

Company Directive

STANDARD TECHNIQUE : OC1A/5

Relating to High Voltage System Control and Switching

Document Summary:

This documents describes WPD procedure related to High Voltage System Control and Switching.

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1.0 SYSTEM CONTROL

- 1.1 The Central CONTROL ENGINEER shall maintain a record of the state of the network within ENMAC following the issue and confirmation of SWITCHING instructions.
- 1.2 The CONTROL ENGINEER shall record the time of all SWITCHING instructions and operations, and the issue and cancellation of Safety Documents. This record will include those operations carried out by the Central CONTROL ENGINEER using supervisory control, and will be made on either an agreed SWITCHING programme, Fault Incident Log and or ENMAC. These will be retained for a minimum period of 12 months.
- 1.3 Amendments made by a Central CONTROL ENGINEER to a switching programme shall ideally be made at the Approval stage.
- 1.4 The content of an agreed SWITCHING programme shall not be varied without the sanction of a Central CONTROL ENGINEER.
- 1.5 The Central CONTROL ENGINEER shall ensure that Operational Safety and System Security are maintained in varying an agreed SWITCHING Programme.
- 1.6 The Central CONTROL ENGINEER shall ensure that any approved SWITCHING programme has not been affected by SYSTEM alterations or operational restrictions prior to its commencement.
- 1.7 For the purposes of this document, and in addition to D.S.R. D28, the term switching applies to operations instructed by a Control Engineer and is deemed to also include:
 - (a) the application and removal of portable CIRCUIT MAIN EARTHS
 - (b) HIGH VOLTAGE LIVE LINE work
 - (c) HIGH VOLTAGE phasing out and proving dead
 - (d) The application and alteration of protection settings
 - (e) Issue and cancellation of Safety Documents
- 1.8 The term “Direct Switching” refers to the issue, by a Control Engineer of, a single switching item or a batch of switching items directly to an individual who then personally completes and confirms the switching items. This method is commonly used during fault switching where no approved switching programme is in place or for an approved switching programme that has been amended or aborted.
- 1.9 The term “Batch Switching” refers to the issue, by a Control Engineer of more than one switching item directly to an individual who then personally completes and confirms the switching items.

2.0 The term “Field Control” is as defined in ST:OC1B

3.0 COMMUNICATION

3.1 In order to comply with DSR 3.6.1 and 3.6.2 all High Voltage operations shall be recorded. The methods of communication to be used for switching purposes, whether direct switching, batch switching, field control, planned or un-planned operations shall be by approved methods using communication devices employed for use within WPD being PMR, mobile phone, land line, Enmac Mobile or direct word of mouth.

4.0 FIELD OPERATIONS

4.1 An approved switching schedule is the preferred method for detailing field switching operations, using ENMAC Mobile where viable.

4.2 When carrying out Direct Switching, all switching instructions and operations shall be issued and recorded in full by both the CONTROL ENGINEER and the Field Operator. The Field Operator shall record the full instruction, in the order as given on an incident switching log sheet or shall use the record as received on ENMAC MOBILE. When recorded on an incident switching log sheet, the full instruction shall be verified by reading back the complete as issued instruction to the Control Engineer.

On completion of the issued instructions, the Field Operator shall contact the Control Engineer and read back the complete instruction with operation times, the Control Engineer shall confirm such by reading back the full instruction. Where ENMAC MOBILE is used, switching shall be confirmed using the device.

4.3 All SWITCHING operations shall be executed following instruction and without undue delay.

4.4 When switching to an approved switching schedule, all Field Operators shall have access on site to a paper copy of the approved SWITCHING schedule.

4.5 Field Operators carrying out SWITCHING shall not be hurried or distracted in any way. Any Field Operator who feels unable to continue shall cease operations and inform the CONTROL ENGINEER.

4.6 Prior to carrying out any operation on the WPD distribution network, the Field Operator shall check at the point of switching with their on site record to ensure that they are at the right location and carry out the correct operation on the right switch. i.e.

