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Safeguards Ordinance

(SaO)

of 4 June 2021 (Status as of 1 July 2021)

The Swiss Federal Council,

on the basis of Article 101 paragraph 1 of the Nuclear Energy Act
of 21 March 2003¹ (NEA),

Articles 4, 11 and 22 paragraph 1 of the Goods Control Act
of 13 December 1996² (GCA)

and Articles 17 paragraph 2 and 47 paragraph 1 of the Radiological Protection Act
of 22 March 1991³ (RPA),

ordains:

Section 1 General Provisions

Art. 1 Subject matter and purpose

¹ This Ordinance regulates in particular the implementation of the Agreement of 6 September 1978⁴ between the Swiss Confederation and the International Atomic Energy Agency (IAEA) concerning the application of safeguards within the scope of the Treaty on the Non-Proliferation of Nuclear Weapons (Safeguards Agreement) and of the Additional Protocol of 16 June 2000⁵ to the Safeguards Agreement.

² Its purpose is to ensure that materials and activities subject to these agreements serve peaceful uses only.

AS 2021 359

¹ SR 732.1

² SR 946.202

³ SR 814.50

⁴ SR 0.515.031

⁵ SR 0.515.031.1

Art. 2 Scope of application

¹ This Ordinance applies to:

- a. the following materials:
 1. source material in accordance with Article 1 paragraph 1 letter one of the Nuclear Energy Ordinance of 10 December 2004⁶ (NEO) and special fissile material in accordance with Article 1 paragraph 1 letter b NEO,
 2. radioactive waste that includes materials in accordance with number 1,
 3. ores from which uranium or thorium are extracted;
- b. facilities that use or store the materials referred to in letter a:
 1. research reactors and critical assemblies,
 2. power reactors,
 3. storage facilities, in particular interim storage facilities,
 4. deep geological repositories,
 5. other facilities under Article 3 letter a;
- c. the following facilities that do not yet or no longer use or store the materials referred to in letter a:
 1. facilities in accordance with letter b that are in planning or under construction,
 2. closed-down facilities in accordance with letter b;
- d. locations outside facilities at which materials in accordance with letter a are used or stored;
- e. nuclear equipment in accordance with Annex 1, the manufacture, assembly and construction of which is subject to notification, and the production and enrichment of heavy water and deuterium in accordance with Annex 1;
- f. the possession, import, export and transport of materials in accordance with letter a;
- g. research and development related to the nuclear fuel cycle;
- h. the exploration for or exploitation of uranium and thorium mines.

² This Ordinance applies to:

- a. Swiss customs territory;
- b. Swiss open customs warehouses;
- c. Swiss warehouses for bulk goods;
- d. Swiss duty-free warehouses; and
- e. Swiss customs enclaves.

⁶ SR 732.11

Art. 3 Definitions

¹ In this Ordinance:

- a. *facility* means a reactor, a critical assembly, a conversion plant, a fuel element fabrication plant, a reprocessing plant, an enrichment plant, a storage facility or any other installation at which materials referred to in Article 2 paragraph 1 letter a are normally used in quantities that exceed an effective kilogram;
- b. *location outside facilities* means an installation outside facilities in which materials referred to in Article 2 paragraph 1 letter a are normally used or stored in quantities that do not exceed an effective kilogram;
- c. *site* means the area that includes the buildings and installations required for operation of a facility or of a location outside facilities; this includes closed-down facilities and closed-down locations outside facilities, provided hot cells are still installed at these locations outside facilities or activities have been carried out in connection with conversion, enrichment, fuel production or reprocessing;
- d. *closed-down facility* means a facility that is no longer in operation and in which no materials in accordance with Article 2 paragraph 1 letter a are present, but in which the essential structures and equipment for handling these materials are still available;
- e. *decommissioned facility* means a facility whose structures and equipment have been removed or rendered unusable to the extent that they can no longer be used to store, handle, process or use materials in accordance with Article 2 paragraph 1 letter a;
- f. *effective kilogram* means a unit of measurement that corresponds in the case of:
 - 1. plutonium, to its weight in kilogrammes,
 - 2. uranium with an enrichment of 0.01 (1 %) or more, its weight in kilogrammes multiplied by the square of its enrichment,
 - 3. uranium with an enrichment of less than 0.01 (1 %) and more than 0.005 (0.5 %), its weight in kilograms multiplied by 0.0001, and
 - 4. uranium with an enrichment of 0.005 (0.5 %) or less, and thorium, its weight in kilograms multiplied by 0.00005;
- g. *highly enriched uranium* means enriched uranium in which the proportion of uranium-233, uranium-235 or of both isotopes together amounts to or exceeds 20 per cent;
- h. *batch* means a portion of materials in accordance with Article 2 paragraph 1 letter a handled as a unit for accounting purposes and for which the composition and quantity of the materials are defined by a single set of specifications or measurements; the material may be in bulk form or in a number of separate items;

