Report of the Spanish Nuclear Safety Council to the Congress and the Senate

Year 2024

Summary Report

CSN

CSN CONSEJO DE SEGURIDAD NUCLEAR

CSN CONSEJO DE SEGURIDAD NUCLEAR

Report of the Spanish Nuclear Safety Council to the Congress and the Senate

Year 2024

Summary Report

This report complies with article 11 of Law 15/1980, which stipulates that the Nuclear Safety Council shall submit a report on the performance of its activities to both chambers of the Spanish Parliament and to the Parliaments of the Autonomous Communities in whose territory nuclear facilities are located.

Published and distributed by
Publications Service
Consejo de Seguridad Nuclear (Nuclear Safety Council)
Pedro Justo Dorado Dellmans, 11. 28040 - Madrid-España
http://www.csn.es
peticiones@csn.es

Design and layout
base 12 diseño y comunicación

Printed by
CEMA, S.L.

ISSN: 1576-5237
Legal Deposit: M-29310-2010

Printed on 100 % recycled paper,
with a responsible forest
management certificate

CONTENTS

CONTENTS (continuation)

PRESENTATION

As we do every year, we are pleased to present to Parliament and the Senate the annual report of the Nuclear Safety Council (CSN) for 2024.

In the main, it can be summarised that the CSN has effectively performed its regulatory and supervisory functions. The results indicate that all nuclear and radioactive facilities and activities operated safely throughout 2024. Furthermore, the environmental radiation quality, both around the facilities and in the rest of the territory, remained in acceptable conditions, with there being no risk to people.

In terms of nuclear safety, the most significant CSN action was the favourable report issued on the renewal of the operating permit for the Trillo nuclear power plant. I would also like to highlight the issuance of the favourable report on the authorisation for the implementation and assembly of the individualised storage facilities (ISF) at Vandellós II and Ascó, the work carried out for the peer review on fire protection at nuclear facilities set out in Directive 2014/87/Euratom, the issuance of the favourable report on the Regulation on nuclear and radioactive facilities and other activities related with exposure to ionising radiation (RINR) and the celebration of the 40th anniversary of the Resident Inspectorate.

As far as radiation protection is concerned, the INVEAT Plan (Investment in high-tech healthcare equipment in the National Health System) was completed in 2024, licensing 263 items of equipment over a 30-month period and representing a significant investment for the National Health System (NHS). Another stage has now commenced with the licensing project for eleven proton therapy facilities in seven autonomous communities, to form part of the SNS in the coming years and positioning Spain as a world leader in proton therapy. This year we also published the effective dose coefficients for internal exposure to ionising radiation; the digital radiological passport for exposed workers has been launched; we have signed a memorandum of understanding with the Ministry of Labour and Social Economy, through the State Body, Labour and Social Security Inspectorate, with a view to strengthening worker protection from the risks deriving from exposure to radon gas at work centres; and there was a favourable report on the request for the construction and assembly of the El Cabril low and intermediate-level radioactive waste southeast disposal platform.

With regard to the Council's institutional activity, it is worth highlighting the intense relationship that has been maintained with other institutions, sector organisations and associations. In this regard, the Board's senior officials were received in an audience with King Felipe VI at the Zarzuela Palace; meetings were held with the Ministers of Defence, Margarita Robles; Health, Mónica García; Labour and Social Economy, Yolanda Díaz; and Equality, Ana Redondo; and a delegation from the Parliamentary Committee responsible for relations with the CSN visited our head office, something that had not happened since 2014.

In order to guarantee the required protection for workers, the population and the environment, it is vital that there is cooperation between the CSN and the competent regional authorities. This is why the CSN is interested in stepping up the existing collaboration and in putting into place mechanisms allowing for the consolidation of fluid communication channels with the Autonomous Communities, starting with the holding of a meeting with all stakeholders in 2025.

Also in relation to the Autonomous Communities, we have held meetings of the joint committees with the nine communities with which the CSN has signed agreements for the assignment of duties.

The Advisory Committee for public information and participation - made up of 35 representatives from civil society, the nuclear industry, trade unions, public administrations and experts in the field of public communication - met up every six months. In addition, 14 new agreements and eight extension addenda were signed with, inter alia, the Ministry of Labour and Social Economy and various universities and scientific societies.

With respect to the CSN's international activity, a total of 335 meetings were held, 222 of which were face-to-face. It is worth mentioning the participation in the Eighth and Ninth Review Meetings of the Convention on Nuclear Safety and the preparatory meetings for the Tenth Review Meeting, and for the Eighth Review Meeting of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

It should also be pointed out that the CSN hosted in Madrid the meeting of the Board of Heads of the European Association of Radiation Protection Authorities (HERCA); a bilateral meeting with the US Nuclear Regulatory Commission (NRC), headed up by its chairman; and a visit from the Director-General of the NEA, William Magwood. We have also signed a Memorandum of Understanding with the Swiss regulatory authority and I had the honour to be appointed as Chair of the European Nuclear Safety Regulators Group (ENSREG).

With regard to access to information, communication and transparency, it should be noted that in 2024 we published 197 news items at our website. A total of 1495 requests to the consultation mailbox, 24 requests to the Transparency Portal and 57 requests from the media have been dealt with. Likewise, 15 new publications have been issued, increasing the distribution of CSN technical and informative documentation to 58,610 copies.

As regards the drawing up of standards, along with the issuing of the report on the draft Regulation on nuclear and radioactive facilities and other activities related with exposure to ionising radiations and its subsequent approval - making this new regulation one of the most important regulatory milestones of 2024 - this year also saw the approval of Instruction IS-46 on physical safety during the transport of nuclear materials and radioactive sources and Instruction IS-10 (revision 2) came into force, thereby putting into place the criteria for reporting events to the regulatory body for operating nuclear power plants.

From a regulatory point of view, the Complementary Technical Instructions (CTI) were approved for the authorisation of industrial radiography facilities exclusively using X-rays, and as regards the requirements applicable to the flexible power operations (FPO) of Spanish nuclear power plants in operation, in order to reinforce the regulatory framework associated with operating strategies involving the production of electricity below 100 % power during certain time periods.

And finally, in order to highlight internal management actions, I would like to mention that in 2024 the Human Resources Plan (2024- 2030) was approved. This contains forward-looking planning of the CSN's human resources and their management in order to address the main challenges in relation to nuclear safety and radiation protection in the period 2024-2030.

Progress has also been made in the implementation of CSN's first Equality Plan (2023-2026).

Basically, we are closing another year packed with actions aimed at improving nuclear safety and radiation protection at our facilities, in the firm belief that our society is facing unprecedented changes which are occurring at breakneck speed. This is why the adaptability of equipment, people and technologies will be essential to fulfil the CSN's mission of guaranteeing nuclear safety and the radiation protection of workers, the population and the environment in an ever-challenging environment.

