



Department for  
Business, Energy  
& Industrial Strategy



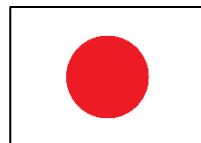
Office for  
Nuclear Regulation

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# NUCLEAR COOPERATION AGREEMENTS BETWEEN THE UNITED KINGDOM AND INTERNATIONAL PARTNERS

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Implementation Guidelines for Nuclear Operators



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# 1. Nuclear Cooperation Agreements

A Nuclear Cooperation Agreement (NCA) is a legally binding, bilateral Agreement negotiated between two States (or international bodies, such as Euratom) setting out their intention to, and framework for, cooperating in the civil nuclear sector. NCAs provide a high-level framework for cooperation but are not a requirement for the UK to trade in civil nuclear materials, equipment or technology with most countries. NCAs can facilitate responsible exports, but do not negate the need for export licences. Every NCA is different and is negotiated on a case-by-case basis. These agreements allow States to formally recognise their willingness to co-operate with each other on civil nuclear matters, and describe the terms of co-operation under the agreement.

Some international partners make the existence of NCAs a requirement for civil nuclear trade. Where this is the case, the terms of the agreement typically include obligations on the Parties such as:

- the requirement for co-operation under the NCA to be for exclusively peaceful purposes;
- the requirement for materials transferred under the NCA to be subject to nuclear safeguards as appropriate;
- the requirement to account for and control materials transferred under the NCA;
- the requirement to notify transfers of materials and items under the NCA and to seek consent for certain transfers of materials and items exchanged under the NCA to a third country; and
- ensuring appropriate levels of nuclear security, including physical protection, are applied to materials and items transferred under the NCA.

These obligations apply to all materials transferred under an NCA, and to materials produced, processed, derived, or fabricated from materials transferred under an NCA. These obligations apply until such material is re-transferred to another party, or until the Parties agree otherwise.

Although most countries do not require NCAs, four of the UK's major civil nuclear trading partners do: Australia, Canada, Japan and the US.

The UK may also decide to put in place an NCA with other international partners, on a case-by-case basis. The UK ensures any exports of relevant items are done in accordance with Nuclear Suppliers Group guidelines.

## Relevant International Agreements

Where a country requires NCAs in order to permit civil nuclear trade, and where there are resulting requirements for ongoing reporting, the UK characterises those NCAs as “relevant international agreements” for the purposes of section 112(1A) of the Energy Act 2013 through the [Nuclear Safeguards \(Fissionable Material and Relevant International Agreements\) \(EU Exit\) Regulations 2019](#) (the “NS (Fissionable Material) Regulations”).

Four NCAs, with Australia, Canada, Japan and the US, fall within the definition of “relevant international agreements”. These are described in greater detail in Annex I.

## **Obligations arising from international trade**

In some cases, there are obligations other than those arising from the NCAs specified as relevant international agreements in the NS (Fissionable Material) Regulations. These additional obligations arising from international trade are listed in Annex II of this guidance and cover a range of historic NCAs which applied to nuclear material, and separate obligations placed on material by the UK Government or the European Commission. This includes any material that is currently reported on using a "P code".

## **Other International Agreements**

The UK, for policy reasons, also has bilateral NCAs with China, India, Jordan, Republic of Korea, Russian Federation and the United Arab Emirates. This guidance does not apply to these other agreements. Operators will be notified of any requirements under these agreements on a case by case basis.

Internet links to the source texts of the above agreements can be found in Annex III of this guidance.

## **2. Competent Authorities**

Obligations within the relevant international agreements are administered by both the Office for Nuclear Regulation (ONR) and the Department for Business, Energy and Industrial Strategy (BEIS).

### **The Department for Business, Energy and Industrial Strategy**

Civil nuclear policy falls within the remit of the Secretary of State for Business, Energy and Industrial Strategy (BEIS). BEIS has overarching policy responsibility for the implementation of relevant international agreements with international partners, and provides recommendations on export licence applications with respect to nuclear materials and items. The point of contact within BEIS is:

International Nuclear Non-Proliferation and Security Team  
Department for Business, Energy and Industrial Strategy  
1 Victoria Street  
London, United Kingdom, SW1H 0ET

Email: [nsg.transfers@beis.gov.uk](mailto:nsg.transfers@beis.gov.uk)

### **The Office for Nuclear Regulation**

The Office for Nuclear Regulation (ONR) regulates nuclear safety, security and safeguards in the UK. This includes administering the UK's State System of Accounting for and Control of nuclear material (SSAC), and as such the ONR are responsible for ensuring the ongoing tracking of nuclear material which is subject to relevant international agreements.

