



Miscellaneous Series No. 13 (2018)

# Agreement

between the United Kingdom of Great Britain and Northern Ireland and  
the International Atomic Energy Agency for the Application of  
Safeguards in the United Kingdom of Great Britain and Northern  
Ireland in Connection with the Treaty on the Non-Proliferation of  
Nuclear Weapons

Vienna, 7 June 2018

[The Agreement has not entered into force for the United Kingdom]

*Presented to Parliament  
by the Secretary of State for Foreign and Commonwealth Affairs  
by Command of Her Majesty  
November 2018*

Cm 9733



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**AGREEMENT BETWEEN THE UNITED KINGDOM OF GREAT  
BRITAIN AND NORTHERN IRELAND AND THE INTERNATIONAL  
ATOMIC ENERGY AGENCY FOR THE APPLICATION OF  
SAFEGUARDS IN THE UNITED KINGDOM OF GREAT BRITAIN AND  
NORTHERN IRELAND IN CONNECTION WITH THE TREATY ON THE  
NON-PROLIFERATION OF NUCLEAR WEAPONS**

WHEREAS the United Kingdom of Great Britain and Northern Ireland (hereinafter referred to as “the United Kingdom”) is a party to the Treaty on the Non-Proliferation of Nuclear Weapons (hereinafter referred to as “the Treaty”) which was opened for signature at London, Moscow and Washington on 1 July 1968 and which entered into force on 5 March 1970;

WHEREAS States party to the Treaty have undertaken to co-operate in facilitating the application of the safeguards of the International Atomic Energy Agency (hereinafter referred to as “the Agency”) to peaceful nuclear activities;

WHEREAS non-nuclear-weapon States party to the Treaty have undertaken to accept safeguards, as set forth in agreements to be negotiated and concluded with the Agency, on all source or special fissionable material in all peaceful nuclear activities within their territories, under their jurisdiction or carried out under their control anywhere, for the exclusive purpose of verifying that such material is not diverted to nuclear weapons or other nuclear explosive devices;

WHEREAS the United Kingdom, as a nuclear-weapon State within the meaning of the Treaty, has throughout desired to encourage widespread adherence to the Treaty by demonstrating to non-nuclear-weapon States that they would not be placed at a commercial disadvantage by reason of the application of safeguards pursuant to the Treaty;

WHEREAS the United Kingdom, to this end, has stated that at such time as international safeguards are put into effect in non-nuclear-weapon States in implementation of the provisions of the Treaty, it would be prepared to offer an opportunity for the application of similar safeguards in the United Kingdom subject to exclusions for national security reasons only;

NOTING that the United Kingdom has declared its intention to continue to accept the application of safeguards by the Agency, subject to exclusions for national security reasons only;

WHEREAS the Agency’s international safeguards system referred to in the Treaty comprises, in particular, provisions for the submission of design information to the Agency, the keeping of records, the submission to the Agency of reports on all nuclear material subject to safeguards, inspections carried out by the Agency’s inspectors, requirements for the establishment and maintenance of a system of accounting for and control of nuclear material by the State, and measures in relation to verification of non-diversion;

WHEREAS the Agency is authorized under Article III.A.5 of the Statute of the Agency (hereinafter referred to as “the Statute”), to apply safeguards, at the request of the parties, to any bilateral or multilateral arrangement, or at the request of a State, to any of that State’s activities in the field of atomic energy;

NOW, THEREFORE, the United Kingdom and the Agency have agreed as follows:

## PART I

### **Basic Undertaking**

#### ARTICLE 1

- (a) The United Kingdom shall accept the application of safeguards, in accordance with the terms of this Agreement, on all source or special fissionable material in facilities or parts thereof within the United Kingdom, subject to exclusions for national security reasons only, with a view to enabling the Agency to verify that such material is not, except as provided for in this Agreement, withdrawn from civil activities.
- (b) The United Kingdom shall, upon entry into force of this Agreement, provide the Agency with a list (hereinafter referred to as "the Facilities List") of the facilities or parts thereof which contain the nuclear material referred to in paragraph (a) of this Article. The United Kingdom shall keep the Facilities List up to date and may at any time make deletions from it for national security reasons. The United Kingdom shall give the Agency advance notice of any additions or deletions.
- (c) Whenever the United Kingdom withdraws nuclear material referred to in paragraph (a) of this Article from the scope of this Agreement for national security reasons, it shall notify the Agency in accordance with the provisions of this Agreement.

### **Application of Safeguards**

#### ARTICLE 2

The Agency shall have the right and the obligation to ensure that safeguards are applied, in accordance with the terms of this Agreement, on all source or special fissionable material in those facilities or parts of facilities within the United Kingdom which are both on the Facilities List and designated pursuant to Article 76(a), with a view to enabling the Agency to verify that such material is not, except as provided for in this Agreement, withdrawn from civil activities. In respect of such facilities or parts thereof which are on the Facilities List but not so designated the Agency shall have the rights provided for in this Agreement.

## **Co-Operation between the United Kingdom and the Agency**

### ARTICLE 3

The United Kingdom and the Agency shall co-operate to facilitate the implementation of the safeguards provided for in this Agreement.

### **Implementation of Safeguards**

### ARTICLE 4

The safeguards provided for in this Agreement shall be implemented in a manner designed:

- (a) to avoid hampering economic and technological development in the United Kingdom or international co-operation in the field of peaceful nuclear activities, including international exchange of nuclear material;
- (b) to avoid undue interference in peaceful nuclear activities in the United Kingdom, and in particular in the operation of facilities; and
- (c) to be consistent with prudent management practices required for the economic and safe conduct of nuclear activities.

### ARTICLE 5

- (a) The Agency shall take every precaution to protect commercial and industrial secrets and other confidential information coming to its knowledge in the implementation of this Agreement.
- (b)
  - (i) The Agency shall not publish or communicate to any State, organization or person any information obtained by it in connection with the implementation of this Agreement, except that specific information relating to the implementation thereof may be given to the Board of Governors of the Agency (hereinafter referred to as "the Board") and to such Agency staff members as require such knowledge by reason of their official duties in connection with safeguards, but only to the extent necessary for the Agency to fulfil its responsibilities in implementing this Agreement.
  - (ii) Summarized information on nuclear material subject to safeguards under this Agreement may be published upon decision of the Board if the United Kingdom agrees thereto.

