



SAFETY RULES

For the Control, Operation and Maintenance of
Electricity Transmission & Distribution System of

**QATAR GENERAL ELECTRICITY & WATER
CORPORATION "KAHRAMAA"**

**Second Edition
2014**

SAFETY RULES

For the Control, Operation and Maintenance of
Electricity Transmission & Distribution System of
QATAR GENERAL ELECTRICITY & WATER CORPORATION "KAHRAMAA"

*Prepared by: ENA – Safety Rules Committee 2013
Engr. Mohammed Iqbal Faqr – Chairman
Engr. Navin Rego – Member
Engr. Raghu Kumar Nair – Member
Engr. Murali Dharan Padinhakkara – Member
Engr. Suryanarayanan Subrahmanian – Member
Engr. Jawdat Maftouz – Member
Engr. Yagneshkumar Aravindkumar Dave – Member
Engr. Salman Rafiq Chaudhry – Member*

Production: Public Relations & Communication Department

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For the Control, Operation and Maintenance of
Electricity Transmission & Distribution System of

**QATAR GENERAL ELECTRICITY & WATER
CORPORATION "KAHRAMAA"**

- A. General
- B. Operating Rules
- C. Safety Rules
- D. Emergency Response
- E. Annexure

Serial No. -----

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Electricity Transmission & Distribution System of KAHRAMAA

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Issued to:

Name

Signature

Emp. No.

Date

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INDEX

A – General

1. Safety Policy
2. Admission to KM Substations & Electricity installations.
3. Duties of Employees & Others.
4. Issue of copy of Safety Rules & Regulations.
5. Variation of Rules.
6. Definitions.

B – Operating Procedures

7. Switching
8. Earthing
9. Loading Instructions to Generating Stations
10. Communication of Messages.
11. Reporting of Supply Failure.
12. Reporting of Dangerous Occurrences & Accidents.

C – Safety Rules

13. General Safety Precautions
14. Access to Enclosures & Apparatus (EHV/HV/MV)
15. Earthing
16. Permit-to-Work and Sanction for Test

17. Limitation of Access
18. Agreement of Temporary Release of Equipment (ATRE)
19. Work in Substations / Switching Stations Containing Exposed Live Conductors
20. Work on Remotely or Automatically Controlled Equipment
21. Work on EHV/HV/MV Apparatus other than Metal-Clad Switch gear Spouts, Cables or Overhead Lines
22. Work on Metal-Clad Switchgear Spouts
23. Work on Capacitor Banks (MV & above)
24. Work on EHV/HV/MV Cables & Overhead Lines
25. Testing of EHV / HV / MV Apparatus
26. Work on Equipment & Ancillary Apparatus containing Sulphur Hexafluoride (SF₆) Gas
27. Work on EHV / HV / MV Apparatus Operated by or Containing Compressed Air, Hydraulic fluid under pressure, Spring Charge Mechanism
28. Work on Oil Tanks
29. Fire Protection Equipment
30. Rules for work on Low Voltage Apparatus, Conductors & Equipment

D – Emergency Response

31. Basic Requirements

E - Annexure

QATAR GENERAL ELECTRICITY & WATER CORPORATION “KAHRAMAA”
STATE OF QATAR

SAFETY RULES

**For the Control, Operation & Maintenance of the Electricity Transmission
& Distribution System (EHV / HV / MV) of the QATAR GENERAL
ELECTRICITY & WATER CORPORATION (KAHRAMAA)**

Preamble:

The following Rules for the Control, Operation and Maintenance of the KAHRAMAA’s (KM) Electricity T&D System are designed for the protection of KM’s employees and others against injury in the course of their duties and to ensure the safe and efficient operation of the KM’s assets.

The Rules shall be strictly followed by all persons working on KM electricity network and assets. Ignorance of these rules will not be accepted as an excuse for negligence of duty.

Only an authorized person certified by respective KM authorization committee is allowed to carry out switching operations on KM EHV, HV and MV equipment. The authorized person shall have adequate knowledge and understanding of KM Safety Rules and Regulations, Code of Practice, System Operation Memorandum (SOM) and other prevailing rules, as deemed applicable to the nature of their job.

Any person in doubt as to the interpretation or application of these rules should refer to the Department Manager.



Engr. Abdulla Ali Al-Theyab

Director

Electricity Networks Affairs

Date 1/1/2014

A. General

1. **Safety Policy :**

The Safety Rules shall be strictly followed by all persons working on KM electricity network and assets. Ignorance of these rules will not be accepted as an excuse for negligence of duty.

Safety Policy mandates the following:

- (i) Comprehensive Safety Rules, Procedures and Code of Practice relating to particular activities are issued from time to time for implementation in KM network. These policy documents must be followed by all the staff and by the Contractor's representative working at KM sites.
- (ii) In designated areas of particular hazard, competent persons who have authorization will be required to satisfy themselves that all necessary safety precautions have been carried out before authorizing the commencement of work.

For the purposes of this policy, the following definitions apply:

1.1 **KAHRAMAA or KM :**

Where 'KAHRAMAA or KM' is used in this document, it refers to **Qatar General Electricity & Water Corporation (QGEWC)**.

1.2 **Safety Rules :**

Where 'Safety Rules' is used in this document, it refers to Safety Rules for the Control, Operation and Maintenance of KM's **Electricity Transmission & Distribution System** , unless otherwise specified.

1.3 **"Shall":**

Where 'shall' is used in this document with no qualification, it will indicate a **mandatory requirement with no discretion permitted and no judgment to be made.**

1.4 “Shall, where practicable”:

Where “Shall” is qualified only by the word “practicable”, a slightly strict standard is imposed. It means that where it is possible to achieve in the light of current knowledge and invention, but bearing in mind that the hazards associated with work to be undertaken, then the requirement must be met. One is not allowed to avoid the requirement on the grounds of difficulty, inconvenience or cost.

2. Admission to KM Substations & Electricity Installations :

No person shall enter any Transmission / Distribution Substations or Electricity Installations which are controlled, operated, occupied or owned by KM without written permission of KM’s concerned Authority.

Entry and Exit to Primary Substations shall be informed to System Control and logged at the respective Station Log Book.

3. Duties of Employees & Others :

3.1 The Safety Rules shall be familiar to all employees who may be concerned with the KM equipment (EHV / HV / MV) and shall be strictly adhered to. Employees of Contractors and others, who need to operate or work on KM equipment, are also required to be familiar with these Rules and to follow them.

3.2 General Safety:

In addition to the Safety Rules, for establishing safety of the system, the safety procedures at work shall also be achieved by maintaining general safety all the times, at and in the vicinity of the place of work. Before any work or testing commences, it is the personal responsibility of the appropriate supervisor to satisfy himself that all Safety precautions are taken to establish General Safety at and in the vicinity of the work place. Subsequent to the commencement of work or testing, the person in charge of the work or testing shall continue to maintain conditions which ensure General Safety. This person shall also ensure that conditions of other work areas are not adversely affected by the activities for which he is responsible.

3.3 Additional Rules, Code of Practice and Procedures:

In addition to the Safety Rules, other associated Rules issued from time to time by KM like, Grid Code, Code of Practice, Procedures, Standards, Manuals, Guidelines, Circulars, Memorandum etc. shall be complied with.

3.4 Additional or Special Instructions:

Additional or Special instructions explaining or adding to the Safety Rules, like System Operation Memorandum (SOM), Departmental Circulars, KM regulations to work in vicinity of EHV/HV installations are considered as part of Safety Rules. Working on or testing of plants and apparatus to which these Rules can't be applied or for a special reason should not be applied, should be carried out in an approved manner which shall be confirmed in writing by the Director (Electricity Network Affairs) or by a deputy authorized by the Director (Electricity Network Affairs)

3.5 Use of Personal Protective Equipment (PPE) at all times:



Personal Protective Equipment (PPE), as required by the work conditions, must be used even if it causes discomfort and may take longer to finish the job. The individual shall be aware of the general PPE that is required while working at site. Additional PPE requirements shall be identified through risk assessment activities, Material Safety Data Sheets (MSDS) and site procedures.



4. **Issue of copy of Safety Rules & Regulations :**

- (a) A copy of these Rules shall be supplied to all persons concerned with the control, operation or maintenance of the KM's Electrical equipment (EHV / HV / MV) and each recipient shall sign a receipt for his copy which shall be kept as record at the respective department.
- (b) A copy of the Rules shall be kept available for reference at the Control Centers and all primary substations at which the KM's equipment is installed.
- (c) The Safety Rule Book shall be controlled & maintained by Electricity System Control Department.

5. **Variation of Rules :**

In exceptional circumstances these rules may be varied to such extent as may be authorized in writing by the KM's Director Electricity Networks Affairs or a deputy authorized by him in writing to do so.

6. **Definitions :**

- 6.1 **Additional Earth** – An earth connection of approved type which is applied after the issue of a Permit-to-Work or Sanction-for-Test (for example an earth applied at the point of work). It shall be quoted as additional earth in the Permit-to-Work or Sanction for Test Card. It can be applied and/or removed while the safety Document is in-force, without referring to Control Centre.
- 6.2 **Agreement of Temporary Release of Equipment (ATRE) – (TRANSMISSION ONLY)** : This is an agreement between KM and working party in an approved form for temporary release of KM equipment (owned and operated by ENA) to facilitate approved work under essential and justifiable circumstances.
- 6.3 **Apparatus –**

Note: (Nominal voltage classification is as per memorandum ref. EP/HTP/2011/161 dated 21/09/2011 & EP/HTP/2011/174 dated 23/10/2011)

- (i) **Extra High Voltage (EHV) Apparatus** – Any apparatus, equipment and conductors which are normally operated at a voltage above 132kV. (EHV > 132kV)
 - (ii) **High Voltage (HV) Apparatus** – Any apparatus, equipment and conductors which are normally operated at a voltage above 33kV and below or equal to 132kV. (33kV < HV ≤ 132kV)
 - (iii) **Medium Voltage (MV) Apparatus** – Any apparatus, equipment and conductors which are normally operated at a voltage above or equal to 1kV and below or equal to 33kV. (1kV ≤ MV ≤ 33kV)
 - (iv) **Low Voltage (LV) Apparatus** – Any apparatus, equipment and conductors which are normally operated at a voltage above or equal to 25V and below 1kV (25V ≤ LV < 1kV)
 - (v) **Extra Low Voltage (ELV) Apparatus** – Any apparatus, equipment and conductors which are normally operated at a voltage below 25V (ELV < 25V).
- 6.4 **Approved** – Sanctioned by the Director Electricity Networks Affairs or by his authorized deputy in writing.
- 6.5 **Authorized Person** – A competent person appointed in writing by the Director Electricity Networks Affairs or by his authorized deputy to carry out specific operations and work on the KM's system in accordance with the certificate of authorization.
- 6.6 **Caution Notice** – An approved portable notice attached to apparatus or its control equipment, conveying a warning against interference with the apparatus. The caution notice shall have yellow background with black inscriptions of “CAUTION - DO NOT INTERFERE” in Arabic & English. (As per annexure).
- 6.7 **Certificate of Authorization** – A certificate given to a competent person confirming that the person is capable of carrying out the



duties as expected and defining the limits of authorization.

6.8 **Certificate of Temporary Handing Over of Site (CTHS)** - This is an agreement between KM and working party in an approved form for temporary handing over of site belonging to KM to facilitate approved work. (As per annexure).

6.9 **Circuit Isolation and Earthing Certificate (CIEC)** – A form of declaration signed between KM Senior Authorized Person at site or System Control Engineer on behalf of KM and the Customer Authorized Person as a pre-requisite (under relevant safety document) for work by either party on the interface equipment. This is issued based on either

- Customer’s request to work on equipment owned by the Customer OR

- KM’s request to work on equipment owned by KM.

