



ONR GUIDE			
<b>LC4 – Restrictions on Nuclear Matter on the Site</b>			
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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. This framework is provided to facilitate a consistent approach to LC 4 compliance inspection at all nuclear licensed sites. The guidance is for use by 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 following ONR Technical Assessment Guides (TAG):-

- NS-TAST-GD-023 – “Control of Processes Involving Nuclear Matter”.
- NS-TAST-GD-024 – “Management of Radioactive Materials and Radioactive Waste on Nuclear Licensed Sites”.
- NS-TAST-GD-041 – “Criticality Safety”.

2.2 Inspection activities should also take account of relevant requirements contained in The Ionising Radiations Regulations 2017 (IRR17), its associated Approved Code of Practice and Guidance and the associated ONR guidance on compliance with IRR17.

2.3 Inspectors may also take account of relevant requirements in The Nuclear Safeguards (EU Exit) Regulations 2019 (NSR19) and the associated ONR Guidance for Nuclear Material Accountancy, Control and Safeguards (ONMACS). The main caveat for application to safeguards is that safeguards only apply to qualifying nuclear material (QNM), as defined in the Nuclear Safeguards Act 2018, rather than nuclear matter. Guidance on the safeguards-relevant aspects of LC 4 is provided in the Safeguards appendix of this document. The section is aimed at ONR Safeguards inspectors conducting an integrated inspection on LC 4 with an ONR Safety inspector, but it provides an insight to a Safety inspector as to which aspects of an LC 4 inspection may have safeguards relevance.

2.4 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.

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. Further guidance on Site Security Plans can be found in ONR Security Assessment Principles for the Civil Nuclear Industry (SyAPs). In addition to security considerations during the import of nuclear matter onto a licensed site, the inspector should also take specialist advice on any required safeguards considerations. The requirement to account for and control nuclear material under NSR19 parallels the requirements for LC 4. It should be noted that on defence sites ONR will have no vires for security and nuclear safeguards will not be applicable.

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

- 4 (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.
- 4 (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.
- 4 (3) The licensee shall submit to ONR for approval such part or parts of the aforesaid arrangements as ONR may specify.
- 4 (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.
- 4 (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 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 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.
- 4.3 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.

- 4.4 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.
- 4.5 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.
- 4.6 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.
- 4.7 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 (see paragraph 2.4 above).

## **5 GUIDANCE ON ARRANGEMENTS FOR LC4**

- 5.1 This Technical Inspection Guide provides Relevant Good Practice with respect to arrangements made by licensees under 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 the legal definition of nuclear matter (i.e. as reflected in Appendix 1) and should use this definition to decide what is nuclear matter on the site.
- 5.6 Since this licence condition includes bringing nuclear matter onto the nuclear licensed site, the arrangements should reference the site boundaries required by LC 2.
- 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 meets the Conditions for Acceptance at the receiving site, which in turn are derived from the relevant safety case;
  - 2) the receiving site has assured itself that the QA arrangements of the donor site are suitable and sufficient to assure that the Conditions for Acceptance will be achieved;
  - 3) it is compatible with any site strategies that are in existence for dealing with nuclear matter on the site;
  - 4) it is compatible with the scope of the applicable nuclear site licence, e.g. nuclear installations or activities if these are listed in Schedule 1 Part II of the Site Licence
  - 5) the agreement of ONR has been obtained if ONR has previously issued a licence instrument under LC 4(1) arrangements;
  - 6) 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);
  - 7) there are adequate facilities and arrangements to receive the nuclear matter and to remove it from any transport container if appropriate;
  - 8) there are adequate arrangements and instructions in place for storage as required by LC 4 (2);
  - 9) 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;
  - 10) 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

11) suitably qualified and experienced persons are appointed to control and supervise the activities that are being carried out (i.e. as per the licensee's arrangements made under LC 12) and that staff carrying out the work are adequately trained (i.e. as per the licensee's arrangements made under LC 10). 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 IRR2017.