## ARTICLE 6

- (a) The Agency shall, in implementing safeguards under this Agreement, take full account of technological developments in the field of safeguards, and shall make every effort to ensure optimum cost-effectiveness and the application of the principle of safeguarding effectively the flow of nuclear material subject to safeguards under this Agreement by use of instruments and other techniques at certain strategic points to the extent that present or future technology permits.
- (b) In order to ensure optimum cost-effectiveness, use shall be made, for example, of such means as:
  - (i) containment as a means of defining material balance areas for accounting purposes;
  - (ii) statistical techniques and random sampling in evaluating the flow of nuclear material; and
  - (iii) concentration of verification procedures on those stages in the nuclear fuel cycle involving the production, processing, use or storage of nuclear material from which nuclear weapons or other nuclear explosive devices could readily be made, and minimization of verification procedures in respect of other nuclear material, on condition that this does not hamper the implementation of this Agreement.

### **System of Accounting for and Control of Nuclear Material of the United Kingdom**

## ARTICLE 7

- (a) The United Kingdom shall establish and maintain a system of accounting for and control of all nuclear material subject to safeguards under this Agreement.
- (b) The Agency shall apply safeguards in accordance with the terms of this Agreement in such a manner as to enable the Agency to verify, in ascertaining that nuclear material which is being safeguarded in facilities or parts thereof designated in accordance with Article 76(a) is not withdrawn from civil activities, except as provided for in this Agreement, findings of the accounting and control system of the United Kingdom. The Agency's verification shall include, inter alia, independent measurements and observations conducted by the Agency in accordance with the procedures specified in Part II. The Agency, in its verification, shall take due account of the technical effectiveness of the system of the United Kingdom.

## **Provision of Information to the Agency**

### ARTICLE 8

- (a) In order to ensure the effective implementation of safeguards under this Agreement, the United Kingdom shall, in accordance with the provisions set out in this Agreement, provide the Agency with information concerning nuclear material subject to such safeguards and features of facilities or parts thereof relevant to safeguarding such material.
- (b)
  - (i) The Agency shall require only the minimum amount of information and data consistent with carrying out its responsibilities under this Agreement.
  - (ii) Information pertaining to facilities or parts thereof shall be the minimum necessary for safeguarding nuclear material subject to safeguards under this Agreement.
- (c) If the Agency wishes to examine design information which the United Kingdom regards as being of particular sensitivity, the Agency shall, if the United Kingdom so requests, conduct the examination on premises of the United Kingdom. Such information need not be physically transmitted to the Agency provided that it remains readily available for examination by the Agency on such premises.

### **Agency Inspectors**

### ARTICLE 9

- (a)
  - (i) The Agency shall secure the consent of the United Kingdom to the designation of Agency inspectors to the United Kingdom.
  - (ii) If the United Kingdom, either upon proposal of a designation or at any other time after a designation has been made, objects to the designation, the Agency shall propose to the United Kingdom an alternative designation or designations.
  - (iii) If, as a result of the repeated refusal of the United Kingdom to accept the designation of Agency inspectors, inspections to be conducted under this Agreement would be impeded, such refusal shall be considered by the Board, upon referral by the Director General of the Agency (hereinafter referred to as "the Director General"), with a view to its taking appropriate action.



- (b) The United Kingdom shall take the necessary steps to ensure that Agency inspectors can effectively discharge their functions under this Agreement.
- (c) The visits and activities of Agency inspectors shall be so arranged as:
  - (i) to reduce to a minimum the possible inconvenience and disturbance to the United Kingdom and to the peaceful nuclear activities subject to inspection; and
  - (ii) to ensure protection of industrial secrets or any other confidential information coming to the knowledge of Agency inspectors.

### **Privileges and Immunities**

#### ARTICLE 10

The United Kingdom shall apply to the Agency, including its property, funds and assets, and to its inspectors and other officials performing functions under this Agreement, the relevant provisions of the Agreement on the Privileges and Immunities of the International Atomic Energy Agency.

### **Consumption or Dilution of Nuclear Material**

#### ARTICLE 11

Safeguards under this Agreement shall terminate on nuclear material upon determination by the Agency that the material has been consumed, or has been diluted in such a way that it is no longer usable for any nuclear activity relevant from the point of view of safeguards, or that its recovery has become impracticable.

### **Transfer of Nuclear Material out of the United Kingdom**

#### ARTICLE 12

The United Kingdom shall provide the Agency with information with respect to transfers of nuclear material subject to safeguards under this Agreement out of the United Kingdom, in accordance with Article 89. The Agency shall keep records of each such transfer and, where applicable, of the re-application of safeguards to the transferred nuclear material.

## **Provisions relating to Nuclear Material, to be used in Non-Nuclear Activities**

### ARTICLE 13

If the United Kingdom wishes to use nuclear material subject to safeguards under this Agreement in non-nuclear activities, such as the production of alloys or ceramics, it shall agree with the Agency, before the material is so used, on the circumstances under which safeguards under this Agreement on such material may be terminated.

### **Exclusions on Grounds of National Security**

### ARTICLE 14

If the United Kingdom intends to make any withdrawals of nuclear material from the scope of this Agreement for national security reasons in accordance with Article 1(c), it shall give the Agency advance notice of such withdrawal. If any nuclear material becomes available for inclusion within the scope of this Agreement because its exclusion for national security reasons is no longer required, the United Kingdom shall inform the Agency thereof in accordance with Article 60(c).

### **Finance**

### ARTICLE 15

The United Kingdom and the Agency shall bear their own expenses incurred in implementing their respective responsibilities under this Agreement. However, if the United Kingdom or persons under its jurisdiction incur extraordinary expenses as a result of a specific request by the Agency, the Agency shall reimburse such expenses provided that it has agreed in advance to do so. In any case, the Agency shall bear the cost of any additional measuring or sampling which inspectors may request.

### **Third Party Liability for Nuclear Damage**

### ARTICLE 16

The United Kingdom shall ensure that any protection against third party liability in respect of nuclear damage, including any insurance or other financial security which may be available under its laws or regulations, shall apply to the Agency and its officials for the purpose of the implementation of this Agreement, in the same way as that protection applies to nationals of the United Kingdom.

## **International Responsibility**

### ARTICLE 17

Any claim by the United Kingdom against the Agency or by the Agency against the United Kingdom in respect of any damage resulting from the implementation of safeguards under this Agreement, other than damage arising out of a nuclear incident, shall be settled in accordance with international law.

## **Measures in Relation to Verification**

### ARTICLE 18

If the Board, upon report of the Director General, decides that an action by the United Kingdom is essential and urgent in order to ensure verification that nuclear material which is being safeguarded in facilities or parts thereof designated in accordance with Article 76(a) is not withdrawn from civil activities, except as provided for in this Agreement, the Board may call upon the United Kingdom to take the required action without delay, irrespective of whether procedures have been invoked pursuant to Article 22 for the settlement of a dispute.