The point of contact within the ONR is:

Civil Nuclear Security and Safeguards Division  
4N.3 Redgrave Court  
Merton Road  
Bootle, L20 7HS

Email: [UKSO@onr.gov.uk](mailto:UKSO@onr.gov.uk)

### 3. The purpose of this guidance

This guidance relates to special requirements arising from the relevant international agreements, so as to allow the UK to fulfil its obligations to international partners. This guidance also relates to the fulfilment of additional obligations arising from international trade.

To this end, this guidance informs judgements of compliance with the requirements of the **Nuclear Safeguards (EU Exit) Regulations 2019 (the “NS Regulations”)** and facilitates adequate and timely reporting by operators of qualifying nuclear facilities and ‘other relevant persons’ (referred to in regulations 44 to 49 of Part 13 of the NS Regulations) under the NS Regulations.

This guidance does not cover the wider obligations which are set out in the NS Regulations nor is it a comprehensive guide to wider import and export licensing requirements. Please refer to the additional guidance on these topics which can be found below:

- [Export Controls Joint Unit Guidance on Export Licensing](#)
- [ONR Guidance for the Assessment of Accountancy and Control Plans \(ACP\)](#)
- [ONR Guidance for the Assessment of Nuclear Material Accountancy, Control and Safeguards](#)
- [ONR guidance on Import Licensing Requirements](#)

In addition, please note that this guidance does not cover all transactions. Please contact BEIS or ONR Safeguards if further clarification is required. BEIS and ONR Safeguards intend to update this guidance when required.

#### **Obligation Code Accounting (Regulation 19 NS Regulations)**

Regulation 19 requires an operator to identify, separately for each obligation code published by the ONR in Annex V to this guidance, qualifying nuclear material which is subject to the relevant international agreements (as described in Annex I) or obligations arising from international trade (as set out in Annex II) associated with that obligation code. An operator must do this when it sends the following reports to the ONR:

- a) An initial book inventory provided for in regulation 13 of the NS Regulations;
- b) An inventory change report, including an ending book inventory, provided for in regulation 14 of the NS Regulations;
- c) A material balance report and a physical inventory listing provided for in regulation 15 of the NS Regulations; or
- d) Advance notification of intended imports and exports provided for in regulations 21 and 22 of the NS Regulations;

Qualifying nuclear material may become subject to a relevant international agreement upon receipt in the UK. It is intended that operators will be informed that qualifying material that they are due to receive is subject to a relevant international agreement when BEIS request an inward assurance (see ‘Requirements in advance of import’).

Please note that holders of qualifying nuclear material should also reference any relevant nuclear cooperation agreements to which the material is subject, or any peaceful use obligations arising from international trade that apply to the material, when applying for export licences (see 'Requirements in advance of export'), if known. If further information becomes available (e.g. relating to obligations) this should be provided when known.

## **Obligation Accounting when mixing Qualifying Nuclear Material**

When qualifying nuclear materials subject to a relevant international agreement or an obligation arising from international trade are mixed, processed or irradiated together with other materials, the materials produced should be allocated to an agreement or obligation in accordance with the **proportionality principle** (see Annex IV).

When material subject to an agreement or an obligation arising from international trade loses its separate identity, an equivalent quantity of nuclear material will be regarded as nuclear material subject to the agreement or obligation. The **principle of equivalence** is used in obligation exchanges or substitutions or obligation pool accounting.

**Obligation pool accountancy** may be agreed with the ONR in certain cases. These pool accountancy arrangements will respect certain conditions which include the principles of equivalence and proportionality. These provisions are set out in more detail in Annex IV of this guidance.

## **Obligation exchanges and substitutions**

The exchange of obligations between two batches of nuclear material or the temporary substitution of a batch of nuclear material may be approved on a case by case basis. During the approval process due consideration will be given to:

- a) the justification for the request, e.g. to avoid a physical transport;
- b) the equivalence between the batches involved.

