



ONR GUIDE			
LC4 – Restrictions on Nuclear Matter on the Site			
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1 INTRODUCTION

- 1.1 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 duty-holder who remains responsible for safety. 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 inspection guide is one of the suite of documents provided by ONR for this purpose.

2 PURPOSE AND SCOPE

- 2.1 This guidance has been prepared as an aid to inspection activities at nuclear licensed sites. It is to be used by ONR in judging the licensees' compliance with the requirements of LC 4, Restrictions on Nuclear Matter on the Site. This guidance provides a framework for these inspection activities, within which the inspector is expected to exercise their discretion. It also provides for a consistent approach to LC 4 compliance inspections at all nuclear licensed sites.
- 2.2 The guidance is for use by all ONR inspectors. The guidance does not indicate when or to what extent LC 4 inspections should be carried out, as these matters are covered in individual inspectors' inspection programmes. Additional guidance is available in the ONR Technical Assessment Guides entitled "Control of Processes Involving Nuclear Matter", NS-TAST-GD-023 (T/AST/023), "Management of Radioactive Materials and Radioactive Waste on Nuclear Licensed Sites", NS-TAST-GD-024 (T/AST/024) and "Criticality Safety", NS-TAST-GD-041 (T/AST/041). Inspection activities should also take account of relevant requirements contained in The Ionising Radiations Regulations 1999 (IRR99) and the associated ONR guidance on compliance with IRR99.
- 2.3 The guidance provided is split into three main elements:
- 1) Purpose of the licence condition.
 - 2) Guidance on arrangements for LC 4.
 - 3) Guidance on inspection of arrangements for LC 4 and their implementation.
- 2.4 All references to the Nuclear Installations Act 1965 (NIA) in this guidance are to the NIA as amended.
- 2.5 Security permissioning for nuclear matter brought onto the site or stored on the site will be required and this will be provided under the Site Security Plan approval process required in accordance with the Nuclear Industry Security Regulations (NISR) 2003.

3 LICENCE CONDITION 4 – RESTRICTIONS ON NUCLEAR MATTER ON THE SITE

- 1) The licensee shall ensure that no nuclear matter is brought onto the site except in accordance with adequate arrangements made by the licensee for this purpose.
- 2) The licensee shall ensure that no nuclear matter is stored on the site except in accordance with adequate arrangements made by the licensee for this purpose.
- 3) The licensee shall submit to ONR for approval such part or parts of the aforesaid arrangements as ONR may specify.
- 4) 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.
- 5) For new installations, if ONR so specifies, the licensee shall ensure that no nuclear matter intended for use in connection with the new installation is brought onto the site for the first time without the consent of ONR.

4 PURPOSE OF LICENCE CONDITION 4

4.1 LC 4 is a standard condition attached to all nuclear site licences. Licensees are required to comply with the licence condition. How this compliance is achieved is for the licensees to decide. However, ONR must judge the adequacy of this compliance. It carries out this function by compliance inspection.

4.2 The purpose of this licence condition is to ensure that the licensee has adequate arrangements in place to control the entry of nuclear matter onto the licensed site and that all nuclear matter on the site is stored in accordance with adequate arrangements made by the licensee for this purpose. The meaning of nuclear matter is defined in section 26(1) of the NIA as:

“nuclear matter” means, subject to any exceptions which may be prescribed-

- a) *any fissile material in the form of uranium metal, alloy or chemical compound (including natural uranium), or of plutonium metal, alloy or chemical compound, and any other fissile material which may be prescribed; and*
- b) *any radioactive material produced in, or made radioactive by exposure to the radiation incidental to, the process of producing or utilising any such fissile material as aforesaid.*

4.3 Note that the requirements of LC 4 do not apply to Naturally Occurring Radioactive Materials (NORM), e.g. trace quantities of natural uranium in building materials.

4.4 The purpose of LC 4(1) is to ensure that when nuclear matter is brought onto the site it is done so in accordance with adequate arrangements that the licensee has in place. Such arrangements are covered in detail in section 5 of this guidance. In general terms, adequate arrangements require: consideration of the nature of the nuclear matter; consideration of site strategies for dealing with nuclear matter; the existence of adequate safety cases for the movement of nuclear matter on the site; the existence of appropriate procedures and records covering all activities involved in bringing nuclear matter on to the site; and adequate numbers of appropriately trained staff.