### ARTICLE 19

If the Board, upon examination of relevant information reported to it by the Director General, finds that the Agency is not able to verify that nuclear material which is being safeguarded in facilities or parts thereof designated in accordance with Article 76(a) is not withdrawn from civil activities, except as provided for in this Agreement, the Board may call upon the United Kingdom to remedy the situation forthwith. If the United Kingdom fails to take remedial action within a reasonable time, the Board may make the reports provided for in Article XII(C) of the Statute and may also take, where applicable, the other measures provided for in that paragraph.

## **Interpretation and Application of the Agreement and Settlement of Disputes**

### ARTICLE 20

The United Kingdom and the Agency shall, at the request of either, consult about any question arising out of the interpretation or application of this Agreement.

## ARTICLE 21

The United Kingdom shall have the right to request that any question arising out of the interpretation or application of this Agreement be considered by the Board. The Board shall invite the United Kingdom to participate in the discussion of any such question by the Board.

## ARTICLE 22

Any dispute arising out of the interpretation or application of this Agreement, except a dispute with regard to a finding by the Board under Article 19 or an action taken by the Board pursuant to such finding, which is not settled by negotiation or another procedure agreed to by the United Kingdom and the Agency shall, at the request of either, be submitted to an arbitral tribunal composed as follows: the United Kingdom and the Agency shall each designate one arbitrator, and the two arbitrators so designated shall elect a third, who shall be the Chairperson. If, within thirty days of the request for arbitration, either the United Kingdom or the Agency has not designated an arbitrator, either the United Kingdom or the Agency may request the President of the International Court of Justice to appoint an arbitrator. The same procedure shall apply if, within thirty days of the designation or appointment of the second arbitrator, the third arbitrator has not been elected. A majority of the members of the arbitral tribunal shall constitute a quorum, and all decisions shall require the concurrence of two arbitrators. The arbitral procedure shall be fixed by the tribunal. The decisions of the tribunal shall be binding on the United Kingdom and the Agency.

## ARTICLE 23

- (a) The United Kingdom and the Agency shall institute steps to suspend the application of Agency safeguards in the United Kingdom under other safeguards agreements with the Agency while this Agreement is in force. However, the United Kingdom and the Agency shall ensure that nuclear material being safeguarded under this Agreement shall be at all times at least equivalent in amount and composition to that which would be subject to safeguards in the United Kingdom under the agreements in question. The detailed arrangements for the implementation of this provision shall be specified in the Subsidiary Arrangements provided for in Article 38.
- (b) If the United Kingdom notifies the Agency of further agreements relating to the application of safeguards in connection with the supply of nuclear material to the United Kingdom, the United Kingdom and the Agency shall consult together in order to arrange for the extension, in such circumstances, of the arrangements described in paragraph (a).

## **Amendment of the Agreement**

### ARTICLE 24

- (a) The United Kingdom and the Agency shall, at the request of either, consult about any proposal for amendment of this Agreement.
- (b) All amendments shall require the agreement of the United Kingdom and the Agency.
- (c) The Director General shall promptly inform all Member States of the Agency of any amendment to this Agreement.

## **Entry Into Force and Duration**

### ARTICLE 25

- (a) This Agreement shall enter into force in accordance with a notification by the United Kingdom to the Agency that specifies the point in time at which this Agreement shall enter into force, which shall be no earlier than one month after the date of the receipt of such notification by the Agency. The Director General shall also promptly inform all Member States of the Agency of the entry into force of this Agreement.
- (b) This Agreement shall remain in force so long as the United Kingdom is party to the Treaty. However, either party to this Agreement may, upon giving six months' notice to the other party, terminate this Agreement if after consultation with them that party considers that the purpose for which this Agreement was intended can no longer be served.

## **PART II**

### **Introduction**

### ARTICLE 26

The purpose of this part of the Agreement is to specify, as required, the procedures to be applied in the implementation of the safeguards provisions of Part I.

## **Objective of Safeguards**

### ARTICLE 27

The objective of the safeguards procedures set forth in this part of the Agreement is the timely detection of withdrawal from civil activities, except as provided for in this Agreement, of significant quantities of nuclear material which is being safeguarded in facilities or parts thereof designated pursuant to Article 76(a).

### ARTICLE 28

For the purpose of achieving the objectives set forth in Article 27, material accountancy shall be used as a safeguards measure of fundamental importance, with surveillance and containment as important complementary measures.

### ARTICLE 29

The technical conclusion of the Agency's verification activities shall be a statement, in respect of each material balance area containing material which is being safeguarded in facilities or parts thereof designated pursuant to Article 76(a), of the amount of material unaccounted for over a specific period, and giving the limits of accuracy of the amounts stated.

### **The United Kingdom's System of Accounting for and Control of Nuclear Material**

### ARTICLE 30

Pursuant to Article 7, the Agency, in carrying out its verification activities, shall make full use of the United Kingdom's system of accounting for and control of all nuclear material subject to safeguards under this Agreement and shall avoid unnecessary duplication of the United Kingdom's accounting and control activities.

### ARTICLE 31

The United Kingdom's system of accounting for and control of nuclear material under this Agreement shall be based on a structure of material balance areas and shall make provision, as appropriate and specified in the Subsidiary Arrangements, for the establishment of such measures as:

- (a) a measurement system for the determination of the quantities of nuclear material received, produced, shipped, lost or otherwise removed from inventory, and the quantities on inventory;

- (b) the evaluation of precision and accuracy of measurements and the estimation of measurement uncertainty;
- (c) procedures for identifying, reviewing and evaluating differences in shipper/ receiver measurements;
- (d) procedures for taking a physical inventory;
- (e) procedures for the evaluation of accumulations of unmeasured inventory and unmeasured losses;
- (f) a system of records and reports showing, for each material balance area, the inventory of nuclear material and the changes in that inventory including receipts into and transfers out of the material balance area;
- (g) provisions to ensure that the accounting procedures and arrangements are being operated correctly; and
- (h) procedures for the provision of reports to the Agency in accordance with Articles 57 to 63 and 65 to 67.

### **Starting Point of Safeguards**

#### ARTICLE 32

Safeguards under this Agreement shall not apply to material in mining or ore processing activities.

#### ARTICLE 33

Safeguards under this Agreement shall not apply to uranium or thorium until they have reached the stage of the nuclear fuel cycle where they are of a composition and purity suitable for fuel fabrication or isotopic enrichment.

## **Termination of Safeguards**

### ARTICLE 34

- (a) Safeguards under this Agreement shall terminate on nuclear material under the conditions set forth in Article 11. When the conditions of that Article are not met but the United Kingdom considers that the recovery of nuclear material subject to safeguards under this Agreement from residues is not for the time being practicable or desirable, the United Kingdom and the Agency shall consult on the appropriate safeguards measures to be applied.
- (b) Safeguards under this Agreement shall terminate on nuclear material in the circumstances referred to in Article 13, provided that the United Kingdom and the Agency agree that the recovery of such material is impracticable.