12) The roles, responsibilities, authorities and accountabilities of all relevant staff need to be clearly set out for the movement of nuclear matter (noting that some licensees may have separate authorities for receipt onto the site and then for subsequent on-site movement).

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. In addition, the arrangements should identify all the storage locations for all nuclear matter on the site and the amounts, durations and form of storage. Storage should always be demonstrably safe and secure for the anticipated storage period. Since storage times may exceed this anticipated storage time, licensees should consider and if necessary mitigate against any likely degradation in storage conditions for extended storage periods (i.e. beyond that anticipated by the licensee
- 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 (i.e. as per the licensee's arrangements made under LC 12) are appointed to control and supervise the activities as discussed in paragraph 5.7 of this guidance;
  - 9) Appropriate examination, inspection, maintenance and testing should be carried out in accordance with LC 28, to confirm that compliance with all operating limits and conditions is met whilst nuclear matter is in storage.
  - 10) Storage of nuclear matter should be controlled and supervised by SQEP persons and the roles, responsibilities and authorities for storage activities should be defined.
- 5.10 The arrangements should state that ONR may specify that when a new installation has been constructed on the site, no nuclear matter intended for use or storage in the new installation 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 the legal definition (see Appendix 1) of "nuclear matter".

- 6.4 Examine whether the arrangements cover the definition of site boundaries for the purposes of this licence condition. Ensure that the site boundary is defined (e.g. by checking the site map).
- 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, appropriate sections of paragraph 5.7 and the requirements of LC 32.
- 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 10 and 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) if ONR so specifies, 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.
- 7) Check that the licensee's processes for receiving nuclear matter on the site are robust enough to be able to identify inadvertent admission of nuclear matter onto the site e.g. during radioactive source delivery, could the vehicle also be carrying other sources not necessarily destined for that site? The presence of a questioning attitude should be tested.

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 including fire and 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;
- 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;
- 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 and recorded (e.g. radiological surveys to check for deterioration of shielding) to check on degradation of the nuclear matter or its containment;
- 10) Licensee's inspection and maintenance regimes for storage facilities for nuclear matter e.g. maintenance/testing of any Safety Mechanisms, Devices and Circuits (SMDC) relied upon for safety and whether such requirements are up to date;
- 11) Records of type, quantity and place are complete;
- 12) Warning notices and any radiological exclusion zones are clearly indicated; and

13) Radiological protection and shielding requirements for the nuclear matter have been taken into account, as per the guidance contained in NS-TAST-GD-038 and NS-TAST-GD-002.

- 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. (IRR17 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 by the relevant environment agency. For England and Wales the Environment Agency (EA) and Natural Resources Wales (NRW) issue permits under the Environmental Permitting (England and Wales) Regulations 2016. Authorisations are issued under the Environmental Authorisations (Scotland) Regulations 2018 by the Scottish Environmental Protection Agency (SEPA).
- 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 (e.g. nuclear fuel for a power reactor, or radioactive sources for Non-Destructive Assay whilst commissioning a new facility). 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.

## **7 FURTHER READING**

Note to file – Guidance on the meaning of “Nuclear Matter”, “Radioactive Material”, “Excepted Matter”, “Radioactive Waste” and “Consign”, TRIM Reference 2016/35543.

## 8 APPENDICES – DEFINITIONS

### Nuclear Installations Act

Throughout the definitions below the Nuclear Installations Act 1965 (as amended) is referred to as NIA 65.

#### APPENDIX 1: Nuclear Matter

A1.1. The meaning of nuclear matter is defined in section 26(1) of the NIA as:

*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.*

A1.2. Practical examples of materials which are defined “nuclear matter” are dependent upon the activities being undertaken on the Nuclear Licenced Site. The list provided below has been generically compiled and may not be applicable to all Nuclear Licenced Sites. The list is not exhaustive, but should be used to inform inspectors on the scope of materials which can be considered during inspection of LC 4. Inspectors should still target their efforts of the greatest hazards or those least well controlled.

