

1. SCOPE

This procedure supplements Part A of the Safety Rules and lays down standard locking arrangements for operational premises, **Plant** and **Apparatus**, including towers, high structures and gantries on the SP Energy Networks **System**.

The locks currently used in SPD, SPT and SPM licence areas for securing distribution and transmission **System Plant, Apparatus** and operational premises differ due to the historical arrangements.

2. ISSUE RECORD

This is [Reference](#) document. The current version is held on the EN Document Library.

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Issue Date	Issue No.	Author	Amendment Details
Nov 1999	2	Unknown	-
May 2021	3	Dave Naylor	Updated to align with contemporary practices. Full update: no change markers.

3. ISSUE AUTHORITY

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4. REVIEW

This is a [Reference](#) document which has a 5 year retention period after which a reminder will be issued to review and extend retention or archive.

5. DISTRIBUTION

This document is part of the Management Safety Procedures but does not have a maintained distribution list.

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7. DEFINITIONS

Terms printed in bold type are as defined in the ScottishPower Safety Rules (Electrical and Mechanical) 4th Edition.

All terms printed in italics are defined in the Definitions document (OPSAF-11-002) of the Management Safety Procedures.

8. APPLICATION OF LOCKS AND LOCKING DEVICES

8.1 Locks for Operational Premises

Locks for operational premises shall be used to ensure that premises containing operational equipment will be secure and only accessible by those **Persons** holding appropriate authorisation.

Where appropriate, dual locking may be used where there is a requirement for shared access eg **HV** customer, IDNO etc.

This document specifies the requirements for the application and use of locks for operational premises at SP Energy Networks locations.

Standard locking arrangements usually consist of either a padlock or a rim lock although other locking systems exist. Each are suitable for the standard key appropriate to the group classification of the premises.

8.2 Locks for Access Gates to Towers, High Structures and Gantries

Access gates to towers, high structures and gantries supporting **Live HV Apparatus** shall be secured either with an *Operational Lock* or specially designed **Approved** locking bolt and nut or other **Approved** security arrangement to prevent unauthorised access.

8.3 Operational Locks for Plant and Apparatus

8.3.1 Standard *Operational Locks* shall, where appropriate, be used to prevent **Danger** to a person or unauthorised operation of **Plant** and **Apparatus**.

This document specifies the requirements for the application and use of *Operational Locks* for **Plant** or **Apparatus** at SP Energy Networks locations

8.3.2 Standard *Operational Locks* shall have a common key that operates all locks of the same suite – subject to hierarchical requirements. Some *Operational Lock* suites may be hierarchical - for example a Class 1 key may be master to Class 2 and Class 3 padlocks, however, Class 2 keys shall not open Class 3 and Class 3 shall not open Class 2 padlocks.

8.3.3 Due to the complexity of **Plant** and **Apparatus** it is not always possible to stipulate precisely where and when a standard *Operational Lock* shall be used. The decision, therefore, as to whether or not it is necessary to lock any particular item of **Plant** and **Apparatus** shall be decided on the merits of the particular situation and as part of the approval process. In general an *Operational Lock* should be applied to operating mechanisms used to apply an earth, and outdoor switchgear should have an *Operational Lock* preventing operation of any feature. It is not necessary to apply an *Operational Lock* to every feature, if another *Operational Lock* or an interlock achieves the same result.

8.3.4 Where the design of **Plant** or **Apparatus** precludes strict compliance with this procedure then a comparable degree of security shall be obtained by other sufficient means. This may include the use of a lock of the appropriate suite with modified physical dimensions, e.g. a

lock fitted with a smaller diameter hasp. Otherwise the **Plant** or **Apparatus** which requires to be **Locked** shall be modified to permit the use of a standard *Operational Lock*.

