contact SRLDC (**Phone No.080-22259343**) to ensure grid condition and possibility of charging any of the 400 KV Lines to get station supply.
4. After getting concurrence and charging code close either 404 CB or 406 CB from CCR.
5. Close 405 Bus coupler breaker and ensure the supply on both 400 KV Bus -A & B.
6. Now charge ICT-1 400 KV breaker and charge the 220 KV bus through ICT-1 220 KV CB.
7. Repeat the procedure no.6 for ICT-2.
8. Close the 206 bay 220 KV Bus coupler breaker.
9. Close ST-1 220 KV breaker and charge 11 KV station buses OBA & OBB by closing the respective I/C breakers one by one.
10. Close ST-2 220 KV breaker and charge 11 KV station buses OBC& OBD by closing the respective I/C breakers one by one.
11. Ensure the station tie breakers to unit bus at station bus end is in closed condition else close the breakers.
12. Close the 1BA and 1BB tie breakers from UECP panel one by one.
13. Close the 2BA and 2BB tie breakers from UECP panel one by one.
14. Now normalise the 0.4 KV breakers of Unit-1 and unit-2 one by one and switch off the DG set after normalising the emergency bus.