

Chapter 3

Non-proliferation in the nuclear field

With regard to international control of nuclear material, there are two organizations which oversee control in France: the International Atomic Energy Agency (IAEA) (international control) and the European Atomic Energy Community (Euratom) (regional control). This control comes within the framework of France's undertakings regarding non-proliferation.

3.1. *Historical background*

3.1.1. IAEA

On December 8, 1953, when the President of the United States set out his "Atoms for Peace" plan, he laid the foundations for what was to become the International Atomic Energy Agency (IAEA). It was also the first step toward the international initiative to ensure the non-proliferation of weapons of mass destruction.

In October 1956, the Statute of the IAEA was adopted in New York, on the fringes of a UN conference. In July 1957, after 26 Member States had deposited their instruments of ratification, the IAEA Statute (Figure 28) entered into effect. The Statute sets forth two fundamental and complementary principles: first, the aim of the Agency is to promote the peaceful use of nuclear energy, and second, it must ensure that nuclear material said to come under international safeguards is not used for military purposes. The IAEA's headquarters are in Vienna, Austria (Figure 27).



Figure 27. IAEA headquarters in Vienna, Austria. © Rodolfo Quevenco/IAEA.

From 1959 to 1961, the General Assembly of the United Nations adopted a number of resolutions relative to non-proliferation and, during the 1960s, several draft treaties were debated. In the end, on July 1, 1968, the Non-Proliferation Treaty (NPT) was opened for signature in Moscow, Washington and London. It came into force on March 5, 1970, following ratification by the three depositary powers and forty other Member States.

According to the Treaty, Nuclear-Weapon States, known as NWS (States that exploded a nuclear weapon prior to January 1, 1967), must not assist any Non-Nuclear Weapon State, or NNWS, to acquire nuclear weapons. There are five NWS as defined in the NPT (the United States, the Russian Federation, the United Kingdom, France and the People's Republic of China). According to the terms of the NPT, all other States are non-nuclear-weapon States.

Every NNWS which becomes party to the NPT undertakes not to acquire nuclear weapons or any other nuclear explosive device. It also agrees to conclude a comprehensive safeguards agreement with the IAEA, which provides for the application of safeguards to its present or future nuclear activities, with a view to verifying compliance with the State's obligations under the terms of the Treaty.

In return, the Treaty recognizes the Party's right to the fullest possible exchange of equipment, nuclear material and scientific and technological information for the peaceful use of nuclear energy. The Parties also undertake to pursue negotiations regarding nuclear disarmament in good faith, meaning full and comprehensive disarmament, and, in the preamble, reaffirm their determination to stop nuclear weapons testing.

On August 2, 1992, France was the last of the five nuclear-weapon States to join the NPT, regarding which, up to then, it had declared that it would comply with the provisions therein.

In New York, on May 11, 1995, the NPT was extended for an unlimited period of time. To date, three States have not signed the NPT: India, Israel and Pakistan. It should be mentioned that North Korea has announced its intention to withdraw from the NPT.

The fundamental objectives of the NPT are the timely detection of diversion of significant quantities of nuclear material from peaceful nuclear activities to the manufacture of nuclear weapons or of other nuclear explosive devices or for purposes unknown, and deterrence of such diversion by the risk of early detection. IAEA control is focused on the end use of nuclear material. Control is exercised over the body regulating the use of nuclear material, namely the State. It is based on a system of safeguards.

The IAEA's international safeguards "*are applied to verify a State's compliance with its undertaking to accept safeguards on all nuclear material in all its peaceful nuclear activities*". The safeguards system for non-proliferation was created in 1957, at the same time as the adoption of the IAEA Statute, but the system did not really come into its own until 1970 when the NPT came into effect, particularly Article III. There are three main types of safeguards agreement:

1. **Comprehensive Safeguards Agreements.** Affording an appropriate and identical legal framework for all signatories, a model comprehensive safeguards agreement was drawn up in 1971. It is mainly based on the verification by the IAEA of nuclear material accountancy and physical monitoring for all declared nuclear material.
2. **Voluntary Offer Agreements.** France, like the other four NWS, was not obliged to sign a safeguards agreement with the IAEA. It did, however, sign, on a voluntary basis, and as did the other four recognized nuclear powers, a safeguards agreement inspired by the model comprehensive safeguards agreement signed between the IAEA and the NNWS, but adapted to the specific status and interests of France. Under this agreement, signed on July 27, 1978, France notifies the IAEA's safeguards system of all the nuclear material it designates, in selected facilities or parts of facilities. To factor in the security control exercised by the European Atomic Energy Community (see below), the safeguards agreement signed by France is trilateral, with Euratom also party to the agreement.
3. **Item-specific Safeguards Agreements.** Certain States (India, Israel and Pakistan), which have not signed the NPT, have signed more limited agreements with the IAEA, applicable only to nuclear material, equipment and facilities specified in the agreement.