- i. *terminated material* means material in accordance with Article 2 paragraph 1 letter a for which the safeguards based on Article 11 or 13 of the Safeguards Agreement⁷ have been terminated;
- j. *essential equipment* means equipment that is essential for storing, handling, processing or using materials in accordance with Article 2 paragraph 1 letter a;
- k. *environmental samples* means air, water, soil, plant and other samples, including swipe samples;
- l. *research and development activities related to the nuclear fuel cycle* means, subject to paragraph 2, activities that cover specific aspects of process or system development, in particular:
 - 1. the conversion and enrichment of materials in accordance with Article 2 paragraph 1 letter a,
 - 2. the manufacture and reprocessing of fuel elements,
 - 3. the development of nuclear reactors and critical assemblies,
 - 4. the processing of intermediate and high-level waste that contains plutonium, highly enriched uranium or uranium-233, but not repackaging and conditioning for the purpose of storage or disposal, provided that no isotopes are separated in the process.

² The following are not considered research and development activities related to the fuel cycle in accordance with paragraph 1 letter l:

- a. activities related to theoretical or basic scientific research;
- b. research and development:
 - 1. on potential industrial uses of radio isotopes,
 - 2. for medical, hydrological and agricultural applications,
 - 3. on the effects on health and the environment, and
 - 4. for improved maintenance.

Art. 4 Responsibilities

¹ The Swiss Federal Office of Energy (SFOE) is responsible for the supervision of the safeguards (supervisory authority).

² The SFOE shall, as required, issue the detailed requirements for implementing the safeguards in guidelines, in particular Articles 5, 6, 10, 14, 16 and 20.

⁷ SR 0.515.031

Section 2

Safeguards for Facilities in accordance with Article 2 Paragraph 1 letter b

Art. 5 Safeguards officer

¹ The holder of an operating licence under Article 19 NEA (licence holder) shall appoint a person (to be) responsible for safeguards, together with a deputy (safeguards officers) and entrust them with the necessary competencies and provide them with the required resources.

² The safeguards officers must be familiar with the obligations associated with the relevant treaties and agreements between Switzerland and the IAEA.

³ The appointments require the written consent of the SFOE. The SFOE may assess the suitability of the persons to be appointed.

Art. 6 Safeguards regulations

¹ The licence holder shall draw up safeguards regulations.

² These regulations shall be submitted to the SFOE for approval.

Art. 7 Specification of material balance areas

¹ The licence holder shall establish material balance areas for those areas in which material in accordance with Article 2 paragraph 1 letter a is present.

² It shall define the extent of the material balance area so as to ensure that the inventory of material within the zone and the movements of material beyond the boundaries of the zone can be ascertained at all times.

³ It shall divide each material balance area in such a way as to ensure that movements of such material within a material balance area can be ascertained at all times.

Art. 8 Consideration of safeguards in the event of substantial changes

In the event of substantial changes to facilities, the effects of such changes on the implementation of safeguards shall be considered in the planning process (*safeguards by design*). In particular, the installation of monitoring and measurement instruments that facilitate the verification of the material inventory and the uninterrupted monitoring of material movements in accordance with Article 2 paragraph 1 letter a shall be considered.