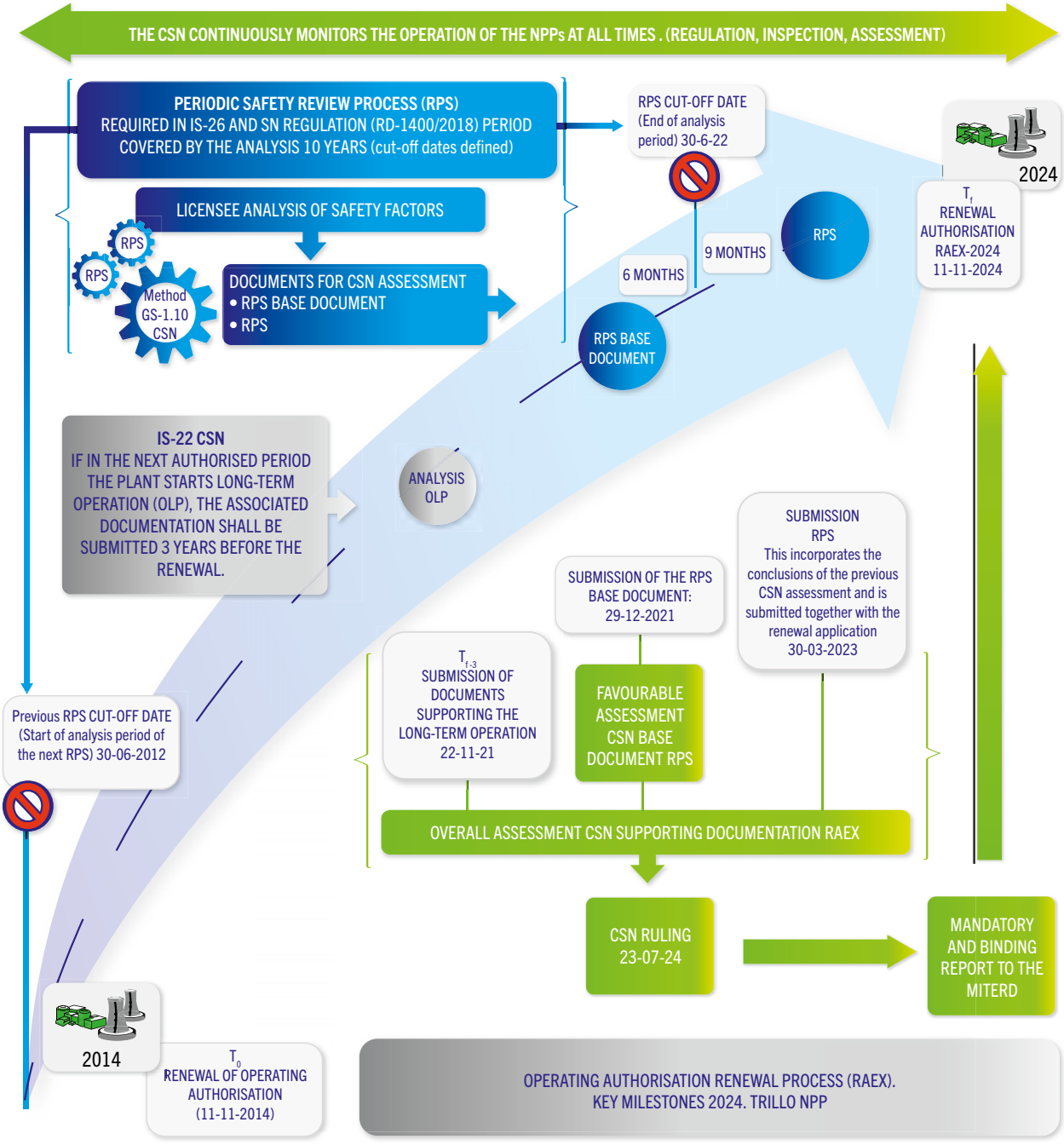
Juan Carlos Lentijo Lentijo
President of the CSN

MAJOR ACTIVITIES FOR 2024

RENEWAL OF THE OPERATING AUTHORISATION (RAEX) FOR THE TRILLO NUCLEAR POWER PLANT

One of the most important issues in 2024 was the renewal of the operating authorisation (OA) of the Trillo nuclear power plant (NPP). A description has been provided below of the milestones in the assessment and issuing process of the mandatory report by the CSN within the framework of the renewal of the plant's authorisation, illustrated in figure 1. The renewal process followed coincides with that of the previous renewals of the rest of the nuclear power plants in operation: in 2020 Almaraz I and II and Vandellós II; and in 2021 Ascó I and II and Cofrentes.

Figure 1. Outline of the nuclear power plant renewal process



Pursuant to the Regulation on Nuclear and Radioactive Facilities (RINR) , the Ministry for Ecological Transition and Demographic Challenge (Miterd) is the authority responsible for granting and renewing the different authorisations for the siting, construction, operation, modification, transport, decommissioning and closure of nuclear facilities, subject to a mandatory report by the CSN, which is the sole competent authority in matters of nuclear safety and radiation protection. The CSN's report is binding in the event of a refusal and with regard to the conditions it has established for the granting of the authorisation.

The previous AE for Trillo NPP expired in November 2024. The respective Ministerial Order (OM) of 2014 included amongst its provisions the term of validity, documents and deadlines for applying for the future renewal of the operating authorisation (RAEX).

Figure 2. Trillo nuclear power plant

[1] The Regulation on nuclear and radioactive facilities approved by Royal Decree 1836/1999 of 3 December, has been repealed by the approval of the Regulation on nuclear and radioactive facilities and other activities related with exposure to ionising radiations, under Royal Decree 1217/2024 of 3 December.

Trillo NPP's RAEX application was mainly based on the RPS, in addition to the required Official Operating Documents (DOE) and the documentation associated with long-term operation (LTO), given that this will start within the new authorised operating period. The documentation provided in the request included: the Integrated Ageing Assessment and Management Plan (IAAMP); the Radiation Impact Study (RIS) applied to the LTO and the Radioactive Waste and Spent Fuel Management Plan for LTO. All this in accordance with the requirements of the RINR and CSN Guide GS-1.10 Rev.2 Periodic safety reviews of nuclear power plants.

Eighteen specialist areas of the CSN participated in the assessment of the documentation performed by the CSN, in accordance with the assessment guide previously drawn up by the organisation, which drew up 67 assessment reports or notes. The CSN also carried out an on-site inspection to check specific aspects of the documentation submitted. The CSN experts held 11 technical meetings with the licensee as part of the activities for the assessment of the documentation submitted. The results of the assessments and the inspection were integrated into the Draft Technical Opinion (PDT) conveyed to the Board for an informed decision. Finally, the Board of the CSN issued its favourable opinion after the second of the sessions held to take a decision on the authorisation application in July 2024.

In actual fact, the Board of the CSN, at its meeting held on 23 July 2024, issued a favourable opinion on the application, subject to the limits and conditions set out in the report pertaining to the Miterd and included in the annex to the OM for renewal. There were nine conditions, the first six are generic for all operating nuclear power plant licenses and the remaining three are specific to the Trillo nuclear power plant.

Most of the conditions were set out in the Complementary Technical Instructions (CTI) sent by the CSN to the licensee on 21 November 2024.

The main results of the renewal process have been summarised below:

- As a result of the RPS, the licensee identified 43 strengths and developed 46 proposals for improvement for which it has determined short- and medium-term actions.

- As a result of the CSN's assessment, the licensee undertook to carry out 150 additional actions, with short and medium-term implementation deadlines.

The CSN issued five CTIs linked to RAEX. The safety improvements resulting from the process fall into the following categories:

- Updating and extension of the licensing rules, incorporating new regulations.
- Design modifications.
- Modifications to testing and maintenance programmes.
- Improvements in operational processes with an impact on safety.