The discovery that Iraq was developing a clandestine military nuclear program and the difficulties encountered by the IAEA in North Korea have since revealed the inadequacy of the measures applied under the safeguards agreements, even in the case of the comprehensive safeguards agreements. With a view to mitigating these inadequacies, the IAEA Secretariat began, in 1993, working on an ambitious program to strengthen the safeguards system. The fundamental objectives of this program were, first, to improve the IAEA's capabilities for detecting clandestine activities and, second, to improve the effectiveness and the results of the safeguards. This program was divided into two parts. The first focused on measures that could be implemented without altering the existing legal framework. The second focused on measures whose implementation

would require giving the IAEA new legal powers. The result of these new measures has been a model additional protocol to the existing safeguards agreements. This was adopted at an extraordinary meeting of the IAEA Board of Governors, on May 15, 1997.

On September 22, 1998, France signed an Additional Protocol, also inspired by the model drawn up for NNWS. Like the agreement to which it is an addition, this protocol also involves Euratom. France must therefore comply with new undertakings and regularly submit declarations to the IAEA, including:

- research and development activities relative to the fuel cycle conducted in cooperation with NNWS;
- operations relative to the manufacture of non-nuclear material or equipment that could potentially be used in nuclear programs, conducted in cooperation with persons or companies in a NNWS;
- the import and export of medium- and high-level radioactive waste containing plutonium, uranium 235 or uranium 233, from or to a NNWS;
- the export to a NNWS of certain non-nuclear material or equipment that could be used in a nuclear program;
- activities planned in cooperation with a NNWS for the ten years to come which are related to developing the nuclear fuel cycle.

On behalf of France, Euratom also declares to the IAEA all production from uranium mines and ore concentration plants, together with any transfer of such ore.

It should also be mentioned that the IAEA can require additional information (clarifications) relative to these declarations and, under certain conditions, perform verifications ("complementary access") at any site in France.

France's implementation of the Additional Protocol is managed by the Euratom Technical Committee (CTE, see 3.4.2) and its technical support, IRSN, which is more specifically tasked with preparing declarations (see below).

Since the 2000s, the IAEA has also been developing the concept of "Integrated Safeguards". Integrated Safeguards are defined as the optimum combination of all safeguards measures available to the IAEA under comprehensive safeguards agreements and additional protocols. Only when the IAEA has drawn a conclusion of the absence of undeclared nuclear material and activities in that State does it develop for that State a specific control approach based on higher level of trust, leading to a reduced number of inspections and more unannounced verifications.

3.1.2. Euratom (the European Atomic Energy Community)

The Euratom Treaty, signed by France in Rome on March 25, 1957, founded the European Atomic Energy Community (EURATOM). Membership of the European Union implies ratification of this treaty. The history, drafting and entry into force of this treaty coincide with the treaty founding the European Economic Community. The objectives of the Euratom Treaty are to contribute to the development and growth of nuclear industries



History of EURATOM and the Non-Proliferation Treaty

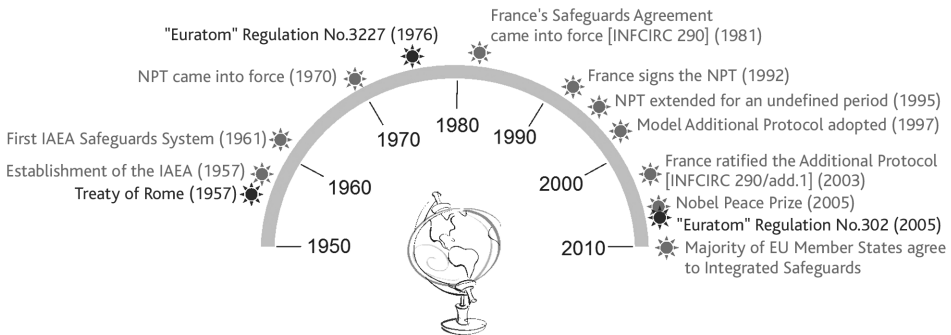


Figure 28. Key dates in the implementation of the Euratom Treaty and the Non-Proliferation Treaty.

in Europe, ensuring that all EU Member States may benefit from the development of atomic energy for peaceful ends, particularly the non-nuclear-weapon States, and to ensure security of supply regarding ore and nuclear fuel. Figure 28 shows the key dates in the implementation of the Euratom Treaty and the Non-Proliferation Treaty.