Art. 9 Accounting obligations

¹ The licence holder shall maintain an inventory, updated as and when required, of the material in accordance with Article 2 paragraph 1 letter a in each material balance area.

² The accounting documents shall comprise:

- a. the inventory and inventory change reports in accordance with Annex 2 number 1.2 for material that as a result of its composition or its purity level is suitable for fuel production or isotope enrichment;
- b. the inventory of material that as a result of its composition or its purity level is not yet suitable for fuel production or isotope enrichment;
- c. the operating records in accordance with Annex 2 number 1.3.

³ The measurement system used to establish the inventory of material shall meet, or be qualitatively equivalent to, the latest international standards.

⁴ The accounting documents shall be retained for a minimum of 10 years.

Art. 10 Reporting obligations

The licence holder is required to submit the following reports to the SFOE:

- a. the design information for the facility, the supplementary information on the site, the safeguards by design information in accordance with Annex 2 number 1.1, and the information on substantial modifications to essential equipment;
- b. the inventory and inventory change reports in accordance with Annex 2 number 1.2;
- c. the notifications under Annex 2 number 1.2.

Section 3 **Safeguards for Installations under Article 2 Paragraph 1 Letter c**

Art. 11 Consideration of safeguards from the planning phase

The future implementation of safeguards in accordance with Annex 2 number 1.1 shall be considered from the time at which the planning of facilities begins (safeguards by design). In particular, the future installation of monitoring and measurement instruments that facilitate the verification of the material inventory and the uninterrupted monitoring of the material movements in accordance with Article 2 paragraph 1 letter a shall be included in the plans.

Art. 12 Specifying material balance areas

¹ The person with authority for a facility under Article 2 paragraph 1 letter c number 1 shall specify areas in the facility in which with material in accordance with Article 2 paragraph 1 letter a will be handled.

² He or she shall limit the material balance area so that the quantity of material within the area and the quantity that is moved beyond the boundaries of the area can be ascertained at all times.

³ He or she shall define key measurement points (KMPs) within a material balance area so that movements of such material within the material balance area can be ascertained at all times.

Art. 13 Person responsible for reports and conducting inspections

The person with authority for a facility under Article 12 paragraph 1 shall designate a person responsible for reports and for conducting inspections and entrust that person with the necessary competencies and provide him/her with the required resources.

Art. 14 Reporting obligations

¹ The person responsible for reports and inspections under Article 13 shall submit the reports in accordance with Annex 2 number 2 to the SFOE.

² In the case of closed-down facilities, he or she shall report each quarter to the SFOE on the removal or disablement of *essential equipment*.

³ The reporting obligations end as soon as the IAEA declares the facility to be decommissioned in relation to safeguards.

Section 4

Safeguards relating to the Manufacture, Assembly and Construction of Certain Types of Nuclear Equipment, and the Production and Upgrading of Heavy Water and Deuterium

Art. 15

¹ Any person who carries out activities in accordance with Annex 1 shall notify the SFOE about such activities on an annual basis. Notifications shall be submitted by 31 March of the following year at the latest.

² Notifications must include details of the location, nature and scope of the activities concerned.

Section 5

Safeguards relating to the Import, Export and Transport of Material in accordance with Article 2 paragraph 1 letter a and Accounting for such Materials Abroad

Art. 16 Notification requirement for the import, export and transport of material in accordance with Article 2 paragraph 1 letter a from or to facilities

Any person who imports or exports material in accordance with Article 2 paragraph 1 letter a from or to a facility or transports such material within Switzerland shall notify the SFOE at the latest 30 days before transport of the quantity, the physical form, the

chemical composition and the intended use. The licensing obligations under Article 6 paragraph 1 NEA are reserved.

Art. 17 Deliveries equivalent to import and export

The following deliveries are deemed equivalent to import and export:

- a. deliveries from and to diplomatic or consular representations;
- b. deliveries from and to international organisations;
- c. deliveries to and from open customs warehouses, warehouses for bulk goods, duty-free warehouses or customs enclaves.