## **Exemptions from Safeguards**

### ARTICLE 35

At the request of the United Kingdom, the Agency shall exempt nuclear material from safeguards under this Agreement, as follows:

- (a) special fissionable material, when it is used in gram quantities or less as a sensing component in instruments;
- (b) nuclear material, when it is used in non-nuclear activities in accordance with Article 13, if such nuclear material is recoverable; and
- (c) plutonium with an isotopic concentration of plutonium-238 exceeding 80%.

### ARTICLE 36

At the request of the United Kingdom, the Agency shall exempt from safeguards under this Agreement nuclear material that would otherwise be subject to such safeguards, provided that the total quantity of nuclear material which has been exempted in the United Kingdom in accordance with this Article may not at any time exceed:

- (a) one kilogram in total of special fissionable material, which may consist of one or more of the following:
  - (i) plutonium;



- (ii) uranium with an enrichment of 0.2 (20%) and above, taken account of by multiplying its weight by its enrichment; and
  - (iii) uranium with an enrichment below 0.2 (20%) and above that of natural uranium, taken account of by multiplying its weight by five times the square of its enrichment;
- (b) ten metric tons in total of natural uranium and depleted uranium with an enrichment above 0.005 (0.5%);
  - (c) twenty metric tons of depleted uranium with an enrichment of 0.005 (0.5%) or below; and
  - (d) twenty metric tons of thorium;

or such greater amounts as may be specified by the Board for uniform application.

#### ARTICLE 37

If nuclear material exempted in accordance with Articles 35 or 36 is to be processed or stored together with nuclear material subject to safeguards under this Agreement, the United Kingdom and the Agency shall make arrangements for the re-application of such safeguards thereto.

### **Subsidiary Arrangements**

#### ARTICLE 38

The United Kingdom and the Agency shall make Subsidiary Arrangements which shall specify in detail, to the extent necessary to permit the Agency to fulfil its responsibilities under this Agreement in an effective and efficient manner, how the procedures laid down in this Agreement are to be applied. The Subsidiary Arrangements may be extended or changed by agreement between the United Kingdom and the Agency without amendment of this Agreement.

## ARTICLE 39

The Subsidiary Arrangements shall enter into force at the same time as, or as soon as possible after, the entry into force of this Agreement. The United Kingdom and the Agency shall make every effort to achieve their entry into force within ninety days of entry into force of this Agreement; an extension of that period shall require agreement between the United Kingdom and the Agency. The United Kingdom shall provide the Agency promptly with the information required for completing the Subsidiary Arrangements. Upon the entry into force of this Agreement, the Agency shall have the right to apply the procedures laid down therein in respect of the nuclear material listed in the inventory provided for in Article 40, even if the Subsidiary Arrangements have not entered into force.

### **Inventory**

## ARTICLE 40

On the basis of the initial report referred to in Article 60(a), the Agency shall establish a unified inventory of all nuclear material in the United Kingdom subject to safeguards under this Agreement, irrespective of its origin, and shall maintain this inventory on the basis of subsequent reports and the results of its verification activities. Copies of the inventory shall be made available to the United Kingdom at intervals to be agreed.

### **Design Information**

#### General Provisions

## ARTICLE 41

In accordance with Article 8, design information (as defined in Article 42) in respect of facilities or parts thereof identified in the Facilities List shall be provided to the Agency by the United Kingdom during the discussion of the Subsidiary Arrangements. The time limits for provision of design information in respect of facilities or parts thereof added to that List shall be specified in the Subsidiary Arrangements and, in the case of a new facility or part thereof, such information shall be provided as early as possible before nuclear material is introduced into that facility or part thereof.

#### ARTICLE 42

The design information to be provided to the Agency shall include, in respect of each facility or part thereof containing or to contain nuclear material subject to safeguards under this Agreement, when applicable:

- (a) the identification of the facility or part thereof, stating its general character, purpose, nominal capacity and geographic location, and the name and address to be used for routine business purposes;
- (b) a description of the general arrangement of the facility or part thereof with reference, to the extent feasible, to the form, location and flow of nuclear material and to the general layout of the important items of equipment which use, produce or process nuclear material;
- (c) a description of features of the facility or part thereof relating to material accountancy, containment and surveillance; and
- (d) a description of the existing and proposed procedures at the facility or part thereof for nuclear material accountancy and control, with special reference to material balance areas established by the operator, measurements of flow and procedures for physical inventory taking.

#### ARTICLE 43

Other information relevant to the application of safeguards under this Agreement shall also be provided to the Agency in respect of each facility or part thereof in respect of which design information is provided in accordance with Articles 41 and 42, if so specified in the Subsidiary Arrangements. The United Kingdom shall provide the Agency with supplementary information on the health and safety procedures which the Agency shall observe and with which the inspectors shall comply at the facility or part thereof.

#### ARTICLE 44

The United Kingdom shall provide the Agency with design information in respect of a modification relevant for purposes of safeguards under this Agreement, and shall inform the Agency of any change in the information provided to it under Article 43, sufficiently in advance for the safeguards procedures to be applied under this Agreement to be adjusted when necessary.

## Purpose of Examination of Design Information

### ARTICLE 45

The design information provided to the Agency shall be used for the following purposes:

- (a) to identify the features of facilities or parts thereof and nuclear material relevant to the application of safeguards to nuclear material in sufficient detail to facilitate verification;
- (b) to determine material balance areas to be used for accounting purposes under this Agreement and to select those strategic points which are key measurement points and which will be used to determine the flow and inventory of nuclear material; in determining such material balance areas the following criteria shall, inter alia, be used:
  - (i) the size of the material balance area shall be related to the accuracy with which the material balance can be established;
  - (ii) in determining the material balance area advantage shall be taken of any opportunity to use containment and surveillance to help ensure the completeness of flow measurements and thereby to simplify the application of safeguards and to concentrate measurement efforts at key measurement points;
  - (iii) a number of material balance areas in use at a facility, in parts of a facility or at distinct sites may be combined in one material balance area to be used for Agency accounting purposes when the Agency determines that this is consistent with its verification requirements; and
  - (iv) a special material balance area may be established at the request of the United Kingdom around a process step involving commercially sensitive information;
- (c) to establish the nominal timing and procedures for taking of physical inventory of nuclear material for accounting purposes under this Agreement;
- (d) to establish the records and reports requirements and records evaluation procedures;
- (e) to establish requirements and procedures for verification of the quantity and location of nuclear material; and

- (f) to select appropriate combinations of containment and surveillance methods and techniques and the strategic points at which they are to be applied.

#### ARTICLE 46

The results of the examination of the design information shall be included in the Subsidiary Arrangements.