Under the Treaty, Euratom is specifically responsible for:

- developing research and disseminating technical knowledge;
- setting harmonized security standards to protect the health of the population and of workers, and oversee their application;
- facilitating investment and ensuring that the basic facilities essential to the development of nuclear energy in the European Union are built;
- ensuring the regular and fair supply to all users in the EU of ore and nuclear fuel (Euratom Supply Agency set up);
- by means of appropriate control measures, ensuring that nuclear material is not diverted and used for purposes other than those intended. This control could be considered as a conformity control;
- promoting progress in the peaceful use of nuclear energy by working with non-EU countries and international organizations;
- setting up joint companies.

The key provisions of the Euratom Treaty have not changed since it came into force on January 1, 1958. The above-mentioned responsibilities are set out in ten chapters of the Treaty. Implementation of Chapters VI and VII directly concerns French industry.

Chapter VI is about supply. *"The supply of ores, source materials and special fissile materials (see below) shall be ensured [...] by means of a common supply policy on the principle of equal access to sources of supply. For this purpose [...]: b) an Agency [the*

Supply Agency] is hereby established; it shall have a right of option on ores, source materials and special fissile materials produced in the territories of Member States and an exclusive right to conclude contracts relating to the supply of ores, source materials and special fissile materials coming from inside the Community or from outside."

Chapter VII of the Euratom Treaty establishes safeguards in the Community Member States. These safeguards are based on a system of declarations and inspection procedures.

Under the terms set out in this Chapter, *"the Commission shall satisfy itself that, in the territories of Member States:*

- a. *ores, source materials and special fissile materials are not diverted from their intended uses as declared by the users;*
- b. *the provisions relating to supply and any particular safeguarding obligations assumed by the Community under an agreement concluded with a third State or an international organisation are complied with."*

Technical developments in the nuclear industry in general, and in the area of safeguards in particular, together with the Additional Protocol entering into force in EU Member States, have made it necessary to publish a series of regulations which take account of such developments. The most recent, Regulation 302/2005 on the application of Euratom safeguards, was signed on February 8, 2005. It came into force 20 days after its publication on February 28, i.e. on March 20, 2005.

In addition to the application of additional protocols (trilateral agreements between EU Member States, Euratom and the IAEA), Regulation 302/2005 updates all the obligations applicable under previous regulations. It enables the European Commission to extend safeguard provisions to technological developments in the nuclear industry. There are three changes of particular note: safeguards applicable to waste treatment and waste storage installations (the previous regulation stopped safeguards once nuclear material was considered waste), changes to the format of declarations, and the more widespread transmission of information in electronic form.

The European Commission also set out recommendations, which are not legally binding, as guidance for operators in the application of this Regulation.

3.1.3. Some definitions

The Euratom Treaty and Article XX of the IAEA Statute give the international definition of nuclear material, which applies only to uranium, plutonium and thorium, whereas French regulations extend the definition to deuterium, tritium and lithium 6 (see 1.1.1). In Regulation 302/2005, four categories of nuclear material are defined:

- "special fissile materials", i.e. plutonium 239, uranium 233, uranium enriched in uranium 235 or uranium 233, and any substance containing one or more of the foregoing isotopes and such other fissile materials as may be specified by the Council, acting by a qualified majority on a proposal from the Commission; the expression "special fissile materials" does not, however, include source materials;

- “uranium enriched⁵ in uranium 235 or uranium 233” means uranium containing uranium 235 or uranium 233 or both in an amount such that the abundance ratio of the sum of these isotopes to isotope 238 is greater than the ratio of isotope 235 to isotope 238 occurring in nature;
- “source materials” means uranium containing the mixture of isotopes occurring in nature; uranium whose content in uranium 235 is less than the normal; thorium; any of the foregoing in the form of metal, alloy, chemical compound or concentrate; any other substance containing one or more of the foregoing in such a concentration as shall be specified by the Council, acting by a qualified majority on a proposal from the Commission;
- “ores” means any ore containing, in such average concentration as shall be specified by the Council acting by a qualified majority on a proposal from the Commission, substances from which the source materials defined above may be obtained by the appropriate chemical and physical processing.

It should be mentioned that neither the IAEA nor the French regulations consider ores to be nuclear material but that they are subject to Euratom safeguards.

3.2. *Declarations*

3.2.1. *General approach*

3.2.1.1. Notification of imports/exports of nuclear material

The effectiveness of the non-proliferation regime depends largely on the system of declarations made to Euratom and the IAEA of operations involving nuclear material, together with onsite verification by independent inspectors (from Euratom or the IAEA). According to that, any movement of nuclear material is strictly controlled. This is why nuclear operators are required to declare any transfer of the materials mentioned in the Euratom Treaty and the IAEA safeguards provisions. Figure 29 shows the principle of nuclear material control in France.