- 8.3.5 Where modifications to **Plant** or **Apparatus** are necessitated by this procedure, these shall be **Approved** prior to being carried out.
- 8.3.6 Care shall be taken to ensure that the use of locks or application of modifications does not adversely affect the correct operation of interlocks or the safe operation or **Safety Distance** of the **Plant** or **Apparatus**.
- 8.3.7 Care shall be taken to ensure that operating features are not adversely affected by a change of lock e.g. where a **Safety Lock** replaces the normal *Operational Lock*. If a change in the lock size affects the security of the locking or interlocking then the necessary **Approved** modification shall be carried out to permit the safe use of an *Operational Lock* or **Safety Lock**.

8.4 Safety Locks

- 8.4.1 Each **Safety Lock** shall be unique and only one **Safety Key** shall be available for each lock. Each **Safety Lock** shall be individually numbered for identification purposes, the **Safety Key** shall be numbered accordingly.
- 8.4.2 **Safety Locks** used to secure **Points of Isolation** shall either be coloured red, and/or have red labelling and/or be denoted 'Safety'. Red **Safety Locks** shall, where practicable, be used to lock **Points of Isolation** on **Plant** or **Apparatus**, drains and vents as required by the Safety Rules as part of the precautions taken to ensure **Safety from the System**.
- 8.4.3 **Safety Locks** used to secure **Primary Earths** shall either be coloured yellow, and/or have yellow labelling and/or be denoted 'E' as part of the unique numbering to identify their use. Yellow **Safety Locks** shall, where practicable, be used to lock **Primary Earths** as required by the Safety Rules as part of the precautions taken to ensure **Safety from the System**.
- 8.4.4 Where practicable a yellow **Safety Lock** shall not be used to secure a **Point of Isolation**, drain or vent.
- 8.4.5 Where practicable, a red **Safety Lock** shall not be used to secure a **Primary Earth**.
- 8.4.6 Where it is not practicable to comply with 8.4.4 and/or 8.4.5 for ground-mounted switchgear, **Points of Isolation** and /or **Primary Earths** shall be secured in an **Approved** manner.
- 8.4.7 Red **Safety Locks** and Yellow **Safety Locks** shall only be used in establishing **Safety from the System** and shall not be used for any other purpose.

9. ISSUE, RECOVERY AND CONTROL OF OPERATIONAL KEYS

The issue and recovery of keys for access to operational premises or for **Plant** and **Apparatus** shall be controlled to ensure that an **Authorised Person** only has access to operational premises, **Plant** and **Apparatus** appropriate to their authorisation and to contractors, for the duration of their contract.

The Certificate of Authorisation incorporates a key issue section. This shall be updated with details of any key(s) issue or recovery on the authorisation database by the issuer of the key(s). Only those **Persons** appointed as key co-ordinators are permitted to control the issue and recovery of operational keys.

On cancellation of a **Person's** authorisation (or cessation of contract), all operational keys issued shall be returned to a key co-ordinator who will update the authorisation database.

When operational access keys have been declared as lost this shall be reported through the appropriate corporate security process.

9.1 Key Engraving

Where operational keys are engraved or otherwise identified with a reference code specific to a user this shall be recorded in the authorisation database or other **Approved** system.

10. LOCKS FOR OPERATIONAL PREMISES

The following are examples of the main locking suites in use across the licences. Other locking suites exist which generally replicate those listed below.

10.1 Distribution System – SPD

Lock Reference	Key Reference and Control	Examples of Lock Use
A	Opened by key A	Access door or gate to chamber, building or compound containing HV Apparatus . Typically used for shared SPD/SPT locations.
B	Opened by keys A and B	Access door or gate to chamber, building or compound containing exposed Live HV conductors which are not within reach from ground level and/or which contains Live LV conductors (e.g. take-off chamber or control pillar access door)
E	Opened by keys A, B, C, D or E	Access door or gate to chamber, building or compound not containing exposed Live HV , or LV conductors
ABLOY and other high security conventional locks	Equivalent to keys A and B	May be used as an alternative to an 'A' or 'B' lock where a higher level of security is required.
Smart Lock	Smart key	Can be programmed to restrict access to replicate A,B,ABLOY or E Lock