- 4.5 The purpose of LC 4(2) is to ensure that all nuclear matter is stored on the site in accordance with adequate arrangements prepared for this purpose. Such arrangements are covered in section 5 of this guidance. In general terms, adequate arrangements require: the existence of an adequate safety case, consideration of nuclear site licence requirements and site strategies for dealing with nuclear matter, adequate storage facilities, adequate records of the nature of the nuclear matter and its storage location, appropriate procedures covering all aspects of the operations including emergency arrangements, and adequate numbers of SQEP staff.
- 4.6 Note that LC 32, Accumulation of Radioactive Waste, requires the licensee to control the quantity, type and form of radioactive waste on the site as may be specified by ONR.
- 4.7 The purpose of LC 4(3) is to permit ONR to approve part or the whole of the arrangements made by the licensee under LC 4(1) and 4(2). Approvals are rarely used for this licence condition. However, should ONR decide to approve the arrangements, a specification could be issued by ONR indicating which part of the arrangements are to be submitted for approval.
- 4.8 The purpose of LC 4(4) is to ensure that where ONR has issued an approval under LC 4(3), the licensee cannot alter or amend the approved arrangements unless ONR has issued a further approval of the alteration or amendment.
- 4.9 The purpose of LC 4(5) is to provide ONR with additional regulatory control when nuclear matter is brought onto the site for the first time for use in connection with a new installation. In this situation, ONR can issue a specification requiring the licensee to request a consent from ONR to bring nuclear matter onto the site. In these circumstances, no nuclear matter can be brought onto the site without such a consent. Since this condition relates to new installations only, it is more usual for regulatory control to be exercised via LCs 19 and 20 which relate to new plants. Hence, LC 4(5) is more likely to be used in circumstances where ONR judges that additional regulatory control is needed before bringing nuclear matter onto the site for use in a new installation. The agreement of ONR CNS will also be required for bringing nuclear matter onto the site for the first time.

5 GUIDANCE ON ARRANGEMENTS FOR LC4

- 5.1 Paragraphs 5.2 to 5.13 provide ONR's views on what the licensee's arrangements might be expected to contain to comply with LC 4. The contents are neither exclusive nor exhaustive and will be subject to review and revision in light of operational experience. For completeness, some aspects covered in Section 4 of this document are repeated. In circumstances where individual sites have generic arrangements produced by the company as corporate documents, the individual site must justify any deviation from the corporate documents.
- 5.2 Adequate arrangements should be provided to comply with LC 4(1) and 4(2). Detailed guidance is given in paragraph 5.7 on bringing nuclear matter onto the site and in paragraph 5.9 on the storage of nuclear matter on the site.
- 5.3 Requirements arising from LC 4(3), 4(4) and 4(5) are all prompted initially by ONR. The licensee will still require procedures in place to address such requirements, in particular the identification of the management post in the licensee's organisation that is responsible for the conditions and for handling interactions with ONR.

- 5.4 The arrangements should be readily available and should be up to date, signed by an appropriate senior manager and controlled under a system compliant with the requirements of LC17, Management Systems.
- 5.5 The arrangements should include a clear interpretation of the meaning of nuclear matter, reflecting that contained in section 4.2 of this document.
- 5.6 Since this licence condition includes bringing nuclear matter onto the nuclear licensed site, the arrangements should define the site boundaries or refer to LC 2, Marking of the Site Boundary.
- 5.7 The arrangements should ensure that nuclear matter can only be brought onto the site in a safe and controlled manner. In particular, they should include provisions for ensuring that nuclear matter is not brought onto the site unless:
- 1) it is compatible with any site strategies that are in existence for dealing with nuclear matter on the site;
 - 2) it is compatible with the scope of the applicable nuclear site licence;
 - 3) the agreement of ONR has been obtained if ONR has previously issued a licence instrument under LC 4(1) arrangements;
 - 4) it is of a quantity, type and form justified in a safety case produced in accordance with LC 14(1), Safety Documentation, and agreed in accordance with the arrangements made under LC 19, Construction of New Plant, if the nuclear material is associated with new plant, or with the arrangements made under LC 22, Modifications or Experiment on Existing plant, if the nuclear matter is associated with modification or experiment to existing plant. This includes the establishment of any operating rules required by LC 23 in respect of carriage of nuclear matter on the site (carriage is included in the interpretation of operations given in LC 1);
 - 5) there are adequate facilities and arrangements to receive the nuclear matter and to remove it from any transport container if appropriate;
 - 6) there are adequate arrangements and instructions in place for storage as required by LC 4 (2);
 - 7) there are adequate records, in accordance with the requirements of LC 6, Documents, Records, Authorities and Certificates, of the quantity, type, form and supplier of all nuclear matter being brought onto the site. The arrangements here should also cross-refer to Management Systems arrangements required under LC 17;
 - 8) there are adequate arrangements and instructions in place to ensure that once nuclear matter is received on the site it is adequately controlled and accounted for at all times. In addition to the requirements listed in this paragraph, some of the detailed aspects that are required to be in place are:
 - adequate arrangements and instructions for handling nuclear matter, including road/rail routes on the site, and any requirements such as special flasks and containers, including any decontamination and disposal requirements;
 - adequate consideration of possible interactions with other nuclear matter that is present on the site; and

