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| ONR Technical Inspection Guide (TIG)  LC 24 – Operating Instructions |



ONR Technical Inspection Guide (TIG)

LC 24 – Operating Instructions

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Revision commentary

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| Issue No. | Description of Update(s) |
| 5 | Routine fit for purpose update. No significant changes from Revision 4. Additional WENRA reference levels and some minor clarifications. |
| 6 | Updated review period |
| 6.1 | Change to Duly Authorised Person role in relation to Operating Rule compliance. |
| 6.2 | Review date pushed back to October 2023, also document transferred onto latest template. |
| 7 | Updated to include references to NS-TAST-GD-035 and NS-INSP-GD-023. |

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# Introduction

1. Many of the licence conditions attached to the standard nuclear site licence require, or imply, that licensees should make arrangements to comply with regulatory obligations under the conditions. ONR inspects compliance with licence conditions, and also with the arrangements made under them, to judge the suitability of the arrangements made and the adequacy of their implementation. Most of the standard licence conditions are goal setting, and do not prescribe in detail what the licensees' arrangements should contain; this is the responsibility of the dutyholder who remains responsible for safety.

## Purpose

1. To support inspectors undertaking compliance inspection, ONR produces a suite of guides to assist inspectors to make regulatory judgements and decisions in relation to the adequacy of compliance, and the safety of activities on the site. This Technical Inspection Guide (TIG) has been prepared as a guide to inspections performed by ONR inspectors during which they judge the adequacy of licence condition compliance arrangements and their implementation.

## Scope and applicability

1. This guide has been prepared to facilitate a sound basis and consistent approach to Licence Condition (LC) 24 compliance inspections and to provide guidance to inspectors whilst inspecting licensees’ arrangements in this area. The guidance should not be regarded as either comprehensive or mandatory.
2. The guidance provided is divided into three main elements:
3. Purpose of the LC.
4. Guidance on arrangements for LC 24.
5. Guidance on inspection of arrangements and their implementation.

## Definitions

Table 1 - Table of definitions

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| Term/Acronym | Definition |
| Operating Rules | The limits and conditions derived in the facility safety case necessary to keep the plant within constraints that ensure the safety of the facility during normal operation and in abnormal or accident conditions. |
| Safety Measure | A safety system, or a combination of procedures, operator actions and safety systems that protects against a radiological consequence, or a specific feature of plant designed to prevent or mitigate a radiological consequence by passive means. Refer to [1] for more detailed information on safety measures, safety limits and safety systems. |

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# Licence Condition 24: Operating Instructions

1. **24(1)** The licensee shall ensure that all operations which may affect safety are carried out in accordance with written instructions hereinafter referred to as operating instructions.
2. **24(2)** The licensee shall ensure that such operating instructions include any instructions necessary in the interests of safety and any instructions necessary to ensure that any operating rules are implemented.
3. **24(3)** The licensee shall, if so, specified by ONR, furnish to ONR copies of such operating instructions and when any alteration is made to the operating instructions furnished to ONR, the licensee shall ensure that such alteration is furnished to ONR in such time as may be specified.
4. **24(4)** The licensee shall make and implement adequate arrangements for the preparation, review and amendment of such operating instructions.
5. **24(5)** The licensee shall submit to ONR for approval such part or parts of the aforesaid arrangements as ONR may specify.
6. **24(6)** The licensee shall ensure that once approved no alteration or amendment is made to the approved arrangements unless ONR has approved such alteration or amendment.

# Purpose of the Licence Condition

1. The purpose of LC 24 is to ensure that all operations which may affect safety are carried out in accordance with written instructions (i.e. operating instructions) which are prepared, reviewed and amended in accordance with arrangements made and implemented by the site.
2. Operating instructions produced under this licence condition should ensure that operations that may affect safety are adequately controlled and that any operating rules are implemented.
3. Instructions should be clear and unambiguous and should be consistent with the safety case, its assumptions, and the operating limits and conditions.
4. Instructions should also cover normal operation and anticipated operational occurrences, storage and control of nuclear matter, radioactive material and radioactive waste, fuel handling, Examination Inspection Maintenance Testing (EIMT) and instructions to control work.
5. The instructions should reflect all operator actions identified as necessary to ensure the operability of plant and its ability to influence a safety function, including design requirements, equipment qualification requirements, and manufacturers recommendations.
6. Instructions provided to cover accident conditions and emergency conditions, are covered in guidance provided in relation to other LCs such as LCs 11, 13(11), 23(3) and 28(8); these may include emergency operating procedures, and for power reactors Symptom Based Emergency Response Guidelines (SBERGs) and Severe Accident Guidelines (SAGs). These are likely to include both event and symptom-based approaches to cover such conditions.
7. If deemed appropriate, LC 24(3), (5) and (6) provide the power to intervene to specify and approve (freeze) the arrangements for the production and amendment of operating instructions, and to require the licensee to furnish copies of specified operating instructions.