### **Re-Examination of Design Information**

#### ARTICLE 47

Design information shall be re-examined in the light of any changes in operating conditions, of developments in safeguards technology or of experience in the application of verification procedures, with a view to modifying the action the Agency has taken pursuant to Article 45.

### **Verification of Design Information**

#### ARTICLE 48

The Agency, in co-operation with the United Kingdom, may send inspectors to facilities or parts thereof to verify the design information provided to the Agency in accordance with Articles 41 to 44 for the purposes stated in Article 45.

### **Records System**

#### General Provisions

#### ARTICLE 49

In establishing a national system of accounting for and control of nuclear material as referred to in Article 7, the United Kingdom shall arrange that records are kept, in accordance with Articles 50 to 56, in respect of each material balance area. The records to be kept shall be specified in the Subsidiary Arrangements.

#### ARTICLE 50

The United Kingdom shall make arrangements to facilitate the examination of the records by inspectors.

#### ARTICLE 51

The records shall be retained for at least five years.

#### ARTICLE 52

The records shall consist, as appropriate, of:

- (a) accounting records of all nuclear material subject to safeguards under this Agreement; and
- (b) operating records for facilities or parts thereof containing such nuclear material.

#### ARTICLE 53

The system of measurements on which the records used for the preparation of reports are based shall either conform to the latest international standards or be equivalent in quality to such standards.

### **Accounting Records**

#### ARTICLE 54

Accounting records shall set forth the following in respect of each material balance area:

- (a) all inventory changes, so as to permit a determination of the book inventory at any time;
- (b) all measurement results that are used for determination of the physical inventory; and
- (c) all adjustments and corrections that have been made in respect of inventory changes, book inventories and physical inventories.

#### ARTICLE 55

For all inventory changes and physical inventories the records shall show, in respect of each batch of nuclear material, material identification, batch data and source data. The records shall account for uranium, thorium and plutonium separately in each batch of nuclear material. For each inventory change, the date of the inventory change and, when appropriate, the originating material balance area and the receiving material balance area or the recipient shall be indicated.

## **Operating Records**

### ARTICLE 56

Operating records shall set forth, as appropriate, in respect of each material balance area:

- (a) those operating data which are used to establish changes in the quantities and composition of nuclear material;
- (b) the data obtained from the calibration of tanks and instruments and from sampling and analyses, the procedures to control the quality of measurements and the derived estimates of random and systematic error;
- (c) a description of the sequence of the actions taken in preparing for and in taking, a physical inventory, in order to ensure that it is correct and complete; and
- (d) a description of the actions taken in order to ascertain the cause and magnitude of any accidental or unmeasured loss that might occur.

## **Reports System**

### General Provisions

### ARTICLE 57

The United Kingdom shall provide the Agency with reports in accordance with Articles 58 to 63 and 65 to 67 in respect of nuclear material subject to safeguards under this Agreement.

### ARTICLE 58

Reports shall be made in English.

### ARTICLE 59

Reports shall be based on the records kept in accordance with Articles 49 to 56 and shall consist, as appropriate, of accounting reports and special reports.

## Accounting Reports

### ARTICLE 60

- (a) The United Kingdom shall provide the Agency with an initial report on all nuclear material in facilities or parts thereof on the Facilities List which is subject to safeguards under this Agreement. The initial report shall be despatched to the Agency within thirty days of the last day of the calendar month in which this Agreement enters into force, and shall reflect the situation as at the last day of that month.
- (b) When facilities or parts thereof are added or restored to the Facilities List, the United Kingdom shall provide the Agency with an initial report on the nuclear material therein subject to safeguards under this Agreement. Such reports shall be despatched to the Agency within thirty days of the last day of the calendar month in which the facility or part thereof is added or restored to that List and shall reflect the situation as at the day on which it is added or restored.
- (c) When any nuclear material becomes subject to safeguards under this Agreement as foreseen in Article 14, an inventory change report on such material shall be despatched to the Agency in accordance with Article 61(a).

### ARTICLE 61

The United Kingdom shall provide the Agency with the following accounting reports for each material balance area:

- (a) inventory change reports showing all changes in the inventory of nuclear material. The reports shall be despatched as soon as possible and in any event within thirty days after the end of the month in which the inventory changes occurred or were established; and
- (b) material balance reports showing the material balance based on a physical inventory of nuclear material actually present in the material balance area. The reports shall be despatched as soon as possible and in any event within thirty days after the physical inventory has been taken. The reports shall be based on the data available as of the date of reporting and may be corrected at a later date, as required.



## ARTICLE 62

Inventory change reports shall specify identification and batch data for each batch of nuclear material, the date of inventory change and, as appropriate, the originating material balance area and the receiving material balance area or the recipient. These reports shall be accompanied by concise notes:

- (a) explaining the inventory changes, on the basis of the operating data contained in the operating records provided for under Article 56(a); and
- (b) describing, as specified in the Subsidiary Arrangements, the anticipated operational programme, particularly the taking of a physical inventory.

## ARTICLE 63

The United Kingdom shall report each inventory change, adjustment and correction, either periodically in a consolidated list or individually. Inventory changes shall be reported in terms of batches. As specified in the Subsidiary Arrangements, small changes in inventory of nuclear material, such as transfers of analytical samples, may be combined in one batch and reported as one inventory change.

## ARTICLE 64

The Agency shall provide to the United Kingdom with half-yearly statements of book inventory of nuclear material subject to safeguards under this Agreement, for each material balance area, as based on the inventory change reports for the period covered by each such statement.

## ARTICLE 65

Material balance reports shall include the following entries unless otherwise agreed by the United Kingdom and the Agency:

- (a) beginning physical inventory;
- (b) inventory changes (first increases, then decreases);
- (c) ending book inventory;
- (d) shipper/receiver differences;
- (e) adjusted ending book inventory;
- (f) ending physical inventory; and

- (g) material unaccounted for.

A statement of the physical inventory, listing all batches separately and specifying material identification and batch data for each batch, shall be attached to each material balance report.

### **Special Reports**

#### ARTICLE 66

The United Kingdom shall make special reports without delay:

- (a) if any unusual incident or circumstances lead the United Kingdom to believe that there is or may have been loss of nuclear material that exceeds the limits specified for this purpose in the Subsidiary Arrangements; or
- (b) if the containment of nuclear material subject to safeguards under this Agreement has unexpectedly changed from that specified in the Subsidiary Arrangements to the extent that its unauthorized removal has become possible.

### **Amplification and Clarification of Reports**

#### ARTICLE 67

If the Agency so requests, the United Kingdom shall provide it with amplifications or clarifications of any report, in so far as relevant for the purpose of safeguards under this Agreement.

### **Inspections**

#### General Provisions

#### ARTICLE 68

The Agency shall have the right to make inspections as provided for in Articles 69 through 82.