10.2 Distribution System – SPM

Lock Reference	Key Reference and Control	Examples of Lock Use
O	Opened by Key O	Access door or gate to chamber, building or compound containing exposed Live HV conductors which are not within reach from ground level and/or which contains Live LV conductors (e.g. take-off chamber or control pillar access door).
N	Opened by Keys O and N	Access door or gate providing access to Energy Networks controlled land where there is no operational Apparatus i.e. the boundary gate to Energy Networks land.
MC	Opened by Keys O and MC	Access to metering rooms and metering equipment. Also commonly used for access to non-operational areas shared with customers.
ABLOY and other high security conventional locks	Equivalent to Key O	May be used as an alternative to an 'O' lock where a higher level of security is required.
Smart Lock	Smart KEY	Can be programmed to restrict site access to replicate O, ABLOY, or N lock.

10.3 Transmission System - SPT

Lock Reference	Key Reference and Control	Examples of Lock Use
HVC	Opened by HVC Key	Security of substations and compounds containing HV Apparatus operating at 132kV, 275kV and 400kV
A	Opened by A Key	Security of substations with modified gate design containing HV Apparatus . operating at 132kV, 275kV and 400kV. May be used in place of HVC lock
YJX	Opened by YJX Key	Security of operational buildings containing equipment associated with the transmission network but not containing HV Apparatus .
ABLOY and other high security conventional locks	Equivalent to HVC key	Security of substations and compounds containing HV Apparatus operating at 132kV, 275kV and 400kV
Smart Lock	Smart key	Can be programmed to restrict site access to replicate HVC, A or YJX lock

10.4 132kV System – SPM

Lock Reference	Key Reference and Control	Examples of Lock Use
K Series or ABLOY or NGC	Appropriate master key	Security of substations and compounds containing HV Apparatus . NGC keys at shared sites.
Smart Lock	Smart key	Can be programmed to restrict site access to replicate K series and ABLOY lock

10.5 Smart Locks and Keys

Each smart key can be programmed to enable access to locks - even within specific working hours and for specific durations. The locks have a unique ID associated to its door location in a substation. This enables smart locks to be installed at any SP Energy Networks premises and programmed to provide same level of assessability as conventional locks. Access rights will be restricted to substation entry authorisations held by the **Authorised Person** in the authorisation database and programmed by designated personnel.

Each smart key must be reactivated at regular intervals. Depending on type of key this is achieved either at specific SP Energy Networks offices or by Bluetooth technology using a smartphone app.

Smart locks can be interrogated to establish which keys have been used to unlock them and when.

10.6 Other Approved Locking Systems and Suites

There will be instances where other **Approved** access systems exist depending on the specifics of the location – for example high-security contactless access card systems, or bespoke locking arrangements at specific sites – e.g. HVDC converter stations.

Where utilised these shall provide access to **Authorised Persons** in accordance with the general requirements outlined in this document.

11. OPERATIONAL LOCKS FOR PLANT AND APPARATUS

Various suites of *Operational Locks* exist for securing **Plant** and **Apparatus**. **Approved** types include but are not limited to: RKS265, Star, W56, LBL763, M, KA608, RBK 353.

11.1 Use of Operational Locks

11.1.1 HV Indoor Withdrawable Circuit Breakers

The operating facilities of circuit breakers shall not be **Locked** when the circuit breaker is in its normal service position unless an exceptional hazard exists (i.e. regular third party interference).

Where the circuit breaker is not in the normal service position (i.e. withdrawn), all fixed portion shutters of **HV** compartments (i.e. spouts) shall where reasonably practicable be **Locked** shut.

Where practicable, all compartments containing exposed **Live HV** conductors shall be **Locked** along with any interlock provided.