In practice, the notification of nuclear material transfers has five main objectives:

- to plan verification operations covering nuclear material upon being removed from a facility or upon arrival at a facility;
- to apply for authorization to transfer nuclear material to another State within the framework of certain agreements undertaken by France or Euratom;
- to receive information on transfers prior to such transfer;
- to monitor the flow of material and verify that States comply with their international undertakings;
- to detect any problems during transport.

5. Enrichment is the ratio between the combined mass of uranium 233 and uranium 235 isotopes and the total mass of the uranium in question.

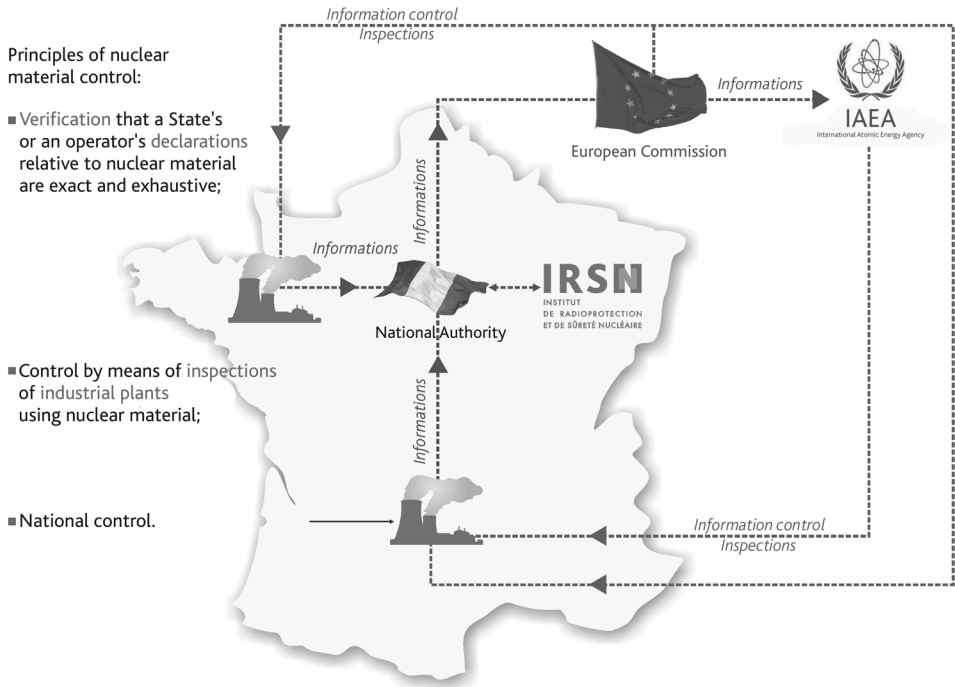


Figure 29. Illustration of the principle of nuclear material control in France.

All French operators that import or export nuclear material are subject to the regulatory obligation to notify all such transfers to the European Commission. Under the agreements signed by France, these notifications are, where necessary, transmitted to the IAEA, and possibly to the authorities in certain third countries within the framework of agreements between France or Euratom and said third countries.

Nuclear material cannot be transferred before contracts have been signed, information shared and authorization granted (trade contracts, export licenses, notification of nuclear material transfer, customs declarations, etc.).

Any transfer of nuclear material from one country to another (whether or not it belongs to the EU) implies that the nuclear material in question comes under the provisions of one or more treaties or agreements. Have to be distinguished the agreements signed by the European Commission, those relative to the application of IAEA safeguards and the bilateral agreements undertaken by two countries:

- application of Euratom Regulation 302/2005 requires notifying the European Commission of any transfer of nuclear material. This Regulation specifies the conditions relative to exports and imports;
- some international IAEA agreements, published in the form of information circulars (INFCIRC), cover, among other points, application of safeguards during the transfer of material from one country to another. In this context, France has

signed undertakings that provide for the transmission of prior notification before any transfer of nuclear material;

- intergovernmental agreements between France and other countries — including Australia and Japan — provide the framework for nuclear cooperation and set out the undertakings of each party.

Several government entities are involved in managing France's various non-proliferation and nuclear cooperation undertakings at international level. Nonetheless, to simplify entry points, all import and export notifications are transmitted to the Euratom Technical Committee (CTE) and IRSN, which processes them on behalf of the operators and the authorities in charge.

To assist French operators in drawing up their nuclear material transfer notifications, IRSN provides an internet portal for industry players to transmit the required information as simply as possible. IRSN has also developed a handbook setting out the main regulatory obligations and describing how to use the tools for transmitting notifications to the French authorities. This handbook is widely disseminated to the industry players in question.