Art. 18 Accounting for material in accordance with Article 2 paragraph 1 letter a number 1 abroad

¹ The owner of material in accordance with Article 2 paragraph 1 letter a number 1 for use in the nuclear fuel cycle that is located abroad shall keep an inventory thereof. In doing so, he or she shall provide the following information:

- a. on whether the material is natural uranium, depleted uranium, enriched uranium, thorium or plutonium;
- b. on the quantity rounded to whole kilograms;
- c. on the storage location and the address of the person responsible for storage;
- d. on the chemical composition;
- e. on the physical form; and
- f. on the intended use of such material.

² He or she shall notify the SFOE of the existing inventories of material as of the end of each calendar year by 31 March of the following year.

Section 6 Special Safeguards Measures

Art. 19 Notification requirement for persons in possession of terminated material in radioactive waste

¹ Any person in possession of high or intermediate level waste with terminated plutonium, terminated highly enriched uranium or terminated uranium-233 shall notify the SFOE of its storage location each year.

² The notification shall be made at the end of the calendar year and shall be submitted to the SFOE by 31 March of the following year at the latest.

³ The SFOE shall be notified in advance of any intention to further process such waste if isotopes are to be separated. For the purposes of this article, further processing does not include repackaging or conditioning for the purpose of storage or disposal.

Art. 20 Notification requirement for persons in possession of materials in accordance with Article 2 paragraph 1 letter a at locations outside facilities and for the import and export of such material to and from such locations

¹ Any person who possesses materials specified in Article 2 paragraph 1 letter a that are subject to a Federal Office of Public Health (FOPH) licence in accordance with the Radiological Protection Ordinance of 26 April 2017⁸ at locations outside facilities or modifies the inventory of such materials shall notify the SFOE of their quantity, physical form, chemical composition, storage location and intended use. The FOPH shall notify the SFOE of the licence holders.

² The SFOE shall, after consulting the FOPH, specify the extent, the frequency and form of these notifications in a guideline.

³ Any person who imports, exports or domestically transports more than 1000 kg of such materials in any quarter shall notify the SFOE at the latest 30 days before the transport of the quantity, physical form and chemical composition of the material and the intended use.

Art. 21 Exemption from safeguards for material in accordance with Article 2 paragraph 1 letter a

¹ On request, the SFOE may seek from the IAEA exemption from safeguards for materials under Article 2 paragraph 1 letter a in accordance with the Safeguards Agreement⁹.

² Any person who is in possession of such exempt material shall notify the SFOE annually of its quantity, physical form and chemical composition, storage location and use.

³ The report on the inventory at the end of the calendar year and on any changes in the course of the calendar year shall be submitted to the SFOE by 31 March of the following year at the latest.

Art. 22 Exploration or exploitation of uranium and thorium mines

¹ The holders of an exploration or exploitation licence for a uranium or thorium mine shall submit a copy of their licence to the SFOE. This obligation applies irrespective of whether the uranium or thorium is a main or by-product, and regardless of the extraction process used. The SFOE may request additional information.

² The following information shall be submitted to the SFOE each year by 31 March:

- a. situation maps with coordinates;
- b. the maximum annual production capacity (t uranium and/or thorium);
- c. a summary of the activities during the past calendar year;
- d. the exploited quantity in the past calendar year (t uranium and/or thorium).

⁸ SR 814.501

⁹ SR 0.515.031

Art. 23 Research and development related to the nuclear fuel cycle

Any person who carries out research and development activities related to the nuclear fuel cycle shall:

- a. provide the SFOE each year by 31 March with a description of the activities carried out in the past calendar year;
- b. on request notify the SFOE of the identity of the persons who carry out these activities.

Section 7 Inspections**Art. 24** Subject matter

¹ Inspections may be carried out to assess the implementation of safeguards.

² The following may be assessed in particular:

- a. in an inspection relating to the implementation of safeguards in accordance with Section 2, whether:
 1. the facility corresponds to the submitted design information,
 2. the location corresponds to the submitted supplementary information,
 3. the accounting has been carried out properly,
 4. the inventory of material in accordance with Article 2 paragraph 1 letter a corresponds to the information in the reports under Article 10;
- b. in an inspection relating to the implementation of safeguards in accordance with Section 3, whether:
 1. the reporting has been carried out properly,
 2. no material in accordance with Article 2 paragraph 1 letter a is present,
 3. the structure of the facility and the subdivision of the material balance areas are suitable for implementing safeguards.