The CIEC is in two forms: CIEC-PTW or CIEC-SFT (As per annexure).

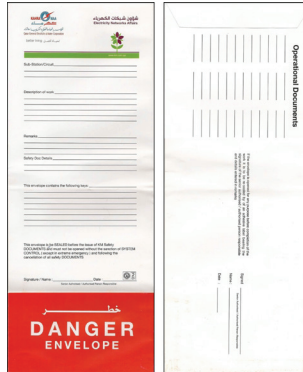
6.10 **Circuit Main Earth (CME)** – An approved earth connection which is applied as per the instruction or with the consent of the system control Engineer before the issue of a Permit-to-Work or Sanction-for-Test or any other safety document and quoted in the respective safety document as CME.

6.11 **Competent Person** – A person over 21 years of age, who has sufficient technical knowledge and experience to enable to avoid danger to self or any employee or damage to KM’s property and who is certified for relevant competency by the respective section / department.

6.12 **Contractor Representative** – A person, other than a person employed by KM who is required to work on KM assets or in the vicinity.

6.13 **Danger** – A risk of loss of life, bodily injury or damage to health from shock, burn or other cause arising from the Generation, Transmission, Distribution or use of electrical energy.

- 6.14 **Danger Envelope** – Danger envelope is an envelope to secure keys used for locking of switches, barriers, spout shutters, lock-out equipment or other similar devices provided for the protection of persons working under a Safety Document (As per annexure).



- 6.15 **Danger Notice** – An approved portable notice attached to apparatus when ‘LIVE’, calling attention to the danger of approaching or interfering with the apparatus and to keep away. The danger notice shall have red background with white inscriptions of “DANGER – LIVE APPARATUS” in Arabic & English. (As per annexure).



- 6.16 **Dead** – Apparatus at or about zero potential with respect to earth and disconnected / isolated from all live system.
- 6.17 **Earthed** – Properly connected to the general mass of earth in such a way as to ensure an immediate discharge of electrical energy without danger.

6.18 **Grid Code** - It is a document which defines the rules, regulations, guidelines, and standards to be followed by the various power plants (IPPs), Bulk Customers and agencies associated with KM network to plan, develop, maintain and operate the Transmission grid of Kahramaa in the most reliable, efficient, secure and economic manner.

6.19 **Limitation of Access (LOA)**– A form signed and issued by an Authorized Person to a Competent Person in charge of the following :

- Work other than work on live apparatus
- Work related to live apparatus that do not directly interfere with live components.

Defining the limit of the area and precautions within which the work is to be carried out (As per annexure).

6.20 **Live** – Electrically charged.

6.21 **Notification of Safety Precautions (NOSP) – TRANSMISSION ONLY:** Notification of Safety Precaution (NOSP) is a document issued to the Contractor, Bulk Customer or IPP (Independent Power Producer) to inform all concerned that from a specific date and time the new transmission equipment which is ready to be connected to KM network after successful completion of pre-commissioning tests will come under the operational jurisdiction of Director, Electricity Network Affairs. After issuance of NOSP, any work on the equipment shall only be carried out with appropriate Safety Documents issued as per KM Safety Rules and Regulations.

For procedure of issuance, refer to relevant Transmission SOM

6.22 **Permit-to Work (PTW)** - A form of declaration signed and issued by a Senior Authorized Person to a Competent person, in charge of work to be carried out on apparatus (MV and above), for the purpose of making known to that person exactly what apparatus is dead, **isolated** from all points of supply and feedback, and connected to earth, and on which it is safe to work. A Permit-to-Work may also be issued to a Competent person in charge of work

above ground level in proximity to live apparatus (MV and above).
(As per annexure)

Types of PTW: There are two types of PTW - Part-A and Part-B.

- **Part-A.**

This is proximity PTW or one where it is not necessary to either, isolate or earth the equipment concerned because the actual primary circuit is not being interfered with, but the work is only being carried out in **proximity** to the HV primary circuits.



- **PART-B.**

For this type of document it is obligatory to de-energize, isolate & earth the equipment from all points of supply prior to its issuance, since the primary equipment is to be worked upon.

The PTW (Part-B) cards have to be issued / cancelled from the respective substation only with the consent of System Control Engineer.

6.23 Safety Document: It is any form, certificate , declaration or agreement that allows work on equipment / apparatus of KM Transmission & Distribution Network. The list of Safety Documents include but not limited to the following :

1. LOA – Limitation of Access.
2. PTW – Permit to Work.
3. SFT – Sanction for Test
4. CIEC – Circuit Isolation & Earthing Certificate.
5. CTHS – Certificate for Temporary Handing Over of Site.

6. ATRE – Agreement for Temporary Release of Equipment

- 6.24 **Sanction-for-Test (SFT)** - A form of declaration (as per annexure) signed and issued by a Senior Authorized Person to himself or to another Senior Authorized Person in charge of testing of apparatus (MV and above) for the purpose of making known to such person, exactly, what apparatus is dead, isolated from all points of supply & feedback and connected to earth on which it is safe to carry out the test and what apparatus is to be tested and the condition under which testing is to be carried out.

There are no Part-A or Part-B Sanction for Test cards. It is, therefore, obligatory for the equipment to be made dead, isolated and earthed from all points of supply prior to its issuance. Immediately following its issuance, earths may be removed or parts of the circuitry disconnected within the points of isolation without further reference to the System Engineer.

At the time of cancellation of SFT the **exceptions** made must be **checked** and marked clearly on the document with the consent of System Control Engineer

- 6.25 **Senior Authorized Person** - An authorized person whose certificate of authorization permits such person to issue and cancel Permit-to-Work and Sanction-for-Test cards. He is authorized to carry out switching / operation on all apparatus / equipment in KM network.

- 6.26 **Single Feed Circuit (SFC) Notice: (For TRANSMISSION ONLY)** – An approved portable notice attached to control equipment (LCC and Relay panel) of the circuit which is the only source of supply. The SFC notice shall have blue background with white inscriptions of “SINGLE FEED CIRCUIT” in Arabic & English (As per annexure).



- 6.27 **Switching** - The operation of switchgears and isolators and other methods of making or breaking a circuit.
- 6.28 **System Control Engineer** - An Engineer appointed by KM, whose duties are to ensure the implementation of Safety Rules and check for maximum safety at all times to personnel and equipment on the KM's system and who is on duty for the purpose of controlling Generation, Transmission and Distribution of Electricity within the State of Qatar in accordance with the Grid Code.
- 6.29 **System Operation Memorandum (SOM)** : System Operation Memorandum (SOM), is part of KM safety rules for the control, operation and maintenance of KM Transmission & Distribution (EHV/HV/MV) System. SOM may be issued for the following reasons:
- To explain in detail some of the safety rules. **OR**
 - To explain the operation of a new plant added to the system. **OR**
 - For a special operation condition of the system. **OR**
 - To specify a new procedure(s) to be followed after any fault for the purpose to avoid such faults/ consequences.
- 6.30 **Working Area Notice** – An approved portable notice attached to apparatus or its control equipment, conveying that the apparatus is safe to work. The Work Area notice shall have Green background with white inscriptions of “WORKING AREA” in Arabic & English. (As per annexure).



- 6.31 **Working Party** - Persons working under the immediate supervision of a Competent Person or Authorized Person.

B. Operating Procedures

7. Switching :

7.1 Operation of Circuit Breakers and Isolators :

- a. No switching or associated operations shall be carried out without the permission of the System Control Engineer except in cases of emergency and immediate danger to persons or apparatus.
- b. When the System Control Engineer requires switching to be carried out, he shall communicate directly with the approved authorized person who is to carry out the switching. In the absence or failure of direct communication facilities, the message may be relayed by a competent third party, Rule 10 being observed.
- c. Switching or operations to the System Control Engineer's instruction, or with his consent, shall be carried out without undue delay. All switching or operations, whether to the System Control Engineer's instruction or with his consent, or when there is immediate danger to life or equipment, shall be reported to the System Control Engineer as soon as possible after each operation. The circumstances of an occurrence necessitating any emergency switching shall be reported immediately after the operation.
- d. Should any equipment show signs of distress or faulty operation, the circumstances shall be reported immediately to the System Control Engineer and the equipment shall be examined before further operation.
- e. When a person receives instructions regarding work on or the operation of apparatus, he shall report objection if any to carrying out the instructions to the System Control Engineer who shall then have the matter investigated and if necessary, referred to higher authority.

7.2 Recording of Switching :

A record of all switching and relay operations shall be entered appropriately in the station Log. The System Control Engineer shall record in Control Centre Log, the time and particulars of all

switching carried out to his instructions or his consent. Also all relay operations, issuance and cancellation of Safety Document must be logged with the appropriate action taken thereon.

8. Earthing :

8.1 Circuit Main Earths (CME) :

a. Application of Circuit Main Earth (CME)

No earthing switch shall be operated or Circuit Main Earth (CME) connection attached or moved except on the instruction of, or with the consent of, the System Control Engineer, by a Senior Authorized Person or Competent Person acting under his immediate and direct supervision. Each operation shall be reported to the System Control Engineer as soon as possible after completion, where the location of each connection to earth must be recorded on the relevant Safety Document (Permit-to-Work, Sanction-for-Test, etc).

b. Recording of Earthing (CME) :

The System Control Engineer shall record in his Log the time of application and the location of all Circuit Main Earth (CME) connections and the time of their removal.

8.2 Additional Earth :

a. Application of Additional Earth

Generally it is good practice to have just enough earths (CME) for a particular outage and if extra ones are required then “Additional Earths” should be issued and moved as required. There should be no question of the “Additional Earths” being left on the circuits if they are properly recorded on permit before issuance and checked in before cancellation.

b. Recording of Additional Earth :

The issuance and checking in of the Additional Earths shall be recorded on the relevant Safety Document which is the joint responsibility of the Senior Authorized Person at site and System

Control Engineer. The Senior Authorized Person at site shall physically verify the checking-in of Additional Earth as quoted in the Safety Document and confirm the same to System Control Engineer.

9. Loading Instructions to Generating Stations :

9.1 Load Allocation :

- a. The allocation of load to the GENERATING STATIONS / units (manual/AGC) is the responsibility of the System Control Engineer and will be varied by him from time to time as required by system condition, as stipulated in Grid Code.
- b. The output of any privately owned Generating Plant with whom KM has entered into an agreement, will also be supervised and controlled by the System Control Engineer to the extent stipulated by the relevant agreement.
- c. A person receiving instructions from the System Control Engineer regarding station loading, voltage adjustment, frequency control and associated matters shall carry out the instructions without undue delay and where necessary shall report the completion of the operations to the System Control Engineer.
- d. Where there is any objection to, or difficulty in carrying out the System Control Engineer's instructions, he shall be notified of the circumstances and will then investigate the matter, referring if necessary to higher authority.

9.2 Recording of Loading Instructions :

The System Control Engineer shall record in his Log the time and nature of all loading and associated instructions issued by him and may add such explanatory notes as he deems to be necessary or useful.

10. Communication of Messages :

Every mode of communicating messages relating to operation of KM network (including when relayed through a third party) shall be written

down / communicated in full text by its sender and receiver without alteration or abbreviation (other than those approved), together with a record of the time of receipt. It **must be read back by the receiver to the sender exactly as written to ensure that it has been accurately received and understood to avoid any ambiguity on the part of the sender and receiver.**

11. **Reporting of Supply Failure :**

A failure of supply from whatever cause, to or from any part of KM network shall be immediately reported to the System Control Engineer.

DURING FAILURES OF SUPPLY, ALL APPARATUS, EQUIPMENT AND CONDUCTORS OF THE CIRCUIT(S) AFFECTED SHALL BE TREATED AS BEING ALIVE.