A.1.3. NIA Section 26(1) a)

- New fuel (in any uranium or plutonium chemical composition or form)
- Spent fuel (in any uranium or plutonium chemical composition or form)
- Natural uranic materials

A.1.4. NIA Section 26(1) b)

- Depleted (uranium tails) and low enriched uranium of any form, including depleted uranium containers for the storage of radioactive sources.
- Radioactive waste (as defined in EPR 2016)
- Exempt waste (as defined in EPR 2016), including laboratory samples
- Excepted matter (as defined in the Nuclear Installations (Excepted Matter) Regulation 2017) which includes radioactive isotopes.

A1.5. All activities throughout the lifecycle of the nuclear facilities involving nuclear matter are included. Control must be exercised when raw nuclear materials or intermediates are stored or moved on a site, while nuclear material is being processed and after treatment, prior to transport off-site for further treatment or disposal. There is no distinction between the standards of control required for radioactive feedstock or radioactive waste. The level of control will be related to the hazard, reliability demanded and the consequences of loss of control of any such material on workers and others. Further information can be found in ONR Technical Assessment Guide NS-TAST-GD-023 “Control of processes involving nuclear matter (SAP – ENM.1 to 8)”.

A1.6 It is noted 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.

## **Appendix 2 – Radioactive Material**

The bounds of “radioactive material”, within the NIA 65 Section 26 (b) “nuclear matter” definition, is broader than the definition of “radioactive material” provided by the Environmental Permitting (England and Wales) Regulations 2016, as referenced in LC 1. The Environmental Permitting (England and Wales) Regulations 2016 Section 9 (Contaminated substances or articles) excludes from the definition of “radioactive material” any substance or article which has been contaminated “while the substance or article is kept on the premises on which the contamination occurred”. The NIA65 definition is wider and can be looked upon as meaning any material on the nuclear licenced site that has been made radioactive intentionally, or otherwise. This exception is captured within LC1 “radioactive material” definition.

## **APPENDIX 3 – Excepted Matter**

LC 1: Interpretation states that “excepted matter” has the meaning assigned thereto in NIA 65 and the Nuclear Installations (Excepted Matter) Regulations 1978. Section 26(1) of NIA 65 states that “excepted matter” means nuclear matter consisting only of one or more of the following, that is to say:

- (a) isotopes prepared for use for industrial, commercial, agricultural, medical scientific or educational purposes;
- (b) natural uranium;
- (c) any uranium of which isotope 235 forms not more than 0.72 per cent;
- (d) nuclear matter of such other description, if any, in such circumstances as may be prescribed.

In broad terms, “excepted matter” is nuclear matter which, because of its nature, its preparation or the smallness of its quantity, cannot give rise to the exceptional hazards to which NIA 65 refers. Hence “excepted matter” can be freely traded, since the classification of nuclear matter as “excepted matter” permits the licensee to detach the absolute liability for harm once such material has left the licensed site. The isotopes referred to in Item (a) are in a form where they have completed the production process, are fully fabricated and ready for use. Item (d) has been used to implement the “Nuclear Installations (Excepted Matter) Regulations 1978”, Statutory Instrument 1978, No. 1779. To satisfy the definitions of “excepted matter” stated in these Regulations, nuclear matter must fall within the radioactivity and mass limits stated in the Regulations and be packed in accordance with IAEA Regulations.

“Excepted matter” is a sub-category of “nuclear matter”. When “excepted matter” is present on a licensed site it should be treated in regard to regulatory control in the same manner as all other forms of “nuclear matter”. It is only when the “nuclear matter” has left the site that the term “excepted matter” takes on its special meaning as defined in section 26(1) of NIA 65 and the Nuclear Installations Regulations 1971.