³ In addition, the notifications in accordance with Articles 15–22 and the information in accordance with Article 23 may be assessed. Notifications relating to deliveries in accordance with Article 17 are exempted from this assessment.

Art. 25 Responsibility

¹ Inspections shall be carried out by the SFOE, where necessary together with IAEA inspectors.

² The SFOE may arrange with the safeguards officer for the inspections under Article 24 paragraph 2 letter a to be carried out by IAEA inspectors without the participation of the SFOE.

³ The SFOE may call on other federal authorities, specialised organisations and experts. Experts and the personnel of specialised organisations shall be obliged to observe official secrecy in accordance with Article 320 of the Swiss Criminal Code¹⁰.

Art. 26 Tolerance and cooperation

The persons entitled to authorise access to land and buildings that are subject to this Ordinance shall tolerate inspections by the SFOE and the IAEA and cooperate with the inspectors. They shall in particular:

- a. grant access even without advance notice:
 1. in the case of facilities under Article 2 paragraph 1 letter b: to the SFOE and the IAEA inspectors,
 2. in the case of facilities under Article 2 paragraph 1 letter c: to the SFOE;
- b. provide information about:
 1. the location that is being inspected,
 2. the activities carried out there,
 3. the safety measures required for the inspection, and
 4. the associated administration and logistics;
- c. provide telecommunications equipment, premises with electricity supply and means of transport within the location, insofar as this is required for carrying out the inspection;
- d. permit the carrying of information technology equipment, insofar as this is necessary for the proper conduct of the inspection.

Art. 27 Principles

¹ The SFOE shall take the precautions required for carrying out an inspection. It shall in particular:

- a. create the conditions necessary to ensure that operations in the inspected areas are disrupted as little as possible;
- b. ensure the protection of confidential data and installations;
- c. ensure the unambiguous classification of the information that becomes accessible.

² It shall decide after consulting the person entitled to authorise access to land and buildings that are subject to this Ordinance whether the IAEA inspectors are allowed access to sensitive information.

³ It shall ensure if requested by the person entitled to authorise access to land and buildings that are subject to this Ordinance that sensitive information is not removed from the inspected area.

¹⁰ SR 311.0

Art. 28 Powers

In the course of inspections, the following activities are authorised, in particular:

- a. land and buildings may be inspected and checked during normal operating and business hours;
- b. material in accordance with Article 2 paragraph 1 letter a may be verified;
- c. seals may be applied and removed;
- d. monitoring and measurement instruments may be installed, maintained and removed;
- e. visual examinations may be carried out;
- f. photographs may be taken;
- g. samples of materials specified in Article 2 paragraph 1 letter a and environmental samples may be taken;
- h. radiation measuring equipment may be used;
- i. operating reports and documents may be examined.

Art. 29 Restrictions

¹ The SFOE may restrict the activities of the IAEA inspectors in order to:

- a. ensure compliance with the provisions governing workplace safety, radiation protection or nuclear security;
- b. protect sensitive information.

² It may deny the IAEA inspectors access to the facilities if:

- a. the IAEA does not provide the required documents in due time, in particular the personal data relating to the inspectors, or if it has not made the required clarifications;
- b. regulations governing workplace safety or radiation protection would be violated.

Art. 30 Advance notice of inspection

¹ The SFOE shall notify the persons concerned of the time, the inspection location, the subject matter of the inspection and the participants in an inspection.

² In the case of unannounced inspections, access shall be granted to the facility within two hours of the arrival of the inspectors.

Art. 31 Refund of costs, support for compensation claims

¹ Ongoing costs, in particular for data transmission, or extraordinary costs that arise as the result of a request by the IAEA, shall be refunded by the IAEA provided the person or company concerned has requested a refund and the IAEA has declared its readiness in advance to refund such costs. The relevant requests shall be submitted to the SFOE.