On 11 November 2024, the Miterd granted the renewal of the operating authorisation for a period of 10 years under Ministerial Order CN-TRI/OM/24-01.

The main milestones of the CSN assessment process have been summarised in table A1.

Table A1. Main milestones of the CSN assessment process

Modification of previous OM AE	21-06-2017: Order ETU/608/2017 15-11-2021: Order TED/1293/2021
Expiry date AE	16-11-2024
OLP start date	23-05-2028
RPS submission date	30-03-2023
Submission of the application and associated documentation	30-03-2023
Requests for additional information by the CSN (PIA)	October-November 2023
Licensee responses to PIAs	January 2024
Closure of the preliminary assessment	01-03-2024
Meeting with the licensee on the preliminary findings of the assessment	20-03-2024
Specialist and licensee area meetings on issues outstanding from the preliminary assessment	March-April 2024
Documentation of the assessment by the specialist areas	April-May 2024
Preparation of the draft technical opinion (PDT)	June 2024
CSN Plenary Session review of the assessment documentation	Two sessions: 8 and 15 July 2024
Opinion of the CSN Board	23/07/24
Authorisation issued by the Miterd	CN-TRI/OM/24-01 11/11/24
Expiry date AE	16 November 2034

DIGITAL RADIOLOGICAL PASSBOOK (DRP)

The Digital Radiological Passbook (DRP) is the digitalisation of the individual radiation monitoring document that has been used in Spain since 1990 as an instrument for recording data relating to the application of the radiation protection system in the case of outside workers.

The implementation of the DRP has made it possible to have a centralised database containing data on the application of the radiation protection system for outside workers.

The data collected in the DRP are verified through the use of digital certificates. This ensures their quality and traceability, as well as allowing statistical and trend analyses, which were not possible until now.

Application development and pilot testing

The development of DRP has included a series of pilot projects involving a small number of users. The following activities involving the movement of outside workers were used for the implementation of these pilot projects:

- Refuelling outage at the Trillo nuclear power plant 2023.
- Refuelling outage at the Ascó I nuclear power plant 2023.
- Test period with the participation of all nuclear power plants between January and September 2024.

In addition to the Spanish nuclear power plants, 13 outside companies participated in the pilot projects, issuing around 600 digital passbooks. Throughout this period, the CSN held periodic meetings to monitor the use of the DRP, both with the nuclear facilities and with the outside companies.

During the process, the CSN received observations and comments from the users, incorporating into the development of the application those that were deemed relevant, such as, for example, the calculation of the dose of the exposed worker for the current year, as the sum of the official dose and the operational dose.

Launch of the DRP and communication strategy

On 30 September 2024, the Digital Radiological Passbook was officially put into operation. Prior to the launch of DRP, the following activities were carried out:

- Staging of a technical workshop aimed at the outside companies and the facilities at which they provide their services on 27 September 2024, at the CSN headquarters office. This involved the participation of 145 representatives from outside companies.
- Production of audiovisual materials (infographics and videos[1]), and a guide on the use of the application.
- Update of the web content dedicated to the radiological passbook at the CSN website.

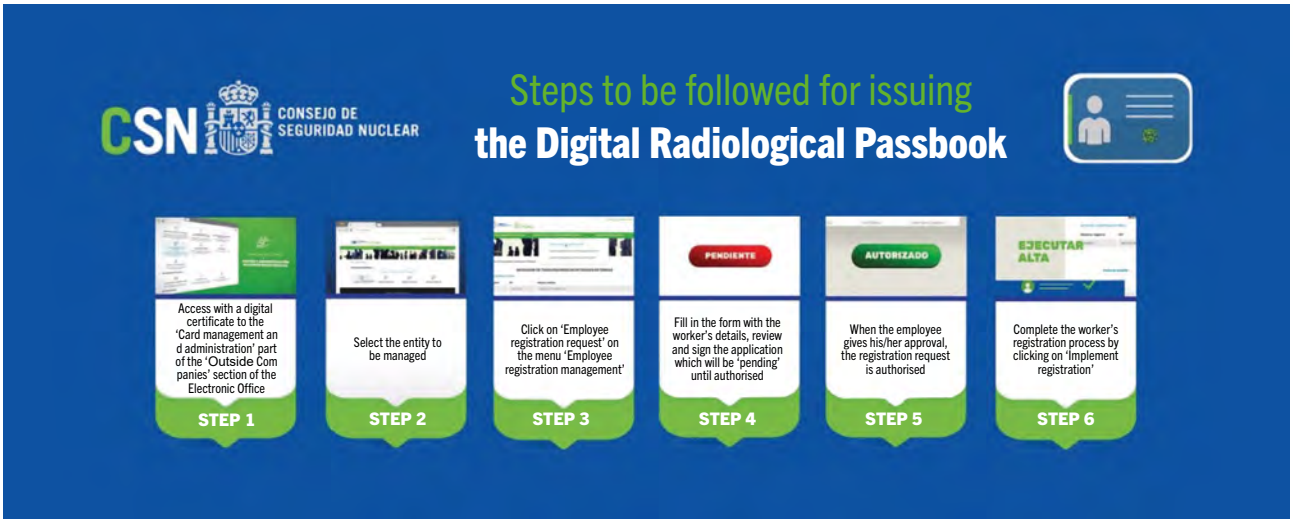
Data on the implementation of the CRAD

Since the launch of the DRP, the CSN has been monitoring the transition from the physical radiological passbook to the digital model. To this end, a scorecard has been developed to monitor in real time the degree of adoption of the DRP by outside companies.

One of the main challenges identified prior to the launch of the DRP was the management of the coexistence period between physical and digital radiological passbook. This period will last for three years, which represents the term of validity of the physical cards in force upon implementation of this new tool.

[1] https://www.youtube.com/watch?v=G4C3vpSrlGY
https://www.youtube.com/watch?v=z20ZxowaDFM

Figure 3. Steps to be followed for the issuance of the radiation card



The DRP implementation parameters monitored are as follows:

- Number of digital passbooks created: at time of writing, the number of digital radiological passbook created is 5501.
- Number of active cards: at time of writing, the number of active radiological passbook is 3366 (61 % of the total number of digital cards created).
- Number of companies with active passbooks: at time of writing, the number of companies with active digital radiological passbook is 152.
- Outside workers per facility: the database allows the number of outside workers registered at each facility to be obtained in real time .

Conclusions

The DRP maintains the content of the physical radiological passbook, streamlining processes and contributing to greater effectiveness and efficiency for both its users and the CSN.

The transition between the physical radiological passbook and the DRP is moving on speedily. In the first seven months since its implementation, it has reached more than half of the outside workers. This is more pronounced in companies with a higher number of outside workers.

The development of this new tool demonstrates the CSN's commitment and continuous effort, geared towards contributing to the improvement of e-administration and the modernisation of public services, and boosting the confidence of its users and stakeholders in this field of action.