The equivalence is based on the quality of the material; which includes the element mass for depleted uranium, natural uranium and plutonium, or on the mass of uranium 235 for low and high enriched uranium. For plutonium the energetic ratio is also considered, therefore the isotopic composition of plutonium batches must be declared.

Applications should be submitted to the ONR as far in advance as possible before the proposed date of obligation exchange. As well as a full background and justification for the code exchange, the following information on qualifying nuclear material located in the United Kingdom and, if applicable, another country, will be required:

- a) Owner of nuclear material
- b) Facility's name where nuclear material is located
- c) Intended date of obligation exchange
- d) Material category
- e) Element weight (isotope weight, if applicable)
- f) Physical form
- g) Chemical form

- h) End Use
- i) Third country obligations, if applicable

## **Notifications to the Secretary of State (Part 13 NS Regulations)**

Regulations 44 to 49 in part 13 of the NS Regulations require an operator to provide information to the Secretary of State in respect of non-nuclear material, by-product material, tritium, equipment, tritium-related equipment and technology which is subject to a relevant international agreement (a “relevant item”). This is because each of the relevant international agreements imposes obligations on the UK in respect of non-nuclear items as well as qualifying nuclear material.

The Secretary of State may also advise an operator that it holds or will receive a qualifying nuclear material that is subject to a relevant international agreement. Where such advice is given, Part 13 of the NS Regulations also requires that operator to provide information to the Secretary of State.

The relevant international agreements may apply to the following material and items:

- The **UK-Australia NCA** may apply to the following items: Nuclear Material, Non-Nuclear Material, Equipment, Components and Technology.
- The **UK-Canada NCA** may apply to the following items: Nuclear Material, Non-Nuclear Material, Tritium, Equipment, Tritium-Related Equipment and Technology.
- The **UK-Japan NCA** may apply to the following items: Nuclear Material, other specified material, and Equipment.
- The **UK-US NCA** may apply to the following items: Nuclear Material, Non-Nuclear Material, By-Product Material, Equipment, Components, Sensitive Nuclear Facilities, Major Critical Components and Sensitive Nuclear Technology.

Annex VI of this guidance describes the coverage of the relevant international agreements in greater detail.

Relevant items and notified qualifying nuclear material, which are subject to a relevant international agreement, are subject to the additional notification and reporting requirements set out in Part 13. These additional requirements include providing the Secretary of State with information on receipt, production and transfer. See the following sections for further information on these requirements:

- [Requirements upon shipment](#)
- [Requirements upon receipt](#)
- [Requirements relating to production, processing, derivation or fabrication](#)

Should an operator import relevant items to the UK, BEIS intends to inform the operator of their obligations in advance of the shipment(s) taking place. BEIS will write to the operator asking them to provide a declaration as to the use of the items and notifying them of any conditions specific to the relevant international agreement, or any related to Part 13.



Should an operator wish to export relevant items or notified qualifying nuclear material from the UK, full details should be provided in the export licence application, in accordance with the provisions that govern the export licence, and there may, in addition, be conditions applied to the licence relating to the specific requirements of the relevant international agreement.

## Requirements in advance of export

In advance of exporting any nuclear-related material or items, exporters should:

1. Ensure any required export licences are in place. All licence applications should be made electronically via the Export Control Joint Unit's online licensing system, [SPIRE](#). When making a licence application for the export of nuclear-related material and items:
  - a) Apply as far in advance as possible, and as soon as you are aware that an export of nuclear-related items may take place;
  - b) Attach all necessary documentation, including technical specifications and End User Undertakings, to your export licence application. See the guide on end-user and consignee undertakings for Standard Individual Export Licences and Open Individual Export Licences;
  - c) Name a point of contact in the end user organisation and give details on how to reach them (including direct telephone number, e-mail address). The details are passed to the government of the recipient as it is likely that they will need to contact them. This information is vital as we cannot process the application without it;
  - d) Include the mass of any material to be exported; and,
  - e) Include details about the context of your exports, including the end use, the wider project, and any similar exports that they expect to make in future. This can help BEIS to consolidate requests to international partners.

Additional guidance on the export licensing process can be found [here](#).