12. **Reporting of Dangerous Occurrences and Accidents :**

All dangerous occurrences and accidents on KM network shall be reported immediately to the System Control Engineer who shall take immediate action to inform Security / Fire Officer / KM Service Center (Tel. No. 991), call Fire Brigade and Ambulance if required. System Control Engineer shall also pass on the relevant information to the Director, Electricity Networks Affairs or his Deputy as soon as possible.

C. Safety Rules

13. General Safety Precautions:

13.1 Work on Apparatus (Medium Voltage and Above):

No person shall carry out any work (including maintenance, repairs and testing etc.) on any part of the apparatus unless that part of the apparatus is:-



- a. Dead,
- b. Isolated and all practicable steps have been taken to lock off live parts. The Points-of-Isolation keys shall be secured in Danger Envelope as per Rule 13.5.

- c. Efficiently connected to earth at all points of disconnection of supply to the apparatus or between such points and the point(s) of work. These earths should be applied in an approved manner,



- d. Work area or Live area shall be roped off as appropriate to prevent danger. The roping/screening shall be done by either a Chain Link or a PVC tape (for indoor use). The colour code for roping shall be :

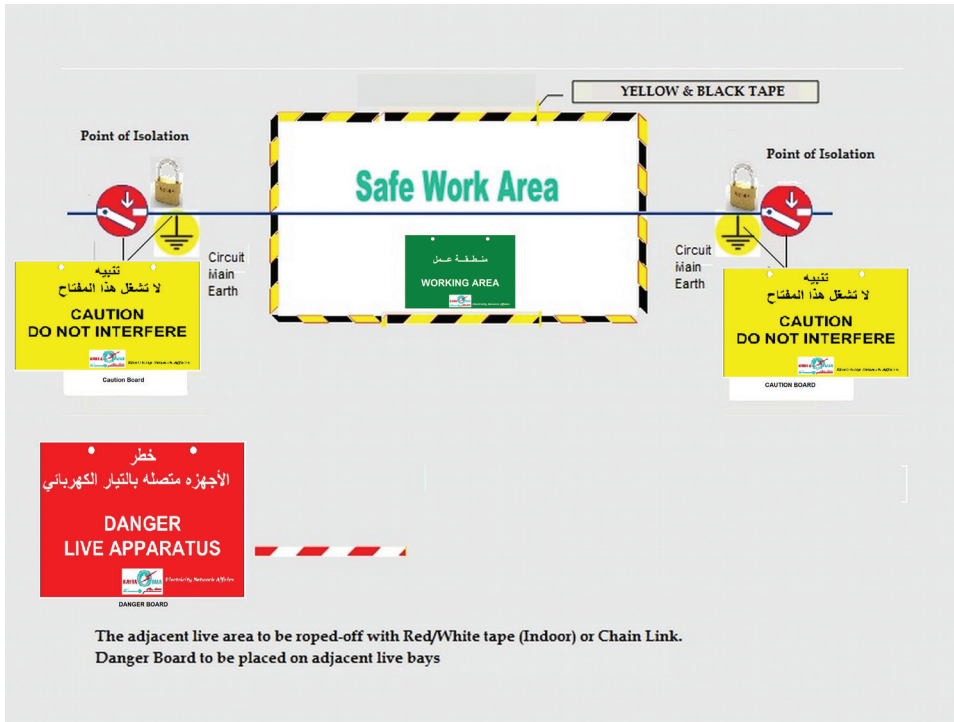
Work area - Black & Yellow strips

Live area – Red & White stripes

- e. Notices of “Caution”, “Danger”, “Work Area” and “SFC (as applicable)” shall be fixed and
- f. Released for work by the issue of a Permit-to Work (PTW),

Sanction-for-Test (SFT) or Agreement of Temporary Release (ATRE) and unless such person is fully conversant with the nature and extent of the work to be done.

It is the duty of the person issuing the Permit-to-Work (PTW), Sanction-for-Test (SFT) or Agreement of Temporary Release (ATRE) to satisfy himself that the foregoing provisions are complied with.



Exceptions:

Work may be carried out under Part 'A' of a Permit-to-Work or under a Limitation-of-Access and the provisions of Rule 13 (1) (a), (b) & (c) need not apply, provided that -

- The clearances specified in Rule 19 (1) are maintained.

- The work related to apparatus does not directly interfere with the live components and it is safe to work.

Making live or dead by signal or pre-arranged understanding after an agreed interval of time is forbidden

13.2 Interference with Conductors :

No person shall touch the insulation which covers or supports any conductor subject to Medium voltage and above, unless the conductor is dead, isolated and earthed.

13.3 Fixing of Danger, Caution, Working Area, SFC Notices & Screens, Barriers, and Flags etc.

Work shall not be carried out on any apparatus (EHV / HV / MV) which has been made dead and earthed (as applicable) until Caution notices have been attached at all points where such apparatus can be made live. Danger Notices shall also be attached to or placed adjacent to the live apparatus and at the limits of the zone in which work may be carried out. Working Area Notices shall be attached on apparatus / area where work is to be carried. Caution Notices, Danger Notices, Working Area Notices, Barriers, Screens and Flags shall be fixed and removed only by or under supervision of an Authorized Person.

13.4 Safety Locks (Distribution) :

- a. Safety locks preferably differing from standard locks of the system shall be used to lock off all switches / spout shutters at points where the circuit on which work is to be carried out could be energized. The keys for such locks shall be secured in a key cabinet, if provided, or in some other safe place preferably in the possession of the Senior Authorized Person in charge of the work.
- b. When the circuit on which work is to be carried out is controlled only by fuses and links, the fuses, links and carriers shall be removed and kept in the custody of the Senior Authorized Person responsible for issuing the Permit-to-Work, or in some safe place.

13.5 **Danger Envelopes :**

Danger envelopes will be provided for the reception of keys which secure switches, barriers, spout shutters, lock-out equipment or other similar devices provided for the protection of persons working under a safety document. The Danger envelopes will be locked in a dedicated key cabinet until all related safety documents are cancelled. The Danger Envelope shall be as per annexure.

13.6 **Work on Towers & High Structures :**

All persons while at work on towers, poles and high structures shall make proper use of their PPEs and no person shall work unsupervised on any tower or high structure. All persons working on the towers and high structures shall be within the visual range of the PTW holder for the work.

13.7 **Working on height, Scaffolds, Platform, Cranes:**

Any work in KM sub-station and sites which is done at height above the ground level using Platforms , Scaffolds and cranes shall be done with extra caution.

- a. The Platform and supporting scaffold must be constructed in accordance with the standard & approved design.
- b. All the area near Platform and supporting scaffold, cranes , staircase and open sides must be roped off or barricaded where falling hazards exists.
- c. Platform and supporting scaffold, cranes shall be kept on safe distance from live exposed conductors or parts.
- d. Safety belt shall be used where applicable.
- e. For Cranes, the operator must ensure that the permissible load is not exceeded

14. Access to Enclosures & Apparatus (EHV/HV/MV):

14.1 Enclosures Containing EHV/HV/MV Apparatus :

Barriers in substations (including plates on access ladders) cutting off access to enclosures within a station, chambers, cubicles or cells containing live high voltage apparatus shall normally be kept locked and the key shall be kept in a box or cupboard and shall be accessed only by an Authorized Person for the purpose of obtaining access to the apparatus. No person except an Authorized Person or a person acting under his immediate supervision shall have the access to any enclosure, chamber, cubicle or cell in which a live conductor is exposed.

14.2 Underground Chambers, Cable tunnels & Confined space:

Smoking is strictly prohibited in all underground chambers, Cable tunnels & confined space. Both entry of person and exposed flames are prohibited in any such chamber unless adequate precautions have been taken (e.g. use of suitable natural or forced ventilation) and the consent of an Authorized Person obtained. Where dangerous fumes are liable to be present, these precautions shall include testing for gas by means of an approved detector. Where one or more persons are required to work in an underground chamber and where dangerous fumes are liable to be present, an extra person shall be kept on duty outside the chamber and such person shall keep in regular contact with the worker or workers inside the chamber. Man-power count shall be verified while entering & exiting from confined spaces. If it is deemed necessary by an Authorized Person, approved breathing apparatus shall be worn and a rescue line attached to a person entering a confined space.

14.3 Towers, Gantries & Elevated Structures :

Gates and devices to prevent climbing of towers, gantries and elevated structures shall always be kept locked except when opened under the instruction of an Authorized Person.

15. Earthing :

15.1 Equipment for Earthing :

When EHV/HV/MV apparatus is to be discharged and earthed, it shall be done:-

- a. By the use of earthing switches or special apparatus where provided,

OR

- b. Where not provided by other approved means and when a circuit breaker is used to make the earth connection then the tripping feature shall be rendered in-operative from all electrical sources and if practicable, the mechanism shall be locked in the closed position. Earthing devices shall be of an approved type and of adequate current carrying capacity.

15.2 Procedure for the Use of Portable Earthing Devices :

Earthing devices shall be examined / checked / recorded for defects at least quarterly by the Competent Person in-charge for tools and plant and those shall be examined immediately before applying the earthing device for any work.

- a. Earthing Devices shall be applied after checking with an approved voltage detector that the apparatus is not live. The voltage detector shall be checked before and after every use.
- b. Earthing devices shall not be applied in any cell or compartment in which there is danger of accidental contact of the device with exposed metal part live at EHV/HV/MV.
- c. Earthing devices shall be connected to the earth system before being secured to the dead phases. The earthing connection shall only be secured to the phases by means of an earthing pole or other approved apparatus and care must be taken to ensure that good connection is made.

When removing earthing devices, they shall be disconnected from the phases first by means of an earthing pole or other approved

apparatus and connection to the earth should be disconnected at last.

15.3 Earthing Metal-Clad Switchgear :

For the purpose of earthing metal-clad switchgear, approved appliances only shall be used. The insertion of the hand or any tool in to the contact spouts for this purpose is forbidden.

Before work is carried out on the withdrawable portion of truck type or metal-clad switchgear, the provisions of Rule 13.1 (a) & (b) shall first be complied with. The apparatus shall then be:-

- a. Checked by means of an approved voltage detector (the detector itself being tested immediately before and after the verification).
- b. Discharged to earth,
- c. Efficiently connected to earth (such earth to remain connected unless the apparatus is bodily removed from its normal live position and is disconnected from the possible sources of supply).

16. Permits-to-Work & Sanction-for-Test:

16.1 Arrangements for issue :

- a. Permits-to-Work and Sanction-for-Test shall be issued only with the consent of the System Control Engineer who shall retain in his custody a copy of each Transmission Permit-to-Work and Sanction-for-Test issued. In the case of a Distribution Permit-to-Work or Sanction-for-Test, the System Control Engineer shall retain a record of their issue.
- b. Work shall not be carried out by any person on EHV/HV/MV apparatus or in proximity to any such apparatus where technical knowledge or experience is required to avoid danger until a Permit-to-Work or Sanction-for-Test has been signed and the card copy handed by a Senior Authorized Person to the person in charge of the work. The Senior Authorized Person shall ensure the person receiving the Permit-to-Work or Sanction-for-Test fully understands its contents. The person in charge of the work shall then sign the card copy and its original and retain the card copy in

his possession until he has signed the clearance and returned it to the Senior Authorized Person.

- c. The person in charge to whom a Permit-to-Work is issued shall be a Competent Person and the work shall be carried out under his immediate supervision. In the case of an over head line with all conductors dead, immediate supervision shall be deemed to include the area between additional earths as defined in Rule 24.2(d).
- d. Any person in charge of work holding a Permit-to-Work or Sanction-for-Test shall not leave the site of the work while work is in progress.
- e. A Permit-to-Work shall be issued to the person in charge of each independent working party.
- f. Only one Sanction-for-Test shall be issued on EHV/HV/MV apparatus at any one time. Under no circumstances shall a Permit-to-Work be in force on any EHV/HV/MV apparatus within the points of isolation specified on a Sanction-for-Test. Similarly, under no circumstances shall a Sanction-for-Test be issued on any EHV/HV/MV apparatus within the points of isolation specified on any Permit-to-Work.
- g. System Control Engineer shall keep the record of all the multiple PTW's issued between same points of isolations.