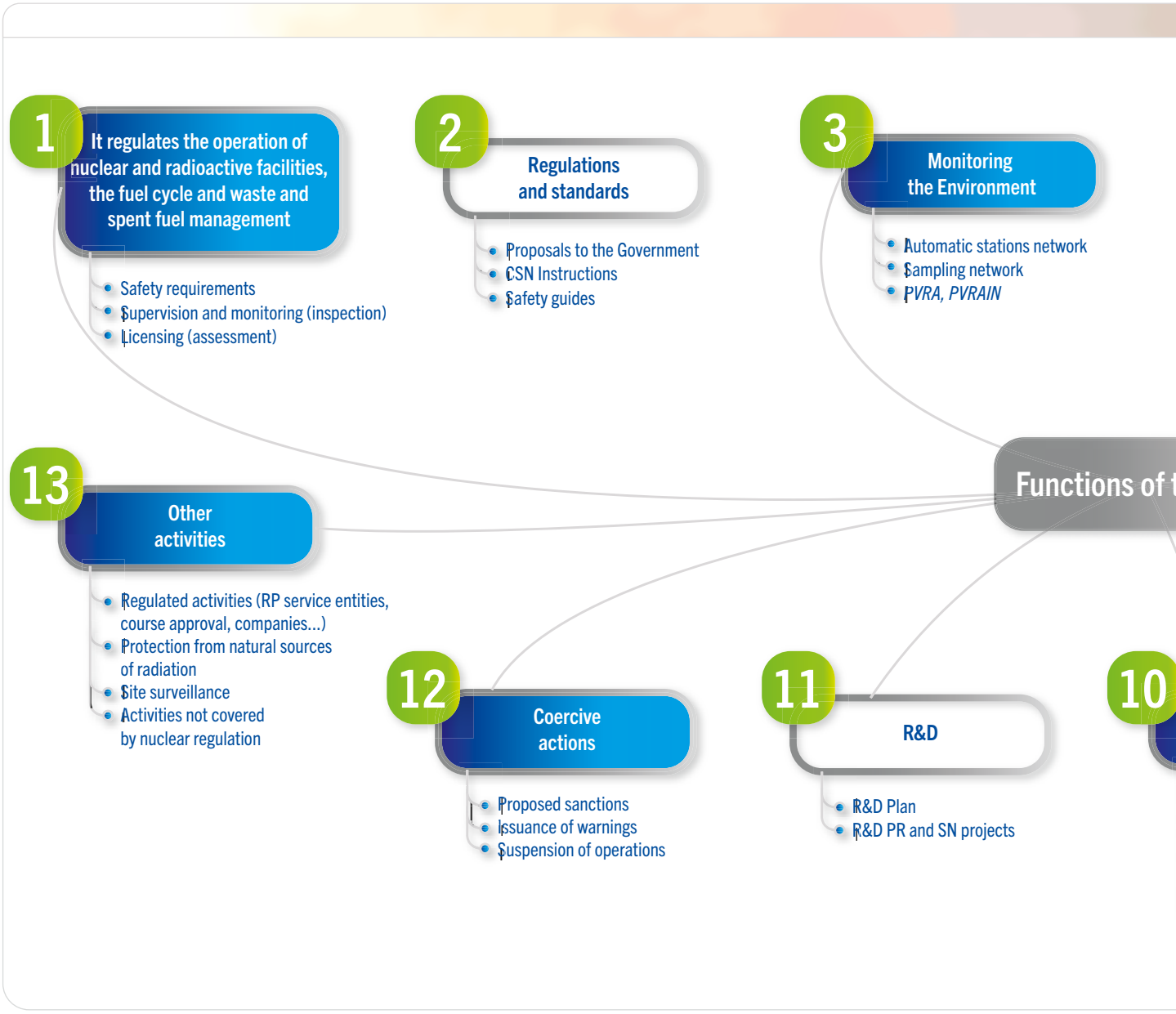
1. NUCLEAR SAFETY COUNCIL. LEGAL FRAMEWORK AND FUNCTIONS

The Nuclear Safety Council (CSN) is set up as a Public Law entity, independent of the General Government, with legal status and its own budget and independent of those of the State, created by La 15/1980 of 22 April as the only body with competency in the area of nuclear safety and radiation protection.

Pursuant to Law 40/2015 of 1 October, on the Legal Regime of the Public Sector, the CSN is an independent administrative authority at the state level and so, in terms of this law, it forms part of the institutional public sector.

With this in mind, it acts with organic and functional autonomy, with full independence from the General Government and interest groups, without prejudice to it being subject to parliamentary and judicial control. Its actions are governed by its own Statute, which was approved by Royal Decree 1440/2010 of 5 November, pursuant to the provisions of Law 15/1980 of

Figure 1.1. Summary of the functions of the CSN



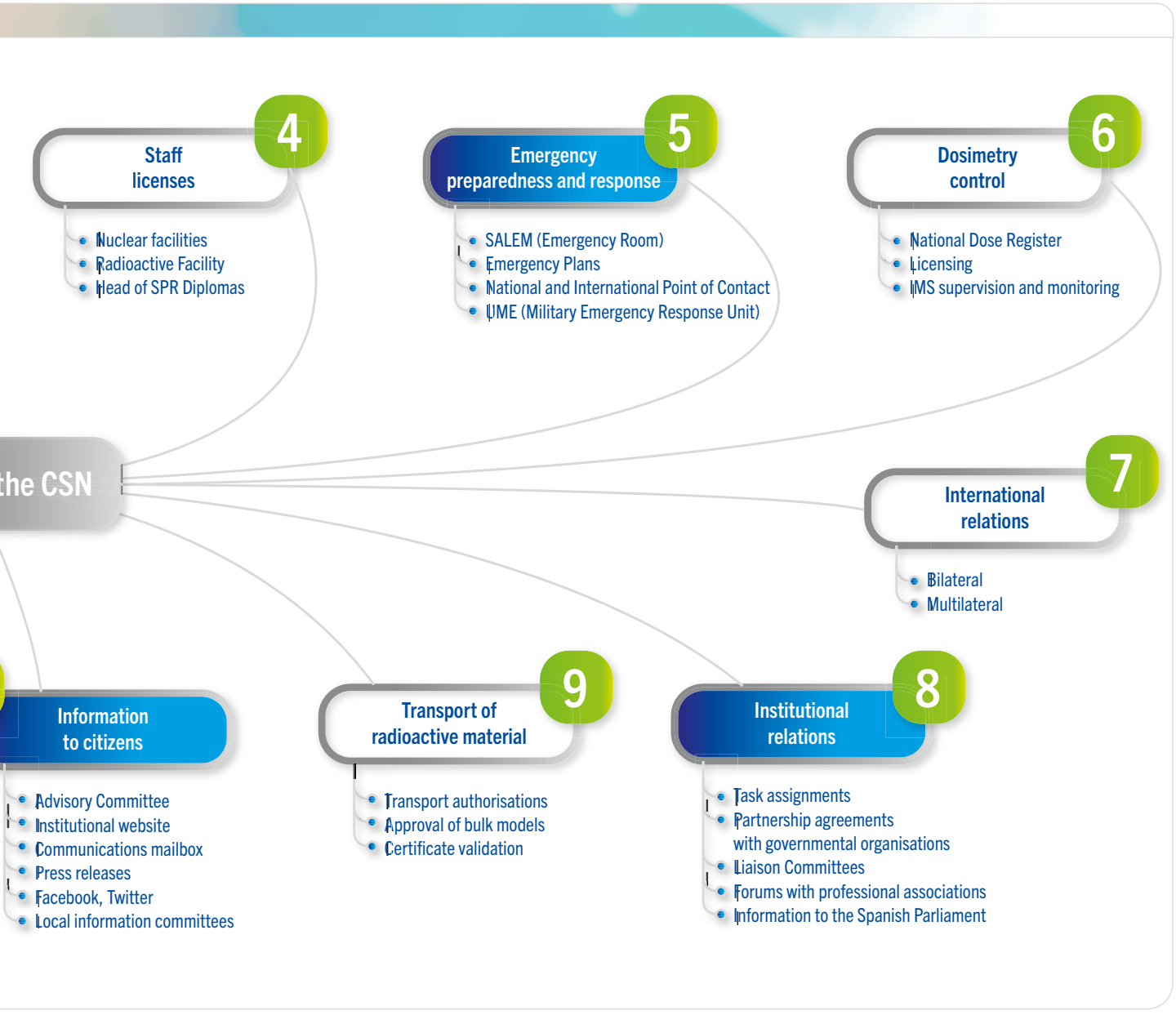
22 April, both of which constitute the regulatory framework of the body.