3.2.1.2. Other types of declaration

- any person or company which uses nuclear material is required to declare to the Commission the “basic technical characteristics” of the installation in which it is intended to hold nuclear material at least 200 days prior to the initial delivery of nuclear material to this installation. This means general information on the installation which must specify the purpose and the nuclear material tracking and accountancy methods implemented. A specific guide is provided in the Regulation for each type of installation (energy generation in reactors, research activities, storage, waste treatment, etc.);
- for each installation in question, a general activity program for the coming year must be transmitted annually to the European Commission, *via* the CTE, so that inspections can be scheduled. This document must include the date scheduled by the operator for the annual inventory and the date scheduled to verify this inventory by Euratom inspectors;
- for each area in which nuclear material is held, or MBA (Material Balance Area), the people and companies subject to Regulation 302/2005 must send the Commission reports of any inventory change for all the nuclear material held. These reports must include identification of the material, the types of inventory change, the dates of inventory changes and, where applicable the shipper's MBA and the recipient's MBA or the recipient. The reports must also mention end-of-month stock and, where applicable, stock on the date that the inventory is taken;
- for each MBA, a “Material Balance Report” must be sent to the Commission. This report is drawn up after a physical inventory to validate the physical inventory with the accounting inventory for the MBA and balancing any accounting inventory changes since the previous inventory;

- for each MBA, a physical inventory report must be sent to the Commission. This is a document drawn up by the operator, stating the inventory of the batches of nuclear material held in each MBA;
- the transfer of conditioned waste to an installation located within or outside the territory of a Member State must be declared to the Commission every year;
- in exceptional circumstances (loss or discovery of nuclear material), a special report must be sent to the Commission, *via* the CTE. This special report must be drawn up immediately;
- operators may be required by IRSN to submit other information, not required under the Regulation or the Euratom Treaty, on an exceptional and occasional basis, for example, to clarify any inconsistency.

The French authorities regularly ask IRSN to analyze the above-mentioned information before it is transmitted to the European Commission.

3.2.2. *Declarations required under the Additional Protocol*

The Euratom Technical Committee (CTE) is in charge of drawing up the French declaration to submit to the IAEA under the terms of the Additional Protocol. IRSN, as technical support to the CTE, contacts French industry players, informs them of their obligations and collects their declarations. To do this, IRSN has drawn up a guide to declarations, enabling industry players to determine whether they are affected by the Additional Protocol and, if so, to draw up their declarations. An online declaration portal was also developed in 2014 to enable industry players to submit their declarations online.

An annual declaration is required for:

- public research and development activities conducted in cooperation with a NNWS;
- private research and development activities conducted in cooperation with a NNWS;
- cooperation with a NNWS planned within the coming 10 years;
- imports from a NNWS and exports to a NNWS of high- and intermediate-level conditioned waste;
- activities relative to the manufacture of equipment that could potentially be used in nuclear programs, conducted in cooperation with a NNWS.

The annual declaration serves to describe a new activity or update the description of activities submitted in the initial declaration or in the preceding annual declaration (modification, no change in activities, activities stopped, etc.).

A quarterly declaration is required for exports from or to a NNWS of equipment or non-nuclear material (which could potentially be used in nuclear programs) during the preceding quarter.

3.3. *Inspection procedure*

3.3.1. *General approach*

The procedure for inspections by the European Commission or the IAEA begins when these entities send advance notification of inspection. In the case of inspection by the European Commission or the IAEA, it is France which is inspected, even if the inspection actually is held at the site of a French nuclear operator (AREVA or EDF, for example) (Figure 30). Inspections are carried out by European inspectors or IAEA inspectors who are certified by the French authorities. What follows mainly describes the procedure adopted for European Commission inspections, by far the most numerous carried out in France compared to those carried out by the IAEA. These inspections are defined in the Euratom Treaty, other than which there are no specific documents regulating this activity.

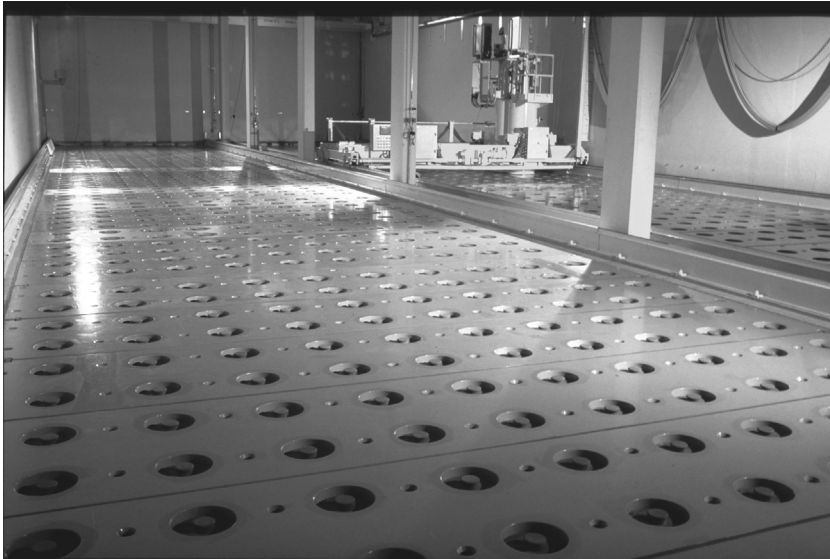


Figure 30. Intermediate storage building, AREVA La Hague site, Cherbourg. France. © AREVA, Philippe Lesage.