16.2 Precautions During Progress of Work :

- a. The apparatus isolated and earthed for work under the terms of a Permit-to-Work must remain so until the Permit-to-Work is cancelled.
- b. Should work for which a Permit-to-Work or Sanction-for-Test has been issued be such that the apparatus may be put into commission before its completion, then each time the work is suspended, the Permit-to-Work or Sanction-for-Test shall be cancelled.
- c. Apparatus isolated and earthed for testing and in connection with which the System Control Engineer has given to the Senior Authorized Person a Sanction-for-Test and approval for the

operation of switches, isolators, earthing switches and earth connections for test purposes within the points of isolation, comes under temporary control of the Senior Authorized Person.

The Senior Authorized Person may, without further reference to the System Control Engineer, operate it in accordance with these Rules.

The Senior Authorized Person may remove the earths and make it live from a testing supply and will be responsible for coordinating all such operations on the isolated equipment and for ensuring safety, during tests.

16.3 Procedure for Clearance and Cancellation:

- a. After work, for which a Permit-to-Work has been issued and has been completed, the person in charge of the work shall sign the clearance and shall then immediately return the card to a Senior Authorized Person who shall then obtain the consent of the System Control Engineer and cancel the Permit-to-Work.
- b. After work, for which a Sanction-for-Test has been issued and completed, the Senior Authorized Person shall sign the clearance with the exceptions noted and shall then obtain the consent of the System Control Engineer to cancel the Sanction-for-Test.

17. Limitation-of-Access :

17.1 Arrangement for issue :

- a. Limitation-of-Access will be issued by an Authorized Person with consent of the System Control Engineer to a Competent Person.
- b. A Limitation-of-Access will be issued to a KM employee / Contractor's representative who is in charge of work in KM premises, the work being as such it will not require the issue of a Permit-to-Work under Rule 16.1(b). The Limitation-of-Access will be signed by an Authorized Person and the original copy handed over to the person in charge of the work. The Authorized Person issuing the Limitation-of-Access shall ensure that the person in charge of the work fully understands its contents. The person in

charge of the work will then sign the documents and retain the original copy in his possession until he has signed the clearance and returned it to the Authorized Person for cancellation.

- c. The person in charge to whom the Limitation-of-Access is issued shall be a competent person and the work shall be carried out under his immediate supervision.
- d. Any person holding a Limitation-of-Access shall not leave the site of the work while work is in progress.
- e. A Limitation-of-Access shall be issued to a person in charge of each independent working party.
- f. LOA validity shall be maximum for 90 days

17.2 Procedure for Clearance and Cancellation :

After work for which a Limitation-of-Access has been issued and has been completed, the person in charge of the work shall sign the clearance. He shall then immediately return the original copy to an Authorized Person who will cancel the Limitation-of-Access with the consent of System Control Engineer.

18. Agreement for Temporary Release of Equipment (ATRE) - TRANSMISSION ONLY :

Under essential and justifiable circumstances, when a EHV/HV/MV equipment that belongs to KAHRAMAA (e.g. part of an existing switchgear / spare bays / Transformer / Cable / OHL etc) needs to be handed over temporarily to a 3rd party (herein after referred as Contractor) to facilitate works of pre-commissioning / testing / fault investigation or for other reasons whatsoever, a request shall be raised by the Contractor through Concerned dept to the Manager – Electricity Transmission Dept with the consent of System Control. For further details and ATRE form, refer to relevant Transmission SOM.

18.1 Arrangements for issue :

- a. ATRE shall be raised by the Contractor through the concerned department in the approved format along with all pre-requisites.

- b. KM Senior Authorized Person shall make the apparatus dead as per Rule 13.
- c. ATRE then shall be endorsed by concerned engineers of Electricity Transmission and System Control Department.
- d. ATRE shall be then issued by Manager-Electricity Transmission (ET) department with the consent of System Control (ES) department.
- e. The document comes into effect as soon as System Control confirms the document number and time of issue.
- f. After issuance of this document to the Contractor, he is free to carry out the work/tests/investigations on the equipment listed in the agreement as per the scope of work listed therein. In no case he shall operate the equipment / component listed as the point of isolation & earthing.
- g. After the issuance of this document the contractor or its staff do not need any additional Safety document (LOA/PTW/SFT etc) to work inside the KM substation premises but it is mandatory that all concerned staff shall have valid KM Gate passes to enter the substation and Competency certificate approved by concerned KM sections to carry out the work.
- h. A copy of ATRE and the approved Method Statement shall always be available at the Site of Work and in Substation Control Room.
- i. Only one ATRE shall be issued on EHV/HV/MV apparatus at any one time. Under no circumstances shall another Safety Document (LOA / PTW / SFT etc.) be in force on the apparatus within the points of isolation specified on ATRE. Similarly, under no circumstances shall a ATRE be issued on any EHV/HV/MV apparatus within the points of isolation specified on any other Safety Document (PTW / SFT) .

18.2 Precautions During Progress of Work :

- a. The apparatus isolated and earthed for work under the terms of an ATRE must remain so until the ATRE is cancelled.
- b. Point of Isolation keys shall be kept in the Danger Envelope inside

a key cabinet which shall be locked by double locking, each party holding key of one lock, requiring both parties together to open the key cabinet.

18.3 Procedure for Clearance and Cancellation:

- a. After work, for which an ATRE has been issued and has been completed, the Contractor shall sign the cancellation and shall then immediately return the original document to Manager - Electricity Transmission Dept through concerned department.
- b. The concerned engineer shall arrange for necessary inspection and verification of the apparatus.
- c. The ATRE shall be deemed as cancelled after the signature of Manager – Electricity Transmission department and cancellation date & time is recorded by System Control.
- d. After cancellation of ATRE, the Point of Isolation keys shall be removed from the Danger envelope and restored to the respective key cabinet.
- e. After cancellation of ATRE, no work shall be carried out on the apparatus by the Contractor or its staff without a valid Safety Document (LOA / PTW / SFT) and valid KM gate pass.

19. Work in Substations & Switching Stations Containing Exposed Live Conductors.

19.1 Safety Clearance to Live Conductors :

- a. When work is to be carried out in a substation in which there are exposed live high voltage conductors, then, unless the whole equipment is dead, the section which is to be made dead for work to be carried out shall be defined as far as possible by the use of barriers, notices, flags and roping arrangement so that the minimum clearance from the nearest exposed live conductor to ground level or to any platform or access way which may be required to be used shall be in accordance to BS 7354:1990 Table 4 and is reproduced below :

Rated Voltage	Safety Working Clearance (Horizontal)	Safety Working Clearance (Vertical)
Not exceeding 11 KV	1.6 m	2.6 m
Exceeding 11 KV but not exceeding 33 KV	1.8 m	2.8 m
Exceeding 33 KV but not exceeding 66 KV	2.1 m	3.1 m
Exceeding 66 KV but not exceeding 132 KV	2.7 m	3.7 m
Exceeding 132 KV but not exceeding 275 KV	4.2 m	5.2 m
Exceeding 275 KV but not exceeding 500 KV	5.4 m	6.4 m

The area to be defined at ground level shall only be that in which work is to be carried out.

- b. If the work is such that these clearances are not sufficient to avoid danger, other suitable arrangements shall be made to provide the requisite degree of safety.
- c. When cranes are taken into or out of a substation, the route to be followed shall be agreed by a Senior Authorized Person. Use of such equipment shall be mentioned in the relevant Safety Document.

19.2 Use of Ladders & Long Objects:

- a. Ladders shall be of an approved type and of no greater length than is required for the work involved. Minimum Safe Working Clearance as per Rule 19.1 shall be strictly maintained.
- b. Ladders and other long objects shall not be used without the permission of a Senior Authorized Person. The movement and erection of such ladders and objects shall be carried out only under the direct supervision of the Competent Person in charge of the work and when moved at ground level, they shall be carried only in the horizontal position and as near ground as practicable.
- c. All portable ladders within substations or switching stations when not in use shall be securely locked to a suitable anchorage.

20. **Work on Remotely or Automatically Controlled Equipment :**

- 20.1 Before work is carried out on remotely or automatically controlled equipment such as circuit breakers, isolators, tap changing gear or air compressors, the automatic or remote control features shall first rendered in-operative.
- 20.2 Before any work is commenced on protection control or indication circuits, the System Control Engineer must be informed and precautions taken to prevent any mal-operation.

21. **Work on EHV/ HV / MV Apparatus other than Metal-Clad Switch gear Spouts, Cables or Overhead Lines :**

Before any person is allowed to carry out any work on or repairs or modifications to or cleaning of any EHV / HV / MV apparatus other than metal-clad switch gear spouts, cables and overhead lines, the following operations shall be carried out in strict sequence :

- a. The apparatus shall be made dead,
- b. The apparatus shall be isolated from all points of supply including voltage and auxiliary transformers and common neutral earthing equipment from which the apparatus may become alive,
- c. Caution notices shall be attached at all points where the apparatus can be made alive,
- d. The apparatus shall then be :-
 - (i) Checked to ensure that it is not live where practicable, by means of an approved voltage indicator itself being tested immediately before and after the verification,
 - (ii) Efficiently connected to earth at all points of isolation from the supply, to ensure that effective earth connections are applied on all sides of plant/equipment require to work on including points of isolation from the common neutral earthing equipment where applicable or between such points and the points of work.

- e. Circuit Breakers, Isolators, Spout Shutters, Control Handles and Safety Devices shall be locked in position by the keys provided for the purpose which shall then be placed in a Danger Envelope.
- f. **TRANSMISSION ONLY :**

If work is such that operations (a) to (c) have to be carried out at more than one station, the Senior Authorized Person at each station shall place the keys involved in a Danger Envelope and lock the envelope in a key cabinet until he receives instructions from the System Control Engineer to restore the equipment to normal service.
- g. An appropriate Safety Document (PTW / SFT) shall then be issued.
- h. Unless the circuit main earths through which the apparatus is connected to earth are close to and/or visible from the point of work, the apparatus shall be efficiently connected to earth by means of additional earths at the point of work. The application of additional earths is not required where these earths coincide with the Circuit Main Earth (CME).
- i. For work on Outdoor Terminal equipment / Cable compound, if Portable Earths are required for safety of personnel, then it shall be quoted as Circuit Main Earth (CME) and not as Additional Earth
- j. Earths may be removed under the terms of a Sanction-for-Test after which they shall be immediately restored or noted under the 'exceptions' when clearing the Sanction-for-Test.

22. **Work on Metal-Clad Switchgear Spouts :**

22.1 **Busbar Spouts & Busbar Voltage Transformer Spouts :**

When work is carried out on busbar spouts, the following operations shall be carried out in strict sequence :

- a. The section of bus-bars on which work is to be carried out shall be made dead and shall be isolated from all points of supply.
- b. The isolating arrangements shall be locked so that they can't be operated and the shutters of live spouts locked shut.