The mission of the CSN is to protect the workers, the population and the environment from the harmful effects of ionising radiation, ensuring that nuclear and radioactive facilities are operated safely by their licensees and establishing measures for the prevention and correction of radiological emergencies, whatever their origin.

The CSN is responsible for the exercising of all the functions established in Article 2 of Law 15/1980 of 22 April and in Title I of the Statute, as well as for the exercise of such other functions as may be attributed to it by law, regulation or by virtue of International Treaties in the areas of nuclear safety, radiation protection and physical protection.

Article 11 of Law 15/1980 of 22 April stipulates that the CSN shall submit an annual report on the performance of its activities to both chambers of the Spanish Parliament and to the Parliaments of the Autonomous Communities in whose territory nuclear facilities are located. This report complies with the aforementioned article.

In accordance with this legal and competence framework, the CSN assumes the following functions:



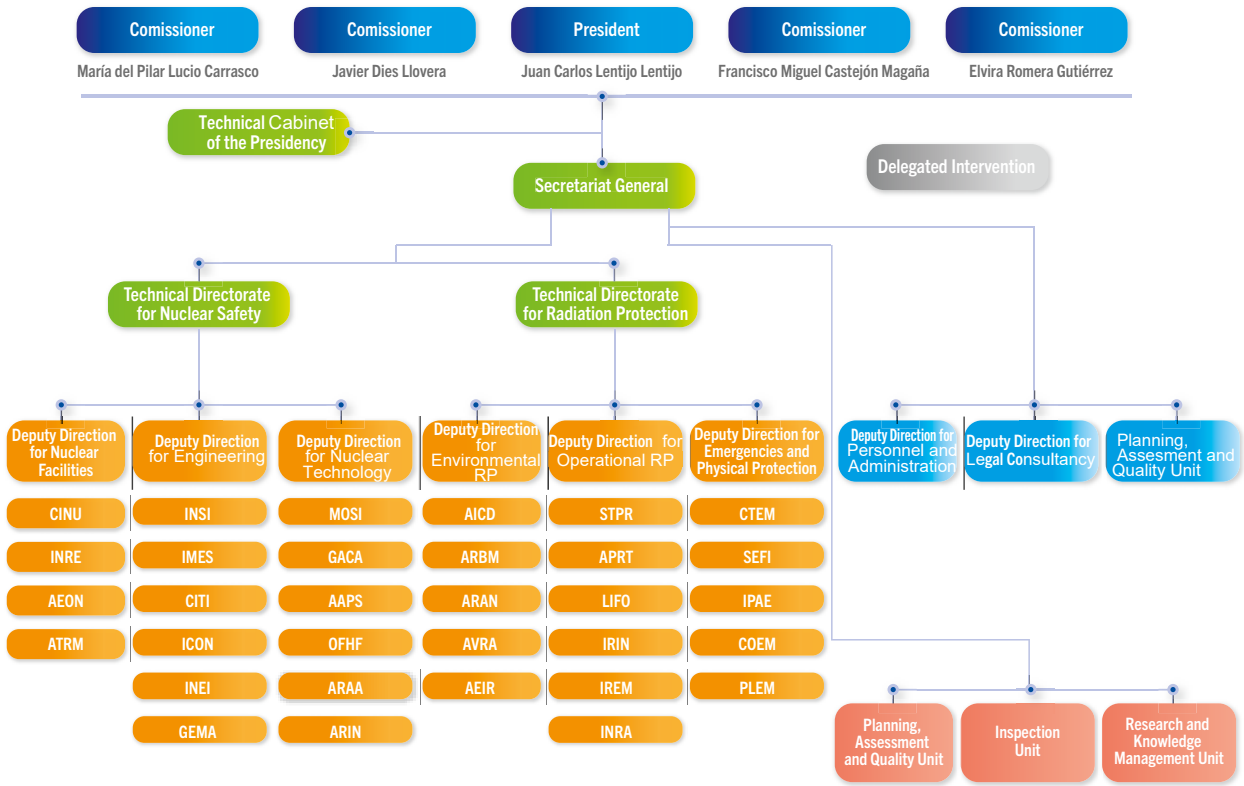
1.1.Organisational structure of the CSN

Pursuant to the current Statute, the structure of the CSN has two higher bodies: the Board of Commissioners and the Presidency, which act in the exercise of their competences, in compliance with the principles established in the law creating the organisation.

In the same way, there are the following governing bodies: the Secretariat General, the Technical Directorate for Nuclear Safety, the Technical Directorate for Radiation Protection, the Technical Office of the Presidency and the various Sub-Directorates.

The following figure illustrates the organisational structure of the CSN, in force as at 31 December 2024.

Figura 1.1.1. CSN Organisational Chart



Nuclear Facilities Deputy Direction
CINU: Nuclear Facilities Coordinator
INRE: Resident Inspectorate Support and Coordinator
AEON: Operational and Regulatory Experience Area
ATMR: Radioactive Material Transport Area

Engineering Deputy Direction
NSI: Systems Engineering Area
IMES: Mechanical and Structural Engineering Area
CITI: Earth Sciences Area
ICON: Nuclear Fuel Engineering Area
INEI: Electrical Systems, Instrumentation and Control Area
GEMA: Life and Maintenance Management Area

Nuclear Technology Deputy Direction
MOSI: Modelling and Simulation Area
GACA: Quality assurance areas
AAPS: Probabilistic Safety Analysis Area
OFHF: Organisation, Human Factors and Training Area
ARAA: High Level Waste Area
ARIN: Internal Event Protection Area

Environmental P.R. Deputy Direction
AICD: Cycle Installations and Decommissioning Area
ARBM: Low and Intermediate Level Waste Area
ARAN: Natural Radiation Area
AVRA: Environmental Radiation Surveillance Area
AEIR: Radiation Impact Assessment Area

Operational P.R. Deputy Direction
STPR: Radiation Protection Technical Services Area
APRT: Workers Radiation Protection Area
LIFO: Licensing and Training Area
IRIN: Industrial Radioactive Facilities Area
IREM: Radioactive Facilities and Medical Exposures Area
INRA: Radioactive Facilities Inspection Area

Deputy Direction for Emergencies and Physical Protection
CTEM: Emergency Technical Coordinator (Emergency Sub-Directorate)
SEFI: Physical Safety Area
IPAE: Intervention and Preparedness of Emergency Responders Area
COEM: Emergency Operations Coordination Area
PLEM: Emergency Planning Area

1.2. The CSN Board

The Board of the CSN, as a collegiate management body, is responsible for the exercising of all the functions in relation to nuclear safety and radiation protection foreseen in article 2 of Law 15/1980 of 22 April. It is also responsible for the exercising of any other functions attributed to the Nuclear Safety Council, as the sole competent body in matters of nuclear safety and radiation protection. The Board as at 31 December 2024, was made up as follows:

- President: Juan Carlos Lentijo Lentijo
- Commissioner: Javier Dies Llovera
- Commissioner: Francisco Miguel Castejón Magaña
- Commissioner: María del Pilar Lucio Carrasco
- Commissioner: Elvira Romera Gutiérrez

During 2024, the Board held 38 Plenary Sessions, at which 340 resolutions were adopted, 320 of which were unanimous.