2. Ensure the following information regarding the specific proposed export is supplied to BEIS (and ONR in the case of qualifying nuclear material) as far in advance as possible (and at least 30 days prior to the proposed export taking place). In the case of qualifying nuclear material, this information may be provided in the form of an Advance Notification outlined in parts 5 and 6 of the NS Regulations. This will allow BEIS to ensure that all international obligations on the material or items are complied with:
  - a) Name and address of shipping facility;
  - b) Name and address of receiving facility;
  - c) End user;
  - d) Intended use;
  - e) Proposed date(s) of shipment;
  - f) Description of item(s) to be transferred (e.g. category, number of items, material description codes, chemical and physical form, Batch IDs);
  - g) Element weight;
  - h) Isotope weight, if applicable;
  - i) Origin of the material/item, if known;
  - j) Third country obligation (if applicable);
  - k) Shipment route (including estimated date(s) of arrival and departure from ports, transshipment points and the destination (including ports of entry));
  - l) Export licence number to which the specific export relates

Should this information not be known in full 30 days before the proposed export taking place, please provide as much information as possible and supplement with further updates as the information becomes available.

3. Comply with any conditions placed on the export licence before the export is undertaken.

## **Requirements upon shipment**

### Qualifying Nuclear Material

Operators must complete an Inventory Change Report under Regulation 14 of the NS Regulations for all inventory changes. This Inventory Change Report will identify, separately for each obligation any qualifying nuclear material that is subject to a relevant code published by the ONR in Annex V to this guidance. In most cases, this will allow the UK to comply with obligations to international partners without the requirement for additional information.

However further to this, for any qualifying nuclear material which is subject to an obligation under the UK-Australia NCA (identified by an S or T code, as set out in Annex V), or which will become subject to the UK-Australia NCA, companies should separately notify BEIS and the ONR within 5 days of shipment abroad taking place (this will be a condition of the export licence). This separate shipment notification should include the following information:

- a) Name and address of shipping facility;
- b) Name and address of receiving facility;
- c) End user;
- d) Date(s) of shipment;
- e) Description of item(s) to be transferred (e.g., category, number of items, material description codes, chemical and physical form, Batch IDs);
- f) Element weight;
- g) Isotope weight, if applicable;
- h) Third country obligation (if applicable);
- i) Shipment route (including estimated date(s) of arrival and departure from ports, transshipment points and the destination (including ports of entry));

### Items

For any shipments of relevant items under the relevant international agreements (as described in Part 13 of the NS Regulations), companies should comply with both regulation 45(c) of the NS Regulations and any conditions included in the export licence for these items. This is likely to include a requirement for companies to provide a shipment notification to BEIS which contains the following information:

- a) Name and address of shipping facility;
- b) Name and address of receiving facility;
- c) End user (if known);
- d) Date(s) of shipment;

- e) Description of item(s) to be transferred;
- f) Third country obligation (if applicable);
- g) Shipment route (including estimated date(s) of arrival and departure from ports, transshipment points and the destination (including ports of entry)).

## **Requirements in advance of import**

In advance of importing any Qualifying Nuclear Material or Items that will be subject to a relevant international agreement, operators will receive an inward assurance request which will be issued by BEIS. This inward assurance will be prompted by BEIS receiving a government-to-government assurance request, and may constitute written advice for the purpose of regulation 44 of the NS Regulations.

In order to allow the shipment to take place, operators must reply to this inward assurance request, copying in the ONR in the case of qualifying nuclear material.

## **Requirements upon receipt**

### Qualifying Nuclear Material

Operators must complete an Inventory Change Report under Regulation 14 of the NS Regulations for all inventory changes. This Inventory Change Report will identify, separately for each obligation any qualifying nuclear material that is subject to a relevant code published by the ONR in Annex V to this guidance. This will allow the UK to comply with obligations to international partners without the requirement for additional information.

### Items

Upon receipt of relevant items which are or will become subject to a relevant international agreement, companies should submit a receipt notification to BEIS under regulation 45 (a)(i) of the NS Regulations within 5 days of receipt. This receipt notification should contain the following information:

- a) Name and address of shipping facility;
- b) Name and address of receiving facility;
- c) End user (if known);
- d) Date(s) of receipt;
- e) Description of item(s) received;
- f) Third country obligation (if applicable);

## **Requirements relating to production, processing, derivation or fabrication**

The obligations contained in relevant international agreements extend to qualifying nuclear material and items that have been produced, processed, derived, or fabricated from another obligated item or from qualifying nuclear material. The extension of these obligations is addressed differently in each agreement due to differing international requirements.<sup>1</sup> If you believe that your operations will entail the production,

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<sup>1</sup> This is set out in the following articles of the agreements:

processing, derivation or fabrication of qualifying nuclear material or a relevant item from qualifying nuclear material or another relevant item that you have been made aware has been made subject to a relevant international agreement<sup>2</sup>, please contact BEIS or ONR Safeguards.