## **Purpose of Inspections**

### ARTICLE 69

The Agency may make ad hoc inspections in order to:

- (a) verify the information contained in the initial reports on the nuclear material subject to safeguards under this Agreement provided in accordance with Articles 60(a) and (b);
- (b) identify and verify changes in the situation with respect to nuclear material subject to safeguards under this Agreement which have occurred since the date of the relevant initial report; and
- (c) identify and if possible verify the quantity and composition of nuclear material subject to safeguards under this Agreement in respect of which the information referred to in Article 89 has been provided to the Agency, before the transfer of such material from the last facility or part thereof on the Facilities List in which it is held before it is transferred out of the United Kingdom, or upon its first being received into such a facility or part thereof.

### ARTICLE 70

With respect to facilities or parts thereof designated in accordance with Article 76(a), the Agency may make routine inspections in order to:

- (a) verify that reports are consistent with records;
- (b) verify the location, identity, quantity and composition of all nuclear material subject to safeguards under this Agreement; and
- (c) verify information on the possible causes of material unaccounted for, shipper/receiver differences and uncertainties in the book inventory.

### ARTICLE 71

Subject to the procedures laid down in Article 75, the Agency may make special inspections:

- (a) in order to verify the information contained in special reports; or

- (b) if the Agency considers that information made available by the United Kingdom, including explanations from the United Kingdom and information obtained from routine inspections, is not adequate for the Agency to fulfil its responsibilities under this Agreement.

An inspection shall be deemed to be special when it is either additional to the routine inspection effort provided for in this Agreement, or involves access in addition to that specified in Article 74 for ad hoc and routine inspections, or both.

### **Scope of Inspections**

#### ARTICLE 72

For the purposes specified in Articles 69 to 71 the Agency may:

- (a) examine the records kept in accordance with Articles 49 to 56;
- (b) make independent measurements of all nuclear material subject to safeguards under this Agreement;
- (c) verify the functioning and calibration of instruments and other measuring and control equipment;
- (d) apply and make use of surveillance and containment measures; and
- (e) use other objective methods which have been demonstrated to be technically feasible.

#### ARTICLE 73

Within the scope of Article 72 the Agency shall be enabled:

- (a) to observe that samples at key measurement points for material balance accountancy are taken in accordance with procedures which produce representative samples, to observe the treatment and analysis of the samples and to obtain duplicates of such samples;
- (b) to observe that the measurements of nuclear material at key measurement points for material balance accountancy are representative and to observe the calibration of the instruments and equipment involved;
- (c) to make arrangements with the United Kingdom to provide for:
  - (i) additional measurements to be made and additional samples taken for the Agency's use;

- (ii) the Agency's standard analytical samples to be analysed;
- (iv) appropriate absolute standards to be used in calibrating instruments and other equipment; and
- (v) other calibrations to be carried out;
- (d) to arrange to use its own equipment for independent measurement and surveillance, and if so agreed and specified in the Subsidiary Arrangements to arrange to install such equipment;
- (e) to apply its seals and other identifying and tamper-indicating devices to containments, if so specified in the Subsidiary Arrangements; and
- (f) to make arrangements with the United Kingdom for the shipping of samples taken for the Agency's use.

### **Access for Inspections**

#### ARTICLE 74

- (a) For the purposes specified in Article 69 (a) and (b) and until such time as the strategic points have been specified in the Subsidiary Arrangements, Agency inspectors shall have access to any facility or part thereof on the Facilities List where the initial report or any inspections carried out in connection with it indicate that nuclear material subject to safeguards under this Agreement is present.
- (b) For the purposes specified in Article 69(c), the inspectors shall have access to any facility or part thereof on the Facilities List in which any nuclear material referred to in Article 69(c) is present.
- (c) For the purposes specified in Article 70 the inspectors shall have access only to the strategic points specified in the Subsidiary Arrangements and to the records maintained in accordance with Articles 49 to 56.
- (d) In the event of the United Kingdom concluding that any unusual circumstances require extended limitations on access by the Agency, the United Kingdom and the Agency shall promptly make arrangements with a view to enabling the Agency to discharge its safeguards responsibilities in the light of these limitations. The Director General shall report each such arrangement to the Board.

## ARTICLE 75

In the circumstances which may lead to special inspections for the purposes specified in Article 71 the United Kingdom and the Agency shall consult forthwith. As a result of such consultations the Agency may:

- (a) make inspections in addition to the routine inspection effort provided for in Articles 76 through 80; and
- (b) obtain access, in agreement with the United Kingdom, to information or locations additional to that specified in Article 74. Any disagreement shall be resolved in accordance with Articles 21 and 22. In case action by the United Kingdom is essential and urgent, Article 18 shall apply.

### **Frequency and Intensity of Routine Inspections**

## ARTICLE 76

- (a) In view of the nature of the offer made by the United Kingdom, the Agency shall from time to time select from the Facilities List and designate to the United Kingdom those facilities or parts thereof to which it wishes to apply routine inspections in accordance with paragraph (b) of this Article and with Articles 77 to 80. In respect of facilities or parts thereof not at any given time so designated, the United Kingdom will continue to provide the Agency with all information necessary for the implementation of safeguards.
- (b) The Agency shall keep the number, intensity and duration of routine inspections, applying optimum timing, to the minimum consistent with the effective implementation of the safeguards procedures set forth in this Agreement, and shall make the optimum and most economical use of inspection resources available to it.

## ARTICLE 77

The Agency may carry out one routine inspection per year in respect of each facility or part thereof designated in accordance with Article 76(a) which has a content or annual throughput, whichever is greater, of nuclear material not exceeding five effective kilograms.

## ARTICLE 78

The number, intensity, duration, timing and mode of routine inspections in respect of facilities or parts thereof designated in accordance with Article 76(a) and with a content or annual throughput of nuclear material exceeding five effective kilograms shall be determined on the basis that the inspection regime shall be no more intensive than is necessary and sufficient to maintain continuity of knowledge of the flow and inventory of nuclear material, and the maximum routine inspection effort in respect of such facilities or parts thereof shall be determined as follows:

- (a) for reactors and sealed storage installations the maximum total of routine inspection per year shall be determined by allowing one sixth of a person-year of inspection for each such facility;
- (b) for facilities or parts of facilities where such parts have been separately designated, other than reactors or sealed storage installations, involving plutonium or uranium enriched to more than 5%, the maximum total of routine inspection per year shall be determined by allowing for each such facility or part thereof  $30 \times \sqrt{E}$  person-days of inspection per year, where E is the inventory or annual throughput of nuclear material, whichever is greater, expressed in effective kilograms. The maximum established for any such facility or part thereof shall not, however, be less than 1.5 person-years of inspection; and
- (c) for facilities or parts of facilities separately designated which are not covered by paragraphs (a) or (b), the maximum total of routine inspection per year shall be determined by allowing for each such facility or part thereof one third of a person-year of inspection plus  $0.4 \times E$  person-days of inspection per year, where E is the inventory or annual throughput of nuclear material, whichever is greater, expressed in effective kilograms.

