
	Torrent Power Ltd. – Distribution Franchise	Doc. No.: TPDF02-DIS01-OCP-007
	OCP - SAFE OPERATION IN ELECTRICAL DISTRIBUTION NETWORK	Rev. No./Dt: 00 / 01.12.2021

DOCUMENT CONTROL


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Amendment Details:

Sr.	Issue No.	Rev. No.	Date	Amendment Details	Reviewed by	Approved by
1	1	0	01.12.2021	First Issue	Shilajit Ray Satish Shah	Snehal Shah Abdulrashid Shaikh
2	1	0	01.12.2022	First Review Done (No Changes)	Shilajit Ray Satish Shah	Ankit Saha Abdulrashid Shaikh

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1. PURPOSE

- 1.1. Safe operation in electrical distribution network

2. SCOPE OF DOCUMENT

- 2.1. The scope of this document is to define a structured activity-level flow for Safe operation in electrical distribution network.
- 2.2. The process document aims to define the guidelines to ensure the process effectiveness as required by the Integrated Management System whenever implemented.

3. FIELD OF APPLICATION

- 3.1. This procedure is used for Survey Safe operation in electrical distribution network in TPL-D's Franchisee areas of Bhiwandi & SMK.

4. FREQUENCY

- 4.1. As and when required

5. AUTHORITIES AND RESPONSIBILITY

- 5.1. The Head of Distribution is responsible for implementation of this procedure for effectiveness.
- 5.2. The Head of HT O&M/Projects at respective locations are responsible for execution of this procedure for effectiveness.

6. REFERENCES

- 6.1. MERC Regulations (with its latest amendments)
- 6.2. Central Electricity Authority (Measures Relating to Safety & Electric Supply) Regulations 2010 (with its latest amendments)
- 6.3. OEM Manual
- 6.4. Guideline # TPDF02-DIS01-GDL-001_Guideline for HV Network Design


7. SPECIFIC COMPETENCY REQUIREMENTS

- 7.1. Technician/GET/Jr.Exe/Exe/AM/M should have Knowledge of
 - (1) Operation of Feeders, Power Transformers, DTCs, Switchgears & Substation/switching station equipment
 - (2) Safe working practices and use of PPE
- 7.2. Technician/GET/Jr.Exe/Exe/AM/M having valid authorization from General Manager Distribution shall have authority for electrical isolation and issue of Permit to Work (PTW).
- 7.3. As per competency profile and assessment.

8. INTERFACE WITH OTHER DEPARTMENTS/SECTIONS, IF ANY

- 8.1. Coordinate with Control Room, NPC for tripping and loading information

9. TOOLS AND TACKLES

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- 9.1. Latest SDB page
- 9.2. Operating handle of switchgear
- 9.3. DO Operating Rod
- 9.4. Live line detector
- 9.5. Telescopic Discharge Devices
- 9.6. HT / LT Earthing and Shorting devices in required quantity
- 9.7. LOTO Padlock
- 9.8. Fuse puller

10. PERSONAL PROTECTIVE EQUIPMENTS / SAFETY TOOLS(PENDING)

Following PPEs shall be used to carry out work at site.

- 10.1. Safety Shoes/ Safety Gumboot if necessary
- 10.2. Safety helmet.
- 10.3. Full Mask helmet.
- 10.4. 22Kv hand gloves
- 10.5. Double lanyard Full body Harness
- 10.6. LT hand gloves
- 10.7. Barricading tape (if required)
- 10.8. Caution board / “Men at work” sign board (if required)
- 10.9. Barricading cone (if required)


11. SIGNIFICANT RISK PARAMETERS

- 11.1. Quality Management System: Low
- 11.2. Impact on Environment: Low
- 11.3. Health and Safety Risk: High
- 11.4. Energy Management: Low
- 11.5. Asset Management Risk: Low

12. PROCEDURE

12.1. JOB PREPARATION

- (1) The Operation Control Procedure (OCP) for safe operation in HT electrical Distribution network covers followings:
 - (a) Type of network in electrical Distribution network.
 - I. HT Under Ground network
 - II. HT Overhead line network

