

NUCLEAR SAFETY DIRECTORATE - BUSINESS MANAGEMENT SYSTEM

TECHNICAL INSPECTION GUIDE  
**GUIDANCE: LC27 SAFETY MECHANISMS,  
DEVICES AND CIRCUITS**

**T/INS/027**

ISSUE 001

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## 1. Purpose & Scope

1.1 The purpose of this guidance is to facilitate a consistent approach to LC 27 compliance inspection and to provide assistance to inspectors while carrying out their duties in this area. The guidance should not be regarded as either comprehensive or mandatory.

1.2 The guidance provided is split into four main elements:

- 1) Purpose of the Licence Condition
- 2) Guidance on arrangements for LC 27.
- 3) Guidance on inspection of arrangements.
- 4) Guidance on inspection of implementation of arrangements.

## 2. Licence Condition

### **LICENCE CONDITION 27: SAFETY MECHANISMS, DEVICES AND CIRCUITS.**

The licensee shall ensure that a plant is not operated, inspected, maintained or tested unless suitable and sufficient safety mechanisms, devices and circuits are properly connected and in good working order.

## 3. Purpose of Licence Condition 27.

3.1 The purpose of this licence condition is to ensure that plant is not used unless the necessary Safety Mechanisms, Devices and Circuits (SMDCs) are installed and

functioning.

3.2 The suitability and sufficiency of the SMDCs would normally be expected to be identified in the safety cases required under LC23(1) for any operation that may affect safety.

3.3 SMDCs are deemed to be in good working order if they have been maintained in accordance with the LC 28 Plant Maintenance Schedule and routine surveillance of them shows no evidence of them not working properly.

3.4 Condition 27 establishes an absolute requirement for their provision which is independent of all other requirements.

#### **4. Guidance on procedures for LC 27.**

4.1 This licence condition does not formally require the licensee to make and implement adequate arrangements, but to effectively comply with this condition we would expect the licensee to have established procedures which ensure that safety cases clearly identify any necessary SMDCs and the permitted configurations of them necessary to assure safety. The procedures should also establish responsibilities for ensuring that the plant is only operated when these conditions are met and define procedures for checking the configuration of the SMDCs and for confirming their functionality. Such arrangements or procedures, which will help demonstrate compliance with the condition also facilitate inspection and enable compliance with this condition to be audited.

#### **5. Guidance on inspection of procedures for LC 27.**

5.1 Inspect the licensee's procedures and confirm that they are "in ticket" with the QMS, are up to date and that the identified responsible persons are correct.

5.2 Check that the procedures ensure:-

(a) SMDCs appropriate for any operations are identified from the plant safety case;

(b) all SMDCs receive regular and systematic examination, inspection, maintenance and testing under LC 28 arrangements to ensure that they are kept in good order.

(c) there is a system in place to ensure that sufficient SMDCs are in place and operable at all times;

(d) persons responsible for ensuring compliance with this requirement are identified; and

(e) where non-compliance is found, this is notified, recorded and reported as required by LC 7 and that action is taken to rectify or immediately install new equipment or shutdown the affected process or plant. Confirm the procedures identify the person responsible for ensuring this is done.

5.3 Check that the procedures require suitable records to be kept to demonstrate compliance with this condition. These records should be identified in LC 26 arrangements and be kept in accordance with LC 6 procedures.

## **6. Guidance on inspection of implementation of procedures for LC 27.**

6.1 Establish from safety cases or other sources derived from them which SMDCs are required under the various conditions of operation of the plant. Confirm that the SMDCs are on the LC 28 Plant Maintenance Schedule and subject to maintenance, inspection or test as declared in the safety case, and to periodic surveillance by the operators

6.2 Confirm at the time of the inspection that these requirements are being met, noting in particular any SMDCs which are unavailable for whatever reason and confirming that the essential requirements are still being met.

6.3 Periodically carry out a physical check on a sample of accessible SMDCs. Inspect a sample of SMDC maintenance records to confirm that the SMDCs are on the LC 28 Plant Maintenance Schedule and that the requirements of the schedule have been met.

6.4 Inspect any declared records of compliance with the condition and review a sample of logs, isolation certificates, permit to work and maintenance records to test their veracity. Confirm that any failures to meet requirements were handled under LC 7 arrangements and reported appropriately.