The United Kingdom and the Agency may agree to amend the figures for the maximum inspection effort specified in this Article, upon determination by the Board that such amendment is reasonable.

## ARTICLE 79

Subject to Articles 76 to 78 the criteria used to determine the actual number, intensity, duration, timing and mode of routine inspections in respect of any facility or part thereof designated in accordance with Article 76(a) shall include:

- (a) the form of the nuclear material, in particular, whether the nuclear material is in bulk form or contained in a number of separate items; its chemical composition and, in the case of uranium, whether it is of low or high enrichment; and its accessibility;

- (b) the effectiveness of the United Kingdom's accounting and control system, including the extent to which the operators of facilities are functionally independent of the United Kingdom's accounting and control system; the extent to which the measures specified in Article 31 have been implemented by the United Kingdom; the promptness of reports provided to the Agency; their consistency with the Agency's independent verification; and the amount and accuracy of the material unaccounted for, as verified by the Agency;
- (c) characteristics of that part of the United Kingdom's nuclear fuel cycle which is on the Facilities List, in particular, the number and types of facilities, the characteristics of such facilities relevant to safeguards under this Agreement, notably the degree of containment; the extent to which the design of such facilities facilitates verification of the flow and inventory of nuclear material; and the extent to which information from different material balance areas can be correlated;
- (d) international interdependence, in particular, the extent to which nuclear material is received from or sent to other States for use or processing; any verification activities by the Agency in connection therewith; and the extent to which nuclear activities in the United Kingdom are interrelated with those in other States; and
- (e) technical developments in the field of safeguards, including the use of statistical techniques and random sampling in evaluating the flow of nuclear material.

#### ARTICLE 80

The United Kingdom and the Agency shall consult if the United Kingdom considers that inspection effort is being deployed with undue concentration on particular facilities or parts thereof.

#### **Notice of Inspections**

#### ARTICLE 81

The Agency shall give advance notice to the United Kingdom before the arrival of inspectors at facilities or parts of facilities as follows:

- (a) for ad hoc inspections in accordance with Article 69(c), at least 24 hours; for those in accordance with Article 69(a) and (b) and for verifications in accordance with Article 48, at least one week;



- (b) for special inspections in accordance with Article 71, notice shall be given as promptly as possible after the United Kingdom and the Agency have consulted in accordance with Article 75, it being understood that the date of inspection will normally have been considered during those consultations; and
- (c) for routine inspections in accordance with Article 70, at least 24 hours in respect of the facilities or parts of facilities referred to in Article 78(b) and sealed storage installations containing plutonium or uranium enriched to more than 5%, and one week in all other cases. Such notice of inspections shall include the names of the inspectors and shall indicate the facilities or parts thereof to be visited and the period during which they will be visited. If the inspectors are to arrive from outside the United Kingdom, the Agency shall also give advance notice of the place and time of their arrival in the United Kingdom.

## ARTICLE 82

Notwithstanding the provisions of Article 81, the Agency may, as a supplementary measure, carry out without advance notification a portion of the routine inspections pursuant to Article 78 in accordance with the principle of random sampling. In performing any unannounced inspections, the Agency shall fully take into account any operational programme provided to it in accordance with Article 62(b). Moreover, whenever practicable, and on the basis of the operational programme, it shall advise the United Kingdom periodically of its general programme of announced and unannounced inspections, specifying the general periods when inspections are foreseen. In carrying out any unannounced inspections the Agency shall make every effort to minimize any practical difficulties for the United Kingdom and for facility operators bearing in mind the relevant provisions of Articles 43 and 87. Similarly the United Kingdom shall make every effort to facilitate the task of the inspectors.

### **Designation of Inspectors**

## ARTICLE 83

The following procedures shall apply to the designation of inspectors:

- (a) the Director General shall inform the United Kingdom in writing of the name, qualifications, nationality, grade and such other particulars as may be relevant, of each Agency official proposed for designation as an inspector for the United Kingdom;
- (b) the United Kingdom shall inform the Director General within thirty days of the receipt of such a proposal whether it accepts the proposal;

- (c) the Director General may designate each official who has been accepted by the United Kingdom as one of the inspectors for the United Kingdom, and shall inform the United Kingdom of such designations; and
- (d) the Director General, acting in response to a request by the United Kingdom or on his/her own initiative, shall immediately inform the United Kingdom of the withdrawal of the designation of any official as an inspector for the United Kingdom. However, in respect of inspectors needed for verifications in accordance with Article 48 and to carry out ad hoc inspections in accordance with Article 69(a) and (b) designation procedures shall be completed if possible within thirty days after the entry into force of this Agreement. If such designation appears impossible within this time limit, inspectors for such purposes shall be designated on a temporary basis.

#### ARTICLE 84

The United Kingdom shall grant or renew as quickly as possible appropriate visas, where required, for each inspector designated in accordance with Article 83.

### **Conduct and Visits of Inspectors**

#### ARTICLE 85

Inspectors, in exercising their functions under Articles 48 and 69 to 73, shall carry out their activities in a manner designed to avoid hampering or delaying the construction, commissioning or operation of facilities or parts thereof or affecting their safety. In particular, inspectors shall not operate any facility or part thereof themselves or direct the staff of a facility to carry out any operation. If inspectors consider that in accordance with Articles 72 and 73 particular operations in a facility or part thereof should be carried out by the operator, they shall make a request therefor.

#### ARTICLE 86

When inspectors require services available in the United Kingdom, including the use of equipment, in connection with the performance of inspections, the United Kingdom shall, subject to the provisions of Article 15 facilitate the procurement of such services and the use of such equipment by inspectors.

## ARTICLE 87

The United Kingdom shall have the right to have inspectors accompanied during their inspections by its representatives provided that inspectors shall not thereby be delayed or otherwise impeded in the exercise of their functions.

### **Statement on the Agency's Verification Activities**

## ARTICLE 88

The Agency shall inform the United Kingdom of:

- (a) the results of its inspections, at intervals to be specified in the Subsidiary Arrangements; and
- (b) the conclusions it has drawn from its verification activities in the United Kingdom

### **Transfers of Nuclear Material into or out of the United Kingdom**

## ARTICLE 89

- (a) The United Kingdom shall provide the Agency with the information specified in the letter dated 10 July 1974 from the United Kingdom Resident Representative to the Agency to the Director General of the Agency (reproduced as Agency document INFCIRC/207 dated 26 July 1974) with respect to international transfers of nuclear material of the kind specified in that letter from or to a facility or part thereof on the Facilities List. Any modification of the scope of the information specified in that letter shall require the agreement of the Agency and the United Kingdom.
- (b) The information referred to in paragraph (a) of this Article shall be provided:
  - (i) in the case of exports, normally not less than 10 days before the material in question is due to leave the last facility or part thereof on the Facilities List in which it will be held before it is transferred out of the United Kingdom;
  - (ii) in the case of imports, as soon as possible after the material in question is first received into such a facility or part thereof.