- c. Where practicable, the bus-bars shall be checked by means of an approved voltage indicator to verify that they are not live, the indicator itself being tested immediately before and after the verification. The checking with the voltage indicator shall be done on the panel to be earthed with the Circuit Main Earths (CME) and also on the panel on which work is to be carried out.
- d. Caution notices shall be attached at all points where the apparatus can be made live and Danger notices attached to all adjacent live apparatus.
- e. The bus-bars shall be earthed with approved earthing equipment at a panel other than that at which work is to be carried out on the isolated section of bus-bars. For the purposes of earthing metal-clad switchgear approved appliances only shall be used. The insertion of the hand or any tool into the busbar and feeder spouts for this purpose is strictly forbidden.
- f. The operation set out in Rule 21 (e), (f) & (g) shall be carried out.
- g. Work on the spouts shall then be done under the personal supervision of a Senior Authorized Person (where the feeds from all the remote ends are not isolated) who shall prove each spout dead by means of an approved voltage indicator before it is worked on, the indicator itself being tested immediately before & after the verification.
- h. Earths may be removed under the terms of a Sanction-for-Test after which they shall be immediately restored or noted under the “exceptions” when clearing the Sanction-for-Test.

22.2 Feeder Spouts & Feeder Voltage Transformer Spouts :

When work is to be carried out on feeder and voltage transformer spouts, the following operation shall be carried out in strict sequence:

- a. The circuit shall be switched off and isolated,
- b. The isolating arrangements shall be locked so that they can't be operated and shutters of live spouts shall be locked shut,

- c. Where practicable, the circuit shall be checked by an approved voltage indicator to verify that it is dead, the indicator itself being tested immediately before and after the verification,
- d. Caution notices shall be attached at all points where the apparatus can be made live and Danger notices attached to all adjacent live apparatus,
- e. The circuit shall be earthed with approved earthing equipment at all points of isolation of supply. For the purposes of earthing metal-clad switchgear, approved appliances only shall be used. The insertion of the hand or any tool into the feeder or voltage transformer spouts for this purpose is strictly forbidden,
- f. The operations set out in Rule 21 (e), (f) & (g) shall be carried out,
- g. Work on spouts shall then be done under the personal supervision of a Senior Authorized Person, who notwithstanding the requirements of Rule 13.1 and Rule 16.2(a) shall remove the earths at the point of work and prove each spout dead by means of an approved voltage indicator, before it is worked on, the indicator itself being tested immediately before and after the verification. If the earths that can be applied to the circuit are those applied in the spouts and are circuit main earths, then while work is in progress no other work shall be carried out on the circuit connected to those spouts. In all other cases, the requirements of Rule 13 shall apply.
- h. When the spouts are connected to an overhead line on which there is any likelihood of dangerous induced voltages, additional earths shall be efficiently connected at the nearest point to the point of work where access to the conductors can safely be obtained.
- i. Earths may be removed under the terms of a Sanction-for-Test after which they shall be immediately restored or noted under the “exceptions” when clearing the Sanction-for-Test.

23. **Work on Capacitor Banks (MV & Above) :**

Work on capacitor banks shall be carried out as far as possible in accordance with the requirement of Rule 21 & 22 and the following additional precautions shall be taken :

- a. The Senior Authorized Person shall ensure that the Capacitor Banks are discharged and effectively earthed prior to starting the work.
- b. An appropriate Safety Document (Permit to Work or Sanction for Test etc) shall then be issued for the group or groups of capacitor units upon which work of testing is to be carried out. Additional Earths, if required, shall then be applied to the capacitor units at the point of work..
- c. Capacitor Units shall be short-circuited and remain short-circuited on removal of the circuit or in cases where earthing is impracticable

24. Work on EHV / HV / MV Cables & Overhead Lines :

24.1 EHV / HV / MV Cables :

The provisions of Rule 21 shall apply to work on EHV / HV / MV cables and in addition, the following precautions shall be taken:



- a. No person, after receiving a Permit-to-Work or Sanction-for-Test shall work on or in any way interfere with any EHV / HV / MV cable or conduit or trough containing the cable until personally instructed at the point of work by a Senior Authorized Person.
- b. When the cable is to be cut or joint opened, a Senior Authorized Person shall satisfy himself that the cable has been made dead, identified and spiked before allowing work to proceed.
- c. When work is to be carried out on cable circuits in proximity to other live circuits and on cable circuits with fully insulated metallic sheaths, special precautions should be taken to avoid danger from induced voltages. Where special conditions exist, the work shall be carried out in accordance with the KM code of practice.

24.2 Overhead Lines with all Conductors Dead :

The provisions of Rule 21 shall apply to work on EHV / HV / MV overhead lines and in addition the following precautions shall be taken:



- a. All persons while working on towers, poles and high structures shall make proper use of their safety belts and helmets and shall be in visual range of a second person. Before any pole is climbed, it shall be sounded. No pole impaired by decay or damage shall be climbed until it has been securely guyed and if necessary, splinted and then only by one person can climb.
- b. At each station involved the Authorized Person shall personally check the identity of the circuit at the point of isolation and report to the System Control Engineer.

c. TRANSMISSION ONLY :

Each person who may have to climb a tower shall be provided with a circuit identity wristlet marked with the circuit designation (colour code) of the line on which work is to be carried out and shall wear it in such a manner that it will be, at all times, readily visible to the wearer. The person who will be in charge at each tower shall be provided with a green flag and shall place the green flag in a visible position before allowing any person to ascend the tower.



- d. The conductor shall be efficiently connected to earth by the earthing party at the points (s) of work or at the adjacent tower on each side of the point (s) of work, but in no case shall earths be more than two spans apart. In addition, if conductors are to be broken, they shall be connected to earth at each side of, and on the same tower at the point of work where the break is to be made.

These earths shall be applied before the break is made and shall remain in position until the conductors are reconnected or until work is completed.

24.3 Double Circuit Overhead Lines with one Circuit Live:

Where work similar to that covered by Rule 24.2 has to be carried out on double circuit overhead lines with one of the circuits live, the provisions of Rule 24.2 shall apply and the following additional precautions shall be taken:

- a. After placing in position the green flag which shall fit the socket on the dead side of the tower, and before any other person is allowed access to the tower, the earthing party under the supervision of the Competent Person at the point of work shall climb the tower on the dead side and shall efficiently connect to earth each individual conductor on that side. They shall then affix red pennants to the cross arms supporting the live conductors at the junction of these cross arms with the tower body. The conductors shall remain efficiently earthed and the Red and Green flag/pennants shall remain in position throughout the progress of the work and the earths and pennants shall be removed by the Earthing Party only after all other members of the Working Party have descended the tower on completion of the work. While affixing or removing the earths and red pennants, the Earthing Party shall be under observation by another person at ground level.
- b. Work on a Tee-Off tower shall only be carried out in the presence of a Senior Authorized Person and special care shall be taken at terminal and angle / transposition towers.

24.4 Towers Carrying Live Conductors:

Work above the anti-climbing devices on towers carrying live conductors shall be permitted only under the following conditions:-

- a. The work shall be carried out under the terms of a Part 'A' Permit-to-Work and from within the body of the tower.
- b. Before anyone is allowed to start work, the Competent Person in charge at each tower shall define the area to be worked in by

removable barriers, notice boards, roping or pennants arranged to prevent any person working on the tower at less than the following distances (in accordance to max. values as per BS 7354:1990 Table 4) from any live conductors :

Rated Voltage	Safety Working Clearance (Horizontal)	Safety Working Clearance (Vertical)
Up to 33 KV	1.8 m	2.8 m
Exceeding 33 KV but not exceeding 66 KV	2.1 m	3.1 m
Exceeding 66 KV but not exceeding 132 KV	2.7 m	3.7 m
Exceeding 132 KV but not exceeding 275 KV	4.2 m	5.2 m
Exceeding 275 KV but not exceeding 500 KV	5.4 m	6.4 m

While defining the working area, the Competent Person in charge shall be under observation by another person at ground level.

- c. No person shall work in such a manner that the person's arms or any tool extend beyond the limits defined in subparagraph (b) and no tool greater in length than 0.3 meters (12 inches) shall be taken up a tower.
- d. Upon completion or cancellation of the work, the Competent Person in charge shall inform all members of the working party that it is no longer safe to work upon the tower and shall then remove the barriers, notice boards, roping or pennants defining the working areas. While removing all barriers etc., the Competent Person shall be under observation by another person at ground level.
- e. In the vicinity of the live OHL conductors, there is an electric field resulting in induced voltage on any object coming within this field. The same applies to a person coming within this field but is insulated by virtue of using regular PPE. Such induced voltage is too large to be ignored at EHV level. When the non-insulated part of such person climbing EHV OHL tower comes in accidental physical contact with the tower body, the charged electricity in human body discharges resulting in a shock. This may cause additional safety hazard like falling from the tower. To prevent

such risk, any person climbing EHV OHL tower shall utilize suitable electrically conductive PPE's when they are engaged in works on towers. These conductive PPE's shall be inspected every year.


24.5 Adverse Weather Condition:

- a. In the event of a near approach of a lightning storm or if there are high winds, all work on overhead lines shall cease immediately and the System Control Engineer is informed.
- b. No person alone shall patrol an overhead line across country when visibility is dangerously impaired for any reason.
- c. If overhead lines are to be patrolled during the hours of darkness, suitable lighting equipment shall be used.

25. Testing of EHV / HV / MV Apparatus:

- a. When the apparatus is to be subjected to test voltage before being connected to the high voltage system, the Senior Authorized Person responsible for applying the test voltage shall ensure that such apparatus is adequately guarded to prevent danger and that Danger Notices are attached in noticeable / conspicuous positions during the period the apparatus may be subject to voltage. All cables shall be discharged before and after the application of the test voltage.
- b. Temporary conductors used for testing purposes shall be of adequate size and easily visible.
- c. Test connections shall not be applied in a cell or compartment in which there is any exposed metal live at high voltage (this Rule does not prevent the use of approved voltage indicators or approved devices for phasing out circuits).
- d. Testing of the apparatus in the presence of flammable gas shall not be permitted.

26. Work on Equipment & Ancillary Apparatus containing Sulphur Hexafluoride (SF₆) Gas:

- a. For any equipment containing Sulphur Hexafluoride Gas, the relevant code of practice shall apply and must be available at the point of work stating the method for dealing with the gas and associated compounds. The apparatus shall bear an approved notice stating it contains Sulphur Hexafluoride.

- b. In addition to the requirements of Rule 21 and Rule 27, the following special precautions shall be taken when any work involves access to any part of the equipment which is or has been in contact with the gas or associated compounds.
 - (i) The apparatus shall be isolated from all sources of the supply of gas purged in accordance with the relevant code of practice and the associated receivers and pipe work, which shall be left open to the atmosphere.
 - (ii) The valves shall be locked by safety locks and the keys shall be placed in the appropriate Danger Envelope.
 - (iii) Caution notices shall be attached to the valves.
 - (iv) The work shall be carried out under appropriate Safety Document.
- c. Approved protective clothing, respirators, eye shields and safe handling equipment shall be provided and used where danger may arise from the gas or associated compounds in accordance with the relevant code of practice. First Aid shall be kept ready before commencing the work.

27. **Work on EHV / HV / MV Apparatus Operated by or Containing Compressed Air, Hydraulic fluid under pressure, Spring Charge Mechanism:**

27.1 **Apparatus containing Compressed Air mechanism**

In addition to the requirements of Rule 13.1, the following special precaution shall be taken before any work other than **Operating Adjustments** on the Apparatus operated by or containing compressed air.

- a. The valves controlling the supply of air to the equipment shall be closed and the air released from the associated receivers and pipe work which shall be left open to the atmosphere,
- b. The valves shall be locked in position and the keys secured in the Danger Envelope, The details of the mechanical isolation shall be recorded in the appropriate Safety Document.
- c. Caution Notices shall be attached to the Valves
- d. A Permit-to-Work or a Sanction-for-Test or other relevant Safety Document shall be issued to the person in charge of the work.