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12.2. PRECAUTION


- (1) Not Applicable

12.3. ISOLATION

- (1) Not Applicable

12.4. WORK PROCEDURE

- (1) General checkpoints of safety before carryout any switching operation in electrical network.
 - (a) As per scope of the job, decide the temporary switching to be carried out in the system in consultation with control room
 - (b) Operation sequence to be discussed and decided by the Control Room Authorised person regarding priority is to be given first to load transfer and then isolation of the portion on which the job is to be carried out
 - (c) Control Room to maintain records of temporary switching
 - (d) Ensure authorization of crew members involved in switching work.
 - (e) Ensure SDB page available at site.
 - (f) Ensure availability of operating handle of required make of switchgear on site while carrying out the switching.
 - (g) Ensure for all required PPEs and tools and tackles are available on site and in healthy condition
 - (h) Ensured for followings during switching operation:
 - I. Ensure that communication has been established between crew members who are carrying out switching from far end for Isolation/ load transfer etc.
 - II. While carrying out any HT switching on the switchgear wear full mask helmet and take the required position firmly on ground keeping face away from the switchgear to protect your face from the flash if it occurs during such operation
 - III. Switching operation shall be carried out by making feeder Off from control room for all oil type of switchgear and/or for switchgears having low SF6 gas pressure
 - IV. Keep Control Room informed before and after carrying out switching with the “OFF”/ “ON” time.
 - V. In case of any switching operation, practice of “OFF/ then “ON” has to be followed.
 - VI. On HT Dis-connector link, DO unit, “ON” to “OFF” or “OFF” to “ON” operations are to be carried out either in dead or No-load condition through DO operating Rod using insulated rubber hand gloves of HT class.
 - VII. Before performing any “ON” operation, the far end of that feeder

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cable shall not be in earthed position and confirm that men are not at work at far end on that particular cable

- VIII. Confirm before performing any earth operation far end shall not be in “ON” position.
- IX. During switching operation ensure that no other person, other than who is going to perform switching operation remains in the switchgear room.
- X. In switch gears check the oil level indicator/gas level indicator before operation.
- XI. Check for any oil leakage from isolator/SFU/OCB cable box. If any heavy oil leakage is there, switching is to be carried out in dead condition only.
- XII. In case of shutdown of HT feeder, after switch OFF the line from respective substation ensure followings.
 - i. LOTO / Padlock to be posted on all isolated points and also at all duplicate off points connected with the feeder under isolation with following details.
 - a. Name of Engineer.
 - b. Date and time of Switching.
 - c. Contact no.
 - d. Purpose of Switching.
- XIII. Prior to doing local earth, ensured that line is made dead by means of live line detector. Healthiness of live line tester needs to be test by Test switch provided in Live Line detector.
- XIV. Then by means of telescopic earth discharge rod the feeder is to be earthed locally, first by connecting its earthing lead with system earth and then shorting each phase with individually with shorting links of adequate capacity
- XV. While inserting or removing HRC fuses/ rewire-able fuses in porcelain/Thermoplastic LT gears, in LT distribution pillar /service board etc wear insulated rubber hand gloves of LT class.
- XVI. Insert or remove HRC fuses with fuse extractor only.


(2) Issuance of Permit To Work (PTW)

(a) Procedure before issue of “Permit to Work”

- I. “Permit To Work” can be issued by authorized person only.
- II. In case of Over Head Line, the issuer should personally check and ensure that disconnect all the three links. If any work is to be carried out on isolated section for longer duration, then jumpers for the same are required to be disconnected and removed else it should be manned without DL operating device to avoid accidental operation