Check

RIGHT PLACE
RIGHT SWITCH
RIGHT OPERATION

- 4.7 Where plant is capable of supervisory or remote control this should be the preferred method of operation.
- 4.8 All SWITCHING operations shall be individual operations but may be issued one at a time or in batches of several switching operations at the discretion of the CONTROL ENGINEER. SWITCHING operations issued in batches shall be executed in the agreed “as issued” order.
- 5.0** A batch of switching instructions may be issued to include all of the items of an approved switching schedule. However where a Control Engineer has good reason, the Control Engineer may restrict the size of the batch.
- 5.1 Examples of items that may be included in a batch are detailed below and may include combinations of those listed without being exhaustive:
- (i) The moving and restoring of normal open points
 - (ii) The setting up of isolation followed by establishing Circuit Main Earths from all points of supply
 - (iii) The issue and cancellation of safety documents
 - (iv) The removal of all Circuit Main Earths
 - (v) The removal of the last Circuit Main Earth, and close to “ON”
 - (vi) Operations for the purpose of changing HV or LV fuses where no undue delay is anticipated. The batch would allow “Open, Change Fuses and Close”
- 5.2 A batch of SWITCHING instructions may include items that require communication and or confirmation with a Central Control Engineer such as:
- (i) Proving DEAD by spiking
 - (ii) Proving Dead of switchgear in accordance with ST: OC3
- 6.0 APPROVED PROGRAMME WITH NO CHANGES AT TIME OF SWITCHING**
- 6.1 The Field Operator shall contact the CONTROL ENGINEER and advise Booking number, Location, and ready to commence SWITCHING.

- 6.2 The Central CONTROL ENGINEER will check and confirm that there are no changes to the approved programme, and that the SYSTEM configuration is the same as when the programme was approved.
- 6.3 Providing the programme is to be carried out as written, the CONTROL ENGINEER shall instruct the Field Operator by approved means of the individual items using item numbers. Each item number will be given with an instruction time.
- 6.4 The Field Operator shall acknowledge by approved means or repeat the instruction also giving the detail of each item in the order given.

e.g. "Item 1 - at Taunton Main, on 1L5, Open and apply CN".

The CONTROL ENGINEER shall then agree or query this as required.

- 6.5 On completion of the items instructed, the Field Operator shall report the items completed to the CONTROL ENGINEER by item number using approved means, giving the individual time of operation of each item.
- 6.6 The CONTROL ENGINEER shall then acknowledge by approved means or repeat the confirmed item and time also giving the detail of the items in full and in the given order. The Field Operator shall then agree or query this as required.

7.0 APPROVED PROGRAMME WITH CHANGES AT TIME OF SWITCHING

- 7.1 The Field Operator shall contact the CONTROL ENGINEER and advise Booking number, Location, and ready to commence SWITCHING.
- 7.2 Any changes to the content or sequence of an approved programme shall be verbally agreed between the CONTROL ENGINEER and the Field Operator who is to carry out the changed items. The amendment(s) shall be issued and recorded by the Control Engineer and amended on the Field Operators approved schedule prior to the instruction being carried out. Only necessary operational changes should be made, ideally identifying and amending any further changes at the same time.
- 7.3 When the instruction to switch is given, and when confirmation of the operation is subsequently made, the detail of each and every item to be changed will be acknowledged by both parties.
- 7.4 Instruction and Operation times shall be relayed to the CONTROL ENGINEER and recorded.

8.0 MALFUNCTIONING EQUIPMENT, MAL-OPERATIONS AND EMERGENCY SWITCHING

8.1 In the event of switchgear or other plant malfunctioning during its operation, the occurrence of a mal-operation or switching error, no further switching shall be undertaken without reference to the Control Engineer and Central CONTROL shall be advised.

8.2 The Emergency telephone number which is available for WPD staff to use in the event of a 'life and limb' emergency is:-

External - 02920 332888

Internal - 754 2888

8.3 In exceptional circumstances where danger, to persons, property or the network would be increased by delay in contacting a CONTROL ENGINEER, EMERGENCY SWITCHING may be undertaken subject to:-

- (a) The emergency switching is restricted to de-energising only, and
- (b) Such action must be reported to Central CONTROL without delay, confirming location, operation and time and the nature of the emergency.

Before any Emergency Switching is undertaken the operator shall make an assessment of the situation, considering both the network state and condition of any plant required to be operated.

9.0 SWITCHING UNDER PERSONAL SUPERVISION (UPS)

9.1 In order to allow for candidates to develop as an Authorised Persons (AP) or as a Senior Authorised Persons (SAP), an Under Personal Supervision (UPS) authorisation shall be issued to the candidate(s) as detailed in ST:OS7B.