- adequate consideration of the safety implications of any subsequent movements [of the nuclear matter] on the site that may be necessary at a later date; and
- 9) suitably qualified and experienced persons are appointed to control and supervise the activities that are being carried out and that staff carrying out the work are adequately trained. In particular, staff must be capable of responding to any abnormal situations that may arise during the movement of nuclear material on the site. This includes taking action in accordance with the site arrangements for reporting incidents as required by LC 7, Incidents on the Site, and for handling emergencies as required by LC 11, Emergency Arrangements and IRR99.
- 5.8 Where radioactive waste is being brought onto or removed from a nuclear licensed site for the purposes of disposal, the site will require an appropriate permit from the relevant environmental regulator.
- 5.9 The arrangements should ensure that all nuclear matter is stored on the site in a safe and controlled manner. In particular, where appropriate, they should include provisions to ensure that:
- 1) the requirements in paragraph 5.7 of this guidance are considered in relation to storage where appropriate;
 - 2) nuclear matter is stored separately from other hazardous materials;
 - 3) there is an adequate means of controlling access to nuclear matter;
 - 4) nuclear matter is stored in a place that has been specially designed or has been modified for this purpose, including provision for receipt, inspection, monitoring and retrieval. The storage facility should be compatible with the nuclear installations or activities listed in Schedule 1 Part II of the Site Licence;
 - 5) necessary safety cases and operating rules required by LC 23, Operating Rules, in respect of storage of nuclear matter are established, (since storage is defined as an "operation" in LC 1);
 - 6) where fissile material is involved, storage only occurs in a secure place with diagrams of any permitted storage array and conditions of any associated criticality clearance certificates being suitably posted e.g. at the entrance to the storage facility;
 - 7) adequate records are maintained of the nuclear matter including package/container details and markings/labelling; and
 - 8) suitably qualified and experienced persons are appointed to control and supervise the activities as discussed in paragraph 5.7 of this guidance.
- 5.10 The arrangements should state that ONR may specify that when a new facility has been constructed on the site, no nuclear matter intended for use or storage in the new facility may be brought onto the site without the consent of ONR.
- 5.11 The arrangements should enable the licensee to respond to any specification from ONR for any part or parts of the arrangements which ONR may wish to approve. They should identify the person responsible for responding to such a specification and they should identify the system whereby any constraints, caveats or conditions imposed by ONR are implemented.

- 5.12 The arrangements should ensure that where part or parts of the arrangements have been approved, they can only be changed or amended with the approval of ONR. The person(s) responsible for ensuring compliance with this requirement should be identified in the procedures.
- 5.13 The arrangements should identify the person who has the responsibility for reporting non-compliance to ONR.

6 GUIDANCE ON INSPECTION OF ARRANGEMENTS AND THEIR IMPLEMENTATION

- 6.1 Paragraphs 6.2 to 6.9 of this guidance are to assist inspectors in judging the adequacy of the licensee's arrangements, in particular whether the arrangements address the requirements of Section 5 of this guidance. The following list is neither exclusive nor exhaustive and will be subject to review and revision in light of operational experience. It does, however, provide a list of aspects of LC 4 that can be examined during routine compliance inspections.
- 6.2 Examine the arrangements documentation and check that it is consistent. Review the arrangements to establish validity, whether any changes have been made since the last review and whether the identified persons are correct. Note whether instructions, methods and quality assurance rules claimed in procedures have been followed and whether any changes have been correctly incorporated and validated within the licensee's management system.
- 6.3 Check that the arrangements contain a suitable definition and interpretation of "nuclear matter" and that it agrees with Section 26 of the NIA.
- 6.4 Examine whether the arrangements cover the definition of site boundaries for the purposes of this licence condition. If not, ensure that there is suitable and sufficient cross-reference to LC 2 arrangements and inspect accordingly.
- 6.5 Confirm that the arrangements cover bringing nuclear matter onto the site in a safe and controlled manner. Check that the arrangements address the requirements of paragraph 5.7 of this guidance.
- 6.6 Confirm that the arrangements ensure the storage of all nuclear matter on the site in a safe and controlled manner. Check that the arrangements address the requirements of paragraphs 5.9 and appropriate sections of paragraph 5.7.
- 6.7 Check that the arrangements contain suitable record systems for storage of nuclear matter and that they are in compliance with LC 6 arrangements. In addition, confirm that there is suitable cross-reference to LC 17 arrangements in respect of Management Systems.
- 6.8 Examine the arrangements to confirm that they require suitably qualified and experienced persons for all activities connected with nuclear matter that are safety related. Check that they are compliant with LC 12 arrangements.
- 6.9 With respect to ensuring suitable interaction with ONR, check that the arrangements:
 - 1) cover a system for submission for approval by ONR of those part or parts of the arrangements that may be specified;