# Guidance on arrangements for Licence Condition 24

1. The Licensee should establish and implement arrangements for the preparation, control, distribution, review, implementation, use and amendment of operating instructions to comply with the requirements of   
   LC 24(4).
2. The Licensee’s arrangements should cover all LC requirements, and specifically should require that Operating Rules (LC 23) be implemented by suitable and sufficient operating instructions. Operating instructions are a major contributor to compliance with operating limits and conditions (operating rules) as discussed extensively in [1].
3. The licensee should identify the person(s) who have responsibility for ensuring that operations are at all times carried out in accordance with approved operating instructions.
4. The arrangements should ensure that operational activities which may affect safety are covered by approved, written operating instructions which are consistent with the definition of operations provided in LC 1. This should include all operating modes, configurations and conditions for the plant, including start-up, operation, and shutdown.
5. The licensee should ensure that where operations are carried out in accordance with written instructions under LC 24 that the undertaking of work, the outcome from the work, and any adverse conditions revealed by the work, should be recorded and addressed in compliance with their arrangements made under this and related licence conditions.
6. The licensee’s arrangements should ensure its operating instructions include appropriate details of how work on structures, systems and components (SSCs) which may affect safety is controlled and anticipate requirements implicit in the associated work management systems, including hazard and risk assessments, job briefings and critical task expectations.
7. The Licensee’s arrangements for the production of operating instructions should comply with an appropriate quality management system in accordance with LC 17 and conform, where applicable, to the guidance given in Sections 7 and 8 of [2] and [3].
8. Amendments to operating instructions should be documented and assessed in accordance with LCs 14 and 22 to identify the potential effect of changes on nuclear safety, and processed subsequently in line with LC 22, where appropriate to do so.
9. The Licensee’s arrangements should ensure that persons expected to prepare, control, distribute, review, implement, use and amend operating instructions are Suitably Qualified and Experienced Persons (SQEP) to do so, and that personnel receive adequate training in accordance with the requirements of LCs 10, 12 and 26.
10. The arrangements should ensure that any failure to comply with an operating instruction, in respect of any operation that may affect safety, is detected and reported. The arrangements should also include a mechanism whereby any operating instructions found to be inaccurate on the basis of, for example, EIMT findings or operational feedback are amended and reissued in a timely manner.

# Guidance on inspection of arrangements and their implementation

1. This part of the guidance is to assist inspectors in judging the adequacy of the licensee's arrangements and their implementation. The following list is neither exclusive nor exhaustive and will be subject to review and revision in light of operational experience. However, it provides a list of aspects of   
   LC 24 compliance requirements that might be examined during routine inspections carried out on the basis of sampling.
2. Inspectors should consider:

* Confirming that the arrangements made under LC 24(4) are identified in the licensee’s document management system.
* Ensuring the arrangements meet the licensee’s QMS requirements, are current, and that responsibilities have been allocated.
* Confirming that any operating instructions which have been specified under LC 24 (3 and 5) are appropriately highlighted and controlled to minimise risk of LC non-compliance.
* Checking that an adequate system is in place to direct staff to use the correct operating instructions, and to direct them to be familiar with any changes, both temporary and permanent, to operating instructions relevant to their duties and responsibilities.
* Checking a sample of amended operating instructions to confirm that, where the amendments may be considered to impact nuclear safety, appropriate use of the licensee’s LC 22 modification process has been made.
* Checking a sample of LC 22 modifications to confirm that any subsequent amendments to operating instructions are consistent with the revised safety case, operating limits and conditions, and the Licensee’s QMS arrangements.
* Confirming that the Licensee provides suitable and sufficient resources to support LC 24 compliance. Confirm that operating instructions have undergone review in line with the Licensee’s arrangements.   
  Also, checking whether there are currently documents awaiting modification, review and/or validation and how the Licensee is managing resolution of this backlog to ensure associated risks are ALARP as per the guidance in [4].
* Checking logs and any other documents or records, for any reference to non-compliance with an operating instruction and follow up the event with the relevant manager or individual concerned. Checking that the requirements of LC 7 and other LCs have been followed-up, and that the event has been properly managed under the licensee’s arrangements. Also confirming that, where appropriate, the operating instruction has been amended to reduce the risk of non-compliance in the future.