#### **APPENDIX 4 – Radioactive Waste**

LC 1: Interpretation states that “radioactive waste” has the meaning assigned thereto in:

- In England and Wales – Paragraph 3 of part 2 of Schedule 23 to the Environmental Permitting (England and Wales) Regulations 2016 (EPR 2016),
- In Scotland – Section 1A of the Radioactive Substances Act 1993.
- Note – Nuclear site licences issued in England and Wales after EPR 2016 came into force refer to these regulations for the meanings of both radioactive waste and radioactive material, and in Scotland to the Radioactive Substances Act 1993. Nuclear site licences issued prior to EPR 2016 refer to the previous radioactive substances act legislation.

“Radioactive waste”, for the purposes of LC 5 is identical to the interpretation found under LC 1. It is substances and articles, as interpreted under EPR 2016, that satisfy the form, activity and “waste” criteria found in EPR 2016, i.e. that it is scrap, surplus, requires to be disposed of, is discharged, discarded or dealt with as if it were waste.

Note – The interpretation of whether a substance or article is “nuclear matter”, “radioactive waste” and “radioactive material” for the purposes of LC 1, LC 5 and NIA 65 can be complex and where necessary Inspectors should seek advice from an Inspector from the Nuclear Liabilities Regulation specialism.

#### **APPENDIX 5 – Relevant Site**

LC 1: Interpretation states that “relevant site” has the meaning assigned thereto in NIA 65. Section 26 (1) of NIA 65 states: “a “relevant site” means any of the following, that is to say -

- (a) a licensed site at any time during the period of the licensee’s responsibility;
- (b) any premises at any time when they are occupied by the Authority;

- (c) any site at any time when it is occupied by a government department, if that site is being or has been used by that department as mentioned in section 9 of the Act;
- (d) any site in a relevant territory other than the United Kingdom at any time when that site is being used for the operation of a relevant installation by a relevant foreign operator.

The meaning of item a) above needs no further explanation. Item b) above is no longer of such significance since four of the UKAEA sites involved in nuclear activities are now licensed sites and hence covered by item a) above. The UKAEA site at Culham is not licensed and hence is a relevant site under item b) above. Item c) refers to section 9 of the Act; in the context of this guidance it means the site to which the transfer is being made would be a licensed site if the 1965 Act applied to the Crown. Item d) does not apply since the LC only applies to Great Britain.

## **APPENDIX 6 – Safeguards**

Many of the expectations for LC 4 arrangements in this guidance are applicable to compliance with NSR19 and expectations within ONMACS [\[link\]](#). Most of the commonality centres on the records made, competence of staff, and adequacy of procedures. Inspectors should note the different definitions of “nuclear matter” above, and “qualifying nuclear material” (QNM). QNM is defined in the Nuclear Safeguards Act 2018 and Nuclear Safeguards (Fissionable Material and Relevant International Agreements) (EU Exit) Regulations 2019 as natural uranium, depleted uranium, uranium enriched to less than 20%, uranium enriched to 20% or above, thorium and plutonium.

Since LC 4 concerns control and accountancy of nuclear matter its requirements have links with those in NSR19 and the expectations of ONMACS. The key linkages are in regulations 6, 10, 11, and Schedule 2 (6), (7), & (8) which all relate to inventory control and tracking material. ONR guidance for QNM inventory control is provided in Fundamental Safeguards Expectation (FSE) 7 of ONMACS; also FSE 3 should be referred to regarding competence of staff with safety/safeguards impacting roles (see the safeguards appendices in NS-INSP-GD-010 and NS-INSP-GD-012 for further parallels with FSE 3).

There are a number of inspection types carried out by ONR Safeguards that may provide opportunity for joint inspection in which assurance against both LC 4 and NSR19 can be gained, if scoped correctly. Please refer to the ONR Safeguards Inspection Guide for further guidance on ONR Safeguards inspection types, [\[link\]](#). For instance accountancy-focused compliance inspections may assess the operating records (regulation 10) that enable an operator to track and document the movement of QNM.