There are several types of inspection:

- routine inspections (or systematic inspections). This is the most common type of inspection. The main checks made during this type of inspection include verification of accountancy, physical verifications and checking measurements and automated recordings since the last inspection (if cameras or recording equipment belonging to Euratom are installed at the site);
- inventory verifications. This consists in verifying a physical inventory and comparing it with the material accountancy system;
- high frequency inspections, held at installations for which the provisions stipulate special safeguards measures and which contain significant quantities of special fissile material (plutonium or highly enriched uranium);

- verifications of imports and exports declared by prior notification. These mainly focus on physical verification of declarations of nuclear material imports/exports outside the EU;
- special inspections in the event of loss or accidental discovery of nuclear material, subject to special reports, or of accidentally breaking a seal, or in an emergency;
- unannounced inspections (with no advance notice sent to the Member State specifying the installation to be inspected) or short notice inspections; this type of inspection is carried out as a result of the EC's desire to harmonize inspection practices across the European Union. Short notice inspections are associated with the implementation of new containment and surveillance measures and aim to reduce the Commission's burden of inspection;
- verifications limited to "basic technical characteristics", aimed at verifying that the information submitted is consistent with physical reality.

Since 2005, the Commission has introduced what it calls new control approaches. In addition to physical verifications and accountancy verifications, the Commission inspectors now examine the practices and quality assurance systems implemented by the operators, especially in the area of nuclear material accountancy, through an approach similar to an "audit".

Since the early 2000s, and all the more so since the enlargement of the European Union since 2005, the number of inspections performed by the European Commission in France, and their length, has decreased for financial reasons.

In 2002, in France, verifications necessitated a total of over 2,700 person-days (one person-day means one inspector spending one day at a facility); this figure fell to only 1,389 person-days in 2010. Since then, the number of person-days spent on inspections in France by the European Commission has stabilized (Figure 31).

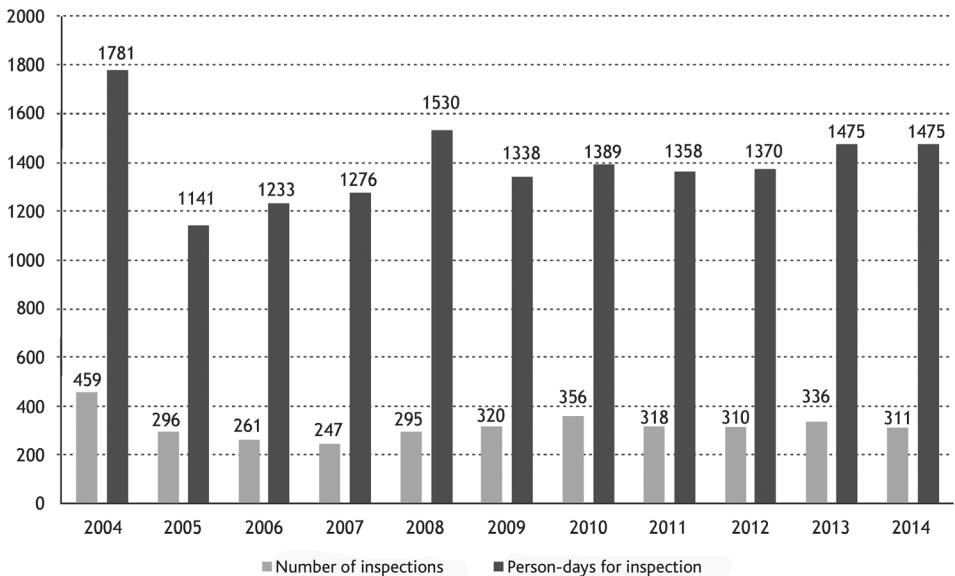


Figure 31. Histogram of inspections performed in France by Euratom from 2004 to 2014.