² In the event that any person should be harmed during an inspection, the Confederation shall support the person concerned in asserting his or her legal rights within the limits of its own legal powers.

³ Liability for loss or damage incurred due to unlawful conduct by representatives of the Confederation is governed by the Government Liability Act of 14 March 1958¹¹.

Section 8 Criminal Provisions

Art. 32 Offences under the Nuclear Energy Act

Under Article 93 NEA, it is an offence for any person:

- a. to fail to comply with the obligation of establishing a zone in accordance with Articles 7 and 12;
- b. to fail to comply with the accounting, reporting and notification requirements specified in Articles 9, 10, 14, 16, 18, 19, 22 and 23;
- c. to fail to comply with the notification requirement specified in Article 21 in relation to facilities;
- d. to prevent inspections in accordance with Article 24 relating to the accounting, reporting and notification requirements mentioned in letters b and c from being carried out;
- e. to fail to comply with the obligations to tolerate and cooperate specified in Article 26 in the course of inspections in accordance with letter d.

Art. 33 Offences under the Goods Control Act

Under Article 15 GCA it is an offence for any person:

- a. to fail to comply with the notification requirement specified in Article 15;
- b. to prevent inspections to assess compliance with the notification requirement specified in Article 15 from being carried out;
- c. to fail to comply with obligations to tolerate and cooperate specified in Article 26 in the course of inspections in accordance with letter b.

Art. 34 Offences under the Radiological Protection Act

Under Article 44 paragraph 1 RPA it is an offence for any person:

- a. to fail to comply with the notification requirement specified in Article 20;
- b. to fail to comply with the notification requirement specified in Article 21 in relation to locations outside facilities;
- c. to prevent inspections under Article 24 to assess compliance with the notification requirement mentioned in letters a and b from being carried out;

¹¹ SR 170.32

- d. to fail to comply with obligations to tolerate and cooperate specified in Article 26 in the course of inspections in accordance with letter c.

Section 9 Final Provisions

Art. 35 Amendments by DETEC

The Federal Department of the Environment, Transport, Energy and Communications (DETEC) shall amend Annexes 1 and 2 if Switzerland's international obligations in relation to safeguards so require.

Art. 36 Repeal of other legislation

The Safeguards Ordinance of 21 March 2012¹² is repealed.

Art. 37 Commencement

This Ordinance comes into force on 1 July 2021.

¹² [AS 2012 1703; 2016 2195 Annex 8 no 2]

Annex 1

(Art. 2 para. 1 let. e and 15 para. 1)

**Nuclear equipment, heavy water and deuterium,
and related activities subject to notification**

Notification must be given of the following:

1. the manufacture of centrifuge rotor tubes and the assembly of gas centrifuges, whereby:
 - 1.1 *centrifuge rotor tubes* are thin-walled cylinders as specified in Annex 2 part 1 Export Control Number (ECN) 0B001.b.3 of the Goods Control Ordinance of 3 June 2016¹³ (GCO),
 - 1.2 gas centrifuges (Annex 2 part 1 ECN 0B001.b GCO) have the following properties and features:
 - 1.2.1 they normally consist of one or more thin-walled cylinders of between 75 mm and 400 mm diameter,
 - 1.2.2 they have rotating components that have a high strength to density ratio so that they can spin at a high peripheral speed of the order of 300 m/s or more around their vertical axis in a vacuum environment,
 - 1.2.3 their individual parts and as a whole are manufactured to tight tolerances;
2. the manufacture of *diffusion barriers*, whereby diffusion barriers are thin, porous filters as specified in Annex 2 part 1 ECN 0B001.c.1. GCO;
3. the manufacture or assembly of *laser-based systems* with components as specified in Annex 2 part 1 ECN 0B001.g and h GCO;
4. the manufacture or assembly of *electromagnetic isotope separators* with ion sources as defined in Annex 2 part 1 ECN 0B001.j.1–6 GCO;
5. the manufacture or assembly of *columns or extraction equipment* as specified in Annex 2 part 1 ECN 0B001.e.1–3 and 6 and 0B001.f.1–3 GCO;
6. the manufacture of *aerodynamic separation nozzles* or *vortex tubes* as specified in Annex 2 part 1 ECN 0B001.d.1 and 2 GCO;
7. the manufacture or assembly of *uranium plasma generation systems*, whereby uranium plasma generation systems are specially designed or prepared systems for the *generation of uranium plasma*, which may contain high-power strip or scanning electron beam guns with a delivered power on the target of more than 2.5 kW/cm;
8. the manufacture of *zirconium tubes* as specified in Annex 2 part 1 ECN 0A001.f GCO;