27.2 **Apparatus containing high pressure Hydraulic Operating Mechanism**

In addition to the requirements of Rule 13.1, the relevant Code-of-Practice for work on high pressure hydraulic operating mechanisms shall apply before any work other than **Operating Adjustments** on the Apparatus operated by hydraulic fluid under pressure is carried out.

27.3 **Apparatus containing Spring Charged mechanism**

In addition to the requirements of Rule 13.1, spring charged mechanisms shall be released or mechanically blocked before any work other than **Operating Adjustments** on the Apparatus operated by spring charged mechanisms is carried out.

27.4 Inspection or Operational Adjustments:

Inspection or Operational Adjustments of Apparatus which do not involve dismantling of any part of the compressed air system, high pressure hydraulic operating mechanism or spring charge mechanism may be carried out under the direct supervision of a Senior Authorized Person, in which case the provisions specified under Rule 13.1 shall apply.

28. Work on Oil Tanks:

- a. No person shall enter a vessel which has been emptied of oil or any other flammable substance until it is verified by an appropriate instrument / detector and the Senior Authorized Person is satisfied that all dangerous vapours have been expelled.
- b. Smoking and exposed flames are prohibited in the vicinity of open vessels containing or which have contained oil or any other flammable substance until the precautions specified in Rule 28(c) have been taken,
- c. Work on such vessels involving the application of heat is forbidden until all practicable steps have been taken to prevent fire or explosion either by the removal of the flammable substance and any fumes or by rendering them non-explosive and non-flammable.
- d. First Aid shall be kept ready before commencing the work
- e. Where one or more persons are required to work where dangerous vapours are liable to be present, an extra person shall be kept on duty outside the chamber and such person shall keep in regular contact with the worker or workers inside the tank. If it is deemed necessary by an Authorized Person, approved breathing apparatus shall be worn and a rescue line attached to a person entering the tank.

29. Fire Protection Equipment:

29.1 Automatic Control (e.g.: CO2 System):

- a. Before work or inspection are carried out in any enclosure protected by automatic fire extinguishing equipment, the automatic control shall be rendered inoperative and the equipment left on manual

control and a notice to this effect shall be attached.

- b. The automatic control shall be restored immediately after the persons engaged on the work or inspections have withdrawn from the protected enclosure.

- c. The rendering inoperative of the automatic control and the placing of Caution notices shall be noted on any Permit-to-Work issued for the work in the protected enclosure, System Control Engineer should be informed before disabling Automatic feature of CO2 and enabling it after the work.



29.2 Clean Agent Gas Extinguishing System (e.g.: FM200 System):

- a. For areas protected with clean agent gas extinguishing system, specific instruction label kept for this purpose in the substation shall be followed.
- b. When Alarm sounds or upon gas discharge evacuate hazard area immediately
- c. After discharge do NOT enter until thoroughly ventilated.



29.3 General :

- a. Contact with some chemicals used in fire protection equipment may be dangerous and in such cases notices to that effect shall be displayed adjacent to the equipment.
- b. Portable fire-fighting equipment shall not be used on electrical

apparatus unless such apparatus has been disconnected from the supply.

- c. Portable CO₂, dry chemical and carbon tetrachloride extinguishers may be used in the vicinity of live electrical apparatus provided that in the handling of the extinguishers, the safety clearances specified in Rule 19.1 are maintained. After the discharge of portable CO₂ or carbon tetrachloride extinguishers in a confined space, the operator shall leave the space until the precautions set out in (d) have been taken.
- d. After any fire, or after the discharge of CO₂ or carbon tetrachloride extinguishers in an enclosed space, the space shall be thoroughly ventilated before entry or suitable breathing apparatus shall be worn if entry is necessary before the gases have been cleared.



30. Rules for Work on Low Voltage Apparatus, Conductors & Equipment:

30.1 Precautions to be taken before Working on Low Voltage Systems

The consequences of shock or burns from short circuit associated with low voltage systems may be serious or in some circumstances, fatal. Wherever practicable, therefore, work on low voltage apparatus, conductors and equipment shall be done while they are dead.

- a. Apparatus must always be made dead wherever this does not cause materially inconvenience to consumers. The connecting of services either overhead or underground does not normally necessitate making the distributor dead to work on.
- b. When working on dead low voltage apparatus, suitable precautions shall be taken by screening or other means to avoid danger from inadvertent contact with live conductors within the working zone.

- c. Caution notices shall be securely fixed on all switch gear controlling the apparatus which has been made dead and on which work is being carried out. Danger notices shall also be attached (where applicable) on or adjacent to live apparatus and at the limits of the zone on which work may be carried out.
- d. It is not always possible to make dead or earth low voltage apparatus. All work on low voltage apparatus must be carried out as if it is live unless it is proved dead.
- e. When working on live low voltage apparatus, suitable precautions shall be taken by screening or other means to avoid danger from inadvertent contact with live conductors or earthed metalwork.
- f. Work on live low voltage apparatus, conductors or equipment shall be undertaken only by a Competent Person.

30.2 Work on Low Voltage Cables

- a. Difficulties are sometimes experienced in the identification of underground cables. The armouring may not be a safe guide in distinguishing between high and low voltage. Where more than one cable exists on a route it shall be the responsibility of the Engineer in charge of the work to positively identify the cable to be worked upon. In the case of any uncertainty, all the cables in the route shall be made dead.
- b. When work is to be carried out on a dead low voltage cable, it shall be isolated from all points of supply and caution notices affixed. All practicable steps shall be taken to prevent the cable being made live inadvertently, including locking off of any switch gear and the removal of any fuses or links. Keys, fuses or links shall be kept in a safe place. The circuit shall be proved dead by means of an approved indicator, the indicator itself being tested immediately before and after the verification.
- c. Where work is to be carried out on a live cable, only one conductor should be bared at a time and rubber gloves or a rubber mat shall be used in addition to any rubber boots worn. All metalwork adjacent to the point of work shall be adequately shrouded with insulating material and the metallic sheath shall be bonded across with an approved insulated conductor before cutting to ensure the

continuity of the electrical circuit through the sheath. **No person shall work on a live cable unaccompanied.**

- d. When work is to be carried out on auxiliary / pilot cables which may be subjected to induced voltages from adjacent high voltage circuits, additional precautions to prevent danger from these voltages shall be taken in accordance with the special instructions issued by the Director Electricity Networks Affairs, KM.

30.3 **Work on Low Voltage Overhead Lines**

a. **General :**

All persons while at work on towers, poles and high structures shall make proper use of their safety belts & helmets and shall be in visual range of a second person. Before any pole is climbed, it shall be sounded. No pole badly impaired by decay or damage shall be climbed until it has been securely guyed and if necessary splinted and then only one person may climb.

b. **Adverse Weather Conditions :**

- (i) In the event of a near approach of a lightning storm or if there are high winds, all work on overhead lines shall cease immediately.
- (ii) No person alone shall patrol an overhead line across country when visibility due to high humidity is dangerously impaired for any reason.
- (iii) If overhead lines are to be patrolled during the hours of darkness, suitable lighting equipment shall be used.

c. **Work on Low Voltage Overhead Lines :**

Before work is commenced on bare low voltage overhead lines which have been made dead, the conductors including the neutral shall be short circuited and where practicable earthed.

- (i) If the Competent Person in charge together with the working party leaves the line at any time, so that the part of the line on which work is in progress is out of sight of such person

and party, such person shall verify that the local earths are in position before work is restarted on the line.

- (ii) Where work on live low voltage overhead lines is carried out with the approval of the Director Electricity Networks Affairs, KM, the following precautions in addition to those of Rule 30 shall be observed :

Work on a live overhead line shall be carried out by a Competent Person and rubber gloves shall be worn. In addition, he shall make proper use of his safety belt when working and a second person must be in attendance near the pole on which the Competent Person is working.

The removal or replacing of fuses or links mounted on poles may be carried out by a Competent Person unattended.

30.4 Work on Pilot / Telecommunication / Fiber Optic Equipment :

- (i) All works in Live TELECOMMUNICATION Equipment (TELECOM, SCADA & Tele-Control) shall be carried out under LOA.
- (ii) Tests, fault location and repairs on the Pilot / Telecommunication cable shall be done under appropriate Safety document. Necessary preventive measures shall be taken to avoid the risk of injury due to induced voltage during work.
- (iii) If Fiber Cable fault repair is near the HV/EHV Power Cable, then outage of the circuit is required.
- (iv) Works on PLCC LMU (Power Line Carrier Communication - Line Matching Unit) located at Substation Yard should be done only under PTW Part-B.
- (v) OPGW (Optical Fibre Ground Wire):
 - (i) OPGW is part of OHL, and all types of works on OPGW should follow relevant rules as specified in Rule 24.
 - (ii) Hood Closure Splicing can be carried out with LOA.

D. Emergency Response

31. **Basic Requirements:**

The following emergency response equipment must be visible and easily accessible



- First Aid equipment for use in minor injuries
- Fire Fighting Equipment

Get acquainted with your working environment. All persons working with KM assets shall be familiar with site emergency response. Emergency response must be clearly explained during tool box meetings. Get familiarized with where the emergency equipment and emergency exit are located.

31.1 **In case you report an accident:**

All dangerous occurrences and accidents on KM network shall be reported immediately to the System Control Engineer who shall take immediate action to inform Security / Fire Officer / KM Service Center (Tel. No. 991), call Fire Brigade and Ambulance if required. System Control Engineer shall also pass on the relevant information to the Director, Electricity Networks Affairs or his Deputy as soon as possible. (Clause 12)

- Keep calm and give the following information:
 - Who are you?
 - What has happened?
 - Where did the accident happen?
 - When did the accident happen?
 - Which phone number are you calling from?
 - Give directions for the emergency vehicle to reach the place of accident

31.2 **General Evacuation procedure:**

Evacuation of the site may be necessary as a result of fire, natural calamity, environmental incident or other critical situation. Evacuation procedure will vary at each site. However the basic steps below should be followed:

- Concerned System Control Centre is notified for informing HSE, Fire & Safety, Emergency Services and Higher Management.
- The emergency alarm to be activated to inform that an evacuation is to take place.
- Supervisor takes charge of the emergency.
- All employees group at the assembly points.
- Roll call is taken to account for all personnel.
- No one should leave the area until instructed by supervisor.
- Emergency service arrives and responsibility is handed over to them.

31.3 **Electrical Injuries:**

An electrical current can cause burn damage to the skin and damage to internal organs. The most serious to the internal organs occurs when a current passes through the heart (usually passing from arm to arm or arm to foot). In this way the current can cause disturbance in heart rhythm leading to unconsciousness or possible death. Experience shows that these rhythm disturbances can occur up to several hours after the accident. In case of electrical shock always go to a hospital for observation. Do not remove clothing from the body if burnt to the skin. Call for emergency assistance immediately.

31.4 **Other Injuries:**

Ensure the casualty is breathing and then priority should be given to controlling bleeding. Large fluid loss caused by bleeding or burns can result in loss of blood circulation. Stopping the external bleeding, elevating the legs, and keeping the victim warm can prevent this. Never give liquids to an injured person with loss of blood circulation. Expert assistance should be sought before other injuries are

treated. If it is necessary to move the casualty, do so with the utmost gentleness carefully supporting any injured part. . An injured person must be constantly watched. The presence of people can have a calming and supporting effect.

31.5 First Aid:

The time between accident and the arrival of qualified personnel who can treat the injured must be used to give assistance to the injured. Proper first aid can save life prevent permanent damage, reduce pain, and contribute to an early recuperation. All persons involved with operation and maintenance of KM network shall attend First Aid training arranged by KM Human Resources Department.

31.6 Emergency Numbers:

Police, Ambulance and Fire emergency	999
NCC	44654935, 44654934
DGCC	44671629, 44674148
DCC	44675214, 44670682
KM HSE	44845575
KM Fire & Safety	44845900
KM Call Center	991

.....