- 2) contain such controls that any consequent amendments only take place with ONR approval; and
 - 3) ensure that no nuclear matter enters a newly constructed facility on site without a consent from ONR.
- 6.10 Paragraphs 6.11 to 6.19 of this guidance are to assist inspectors in judging the adequacy of the licensee's implementation of their arrangements, i.e. is the licensee doing what their arrangements require. The following list is neither exclusive nor exhaustive and will be subject to review and revision in light of operational experience. It does, however, provide a list of aspects of LC 4 that can be examined during routine inspections.
- 6.11 Examine the systems controlling the bringing of nuclear matter onto the site. Sample a typical operation and check:
- 1) that a valid safety case exists for the operation;
 - 2) that the activities are compatible with the scope of the existing nuclear site licence and with current site strategies on nuclear matter;
 - 3) that operating rules and instructions in respect of carriage have been established and that such limits and conditions are being complied with;
 - 4) storage systems as required by LC 4(2) are in place;
 - 5) records regarding nuclear matter are complete; these should include details of the quantity, type, chemical and isotopic composition, history and dates of receipt. Such records should be securely stored and maintained in accordance with the site's arrangements for quality assurance; and
 - 6) personnel responsible for bringing the nuclear matter to site are identified and are suitably qualified and experienced. This may require forming a view on the adequacy of the training material and inspecting the training records for personnel.
- 6.12 Examine the systems controlling storage of nuclear matter on the site and carry out sample inspections of storage facilities. In particular check:
- 1) operating rules and instructions in respect of storage have been established and that there is compliance with the requirements therein;
 - 2) nuclear matter (e.g. both new and spent nuclear fuel, radioactive sources, radioactive waste) is being stored separately from other materials where the combination of the two substances could potentially increase the hazard, for example flammable substances;
 - 3) nuclear matter is suitably protected and the hazards from fire or flooding have been considered and addressed within the relevant safety documentation;
 - 4) If the nuclear matter contains fissile material then criticality safety issues have been taken into account, as described in NS-TAST-GD-041 (T/AST/041);
 - 5) If the nuclear matter contains fissile material then the possible requirement for a criticality alarm system has been taken into account, as described in NS-TAST-GD-018 (T/AST/018);

- 6) buildings used for storage of fissile material have diagrams of permitted storage arrays and that the actual arrangements match the drawings ;
 - 7) criticality clearance certificates are visibly posted;
 - 8) personnel responsible for storing the nuclear matter are identified and are suitably qualified and experienced;
 - 9) procedures are in place and being implemented to check on degradation of the nuclear matter or its containment;
 - 10) licensee's inspection and maintenance regimes for storage facilities for nuclear matter; and
 - 11) records of type, quantity and place are complete.
- 6.13 Check the register of radioactive sources against sources in storage. If any are withdrawn, follow up the location on site and check that adequate controls are being maintained as required by the arrangements. (IRR99 also applies here.)
- 6.14 It is recognised that some radioactive sources are mobile and are moved on and off nuclear licensed sites. Such source movements are covered by permits issued under the Environmental Permitting (England and Wales) Regulations 2010 by the EA in England and Wales, and authorisations issued under the Radioactive Substances Act 1993 by SEPA in Scotland.
- 6.15 Examine the records for any approval specified and issued under LC 4(3). Check with the person identified as responsible that such approvals are being complied with and discuss any amendments or alterations that may be being considered.
- 6.16 For new installations, check whether ONR should issue a specification requiring the consent of ONR in connection with the bringing onto site of nuclear matter intended for use with the new installation. Ensure that the relevant security permissioning by ONR has been arranged.
- 6.17 For operational reactor sites, check records of fuel receipts against stock usage rates. Examine the specification of a sample of the fuel delivered to ensure that it is within the specification declared in the safety case. If any fuel is out of specification, examine the register of modifications and follow up under LC 22.
- 6.18 Check records of defective fuel and establish if there is a rising trend. If so, discuss with the person responsible for the new fuel.
- 6.19 Examine records of training and establish that staff responsible for ensuring compliance with this licence condition are at a suitable and sufficient level of authority within the licensee's organisation.