¹³ SR 946.202.1

9. the manufacture and upgrading of *heavy water* or *deuterium*, meaning *deuterium* (deuterium oxide) and any other deuterium compound in which the ratio of deuterium to hydrogen atoms exceeds 1:5000;
10. the manufacture of *nuclear grade graphite*, meaning graphite with a purity level better than 5 parts per million boron equivalent and with a density greater than 1.50 g/cm³;
11. the manufacture of *flasks for irradiated fuel*, meaning vessels for the transport and/or storage of irradiated fuel which provide chemical, thermal and radiological protection and dissipate decay heat during handling, transportation and storage;
12. the manufacture of *reactor control rods* as specified in Annex 2 part 1 ECN 0A001.d GCO;
13. the manufacture of *criticality safe tanks and vessels* as specified in Annex 2 part 1 ECN 0B006 introduction c and e GCO;
14. the manufacture of *irradiated fuel element chopping machines* as specified in Annex 2 part 1 ECN 0B006 Note b GCO;
15. the construction of *hot cells*, meaning individual cells or interconnected cells totalling at least 6 m³ in volume with shielding equal to or greater than the equivalent of 0.5 m of concrete, with a density of 3.2 g/cm³ or greater, outfitted with equipment for remote operations.

**1 Reporting obligations for facilities specified
 in Article 2 paragraph 1 letter b**

1.1 Design and supplementary information

For new facilities and facilities or sites that have undergone modifications, the design and supplementary information shall be submitted, preferably in English, together with the necessary plans, sketches and tables.

Report	Content	Frequency /Deadline
1.1.1 Design information questionnaire, DIQ	<ul style="list-style-type: none">– Description of facility, indicating essential features, purpose, nominal capacity, location, address and name of person responsible– Description of flow-through of material in accordance with Article 2 paragraph 1 letter a, and arrangement of the main equipment and components in which such material is used, produced or processed– Relevant facility plans with coordinates as an attachment– Description of the characteristics of the facility, insofar as these have a bearing on accounting for material, areal delimitation and surveillance– Description of the processes used and planned for in the facility for taking inventory and accounting for such material, taking particular account of the defined material balance areas, flow-through measurements and the procedure used for recording the existing quantities of material	In the case of new facilities within 3 months of granting of the construction licence or as required, depending on the extent of the modifications

Report	Content	Frequency /Deadline
1.1.2	Supplementary – General description of the site of a facility, including all buildings, their external dimensions and indication of number of floors, together with their use – On request: additional plans of buildings – Description shall be accompanied by the layout plan, showing the limits of the site and indicating the coordinates	Once only, and after modifications, by 31 March of the following calendar year
1.1.3	Safeguards by design information – Technical and structural consideration of safeguards	During the planning and construction phase for substantial changes

1.2 Inventory and inventory change reports on material in accordance with Article 2 paragraph 1 letter a and notifications

The following reports shall be provided for each individual material balance area (MBA):

Report / Notification	Content	Frequency/Deadline
1.2.1	Advance Notification, AN – Data relating to transport and the material to be transported in accordance with Article 2 paragraph 1 letter a	On shipping: at least 30 days before packing for shipping On delivery: at least 30 days before arrival
1.2.2	Concise Notes, – CN Brief explanatory information	As required together with the related ICR, PIL and MBR
1.2.3	Inventory Change Report, ICR – Changes in the inventory	Following changes, by the 15th of the following month