In the case of items (not including qualifying nuclear material) produced, processed, derived, or fabricated from a relevant item or from qualifying nuclear material subject to a relevant international agreement, operators are required to report on these activities to BEIS under regulation 45(b). This information should be provided to BEIS within a period of 5 days beginning with the day on which the event takes place, and should include details on the production, processing, derivation or fabrication and the name and address of the facility.

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- Article III (UK-Australia NCA)
  - Article IV (UK-Canada NCA)
  - Article III (UK-Japan NCA)
  - Throughout the agreement including Article IV (UK-US NCA). Article IV covers; Material, equipment, components, sensitive nuclear facilities, major critical components, and sensitive nuclear technology transferred pursuant to this Agreement and material used in or produced through the use of any nuclear material, non-nuclear material, equipment, components, sensitive nuclear facilities, major critical components, or sensitive nuclear technology so transferred.

<sup>2</sup> This encompasses non-nuclear material, equipment, technology or other items which are produced, processed, derived, fabricated, or obtained from other items subject to any of the relevant international agreements.

## Annex I - NCAs within the definition of “relevant international agreements”

Through the [NS \(Fissionable Material\) Regulations](#), the United Kingdom has specified the following NCAs as relevant international agreements:

1. The Agreement, done on 21 August 2018, between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of Australia on Cooperation in the Peaceful Uses of Nuclear Energy ([the UK-Australia NCA](#)<sup>3</sup>);
2. The Agreement, done on 2 November 2018, between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of Canada for Cooperation in the Peaceful Uses of Nuclear Energy ([the UK-Canada NCA](#)<sup>4</sup>);
3. The Agreement, done on 25 February 1998, between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of Japan for co-operation in the peaceful uses of nuclear energy ([the UK-Japan NCA](#)<sup>5</sup>); and,
4. The Agreement, done on 4 May 2018, between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the United States of America for Cooperation in Peaceful Uses of Nuclear Energy ([the UK-US NCA](#)<sup>6</sup>).

Internet links to the source texts of the above agreements can be found in the footnotes to this page.

For the avoidance of doubt, the [NS \(Fissionable Material\) Regulations](#) also include the UK/IAEA Agreement of 2018 within the definition of “relevant international agreement” but that is not included for the purposes of Regulation 19. This is because the UK/IAEA Agreement is not a Nuclear Cooperation Agreement between the UK and another state and its requirements are set out elsewhere in the NS Regulations.

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<sup>3</sup> <https://www.gov.uk/government/publications/cs-australia-no12018-ukaustralia-agreement-for-cooperation-in-the-peaceful-uses-of-nuclear-energy>

<sup>4</sup> <https://www.gov.uk/government/publications/cs-canada-no12018-ukcanada-agreement-for-cooperation-in-the-peaceful-uses-of-nuclear-energy>

<sup>5</sup> <http://foto.archivalware.co.uk/data/Library2/pdf/1999-TS0036.pdf>

<sup>6</sup> <https://www.gov.uk/government/publications/cs-usa-no12018-ukusa-agreement-for-cooperation-in-peaceful-uses-of-nuclear-energy>

## Annex II - Obligations/Requirements Resulting from International Trade

“Obligations or requirements resulting from international trade” are listed in regulation 19 of the NS Regulations and means any of the following obligations or requirements to ensure that qualifying nuclear material is only available for peaceful purposes:

1. the Agreement for co-operation in the peaceful uses of nuclear energy between the European Atomic Energy Community and the Government of the Republic of Kazakhstan, signed in Brussels on 5 December 2006;
2. the Agreement for co-operation in the peaceful uses of nuclear energy between the European Atomic Energy Community and the Government of the Republic of Uzbekistan, signed in Brussels on 6 October 2003;
3. the Agreement between the European Atomic Energy Community and the Cabinet of Ministers of Ukraine for Co-operation in the Peaceful Uses of Nuclear Energy, signed in Kiev on 28 April 2005;
4. the Agreement for co-operation in the peaceful uses of nuclear energy between the European Atomic Energy Community (Euratom) and the Government of the Argentine Republic, signed at Brussels, on 11 June 1996;
5. the Agreement between the European Atomic Energy Community (Euratom) and the Government of the United States of Brazil for cooperation concerning the peaceful uses of atomic energy, signed at Brasilia, on 9 June 1961;
6. a contract, to which the operator is a party, concluded before the commencement date on the basis of Articles 52(2), 64, 75(c) or another relevant provision in Chapter 6 of the Treaty establishing the European Atomic Energy Community<sup>7</sup>; and
7. a requirement, which is set out in a licence issued by the ONR under the Import of Goods (Control) Order 1954 or an order made by the Secretary of State under section 1 of the Import, Export and Customs Powers (Defence) Act 1939, either before, on or after the commencement date, and is imposed on an operator in respect of qualifying nuclear material which has been transferred into the United Kingdom and is held by the operator.<sup>8</sup>

This guidance does not provide general guidance on obligations and requirements resulting from international trade but considers what actions an operator is required to take under Regulation 19 in respect of any qualifying nuclear material which is subject to those obligations and requirements.

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<sup>7</sup> This relates to peaceful use obligations placed on nuclear material via a contract for the supply of nuclear material, concurred by the European Supply Agency, and concluded before the commencement date of the NS Regulations.

<sup>8</sup> This relates to peaceful use obligations on nuclear material as notified to operators via an inwards assurance request issued by BEIS.

## Annex III - Other International Agreements to which the UK is a party

For policy reasons, the UK has the below NCAs in place which are in addition to those specified as relevant international agreements. Internet links to the source texts of these agreements can be found in the footnotes of this page.

1. The Agreement, done on 3 June 1985, between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the People's Republic of China for Co-operation in the Peaceful Uses of Nuclear Energy ([the UK-China NCA](#)<sup>9</sup>);
2. The Agreement, done on 13 November 2015, between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of India for Co-Operation in the Peaceful Uses of Nuclear Energy ([the UK-India NCA](#)<sup>10</sup>);
3. The Agreement, done on 22 June 2009, between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the Hashemite Kingdom of Jordan for Co-operation in the Peaceful Uses of Nuclear Energy ([the UK-Jordan NCA](#)<sup>11</sup>);
4. The Agreement, done on 27 November 2009, between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the Republic of Korea for Co-operation in the Peaceful Uses of Nuclear Energy ([the UK-ROK NCA](#)<sup>12</sup>);
5. The Agreement, done on 3 September 1996, between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the Russian Federation on Co-operation in the Peaceful Uses of Nuclear Energy ([the UK-Russia NCA](#)<sup>13</sup>); and,
6. The Agreement, done on 25 November 2010, between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the United Arab Emirates for Co-operation in the Peaceful Uses of Nuclear Energy ([the UK-UAE NCA](#)<sup>14</sup>).

This guidance does not apply to these agreements.

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<sup>9</sup> <http://foto.archivalware.co.uk/data/Library2/pdf/1985-TS0060.pdf>

<sup>10</sup> <http://foto.archivalware.co.uk/data/Library2/pdf/2017-TS0001.pdf>

<sup>11</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/238515/7734.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/238515/7734.pdf)

<sup>12</sup> <http://foto.archivalware.co.uk/data/Library2/pdf/1992-TS0038.pdf>

<sup>13</sup> <http://foto.archivalware.co.uk/data/Library2/pdf/1996-TS0107.pdf>

<sup>14</sup> <http://foto.archivalware.co.uk/data/Library2/pdf/2012-TS0009.pdf>



# Annex IV - Obligation Pool Accounting

## INTRODUCTION

“Obligation” is a term used to describe safeguards commitments entered into by the UK in a Nuclear Co-operation Agreement (NCA) concluded with another State or international organisation.<sup>15</sup> Nuclear material obligation accounting is the means of monitoring compliance with these commitments for nuclear material.