2) Permit to Work (PTW) (refer Rule 6.22)



ELECTRICITY NETWORK AFFAIRS
PERMIT TO WORK

No.

1. ISSUE

TO : IN THE EMPLOY OF
FOR THE FOLLOWING WORK TO BE CARRIED OUT:-

PART 'A'

I declare that it is safe to work
on the following earthed metal
enclosures or structures

(ALL OTHER PARTS ARE DANGEROUS)

PART 'B'

I declare that it is safe to work on
the following apparatus which
is dead, isolated from all live
conductors and is connected to earth.

(ALL OTHER PARTS ARE DANGEROUS)

Points at which the system is isolated.

Circuit main earths have been
connected at the following points.

Other Precautions

No. of additional earth connections issued.....

No. of circuit identity wristlets issued.....

Issued with the consent of System Control Engineer.....

Signature of issuing Senior Authorized Person.....

Time..... Date.....

2. RECEIPT.

I hereby declare that I accept responsibility for carrying out the work on the apparatus detailed on this Permit – to – Work and that no attempt will be made by me, or by the men under my control, to carry out work on any other apparatus.

Signature of person in charge of work :

Time..... Date.....

3. CLEARANCE.

I hereby declare that the work for which this Permit – to – work was issued is now suspended* / completed* and that all men under my charge have been withdrawn and warned that it is no longer safe to work on the apparatus specified on this Permit – to – work, and that all gear, tools and additional earthing connections are clear.

I declare that I have checked inadditional earth connections and
circuit identity wristlets.

Signature of person in charge of the work.....

Time..... Date.....

4. CANCELLATION.

No. of additional earth connections received.....

No. of circuit identity wristlets received.....

I declare that this Permit – to – work has been cancelled with the consent of
..... System Control Engineer.

Signature of Senior Authorized Person.....

Time..... Date.....

* Delete word not applicable

ELECTRICITY NETWORK AFFAIRS PERMIT TO WORK

1. صلاخ:
إلى السيد /
رقم.....
العمل لدى:
للقيام بالأعمال الآتية:

الجزء (أ)
أقر بأنه قد تم تأمين سلامة العمل
في المناطق والإنشاءات الآتية والمحاطة
بالأسوار المثبتة في الأرض

كافة المناطق الأخرى خطرة

الجزء (ب)
أقر بأنه قد تم تأمين سلامة العمل
على المعدات المعزولة
من كل طاقة وتم توصيلها
بالأرضي

كافة المناطق الأخرى خطرة

المناطق التي تم عزلها عن التيار الكهربائي:

تم توصيل دوائر الأرضي الرئيسية في الأماكن الآتية:

تحذيرات أخرى:

عدد الموصلات الأرضية الإضافية المستلمة:
عدد وألوان حلقات الدوائر المطبقة الصادرة:
تم الإصدار بموافقة مهندس التحكم والمراقبة:
توقيع المهندس المسؤول عن الإصدار:
الساعة:
التاريخ:

2. إقرار:
أقر أنا الموقع إنذار بأنه قد تم (إنهاء / * تأجيل) العمل الذي تم إستخراج هذا الترخيص من أجله وقد تم سحب جميع العاملين تحت إشرافي وتم
القيام بالعمل على أي معدات أخرى.
توقيع الشخص المسؤول:
الساعة:
التاريخ:

3. شهادة الإخلاء:
أقر أنا الموقع إنذار بأنه قد تم (إنهاء / * تأجيل) العمل الذي تم إستخراج هذا الترخيص من أجله وقد تم سحب جميع العاملين تحت إشرافي وتم
تحذيرهم من خطورة الإقتراب أو العمل في الأماكن المذكورة بهذا الترخيص.
كما تمت إزالة جميع الآلات والمعدات والوصلات الأرضية الإضافية.
أقر بأنه قد تم فحص وصلات أرضية إضافية.
وحلقات الدوائر المطبقة:
توقيع المسؤول عن العمل:
الساعة:
التاريخ:

4. إلغاء الترخيص:
عدد الموصلات الأرضية الإضافية المستلمة:
عدد وألوان حلقات الدوائر المطبقة المستلمة:
أقر بأنه قد تم إلغاء هذا الترخيص للعمل بموافقة:
مهندس التحكم والمراقبة:
توقيع المسؤول الأول
الساعة:
التاريخ:

(* لا يتم تطبيق القترات الملغاة)

3) Sanction for Test (SFT) (refer Rule 6.24)



ELECTRICITY NETWORK AFFAIRS

SANCTION FOR TEST

1. **ISSUE:** No. :
- To:
- Declaration by Senior Authorized Person.
- I have agreed with: System Control Engineer for the following work to be carried out:
-
- The apparatus detailed below has been isolated for this purpose from the remainder of the system and must not be reconnected at any point without the sanction of the System Control Engineer. Work on and operations of any part of the isolated apparatus must be carried out in strict accordance with the KAHRAMAA Safety Rules, but maybe carried out without further reference to the System Control Engineer. The System Control Engineer has made arrangements for the recipient of this card to issue instructions regarding the testing supply.
- The Apparatus isolated:
- The points of isolation:
- Circuit Main Earths have been connected at the following points. (These earths may be removed without reference to the System Control Engineer)
- Other Precautions:
- No. of additional earths connections issued:
- Sanction is hereby given for the work to proceed.
- Signed : being a Senior Authorized Person.
- Time: Date:
-
2. **RECEIPT :**
- I declare that I accept responsibility of carrying the testing on apparatus detailed on this Sanction for Test, that I am personally responsible for taking the necessary safety precautions to avoid danger and that no attempt will be made by me, or by men under my control, to carry out work on any other apparatus.
- Signed: being the Senior Authorized Person in charge of the work
- Time: Date:
-
3. **CLEARANCE:**
- I declare that all men under my control have been withdrawn and warned that it is no longer safe to work on the apparatus specified in this Sanction – for – Test and that all gear, tools, additional earths and other connections are clear and have been moved to ground level and that with the exceptions noted below the isolated apparatus has been returned to its condition at the time of issue of this Sanction – for – Test.
- EXCEPTIONS:
- Signed : being the Senior Authorized Person in charge of the work
- Time: Date:
-
4. **CANCELLATION :**
- I declare that I have checked in additional earth connections and that with the consent of System Control Engineer this Sanction-for-Test is cancelled.
- Signed: being a Senior Authorized Person .
- Time: Date:

ELECTRICITY NETWORK AFFAIRS SANCTION FOR TEST

رقم:.....

1 - صادر: إلى:.....

أقر أنا الموقع أدناه (أحد كبار المسؤولين) بأنه تمت الموافقة بيني وبين السيد/.....
المهندس المسؤول بمركز المراقبة والتحكم على القيام بالأعمال التالية:

.....

.....

لقد تم فصل الأجهزة المذكورة أدناه عن باقي الشبكة ويجب عدم إعادة توصيلها عند أي نقطة قبل الحصول على موافقة مهندس التحكم والمراقبة. كما يجب مراعاة تنفيذ هذه الأعمال طبقاً لقوانين السلامة الصادرة من كهرباء دون ضرورة الرجوع إلى مهندس المراقبة والتحكم مرة أخرى.

ولقد قام مهندس المراقبة والتحكم بعمل الترتيبات الخاصة لتمكين مستلم هذا الترخيص من إصدار تعليماته بخصوص عمل (الفحص) اللازم للتأكد من فصل هذه الأجهزة.

الأجهزة المفصول عنها التيار:.....

نقاط الفصل:.....

نقاط التأريض الرئيسية بالدائرة:.....

(يمكن التأريض دون الرجوع إلى مهندس المراقبة والتحكم):.....

إحتياطات أخرى:.....

عدد التوصيلات الأرضية الإضافية الأخرى:.....

وبناء عليه تم الترخيص بالبدء في هذه الأعمال،،،

التوقيع:..... المقر بما فيه:.....

الوقت:..... التاريخ:.....

2 - إيصال إستلام:

أقر أنا الموقع أدناه بأنني أتحمّل مسؤولية إجراء الفحص اللازم على الأجهزة المذكورة في هذا الترخيص كما أقر بأنني مسؤول شخصياً عن إتخاذ إحتياطات الأمن الضرورية لتجنب أي خطر وأتعهد بعدم قيامي أو قيام أي شخص من العاملين لدي بالقيام بأي عمل على أي أجهزة أخرى غير الوارد ذكرها في هذا الترخيص

التوقيع:..... المسؤول عن تنفيذ الأعمال:.....

الوقت:..... التاريخ:.....

3 - إخلاء الموقع:

أقر أنا الموقع أدناه بأنني قد أخليت الموقع وسحبت كل العاملين التابعين لي منه وأحذر من خطورة العمل على الأجهزة المذكورة أعلاه في هذا الترخيص وأن كل الأجهزة والأدوات والتوصيلات الأرضية الإضافية قد تم إزالتها وفيما عدا الإستثناءات المذكورة أدناه فإن الأجهزة السابق عزلها قد تم إعادتها إلى حالتها الأصلية قبل صدور هذا الترخيص.

الإستثناءات:.....

التوقيع:..... المسؤول عن تنفيذ الأعمال:.....

الوقت:..... التاريخ:.....

4 - إلغاء الترخيص:

أقر بأنني قد فحصت عدد..... من التوصيلات الأرضية الإضافية وبعد أخذ الموافقة السيد/..... مهندس المراقبة والتحكم قد تم إلغاء صلاحية هذا الرخيص.

التوقيع:..... المهندس المسؤول:.....

الوقت:..... التاريخ:.....

4) Limitation of Access (LOA) (refer Rule 6.19)



No :

This form must not be used for work on apparatus for which an electrical Permit to work is required.

1. ISSUE:

Name : Mobile No :

In the Employee of :

being a competent person is hereby given permission to carry out the work described on the apparatus detailed below.

Work must not be carried out on any other apparatus.

Location :

Apparatus :

Work :

Remarks :

* Control Engineer notified:

Time: Date :

* Signed: being a person authorized to issue LOA.

AMENDMENTS :

Sr	Amendment Description	Date	Time	Control Engineer notified	Signed by

2. RECEIPT:

Received by: being the person in charge of the work.

Time: Date:

3. CLEARANCE:

I hereby declare that all men under my charge have been withdrawn and warned that it is no longer permitted to work on the apparatus specified in this form and that all gear and tools are clear.

Signed: being the person in charge of the work.

Time: Date:

4. CANCELLATION:

Cancelled by : being a person qualified to cancel this card.

Time: Date :

* Control Engineer notified:

Time: Date :

* To be filled in as required

Note :

- 1) LOA Validity shall be max. for 90 days from date of Original Issue.
- 2) On Expiry of LOA validity or On completion of the work, the holder must surrender this Limitation – of Access for cancellation, after which no work must be done on the Apparatus.

الرقم:.....