An inspection is usually based on three phases:

1. A preparatory phase, mainly involving Euratom inspectors since it consists in planning the inspection, collecting information on previous inspections, defining objectives and then sending notice as required to give the inspectors access to the site.
2. An *in situ* phase, at the facility, which usually consists in (accountancy and physical) verifications. Depending on the size of the facility, the type of inspection and the sensitivity of the material to be controlled, this phase can take from one to ten days. It entails physical verifications, measurements based on the list of items in stock, and verifications on the accountancy system implemented at the site (Figure 32).
3. A "post-inspection" phase, enabling the Euratom Commission to draw conclusions based on the inspection's findings and to transmit any observations it may have, and enabling IRSN people, in cooperation with the operator, to then implement any actions required as a result of the Euratom Commission's observations.

Following an inspection, the operator must draw up a report for the national authorities so that they can monitor Euratom's actions.

At the site, inspectors may be escorted by the French authority (the CTE) or its representative, usually someone from IRSN. It should be mentioned that IRSN does not escort every inspection held; priority is given to inspections held to verify the annual inventory. However, if any difficulties are foreseen, an operator may request support from IRSN for an upcoming inspection. The escort (from CTE or IRSN) is tasked with enabling the inspectors to perform their verifications correctly while protecting the operator's interests (to protect manufacturing secrets and industrial know-how, etc.). More specifically, the escort must:

- assist and advise the operator on the behaviors during the inspection and the responses given to the inspectors;



Figure 32. Samples for Euratom inspection. © European Community — Directorate-General for Energy and Transport.

- ensure that inspections at French facilities proceed smoothly;
- ensure the application of French authority directives negotiated with the Commission's services;
- ensure that the inspectors do not overstep the prerogatives defined in their inspection mandate.

Following an inspection, the escort must draw up an escort report to be submitted to the CTE and the operator.

3.3.2. Complementary access

Complementary access is dealt with by the IAEA in accordance with the provisions set out in France's Additional Protocol. Such access may be required for:

- case 1: sites declared by the operator under the Additional Protocol and regarding which a declaration has been submitted to the IAEA;
- case 2: any other site in France.

A complementary access inspection is held on the decision of the IAEA:

- in case 1, to verify that a declaration is accurate and exhaustive or to resolve any inconsistency;
- in case 2, to enhance its ability to detect any clandestine nuclear activities in a non-nuclear-weapon State.

The IAEA shall send notice by fax to the French authorities (the CTE) that such access has been decided at least 24 hours in advance. This document specifies:

- the site and purpose of complementary access;
- the objective of complementary access and the activities likely to be performed by the inspectors (e.g.: visual observations, collection of environmental samples, utilization of radiation detection and measurement devices, examination of production and shipping records);
- the date and time that complementary access will start;
- the names and nationalities of the inspectors who will visit the site.

An escort team, led by a person representing the French State to the IAEA inspectors and the operator, shall take part in complementary access. Its role is to ensure that complementary access proceeds smoothly and to ensure that the verification operations performed comply with the provisions of France's Additional Protocol. It is important to mention that the operator or its representative is required to be present throughout the complementary access.

Upon receiving advance notice, IRSN analyzes the request for complementary access to assess its compliance with the requirements of France's Additional Protocol. The CTE (or IRSN, as technical support to the CTE) then informs the operator, mainly to determine

all the formalities required to enable access to the site for the various people involved and any equipment that may be used. This contact with the operator also serves as an opportunity to specify site access procedures, give instructions regarding protecting sensitive information and to organize the workload.

To perform their verification operations, the inspectors use their own equipment. The use of this equipment must be agreed in advance by the French authorities.

As soon as the activities related to complementary access have been completed, the head of the escort team draws up a report relating the result of verification operations, which must be signed by the operator's representatives and the head of the escort team. A list of any documents consulted by the inspectors is appended to this report.

3.4. French organization

3.4.1. Regulatory framework

The responsibilities of government bodies involved in nuclear non-proliferation are specified by decree. In addition, the regulations relative to nuclear material import and export operations are specified in special documentation.

3.4.2. Government bodies

The **General Secretariat for European Affairs (SGAE)** was set up in 2005, replacing the General Secretariat for the Interministerial Commission on European economic cooperation (SGCI). Reporting directly to the Prime Minister, the SGAE examines and drafts France's positions expressed within EU institutions, including Euratom. An advisory committee provides technical support to the SGAE as required for the exercise of its remit regarding issues relative to application of the Euratom Treaty (except in the case of security control). This advisory committee is called the Euratom Technical Committee (CTE).

The **Euratom Technical Committee (CTE)**, reporting directly to the Prime Minister, is made up of experts from the French Alternative Energies and Atomic Energy Commission (CEA). It monitors implementation of international controls on nuclear material in France by the European Commission under Chapter VII of the Euratom Treaty and by the IAEA under the safeguards agreement signed between France, the IAEA and Euratom. It also oversees France's implementation of the Additional Protocol to the Safeguards Agreement. The CTE is also the European Commission's and the IAEA's points of contact regarding these issues.