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- III. The line / equipment shall be earthed by earth discharge rods.
 - IV. All operations for issue of line clear shall be done personally by the issuer or it shall be done under his personal supervision.
 - V. After following all the precautions, the “PERMIT TO WORK” shall be filled up carefully without leaving any column left unfilled. It shall be signed with date and time by the issuer and issued to the receiver. Signature with date and time of the receiver shall be obtained. Original copy of “PERMIT TO WORK” shall be handed over to receiver and duplicate shall be kept with issuer.
 - VI. The permit to work issuer shall conduct safety Toolbox talk with all the crew members prior to starting any work and will note the names of all crew members on permit copy by ensuring valid ID cards.
- (b) Responsibility of the receiver:
- I. The receiver should very clearly know the specific equipment / line which he has to work when receiving “Permit to Work”.
 - II. If the receiver is at the same place as that of the issuer, he shall follow all the operations being conducted so as to ensure that “Permit to Work” is being issued on the correct line / equipment.
 - III. At the work spot, after receiving “Permit to Work”, he shall ensure that line/Apparatus is dead by means of Live line detector and he shall earth & short the line / equipment on either side / both side of the work spot.
 - IV. In case if any other lines are crossing or passing near to work spot of the line on which “Permit to Work” is received he shall provide and ensure that earthing and shorting is to be provided before and after the line crossing.
 - V. He shall write down the number of persons engaged on the work on “Permit To Work”.
- (c) The competent person who is given authority to receive the “Permit to Work” issued by the authorised person can work on the isolated network only after the receiving the PTW.
- (d) In case of multiple off points, all off points shall be checked for non-availability of power. Then earth all “OFF” Points and provide NTC & LOTO/Padlock to the same.
- (e) Rules to be followed when returning of “Permit to Work”:
- I. The person who has received the “Permit to Work” only should return the “Permit to Work”.
 - II. He shall personally ensure that there are no men, materials or earth on the line.
 - III. He shall inform all the workmen that it is no longer safer to work on the line as the line clear is being returned.

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- (f) Cancellation of Permit To Work (PTW)
 - I. After completion of the assigned work on above isolated network, earthing is to be removed from respective location of above network and then clearance is to be given by competent person on the original copy of PTW which has been issued to him by the authorised person.
 - II. The PTW will be cancelled by the authorised person after receiving clearance from the competent person to whom it has been issued.
- (g) Rules to be followed after receiving back the “Permit to Work” after from the person to whom the permit has been issued.
 - I. Before cancellation of “Permit to Work” the following precautions shall be taken
 - i. The return “Permit to Work” shall be carefully examined.
 - ii. The number of persons should be counted before cancellation of work permit.
 - iii. “NTC” boards shall be removed.
 - iv. Ensure all men, material, shorting & earthing is removed.
- (h) The line / equipment shall not be charged until the “Permit to Work” is cancelled.
- (i) After charging the line / equipment, check should be made for unusual sound / noise, phase rotation in DT/Audit meter etc.
 - I. All the workmen / supervisor shall be permitted to leave the work spot only after the normalcy is restored.
- (j) Refer OCP No: TPDF02-DIS01-OCP-006 For operation of Isolating equipment

12.5. RESTORATION

- (1) Not Applicable

12.6. WORK CHECKLIST

- (1) Not Applicable

12.7. UPDATION

- (1) Update in GIS / SAP, if applicable.

13. IMPACT ANALYSIS OF SIGNIFICANT RISKS


13.1. QUALITY MANAGEMENT SYSTEM

- (1) Not applicable

13.2. ENVIRONMENTAL MANAGEMENT SYSTEM

- (1) Not applicable

13.3. HEALTH AND SAFETY

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- (1) Details of Health and Safety Hazard involved
 - (a) Working/travelling in extreme weather condition
 - (b) Poor illumination
 - (c) Animal/ insect bite
 - (d) Flash Over during switching operation
 - (e) Working in congested area
 - (f) Use of faulty Tools
 - (g) Negligence of use of safety PPEs / Non usage of PPEs/ Use of faulty PPEs
 - (h) Hit by handles/tools due to slippage/ mishandling
 - (i) Working in unhygienic area
 - (j) Consumer aggression
 - (k) Contact with Live terminal/ cable/ wire/ busbar
 - (l) Accident due to improper isolation
- (2) Health and Safety Precautions required
 - (a) Ensure use of PPEs
 - (b) Ensure use of tools & tackles
 - (c) Use Face wiser / full mask helmet

13.4. ENERGY MANAGEMENT

- (1) Not applicable

13.5. ASSET MANAGEMENT

- (1) Not applicable

14. LIST OF ATTACHMENTS

Sr	Document /Record Description	Reference No.
1	Operation of Isolating equipment	TPDF02-DIS01-OCP-006

***** End of Procedure *****