The States/Parties to NCAs may agree that the necessary accounting control does not require full obligation accounting at the individual item level and that some or all material within one or more Material Balance Areas (“MBAs”) may be grouped together for the purposes of obligation accountancy. Obligation accountancy for such MBA groupings is termed pool accountancy.

Pool accountancy may be agreed for different cases (e.g. all material types in the MBA or only certain material types in certain MBAs). The basic unit for pool accountancy is the material category (e.g. natural uranium pool, plutonium pool, etc.) and its state (e.g. irradiated or unirradiated, direct use or indirect use). However, NCAs can provide for exceptions to this, for example, in the case of an enrichment plant. NCAs may also specify that pool accountancy arrangements are limited to other particular stages of the fuel cycle or material states (e.g. a pool for unirradiated direct use material).

Where a pool has been agreed, a book inventory summary at month end for the whole pool separately by category and for each particular obligation must be submitted to ONR by the pool operator. All balances must be zero or greater and must be consistent with the physical reality of material in the pool.

The precise requirements for establishing a pool will be determined between ONR and individual operators on a case by case basis. Pools existing under Euratom jurisdiction may recommence under the UK system, and their initial inventory shall be the closing inventory reported to Euratom. Operators may contact ONR for further information.

## PRINCIPLES OF EQUIVALENCE AND PROPORTIONALITY

Pool accountancy arrangements have to respect the principles of equivalence and proportionality.

### Principle of Equivalence

When, for operational reasons, nuclear material subject to a NCA loses its separate identity, or is deemed to have lost it, an equivalent quantity of nuclear material will be regarded as nuclear material subject to the NCA. The principle of equivalence is based on the understanding that atoms and molecules of any substance are indistinguishable from one another and are therefore interchangeable.

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<sup>15</sup> There are other obligations referred to in this guidance, but this Annex relates to safeguards obligations specifically.

The principle of equivalence cannot be used to reduce the quality of a quantity of nuclear material subject to the NCA, except where the parties so decide. Material quality is a function of factors such as isotopic composition and its state or form (e.g. irradiated or unirradiated), and detailed criteria have been developed for determining equivalence (e.g. in respect of obligation swaps). The principle of equivalence does not however constrain the process of enrichment, where the overall quality of input material is maintained. Nor does it reduce the rights of the holder of nuclear material to perform other normal commercial operations involving natural, depleted or low enriched uranium (e.g. blending or irradiation), which may have the effect of reducing the quality of nuclear material. The system of accounting will not need to keep track of the particular nuclear material originally subject to the NCA but it will at all times account for an equivalent quantity (i.e. the physical balance for a process or area must always reconcile with the sum of all the obligation codes for the material involved<sup>16</sup>).

It is understood that according to the principle of equivalence, nuclear material subject to the NCA need not be physically identified at any given facility.

### **Proportionality Principle**

The proportionality principle provides that where obligated nuclear material is mixed with other nuclear material, and is processed or irradiated, a proportion of the resulting material will be regarded as obligated nuclear material corresponding to the same proportion as it was initially.

The appropriate method of calculating the amount of nuclear material subject to the NCA which is produced or consumed in accordance with the proportionality principle will depend on the circumstances (e.g. the process concerned):

- for plutonium, thorium, depleted and natural uranium the proportion is calculated by using the element mass.
- for enriched uranium the proportion is based upon the mass of uranium 235 and/or uranium 233;
- process discards, other operating losses and material unaccounted for (MUF) are allocated in the same way. The accounting (i.e. the allocation to each obligation) may be based either upon safeguards data or upon commercially agreed figures (i.e. contractual tolerances). If the latter are used the recording and reporting modalities must be agreed with ONR Safeguards.

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<sup>16</sup> Those obligation codes are listed in Annex V.

## Annex V - Particular Safeguard Obligation Codes

At present obligation codes fall into three main groups:

Code	Obligations
	Nuclear Cooperation Agreements
<b>A</b>	All material subject to the UK-US NCA
<b>C</b>	All material subject to the UK-Canada NCA
<b>D</b>	All material subject to the UK-US NCA <u>and</u> UK-Canada NCA
<b>S</b>	All material subject to the UK-Australia NCA
<b>T</b>	All material subject to the UK-US NCA <u>and</u> UK-Australia NCA
	Peaceful Use
<b>P</b>	All material (other than that described by the codes above) supplied subject to a peaceful use clause, including those obligations resulting from international trade listed in Annex II.
	Not subject to defined safeguarding obligations
<b>N</b>	All material which does not fall into one of the above groups, but which are nevertheless subject to Safeguards under the NS Regulations.