9.2 All switching UPS (including ENMAC MOBILE use) shall be agreed with a Control Engineer verbally prior to commencement of the job (fault or planned) or prior to the issue of an individual switching instruction. The Supervising AP / SAP shall firstly confirm their own identity and that of the candidate who is to carry out the switching UPS.

9.3 The Control Engineer shall record the names of both the Supervising person and the candidate UPS in the ENMAC job.

9.4 The Supervising AP / SAP shall be ultimately responsible for the switching operation(s) under instruction and the actions of the candidate UPS.

9.5 In order to allow for a candidate UPS to gain suitable training and experience, all communication methods employed within WPD may be utilised (Refer to 3.1).

9.6 Switching UPS via ENMAC MOBILE requires the Control Engineer to be informed of the nominated users ENMAC MOBILE sign-on e.g. the Supervisors sign-on or the candidate UPS sign-on, both of which are acceptable methods of communication for Switching UPS.

- 9.7 The issuing of verbal switching instruction(s) from a Control Engineer to a candidate switching UPS shall be issued, recorded and verified by the candidate switching UPS as per 4.2 (Direct Switching) or in accordance with section 6 (Switching to an approved programme).
- 9.8 Where instructions are issued verbally, the Supervising AP / SAP shall have access to the recorded switching instruction(s) and shall acknowledge to the CONTROL ENGINEER that the instructions have been received and recorded correctly.
- 9.9 Prior to any UPS switching operations, both the Supervising AP/SAP and the candidate UPS shall have access to the record of the switching instructions, and check the condition of the switchgear. Each shall check at the point of switching with the on site record to ensure that they are at the right location and carry out the correct operation on the right switch. i.e.

Check

RIGHT PLACE
RIGHT SWITCH
RIGHT OPERATION

- 9.10 The Supervising AP/SAP shall personally supervise the candidate UPS at all times during every switching operation.
- 9.11 On completion of the items instructed, the candidate UPS shall report the items completed to the CONTROL ENGINEER utilising the principles detailed in 4.2, 6.5, 6.6 , 9.7 and 9.8 above.
- 9.12 Where instructions are confirmed verbally, the Supervising AP / SAP shall have access to the recorded switching instruction(s) and shall acknowledge to the CONTROL ENGINEER that the instructions have been carried out and confirmed correctly.

10.0 GENERAL

- 10.1 The CONTROL ENGINEER shall, if considered necessary, insist on all SWITCHING instructions, repeating of instructions and executions being stated in full by both parties.
- 10.2 When entering substations confirm supplies are normal as far as reasonably practicable, considering switch positions, protection flagging and indications, cable terminations etc. Refer to a Central Control Engineer of any abnormalities.
- 10.3 Where feasible, the Central Control ENGINEER may mutually agree with the Field Operator to maintain an open communication line whilst a Direct Switching instruction is being carried out. This is particularly important when switching under fault conditions to assist in the early determination of network stability, and restoration of any supplies lost as a result of the operation.

APPENDIX A

SUPERSEDED DOCUMENTATION

ST:OC1A/5 replaces ST:OC1A/4 dated January 2008 which should be withdrawn.

APPENDIX B

ASSOCIATED DOCUMENTATION

POL: OC1, ST:OC1B., ST:OS7B

APPENDIX C

IMPACT ON COMPANY POLICY

Addition of definitions in terms of Direct Switching and Batch switching.

A revision to batch switching to include at the Control Engineers discretion, the moving of normal open points, isolation and earthing, releasing, cancelling safety documents and the removal of earths.

Terminology to support present modes of communication including ENMAC MOBILE.

Oct 2009 – A revised Switching UPS protocol, clearly defining the role of the supervisor, the candidate UPS and the Control Engineer - all new section 9.

Oct 2009 – Section 7 amendment specifying a verbal agreement required by both the Control Engineer and the Field Operator to amend “an approved” programme.

APPENDIX D

POLICY IMPLEMENTATION

All staff involved in switching or the release of safety documents at all voltage levels should be briefed on the revisions within this standard technique prior to implementation.

yAPPENDIX E

KEY WORDS

Central Control, Field Control, Switching. UPS