يجب استخدام هذا النموذج للترخيص بالعمل على الأجهزة الكهربائية التي تتطلب إصدار نموذج "ترخيص بالعمل"
إصدار

اسم :
 رقم الخليوي:
 رقم العمل :
 بتبار المذكور أعلاه شخصا مسؤولا فلقد منح ترخيصا بإنجاز الأعمال الخاصة بالأجهزة الكهربائية الموضحة أدناه:
 وقع :
 مهاز :
 عمل :
 لحظات :
 تم إشعار مهندس المراقبة والتحكم:
 تمام الساعة : بتاريخ :
 ليع المسؤول عن إصدار هذا التصريح:

هديات:

رقم	وصف التعديل	الوقت	التاريخ	مهندس المراقبة والتحكم	التوقيع

إيصال :

م المستلم : باعتبار ه الشخص المسؤول عن العمل
 تمام الساعة : بتاريخ :

شهادة إخلاء الموقع :

أنا الموقع أدناه بأنه قد تم سحب جميع العاملين تحت إشرافي من الموقع و تم تحذيرهم بعدم القيام بأي أعمال أخرى على الأجهزة
 كهربائية المذكورة في هذا النموذج كما أقر بسلامة كل المفاتيح والأجهزة الموجودة بالموقع.
 يع الشخص المسؤول عن العمل:
 تمام الساعة : بتاريخ :

إلغاء التصريح :

لغاء هذا التصريح بواسطة : حيث أنه المسؤول عن إلغاء هذا التصريح
 تمام الساعة : بتاريخ :
 م إشعار مهندس المراقبة والتحكم :
 تمام الساعة : بتاريخ :

ميا حسب الحاجة :

حظة:

- (1) هذا التصريح ساري المفعول لمدة 90 يوما كحد أقصى من تاريخ الإصدار.
- (2) عند انتهاء سريان مفعول هذا التصريح أوفور إنتهاء الأعمال المذكورة، على حامل هذا التصريح التقدم للإلغاء و بعدها
 تماما القيام بأي عمل على الأجهزة المذكورة.

يحظر

5) CIEC - PTW (refer Rule 6.9)



ELECTRICITY NETWORK AFFAIRS
CIRCUIT ISOLATION AND EARTHING CERTIFICATE – P.T.W

شهادة بالعزل الكهربائي والتوصيل الأرضي

PERMIT –TO – WORK No :

Circuit:.....

Details of Isolation

Points at which circuit main earths have been applied to the above circuits.

We hereby declare that in the joint operation with the **KAHRAMAA** System Control Engineer the above circuit has been isolated and earthed at the points stated. Safety devices, isolations and earths will not be removed until CIEC (PTW) have been cancelled.

Signed on behalf of Consumer/IPP*
 Signed on behalf of KAHRAMAA
 Signed on behalf of System Control (NCC/DGCC)
Time : **Date** :

We hereby declare that in the joint consultation with the **KAHRAMAA** System Control Engineer all **PERMIT TO WORK** cards on the above circuits issued by **KAHRAMAA /CONSUMER** have been cancelled and that this circuit isolation and earthing certificate is now cancelled.

Signed on behalf of Consumer/IPP*
 Signed on behalf of KAHRAMAA
 Signed on behalf of System Control (NCC/DGCC)
Time : **Date** :

Delete where applicable.
 Consumer Permit-to-work Nos.....
 KAHRAMAA Permit to Work Nos.....
THIS FORM OF CERTIFICATE PERMITS THE ISSUE OF PERMITS TO WORK ONLY.

ELECTRICITY NETWORK AFFAIRS CIRCUIT ISOLATION AND EARTHING CERTIFICATE – P.T.W

شهادة بالعزل الكهربائي والتوصيل الأرضي

تصريح بالعمل
الدائرة / الجهاز
رقم:

تفاصيل المناطق التي تم عزلها

النقاط التي تم توصيل دوائر الأرضي الرئيسية

نقر نحن الموقعين أدناه وبالمشاركة مع مهندس المراقبة والتحكم بأن جميع الدوائر / الأجهزة اعلاه قد تم عزلها عن التيار وتم اتصالها بالأرضي عند النقاط المذكورة. أجهزة الأمان بنقاط العزل ووصلات الأرضي لن يتم إزالتها أو تغيير وضعها حتى يتم إلغاء شهادة العزل الكهربائي و توصيل الأرضي (C.I.E.C/ P.T.W) التي تم لإصدارها.

توقيع المسؤول عن المستهلك:

توقيع مهندس كهرباء المسؤول:

توقيع مهندس التحكم المسؤول (NCC/DGCC):

الوقت: التاريخ:

نقر نحن الموقعين أدناه وبالمشاركة مع مهندس المراقبة والتحكم ان جميع تصاريح العمل التي أصدرت على الدائرة أعلاه والتي تم إصدارها بواسطة مهندس كهرباء / المستهلك قد تم إلغاؤها. وأن شهادة العزل الكهربائي والتوصيل بالأرضي هذه تم إلغاؤها الآن.

توقيع المسؤول عن المستهلك:

توقيع مهندس كهرباء المسؤول:

توقيع مهندس التحكم المسؤول (NCC/DGCC):

الوقت: التاريخ:

(الإلغاء حيثما لا يمكن)

رقم تصريح العمل للمستهلك

رقم تصريح العمل للكهرباء

هذه الشهادة تسمح فقط بإصدار تصريح بالعمل.

6) CIEC - SFT (refer Rule 6.9)



ELECTRICITY NETWORK AFFAIRS
CIRCUIT ISOLATION AND EARTHING CERTIFICATE – S.F.T

شهادة بالعزل الكهربائي والتوصيل الأرضي

Sanction – for – Test No :
Circuit:.....

.....
.....

Details of Isolation

.....
.....

Points at which circuit main earths have been applied to the above circuits.

.....
.....

We hereby declare that in the joint operation with the **KAHRAMAA** System Control Engineer the above circuit has been isolated and earthed* at the points stated. Safety devices, isolations and earths will not be removed until the CIEC – (SFT) card has been cancelled, except as provided for under KAHRAMAA Safety Rule No. 16 (2) (c).

Signed on behalf of Consumer/IPP*
Signed on behalf of KAHRAMAA
Signed on behalf of System Control (NCC/DGCC)
Time : Date :

We hereby declare that in the joint consultation with the **KAHRAMAA** System Control Engineer the Sanction – for – Test card on the above circuit issued by **KAHRAMAA /CONSUMER*** have been cancelled and that this circuit isolation and earthing certificate is now cancelled.

Signed on behalf of Consumer/IPP*
Signed on behalf of KAHRAMAA
Signed on behalf of System Control (NCC/DGCC)
Time : Date :

*Delete where applicable.

Consumer Sanction – for – Test Nos.....

KAHRAMAA Sanction – for – Test Nos.....

THIS FORM OF CERTIFICATE PERMITS THE ISSUE OF Sanction – for – Test ONLY.

ELECTRICITY NETWORK AFFAIRS
CIRCUIT ISOLATION AND EARTHING CERTIFICATE – S.F.T
شهادة بالعزل الكهربائي والتوصيل الأرضي

ترخيص فحص واختبار رقم:
الدائرة / الجهاز

تفاصيل المناطق التي تم عزلها

النقاط التي تم توصيل دوائر الأرضي الرئيسية

نفر نحن الموقعين أدناه وبالمشاركة مع مهندس المراقبة والتحكم بأن جميع الدوائر / الأجهزة اعلاه قد تم عزلها عن التيار وتم إيصالها بالأرضي عند النقاط المذكورة. اجهزة الأمان، نقاط العزل ووصلات الأرضي لن يتم إزالتها أو تغيير وضعها حتى يتم إلغاء شهادة العزل الكهربائي و توصيل الأرضي (C.I.E.C/ S.F.T) التي تم إصدارها ما عدا ما تم ذكره في البند رقم (16)، (2)، (س) في إجراءات السلامة الخاصة بكهراء.

توقيع المسؤول عن المستهلك:

توقيع مهندس كهراء المسؤول:

توقيع مهندس التحكم المسؤول (NCC/DGCC):

الوقت: التاريخ:

نفر نحن الموقعين أدناه وبالمشاركة مع مهندس المراقبة والتحكم بأن ترخيص فحص واختبار والذي صدر على الدائرة المذكورة اعلاه بواسطة كهراء / المستهلك قد تم إلغاؤها. وان شهادة العزل الكهربائي والتوصيل بالأرضي هذه تم إلغاؤها الآن.

توقيع المسؤول عن المستهلك:

توقيع مهندس كهراء المسؤول:

توقيع مهندس التحكم المسؤول (NCC/DGCC):

الوقت: التاريخ:

(إلغاء حيثما لا يمكن)

شهادة فحص واختبار (المستهلك) رقم

شهادة فحص واختبار (كهراء) رقم

هذه الشهادة تسمح فقط بإصدار تصريح بالعمل.

7) Caution Notice (refer Rule 6.6)



8) Danger Notice (refer Rule 6.15)



9) Working Area Notice (refer Rule 6.30)



10) Single Feed Circuit (SFC) Notice (refer Rule 6.26)



11) Certificate of Temporary Handing Over of Site - CTHS (refer Rule 6.8)



**CERTIFICATE OF TEMPORARY HANDING OVER OF SITE
BELONGING TO KAHRAMAA**

NO

This is to certify that as per the joint understanding reached between KAHRAMAA & Contractor () of Contract (), the site as detailed below is hereby released to the Contractor () for the under mentioned scope of work / agreement and subject to the compliance of conditions listed herein

This certificate further confirms that the Contractor () is solely responsible for the safety at work of personnel and the maintenance of site adhering to Government laws and Kahramaa safety rules and regulations.

Substation Name :

Area requested for temporary hand over : As per enclosed Drawing No : _____

Term and Conditions to be abided by the contractor:

- 1) The contractor shall hold the responsibility of the handed over site to carry out the work under related project mentioned above with KAHRAMAA. The contractor has no authority to carry out any work related to other projects, constructions, unless there is a clear documented and attached approval from KAHRAMAA to carry out works within the limited area
- 2) The substation and live equipment which are outside the marked area shall be separated with temporary fence as per approval of Kahramaa.
- 3) Contractor's activity shall be strictly limited to the location & area detailed in this certificate.
- 4) The contractor is fully responsible for all cables and ancillary equipment within the location and area detailed in the certificate, either directly buried in the ground or installed inside concrete troughs and ducts etc including any other services therein.
- 5) All excavations in the area shall be strictly according to Ministerial Circular No. 06 of 1991 & KAHRAMAA RULES AND REGULATIONS FOR WORKS IN THE VICINITY OF EHV INSTALATIONS & Safety Rules. In this regard it shall be noted that lack of knowledge, non-availability of As built Records or absence of information of existing services do not except the Contractor from responsibility against accidental damage to services therein.

- 6) If contractor find any cable/earth grid or any other service line underground in their fenced area, they shall inform Kahramaa immediately for further necessary action
- 7) In the event the Contractor's work involves drilling, boring and excavating in the prescribed area that could harm or pose a danger to the nearby equipment or property, the Contractor shall obtain prior approval for such works from KAHRAMAA or from other service utilities/agancies.
- 8) Minimum safe distance as prescribed in the Kahramaa safety rules shall be maintained
- 9) One wicket gate access to fenced Kahramaa installation shall be provided for movement of Kahramaa employees. The gate shall be locked with Kahramaa padlocks.
- 10) One Main gate access to fenced Kahramaa installation shall be provided for movement of heavy vehicles for maintenance / repair work. The gate shall be locked with Kahramaa padlocks.
- 11) The access road to fenced Kahramaa installation shall not be blocked in any way and shall not be used to store any materials.
- 12) Inflammable material shall not be stored near the vicinity of live equipment or access road. Such shall be stored safely in such a way that it poses no risk to live installations and personnel access.
- 13) All risk and costs including consequential losses affecting Kahramaa arising from contractor activities shall be borne by the Contractor.
- 14) After completion of all works the site shall be cleaned, maintained and made free of materials that belong to the Contractor and then shall be handed over to Kahramaa.
- 15) This certificate shall remain effective until _____

<u>DATE OF ISSUE OF THIS CERTIFICATE</u>	Dt : ____ / ____ / ____
----- On behalf of Kahramaa (TA)	----- On behalf of Contractor (_____)
----- On behalf of Kahramaa (ENA)	

<u>DATE OF CANCELLATION OF THIS CERTIFICATE</u>	Dt : ____ / ____ / ____
----- On behalf of Kahramaa (TA)	----- On behalf of Contractor (_____)
----- On behalf of Kahramaa (ENA)	