	Report / Notification	Content	Frequency/Deadline
1.2.4	Notification	<ul style="list-style-type: none"> – Inventory as at the end of the calendar year and any change to the inventory in the calendar year, use or intended use and physical form and chemical composition of materials that due to their composition or their purity level are not yet suitable for fuel production or isotope enrichment – Data relating to the conditioning of such materials – Information on planned exceptional activities that affect or may affect safeguards – Information on exceptional events or findings that affect or may affect safeguards 	<p>At the latest on 31 March of the following year</p> <p>At least 30 days before conditioning</p> <p>On completion of planning</p> <p>48 hours at the latest after discovery</p>
1.2.5	Material Balance Report, MBR	<ul style="list-style-type: none"> – Beginning physical inventory – Inventory changes – Ending book inventory – Shipper/receiver differences – Adjusted ending book inventory – Ending physical inventory – Material unaccounted for 	Calendar year, 15 days after inventory taking
1.2.6	Physical Inventory Listing, (PIL) in accordance with Article 2 paragraph 1 letter a	<ul style="list-style-type: none"> – List of each individual <i>batch</i> with details of the material 	Calendar year, 15 days after inven- tory taking

1.3 **Operating records**

The operating records shall be always up-to-date.

Record	Content
1.3.1 <i>General Ledger</i>	<div>– For each change in inventory, the time and material balance area from which the material has been removed or into which it has been brought shall be indicated</div>
1.3.2 Item list	<div>– List of each item</div> <div>– Allocation of each item to a batch</div> <div>– Material designation of each item</div> <div>– Data on each item</div> <div>– Location of each item</div> <div><i>Note:</i> The item list shall be submitted together with the related PIL.</div>

Record	Content
1.3.3 Additional operating records	<ul style="list-style-type: none">– These shall contain the following information for each material balance zone as pertinent for each facility:<ul style="list-style-type: none">a. operational data used for calculating changes in the quantity and composition of the material in accordance with Article 2 paragraph 1 letter ab. results of all measurements used to calculate the inventory of such materialc. all adjustments and corrections that have been carried out concerning inventory changes, recorded quantities and existing quantities of materiald. data obtained when calibrating containers and instruments, taking samples and carrying out analyses, procedures for verifying the accuracy of measurements, and derived estimates of random and systematic errorse. description of the methods of preparing and recording the inventory of such material in order to ensure its accuracy and completenessf. description of the steps that have to be taken in order to determine the cause and magnitude of a loss resulting from an incident or a non-recorded measurement

**2 Reporting obligations for facilities in accordance
with Article 2 paragraph 1 letter c**

2.1 *Safeguards by design, design and supplementary information*

For new facilities and facilities and sites that have undergone modifications, the design and supplementary information shall be submitted, preferably in English, together with the necessary layouts, sketches and tables.

Report	Content	Frequency/Deadline
2.1.1 Safeguards by design information	– Technical and structural procedures for implementing safeguards	At the beginning of the planning phase As required, depending on the extent of the modifications
2.1.2 Design Information Questionnaire, DIQ	– Description of facility, indicating essential features, purpose, nominal capacity, location, address and name of person responsible – Description of planned or previous flow-through of material in accordance with Article 2 paragraph 1 letter a and the arrangement of the main equipment and components in which such material is used, produced or processed – Description of equipment and components for handling such material that have been taken out of service or dismantled; – Relevant facility plans with coordinates as an attachment – Description of main characteristics of the facility insofar as these have a bearing on the accounting for such material, areal delimitation and surveillance	In the case of new facilities, within 3 months after date of approval of the construction licence If required, depending on the extent of modifications

Report	Content	Frequency/Deadline
	<ul style="list-style-type: none">– Description of processes used and planned for taking inventory and controlling of material in accordance with Article 2 paragraph 1 letter a, taking into particular account of the defined material balance zones, flow-through measurements and the procedure used for recording the existing quantities of such material	
2.1.3	<p>Supplementary information</p> <ul style="list-style-type: none">– General description of the site of a facility, including all buildings, external dimensions and indication of number of floors, together with their use.– On request: additional plans of buildings– The description shall be accompanied by the layout plan, showing the limits of the site, the scale, and indicating the coordinates	Once only, and after modifications, by 31 March of the following calendar year