Pursuant to article 14 of Law 15/1980 of 22 April 1980, on access to information, the minutes of the Plenary sessions and the opinions underlying its resolutions are available for general consultation at the CSN website (www.csn.es).

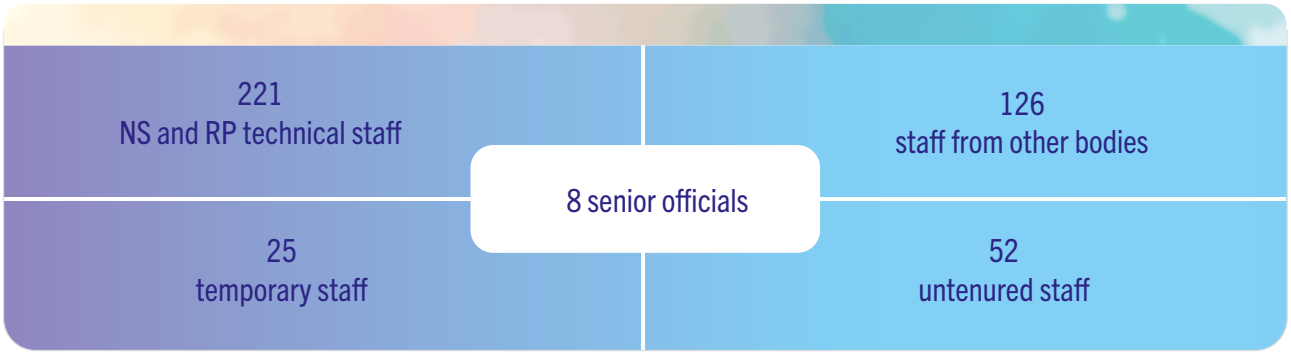
1.3. Resources and means

1.3.1. Human resources

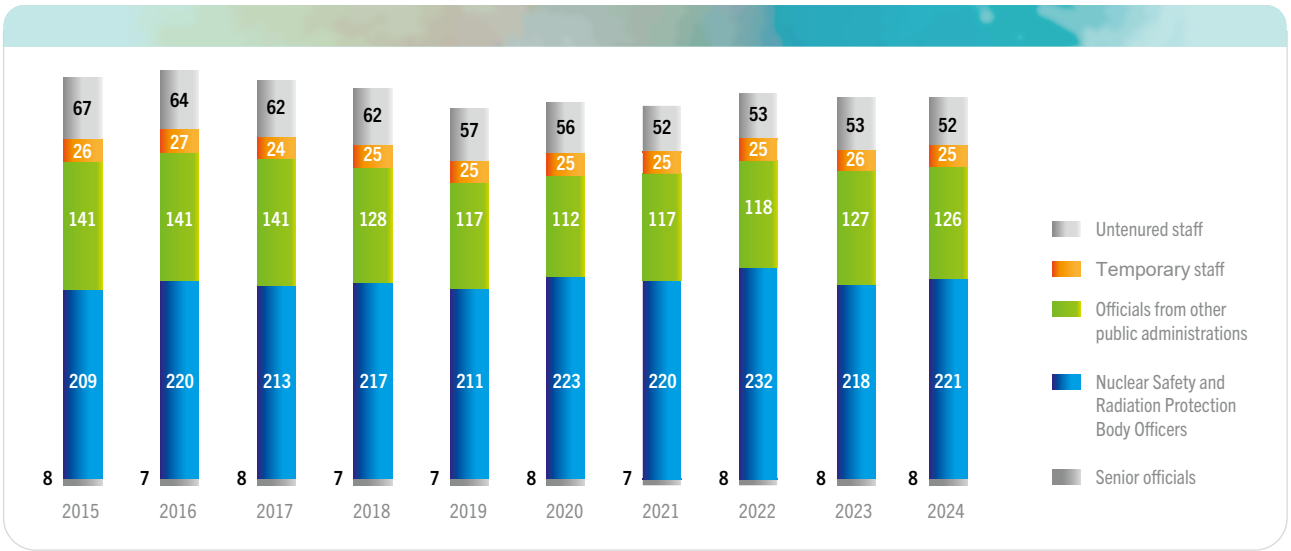
The total number of staff at the CSN as at 31 December 2024 was 432, as detailed in figure 1.3.1.1.

49.54 % of the total staff at the CSN are female, compared to 50.46 % who are male, and the average age of the staff is 52 years old.