1. Inspectors should also consider reviewing a sample of operating instructions to confirm that:

* Operating instructions have been prepared, reviewed, implemented and amended by SQEP persons who have received appropriate training/are appropriately supported to fulfil these purposes.
* Their content is clear and unambiguous.
* They clearly describe how tasks will be carried out and contain all necessary prerequisites, checks, precautions, and actions to be taken in the interests of safety.
* Operating instructions are consistent with the safety case, any associated operating limits and conditions and the Licensee’s arrangements[[1]](#footnote-2).An inspection focusing on LC 24 compliance should also consider the operating rule inspection guidance given in [5], as operating instructions are a major contributor to compliance with the implementation of operating rules.
* Operating instructions take due account of any possible adverse effects of the actions detailed in the instruction on potential plant hazards, and, where necessary should consider their effect on operational risk using appropriate methods.
* Operating instructions include activities carried out on Systems, Structures and Components (SSCs), which may affect safety systems or systems related to safety, and ensure that safety functions, and actions supporting safety functions, are capable of being met. These operating instructions should include redundant and diverse provisions, and back-up or stand-by arrangements, including availability of consumable items and supporting supplies.
* Operating instructions are consistent with conservative actions, and provide information necessary to recover from abnormal conditions – e.g. malfunctions, faults, or failures that occur while performing the operations detailed in the instruction.
* Where the operating instructions represent a single tier within a hierarchy of instructions they should provide a margin of safety to the instructions at the higher tier level, thus establishing successive safety barriers as a contribution to the defence in depth principle applied on the plant. For a more detailed discussion of the applicability of operating instructions as part of a defence-in-depth approach, refer to Appendix 5 of [1].
* Where appropriate, operating instructions define how plant should be brought back within the safe working envelope, if it is discovered to be outside the limits and conditions specified by the safety case and/or other instructions and procedures.
* Instructions are consistent with operation of the plant remaining ALARP as per the guidance in [4].

1. A workplace/on-plant review of the use of operating instructions should also be considered to confirm that:

* Personnel have the necessary operating instructions at the work face and seek evidence that they are being used appropriately during task completion.
* Operators/maintenance personnel understand the conditions for use and the meaning of the instruction, and whether they consider the Operating instructions provide a clear and adequate understanding of requirements.
* Personnel understand the Licensee’s expectations regarding procedure use and adherence. Seek evidence of the application of related tools and techniques at the work face.
* Personnel understand what to do if they identify an error in the instruction or they do not fully understand its content. Additionally, confirm the operating instruction supports this process.
* Walk/talk through a section of the operating instruction to confirm that the format and content is appropriate to the task/work environment   
  (i.e. paper documents might not be appropriate if working outside and/or in hazardous environments).
* Confirm that potential risks arising from human error are minimised [[2]](#footnote-3)   
  (for example, consistency between the content of instruction and labelling in the workplace).
* Means via which amendments to operating instructions should be recorded and requested are understood and complied with.   
  Ask personnel how the operating instruction could be improved and confirm that their suggestions are captured by the Licensee for future consideration.
* Contractors should be included in this review where they carry out operations on SSCs that may affect safety.

# References

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| [1] | ONR, “NS-TAST-GD-035 - Limits and Conditions for Nuclear Safety (Operating Rules)”. |
| [2] | IAEA, “Safety Standards Series No. SSG-70 - Operational Limits and Conditions and Operating Procedures for Nuclear Power Plants,” 2022. |
| [3] | ONR, “NS-TAST-GD-060 - Procedure Design and Administrative Controls”. |
| [4] | ONR, “NS-TAST-GD-005 - Guidance on the Demonstration of ALARP (As Low As Reasonably Practicable)”. |
| [5] | ONR, “NS-INSP-GD-023 - LC23 Operating Rules”. |

1. For an in-depth LC 24 inspection, the Site Inspector should also consider requesting Fault Studies Specialist support to determine if the operating instructions sampled are consistent with the safety case and also that any pertinent operating limits and conditions are correctly implemented by use of the operating instructions. [↑](#footnote-ref-2)
2. For an in-depth inspection, the Site Inspector should consider requesting Human Factors Specialist support. [↑](#footnote-ref-3)