## Annex VI - Coverage of each relevant international agreement

When considering compliance with the NS Regulations, operators may need to consider whether their material/items are covered by the terms of a relevant international agreement. The coverage of the four relevant international agreements are set out below for reference.

### The UK-Australia NCA

The Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of Australia on Cooperation in the Peaceful Uses of Nuclear Energy may apply to the items specified below:

Items	Definition
Nuclear Material	Means any “source material” or “special fissionable material” as those terms are defined in Article XX of the Statute of the IAEA done on 26 October 1956.
Non-Nuclear Material	Means deuterium and heavy water and nuclear grade graphite listed in Annex B of IAEA document INFCIRC/254/Part 1.
Equipment	Means those items listed in Annex B of IAEA document INFCIRC/254/Part 1 (except Non-Nuclear Material).
Components	Means a component part of equipment or other item, so determined by the Parties in writing through diplomatic channels.
Technology	Has the meaning provided in the Agency document INFCIRC/254/Rev.13/Part 1, as revised from time to time.

### The UK-Canada NCA

The Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of Canada on Cooperation in the Peaceful Uses of Nuclear Energy may apply to the items specified below:

Items	Definition
Nuclear Material	Means any “source material” or “special fissionable material” as those terms are defined in Article XX of the Statute of the IAEA done on 26 October 1956.
Non-Nuclear Material	Means deuterium and heavy water and nuclear grade graphite listed in Annex B of IAEA document INFCIRC/254/Part 1.
Tritium	Means compounds and mixtures which contain tritium in which the ratio of tritium to hydrogen by atoms is greater than 1 part per 1000.
Equipment	Means those items listed in Annex B of IAEA document INFCIRC/254/Part 1 (except Non-Nuclear Material).
Tritium-Related Equipment	Means equipment, plants or facilities for the production, recovery, extraction, concentration, handling or storage of tritium.
Technology	Means technical data, software, or technical assistance that the supplier Party has designated, prior to transfer, as being relevant in terms of non-proliferation and important for the design, production, operation or maintenance of equipment or tritium-related equipment for the processing of nuclear material, non-nuclear material or tritium.

### The UK-Japan NCA

The Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of Japan on Cooperation in the Peaceful Uses of Nuclear Energy may apply to the items specified below:

<b>Items</b>	<b>Definition</b>
Material	Means substances listed in Part B of Annex A of the UK-Japan NCA but does not include nuclear material.
Nuclear Material	Means (i) Source Material and (ii) Special Fissionable Material as defined in the UK-Japan NCA.
Equipment	Means major parts of machinery, plant or instrumentation or major components thereof, specified in Annex A of the agreement.

### The UK-US NCA

The Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the United States of America on Cooperation in the Peaceful Uses of Nuclear Energy may apply to the items specified below:

<b>Items</b>	<b>Definition</b>
Nuclear Material	Means any "source material" or "special fissionable material" as those terms are defined in Article XX of the Statute of the IAEA done on 26 October 1956.
Non-Nuclear Material	Means heavy water or nuclear-grade graphite for nuclear use, or any other such material so designated.
By-Product Material	Means any radioactive material (except special fissionable material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special fissionable material. (Designed to cover Tritium derived from nuclear material subject to the agreement).
Equipment	Means any reactor as a complete unit (other than one designed or used primarily for the production of plutonium or uranium-233), reactor pressure vessel, reactor calandria, complete reactor control rod drive system, reactor primary coolant pump, on-line reactor fuel charging and discharging machine or any other item so designated.
Components	Means a component part of equipment or other item so designated.
Sensitive Nuclear Facilities	Means any facility designed or used primarily for uranium enrichment, reprocessing of irradiated nuclear material, heavy water production, or fabrication of nuclear fuel containing plutonium.
Major Critical Components	Means any part or group of parts essential in the operation of a sensitive nuclear facility.
Sensitive Nuclear Technology	Means any information, including information that is incorporated in equipment or an important component, that is not in the public domain and is important to the design, construction, fabrication, operation or maintenance of any sensitive nuclear facility, or any other such information that may be so designated.