

ESI-103

Operating outside the interlocking HV Dutch offshore High Voltage Installations

15-04-2020

Purpose

Carry out safe operating actions in places where there are no interlocks, or carry out safe operating when the interlocks are (manually) bypassed.

Carry out safe operating actions with the interlocks bypassed can be necessary in exceptional cases. For example:

- Emergency operation (spring-loaded).
- Manual operation (levering).
- When intentional bypassing the interlocking.

Nomination and assignment

The persons who are going to carry out the work have gain knowledge by training and experience of switching outside the interlocks.

You will be instructed by a CO via an approved contract (AC).

The control plan (CP) in the AC describes the operating actions which are carried out with bypassed interlocks.

In the event of a malfunction, the NPcWA must verbally coordinate the CP with the CO and the NPcEI.

Carry out this assignment with two people.

You have to be at least a SP_{HV-OFFSHORE}.

In case of execution the NPcWA¹ must be and remain on site for both situations

Risks and measures

Risk	Measures
On electric arc	Use flame-retardant and antistatic work and industrial clothing.
On hearing damage.	Above 80 db(A) use hearing protection.
To injuries caused by falling objects.	Use a safety helmet.

¹ If the NPcWA is not physically present during the execution, he/she must be able to follow the actions in real time. This could be done, for example, with a video connection.

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To injuries caused by falling or rolling objects, pinching and/or sharp objects on the ground.	Use safety footwear with steel toecap and steel midsole.
For eye damage caused by ejected particles, (corrosive) liquids and/or gases.	Use protective eyewear
Operate in the wrong bay.	Apply the four-eye principle. Follow the AC. Check whether the name of the bay corresponds to the name on the AC.
Operating the wrong component.	Apply the four-eye principle, follow the work and operating plan. Check that the component designation corresponds to the designation in the operating plan. In case of a malfunction, the NPcEI must agree in advance.
By insufficient lighting.	Apply general workplace lighting and/or work with a headlamp.
To heat.	Wear airy / dry (summer) flame retardant and antistatic work clothing. Take a rest and drinking break regularly (guideline is 0.33cl of water per hour). Make sure there is always cooled water nearby.
To weather conditions.	Cease work in the event of lightning and leave the high-voltage room.
On wrongful disconnection.	Always use as-built drawings. If necessary block out outputs from the protection-relays.

Personal protective and safety equipment

Personal protection equipment (PPE)

- Flame retardant and antistatic safety clothing.
- Helmet, unventilated model (working voltage 1000V), Compliant with EN50365. Helmet, colour black for SP and NPcWA, colour white for others.
- Insulated safety footwear class S3 and class 0 (working voltage 1000V).
- Helmet with face-shield class 2++ (other than BC control).

Safety equipment (SE)

- Not applicable

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Procedure

Beforehand of the work

Before you start working, check the following:

Personal protection equipment (PPE):

- Do the personal protective equipment not contain any form of wear, dents or contain cracks that adversely affect its operation?

Work permit:

- Is the work plan still valid?
- Is the above laying permit to work still valid?
- Are all the necessary signatures present?
- Does the work plan / work permit (incl. drawings) correspond with the workplace?
- Are there any other activities that could affect this work?
- Check whether the operating plan specifies which operating actions are to be carried out outside the interlocks and by whom.
- Make sure that the NPcEI and the CO are aware in advance that operating actions are taking place outside the interlocks.

Workplace:

- Check for unwanted risks by means of an LMRA.
- Check that the assignment is correct with the situation in the workplace.
- Is there enough space to work safely?
- Is the workplace easily accessible?
- Is the workplace sufficiently illuminated: Light intensity $\geq 500\text{lux}$; Light colour 4000 - 6000K?
- Are the weather conditions good to start with the work activities?

If the above points are met, you may start the work activity. If this is not the case, the NPcWA must be contacted immediately. If the above mentioned conditions are no longer met during the work activity, the work must be stopped if it is safe to do so and the NPcWA must be contacted directly. If the situation is not safe, a safe situation must first be created before stopping the work and contacting the NPcWA.

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Operating outside the interlocking

Step 1 Execution of the operations

- Perform operations in accordance with the control plan.
- Check that all control procedures have been carried out.



The interlocks-key of the bay controller (BC) is used to bypass the interlocks. This increases risk for human and installation. The interlocks-key is therefore not be used for regular maintenance activities.

Ending

Step 2 When you're ready, do the following:

- Register the required data.
- Return the interlocks-key on the BC to the vertical position.
- Report to the CO that the operation is ready, the NPcWA informs the NPcEI.
- Leave the workplace clean, tidy and safe.
- Check the safety equipment before storage.

Procedure in the event of an incident

- In the event of a near incident, the OIM and the NPcWA must be contacted immediately.
- In the event of an incident involving personal injury, first aid must be provided immediately. Immediately after that, the OIM and the NPcWA must be contacted.
- In the event of an incident without personal injury, first aid must be provided immediately. Immediately after that, the OIM and the NPcWA must be contacted.
- In all cases an incident must be reported, taking into account the privacy of the people involved.

Procedure in the event of a deviation

- As soon as the execution of a work plan is hindered by a malfunction, the NPcWA informs the NPcEI and OIM. In case that the NPcWA is not on side, the SP in charge of the activities on site, supervisor or SP agrees with the NPcWA who then informs the NPcEI and OIM.
- After assessment of the situation, an LMRA and determination of the measures must be carried out to stop the work activity (s) in a controlled way, the failure analysis can follow.
- As soon as the cause of the malfunction has been resolved or isolated, coordination with the NPcWA and OIM is necessary before the execution of the work plan can be resumed.
- The NPcWA informs the NPcEI of the disruption, depending on the nature of the disruption and the possible follow-up.