Specific parts of this TIG that are safeguards-relevant are:

### **5.7 – 9), 10), 11), 12)**

- 9) These records are likely to constitute operating records under regulations 10 of NSR19. The Safeguards inspector should confirm that they meet the requirements of NSR19 and that they are managed in line with expectations in Material Accountancy and Control Expectation (MACE) 8.3 of ONMACS.

- 10) Accountancy and control of nuclear material is a fundamental requirement of NSR19 regulation 6; the systems and procedures for which should be described in an operator's Accountancy & Control Plan (ACP). The ACP should detail how an operator meets the requirements of Schedule 2 (6), (7), & (8), which chiefly concern material tracking and inventory control.
- 11) Schedule 2(2) of NSR19 states that Nuclear Material Accountancy, Control, & Safeguards (NMACS) roles should be defined, assigned, and communicated to staff such that the requirements of NSR19 are met. ONR Safeguards have set expectations for competence management of safeguards staff in FSE 3 of ONMACS. For roles which affect safety under LC 4, the requirements of LC 10 and 12 apply to training and appointment as SQEP. Where LC 4 roles have a safety/safeguards function, there is alignment with FSE 3 of ONMACS.
- 12) See the links in the previous paragraph.

### **5.9 – 7), 8), 9)**

- 7) Schedule 2 (7) of NSR19 requires batches of QNM to be unambiguously identifiable. The arrangements for batch identification should be described in the ACP. ONR expectations for material identification are available in MACE 7.2.
- 8) As described in 5.7(11) & (12) above, LC 4 roles are likely to have a safeguards impact and so the expectations of FSE 3 in ONMACS should be noted.
- 9) Where a system fulfils a dual safety/safeguards purpose, the Safeguards inspector should carefully consider whether the maintenance is adequate for its safeguards purpose. Expectations for maintenance and reliability from a safeguards perspective are provided in MACE 5.2 of ONMACS. Systems and components for accountancy and control should receive regular and systemic maintenance commensurate with the required reliability and performance.
- 6.5 Requirements of Schedule 2(12) of NSR19 should be noted here, additionally ONR expectations in MACE 9.1 of ONMACS align well here.
- 6.6 See the paragraph 5.7 and 5.9 links above. It may be useful to review the relevant ACP here as it sets out the arrangements in place for the operator's accountancy and control system. The Safeguards inspector should be aware that where reference is made to "accountancy" within LC 4 guidance, this means the internal ledgers and tracking systems, not the safeguards reports (ICR/MBR/PIL). An issue with the safeguards reports does not necessarily indicate an "LC 4- relevant accountancy" issue and vice versa. However the implications of any accountancy issues should be ascertained from the perspective of both purposes.
- 6.7 NSR19 regulations 10 and 11 refer specifically to the making and retaining of safeguards records, operating and accounting. The records system used for LC 4 is relevant to safeguards. The Safeguards inspector should check that where LC 4 records systems are used for safeguards purposes that they meet the requirements of NSR19 regulations 10 & 11.
- 6.8 As stated above FSE 3 expects that operators ensure the competence of staff in roles that may affect NMACS performance. The Safeguards inspector may

be able to obtain suitable evidence here that the expectations of FSE 3 are met for safeguards.

**6.11 – 5), 6), 7)**

- 5) NSR19 regulations 10 and 11 are also relevant here. . These require operators to make and retain operating and accounting records respectively that enable them to track, account for, and control their nuclear material. ONR expectations for operating and accounting records in ONMACS are MACE 8.3 and FSE 7.
- 6) See above links to safeguards via the expected competence of staff with roles which may affect NMACS performance. Additionally, ONMACS provides guidance on ONR Safeguards expectations for the development of a suitable training programme (MACE 3.2) and on the maintenance of training records (MACE 3.4), for safeguards roles.
- 7) A licensee should have adequate processes that meet the expectations of both LC 4 and Schedule 2 (12) of NSR19, for safety and safeguards respectively.