

Supporting document Open	The Statkraft Way Til og frakobling av jordelektrodeanlegg - Connection and disconnection of earth electrodes	 Statkraft
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1 PURPOSE

Ensure that the connection/disconnection of earth electrodes are performed in a proper way.

2 SCOPE

The instructions apply to all connections and disconnections of earth electrodes in electrical installations where Skagerak Kraft AS or Statkraft Energi AS has operational responsibility.

3 RESPONSIBILITY

Operations Manager is responsible for ensuring that the instructions are updated.

Power Plant Manager / Unit Manager is responsible for implementing and following up the instructions.

Those who carry out the connection and disconnection of earth electrode systems are responsible for following the instructions.

Only the Operations Manager HV/LV has the authority to grant a waiver.

4 DESCRIPTION

Planning:

- The work requires a work permit and the appointment of a pre-approved Safety Supervisor HV/LV.
- Before starting work, information about the plant and SJA must be obtained.
- Energy professional or equivalent is required for the professionally responsible.
- The person conducting the work must obtain information about whether there is a thunderstorm in the area and whether relevant parts of the plant have earth faults. Any circulating earth current is checked with clip-on ammeter. If the instrument shows 0 A it must be especially checked that there is no break in the ground connection.
- There must be a minimum of 2 persons present in the work team.
- When connecting and disconnecting, first install an insulated short-circuit connection with insulated clips for parallel connection over ground terminals.
- The short-circuit connection is the first connection to be established, and the last connection being broken by disconnection.
- The short circuit connection must have at least the same electrical cross section as the installation to be connected or disconnected.
- If equipment or instrument is to be connected between installation parts and earth electrodes, this must be done while the circuit is closed, in other words short-circuited.
- In connection with measurement, the short circuit connection must not be open longer than necessary.
- When the short circuit connection is not present, do not touch the electrical components at the same time.

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- Personal protective equipment and insulating gloves approved for 1000 V must be used when connecting and disconnecting the short circuit connection.

Note!:

- Do not open grounding terminals until the insulated short-circuit connection is installed.
- Do not open ground terminals longer than necessary.
- Do not grasp the grounding above the grounding terminal when the short-circuit connection is open.

Work must be interrupted and planned again if:

- One detect signs of earth currents.
- If there is a thunderstorm in the area.
- The ground electrode is removed or damaged.

5 REFERENCES

- 5.1. Regulations on electrical supply systems. FEF 2006. § 4-11 earthing system.
- 5.2. Regulations on safety in work and operation of electrical installations (FSE 2006)
- 5.3. Regulations on electrical enterprises and qualification requirements for work related to electrical installations and electrical equipment (FEK 2013)
- 5.4. P-23/145 Instructions for Safety Supervisor HV.
- 5.5. P-23/135 Instructions for Safety Supervisor LV.
- 5.6. Process for work permit in Norway for P, Statkraft Energi AS (doc. 18-91)