11.1.2 HV Outdoor Circuit Breakers

All switchgear access doors and external operating features shall be **Locked**.

Operating features need not be **Locked** provided that the circuit breaker is in the normal service position and the operating features are rendered inaccessible by the use of an *Operational Lock*.

Where the circuit breaker is of the withdrawable type and is not in the normal service position, all fixed portion shutters of **HV** compartments (i.e. spouts) shall be **Locked** shut.

Where practicable, all compartments containing exposed **Live HV** conductors shall be **Locked** along with any interlock provided.

11.1.3 Ground-Mounted **HV** Metal-enclosed Switch Disconnectors, Ring Switches, RMU Circuit Breakers, Isolators and Fuse-Switches

Operating facilities (excluding the “earthing” facility) need not be **Locked** when in the normal service position.

On outdoor switchgear, the external operating features and any switchgear access doors shall be **Locked**.

Where withdrawable switchgear is not in the normal service position (i.e. withdrawn), all fixed portion shutters of **HV** compartments (i.e. spouts) shall be **Locked** shut. An *Operational Lock* shall be applied to prevent operation into the “earth” position (i.e. interlock or selector) and in addition the mechanism or handle for movement into the “earth” position shall be **Locked**. Where the design of the switchgear precludes this dual locking then other steps shall be taken to ensure a comparable level of security.

Outdoor test access covers and access doors to **HV** fuse compartments shall be **Locked** where practicable. Indoors these need not be **Locked** if another *Operational Lock* or an interlock achieves the same result.

11.1.4 Outdoor Air-Insulated Ground-Operated **HV** Switches or Isolators and Earthing Switches

These items of **Apparatus** shall be **Locked** in all positions with an *Operational Lock* (unless in use as a **Point of Isolation** or **Primary Earth**).

11.1.5 **HV** Transformers

An *Operational Lock* shall where practicable be applied to lock off-circuit tap change equipment on transformers.

11.1.6 Switchgear Mounted Voltage Transformers

The shutters of V.T. spouts shall be **Locked** when not in use unless made inaccessible by an *Operational Lock*. Operating facilities shall be **Locked** with an *Operational Lock* when in service.

11.1.7 *Operational Locks* shall be used to lock measurement and/or metering equipment for safety and/or security purposes.

11.2 Summary of Operational Locks

The following tables summarise the use and application of the different *Operational Locks*, including reference where applicable to legacy hierarchical suites of locks.

11.2.1 Distribution System -- SPD

Lock Reference	Key Reference and Control	Examples of Lock Use
Class 1 RKS265/1	Opened by Class 1 Key	See section 11.1.
Class 2 RKS265/2	Opened by Keys Classes 1 and 2	See section 11.1. Ancillary equipment on primary transformers. Operational features on 240/415V take-off chambers and control pillars and 240/415V pillars where fitted; battery cubicles in outdoor substations; cubicle doors of 11 kV switchgear in outdoor substations where the switchgear operational features are secured by a Class 1 padlock. Control and relay panels. Other Operational Plant and Apparatus where an operational padlock below Class 1 is regarded as adequate.
Class 3 RKS265/3	Opened by Keys Classes 1 and 3	See Section 11.1. Metering panels

11.2.2 Distribution System -- SPM

Lock Reference	Key Reference and Control	Examples of Lock Use
Squirell, Star, W56 or 508 or equivalent		See section 11.1.

11.2.3 Transmission System -- SPT

Lock Reference	Key Reference and Control	Examples of Lock Use
Class 1 "M" series or unique	"M" or unique RKB 353	Security of HV circuit breakers, disconnectors and earthing switches
Class 2 KA 608	KA 608	Control and Relay Panels Access doors to measurement and/or metering panels.

11.2.4 132kV System -- SPM

Lock Reference	Key Reference and Control	Examples of Lock Use
<i>Operational Locks</i> and equivalent locks unique to each site	Opened by unique key	Circuit breakers, disconnectors and earthing switches.