Also, within the framework of asset management of nuclear materials required for defense purposes, the CTE authorizes nuclear material transfers between activities subject to Euratom safeguards and activities which are not subject to these safeguards.

The **French Alternative Energies and Atomic Energy Commission (CEA)** advises the government on international policy in the nuclear field. The CEA monitors scientific,

technical and economic developments with a view to clarifying the government on these subjects, notably in its negotiations on international agreements.

The **Ministry of Foreign Affairs** is responsible for defining foreign policy, under the authority of the government, and conducting and coordinating France's international relations. With regard to those aspects related to international verifications in the nuclear field, the Ministry is backed by its permanent representations to the European Union in Brussels, to the United Nations in New York and to the international organizations based in Vienna (notably the IAEA).

The **Governor for France at the IAEA**: a diplomat attached to the Ministry of Foreign Affairs and Director of International Relations at CEA, the Governor for France oversees the IAEA's entire scope of competence and the implementation of certain multilateral agreements. He represents France on the IAEA's Board of Governors.

The **Directorate-General for Energy and Climate (DGEC)**, part of the Ministry of Energy, contributes to defining French nuclear policy. In particular, the DGEC drafts France's positions for international and EU discussions, and takes part in negotiating international agreements. It manages stocks declarations relative to highly-enriched uranium and to plutonium used in civil activities.

Other institutions: other ministries, particularly the Ministry of Defense, are involved in nuclear material controls, specifically of material used in defense activities.

3.4.3. *IRSN, the French Institute for Radiological Protection and Nuclear Safety*

IRSN provides technical support to the public authorities and to operators for implementing international non-proliferation safeguards within France. IRSN, providing technical support to the government authorities, holds a special position in this field insofar as it advises operators on the declaration procedure and on the inspection process. An agreement signed by IRSN with the CEA and the CTE stipulates the Institute's remit in the field of nuclear material control, namely:

- to manage France's declarations as provided for under treaties and agreements;
- to prepare, escort and monitor international inspections. Within this framework, IRSN must both ensure that France complies with its international undertakings made to the relevant bodies (IAEA and Euratom) and protect the interests of French operators (protecting sensitive information and industry secrets, etc.);
- to analyze technical documentation required of entities subject to international control bodies and provide assistance and advice to entities subject to such control within the framework of implementation for treaties and agreements;
- to analyze and monitor developments or planned developments within the national and international judicial framework;
- to provide training to French industry;
- to participate in certain international working groups.

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IRSN, providing support to operators in their relations with the international bodies in charge of non-proliferation control

In endorsing the two key non-proliferation systems, one relative to nuclear weapons and the other to chemical weapons (see Chapter 4), France has made strong commitments to the international community and to the organizations tasked with implementation of these treaties (the International Atomic Energy Agency — IAEA — and the Organization for the Prohibition of Chemical Weapons — OPCW). Further, France's membership of the European Union also implies Euratom controls on the nuclear industry.

These undertakings imply *submitting declarations to* and *receiving inspections* by these organizations in French territory.

In light of their control activities, inspectors from the OPCW, the IAEA and Euratom can have access to sensitive information relative to:

- trade secrets, through access to lists of products, customers and material quantities;
- industrial property, through access to drawings, industrial processes, chemical formulae, etc.;
- non-proliferation, for the Georges Besse II plant, access to certain areas may entail disclosing information which, if disseminated, could result in the dissemination of centrifuge enrichment technology;
- national defense, through access to sites which, apart from industrial activities and civil research, also carry out activities on behalf of national defense.

As provider of technical support to the French authorities, IRSN is tasked with defending France's interests when escorting international inspections in France. IRSN therefore ensures that inspectors have access to information within the limits of the requirements set forth in an international or multilateral treaty, agreement or convention; or it will seek compromise solutions to allow the inspectors to perform their tasks without disclosing any information deemed confidential by the industrial operator.

As a result, IRSN regularly finds itself in the position of providing support or advice to an operator. Thus, as the interface with the inspectors, IRSN advises the operator on the interpretation and implementation of the applicable texts, indicating, for example, cases where inspectors may go beyond their prerogatives or where their questions are warranted but inappropriately formulated (in terms of methods rather than objectives). In all cases, IRSN makes every effort to facilitate relations between

the operator and the inspectors, recalling to the latter the limits of their mandate or its objectives, and proposing, for example, alternative solutions to those planned initially.

This position of providing advice and support to French industrial operators in the chemical and nuclear fields, within the context of international non-proliferation inspections, is rather an original feature in the remit of IRSN, which traditionally provides technical support to the authorities.