- (c) Where information has been provided to the Agency in accordance with paragraph (a) of this Article with respect to an international transfer of nuclear material from or to a facility or part thereof on the Facilities List, the United Kingdom shall make a Special Report as envisaged in Article 66 if any unusual circumstances lead the United Kingdom to believe that there is or may have been loss of nuclear material or the occurrence of significant delay during the transfer.

## **Definitions**

### ARTICLE 90

For the purposes of this Agreement:

- A. "Adjustment" means an entry made in an accounting record or a report showing a shipper/receiver difference or material unaccounted for.
- B. "Annual throughput" means, for the purposes of Articles 77 and 78, the amount of nuclear material transferred annually out of a facility working at nominal capacity.
- C. "Batch" means a portion of nuclear material handled as a unit for accounting purposes at a key measurement point and for which the composition and quantity are defined by a single set of specifications or measurements. The nuclear material may be in bulk form or contained in a number of separate items.
- D. "Batch data" means the total weight of each element of nuclear material and, in the case of plutonium and uranium, the isotopic composition when appropriate. The units of account shall be as follows:
- (a) grams of contained plutonium;
  - (b) grams of total uranium and grams of contained uranium-235 plus uranium-233 for uranium enriched in these isotopes; and
  - (c) kilograms of contained thorium, natural uranium or depleted uranium.

For reporting purposes the weights of individual items in the batch shall be added together before rounding to the nearest unit.

- E. "Book inventory" of a material balance area means the algebraic sum of the most recent physical inventory of that material balance area and of all inventory changes that have occurred since that physical inventory was taken.
- F. "Correction" means an entry made in an accounting record or report to rectify an identified mistake or to reflect an improved measurement of a quantity previously entered in a record or report. Each correction must identify the entry to which it pertains.

G. "Effective kilogram" means a special unit used in safeguarding nuclear material. The quantity in effective kilograms is obtained by taking:

- (a) for plutonium, its weight in kilograms;
- (b) for uranium with an enrichment of 0.01 (1%) and above, its weight in kilograms multiplied by the square of its enrichment;
- (c) for uranium with an enrichment below 0.01 (1%) and above 0.005 (0.5%), its weight in kilograms multiplied by 0.0001; and
- (d) for depleted uranium with an enrichment of 0.005 (0.5%) or below, and for thorium, its weight in kilograms multiplied by 0.00005.

H. "Enrichment" means the ratio of the combined weight of the isotopes uranium-233 and uranium-235 to that of the total uranium in question.

I. "Facility" means:

- (a) a reactor, a critical facility, a conversion plant, a fabrication plant, a reprocessing plant, an isotope separation plant or a separate storage installation; or
- (b) any location where nuclear material in amounts greater than one effective kilogram is customarily used.

J. "Inventory change" means an increase or decrease, in terms of batches, of nuclear material in a material balance area; such a change shall involve one of the following:

- (a) Increases:
  - (i) Import;
  - (ii) Domestic receipt: receipts within the United Kingdom from other material balance areas; from an activity not subject to safeguards under this Agreement; at the starting point of safeguards;
  - (iii) Nuclear production: production of special fissionable material in a reactor; and
  - (iv) De-exemption: re-application of safeguards on nuclear material previously exempted therefrom on account of its use or quantity.
- (b) Decreases:
  - (i) Export;

- (ii) Domestic shipment: shipments within the United Kingdom to other material balance areas or for an activity not subject to safeguards under this Agreement;
- (iii) Nuclear loss: loss of nuclear material due to its transformation into other element(s) or isotope(s) as a result of nuclear reactions;
- (iv) Measured discard: nuclear material which has been measured, or estimated on the basis of measurements, and disposed of in such a way that it is not suitable for further nuclear use;
- (v) Retained waste: nuclear material generated from processing or from an operational accident, which is deemed to be irrecoverable for the time being but which is stored;
- (vi) Exemption: exemption of nuclear material from safeguards on account of its use or quantity; and
- (vii) Other loss: for example, accidental loss (that is, irretrievable and inadvertent loss of nuclear material as the result of an operational accident) or theft.

K. "Key measurement point" means a location where nuclear material appears in such a form that it may be measured to determine material flow or inventory. Key measurement points thus include, but are not limited to, the inputs and outputs (including measured discards) and storages in material balance areas.

L. "Person-year of inspection" means, for the purposes of Article 78, 300 person-days of inspection, a person-day being a day during which a single inspector has access to a facility at any time for a total of not more than eight hours.

M. "Material balance area" means an area in a facility such that:

- (a) the quantity of nuclear material in each transfer into or out of each material balance area can be determined; and
- (b) the physical inventory of nuclear material in each material balance area can be determined when necessary in accordance with specified procedures, in order that the material balance for Agency safeguards purposes can be established.

N. "Material unaccounted for" means the difference between book inventory and physical inventory.

O. "Nuclear material" means any source or any special fissionable material as defined in Article XX of the Statute. The term "source material" shall not be interpreted as applying to ore or ore residue. Any determination by the Board under Article XX of the Statute after the entry into force of this Agreement which adds to the materials considered to be source material or special fissionable material shall have effect under this Agreement only upon acceptance by the United Kingdom.

P. "Physical inventory" means the sum of all the measured or derived estimates of batch quantities of nuclear material on hand at a given time within a material balance area, obtained in accordance with specified procedures.

Q. "Shipper/receiver difference" means the difference between the quantity of nuclear material in a batch as stated by the shipping material balance area and as measured at the receiving material balance area.

R. "Source data" means those data, recorded during measurement or calibration or used to derive empirical relationships, which identify nuclear material and provide batch data. Source data may include, for example, weight of compounds, conversion factors to determine weight of element, specific gravity, element concentration, isotopic ratios, relationship between volume and manometer readings and relationship between plutonium produced and power generated.

S. "Strategic point" means a location selected during examination of design information where, under normal conditions and when combined with the information from all strategic points taken together, the information necessary and sufficient for the implementation of safeguards measures is obtained and verified; a strategic point may include any location where key measurements related to material balance accountancy are made and where containment and surveillance measures are executed.

DONE at Vienna in duplicate, on the seventh day of June 2018 in the English language.

**For the United Kingdom of Great  
Britain and Northern Ireland:**

**For the International Atomic  
Energy Agency:**

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