Figure 1.3.1.1. CSN staff as at 31 December 2024

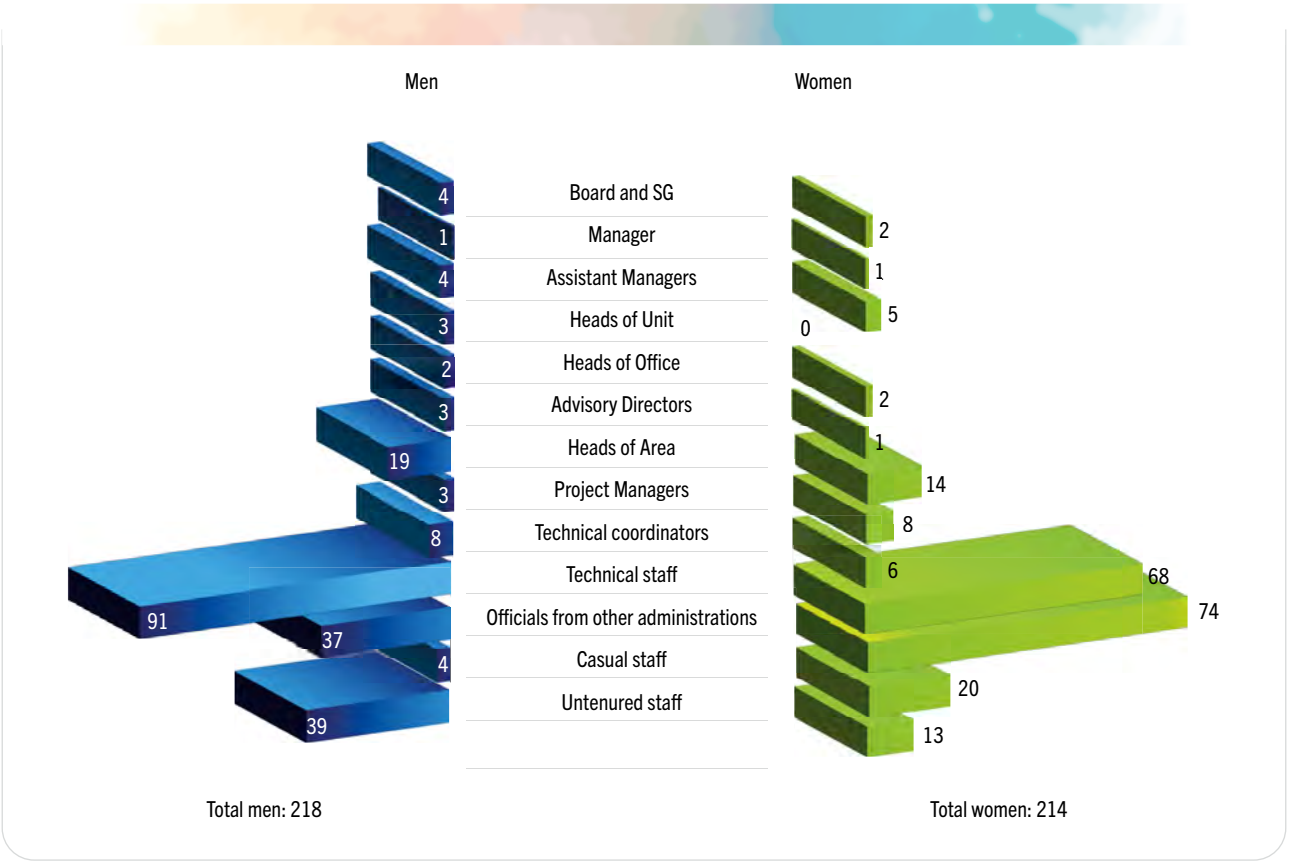


Graph 1.3.1.1. Distribution of staff according to the group to which they belong in the period 2015-2024



As swhon in the graph, with respect to the previous year, there has been a slight increase in the number of people belonging to the Nuclear Safety and Radiation Protection Technical Corps.

Figure 1.3.1.2. Distribution of CSN staff in relation to job position and gender



Graphs 1.3.1.2 and 1.3.1.3 show the qualifications of the CSN staff.

Graph 1.3.1.2. Qualification of Nuclear Safety Council staff in 2024

Graph 1.3.1.3. Qualifications of the CSN technical staff in 2024

The most important milestone achieved in 2024 as regards human resources management was the adoption of the CSN Human Resources Plan, which contains forward-looking planning of the CSN's human resources and their management in order to address the main challenges in relation to nuclear safety and radiation protection in the period 2024-2030.

Figure 1.3.1.3. Human resources plan 2024-2030

Lines of action of the CSN human resources plan 2024-2030

- Line 1. Attracting talent.
- Line 2. Managing talent.
- Line 3. Internal mobility mechanisms.
- Line 4. Organisation of human resources: professional groups, jobs and list of job descriptions.

GENERAL AIM

To ensure, within the framework of the budget availabilities, the necessary human resources both in terms of quantity and quality, required to address the CSN's short- and medium-term challenges and, thereby, to fulfil its institutional mission.

SPECIFIC AIMS

1. To attract more people with the professional competences required to perform the core and support functions of the CSN.
2. To improve the job provision processes, both in terms of selection and promotion.
3. To consolidate a competency-based job system.
4. To match the professional skills of staff to organisational needs.
5. To harness the talent of the CSN's human resources in order to create and share corporate knowledge and foster a sense of belonging.
6. To improve the performance and motivation of CSN staff.
7. To have information on the organisation's human resources available in a speedy, up-to-date manner.

This plan includes a total of 11 programmes and, for each of them, a series of actions geared towards properly managing the CSN's human resources based on the challenges and the situation of the staff:

1. Talent attraction programme.
2. Programme to improve the efficiency of selection procedures for employees belonging to the Nuclear Safety and Radiation Protection.
3. Programme for better OEP planning.
4. Programme for training CSN staff.
5. Knowledge management programme.
6. Performance appraisal programme.
7. Competency-based management programme.
8. Horizontal career development programme for the professional development of officials in the service of the CSN.

9. Programme for improving the efficiency of for recruitment procedures.
10. Job classification and management programme.
11. Programme for the design and implementation of the technological resources required for the appropriate management of human resources.

1.3.2. Financial resources

As far as economic-financial management is concerned, the CSN is governed by the provisions of General Budgetary Law 47/2003 of 26 November, as a state administrative public sector entity subject to the Public Accounting system and the Accounting Instructions for the State Institutional Administration.

The profit and loss account for 2024 shows that most of the expenditure is defrayed on staff (60.56 %), followed by external services and supplies (29.65 %), whilst revenue derives mainly from fees and public prices for services rendered (90.86 %). As expenditure amounted to EUR 47,875.29 thousand and revenue to EUR 50,118.53 thousand, a profit of EUR 2.243 million was obtained

In relation to subsidising activity, the amounts invested by the CSN in the four lines of action for 2024 were 73,750 euros dedicated to research and training University Chairs in nuclear safety and radiation protection and 1,404,820 euros to subsidies for R&D&I projects.

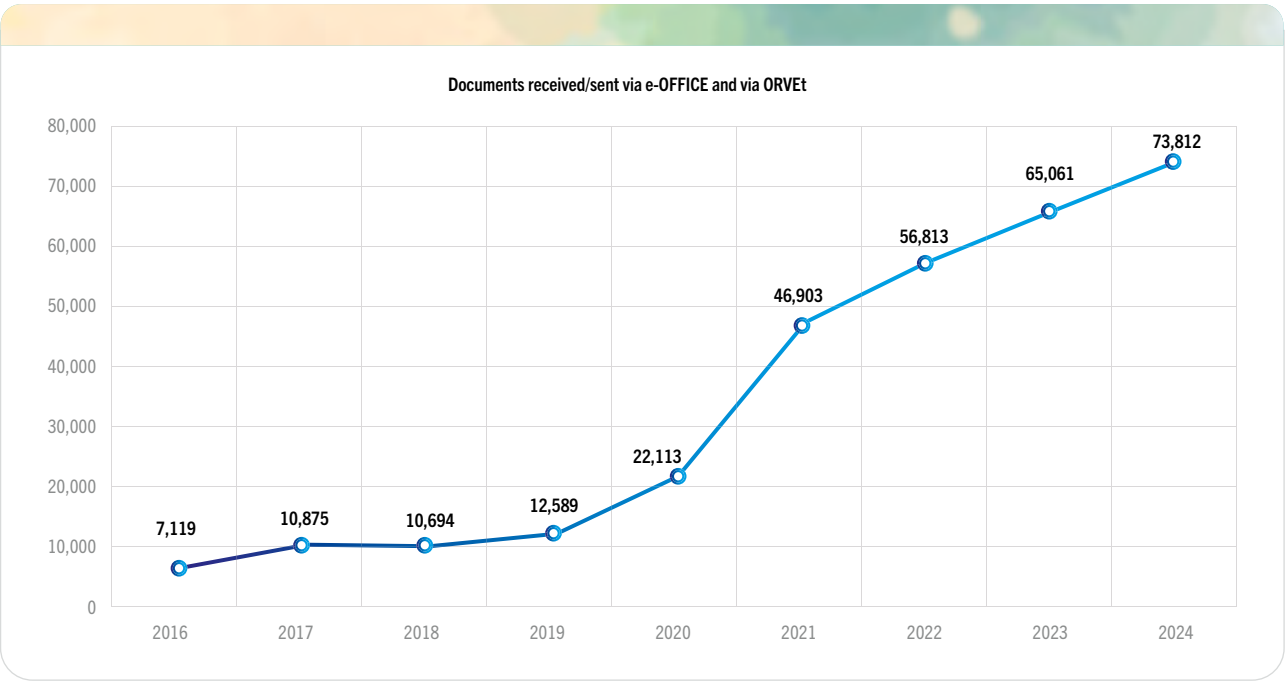
1.3.3. IT resources

Within Information Technologies, with respect to e-Government, a consolidation and increase in progress is observed through the historical series between the years 2016 -2024, relating to:

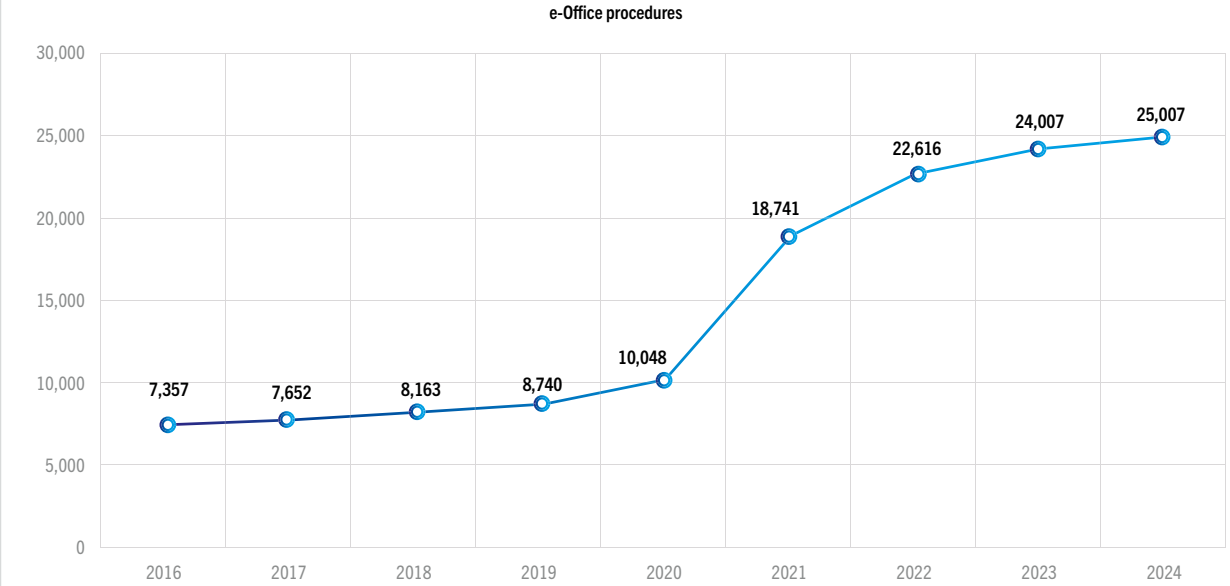
- Number of documents received and sent via the e-Office (ORVE + e-Office) with a logical incremental trend to 73,812 documents.

- e-processing volume, which continues to grow as a result of increased use and the implementation of new e-services.

Graph 1.3.3.1. Number of documents received and sent via the e-office



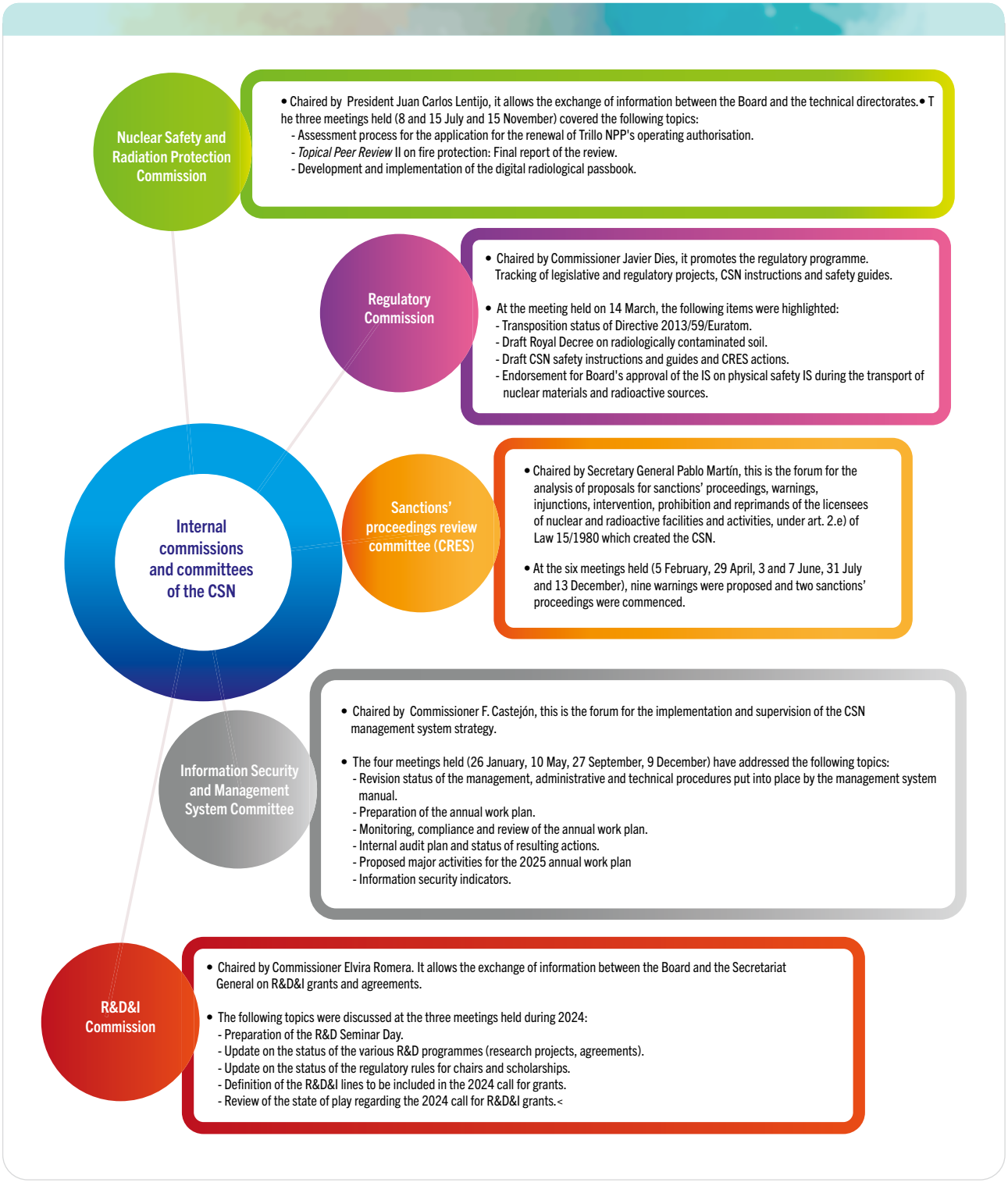
Graph 1.3.3.2. Number of procedures carried out at the e-Office



1.4 CSN's Commissions

Figure 1.4.1 shows the commissions active during 2024 and the activities they have carried out.

Figure 1.4.1. Commissions active during 2024



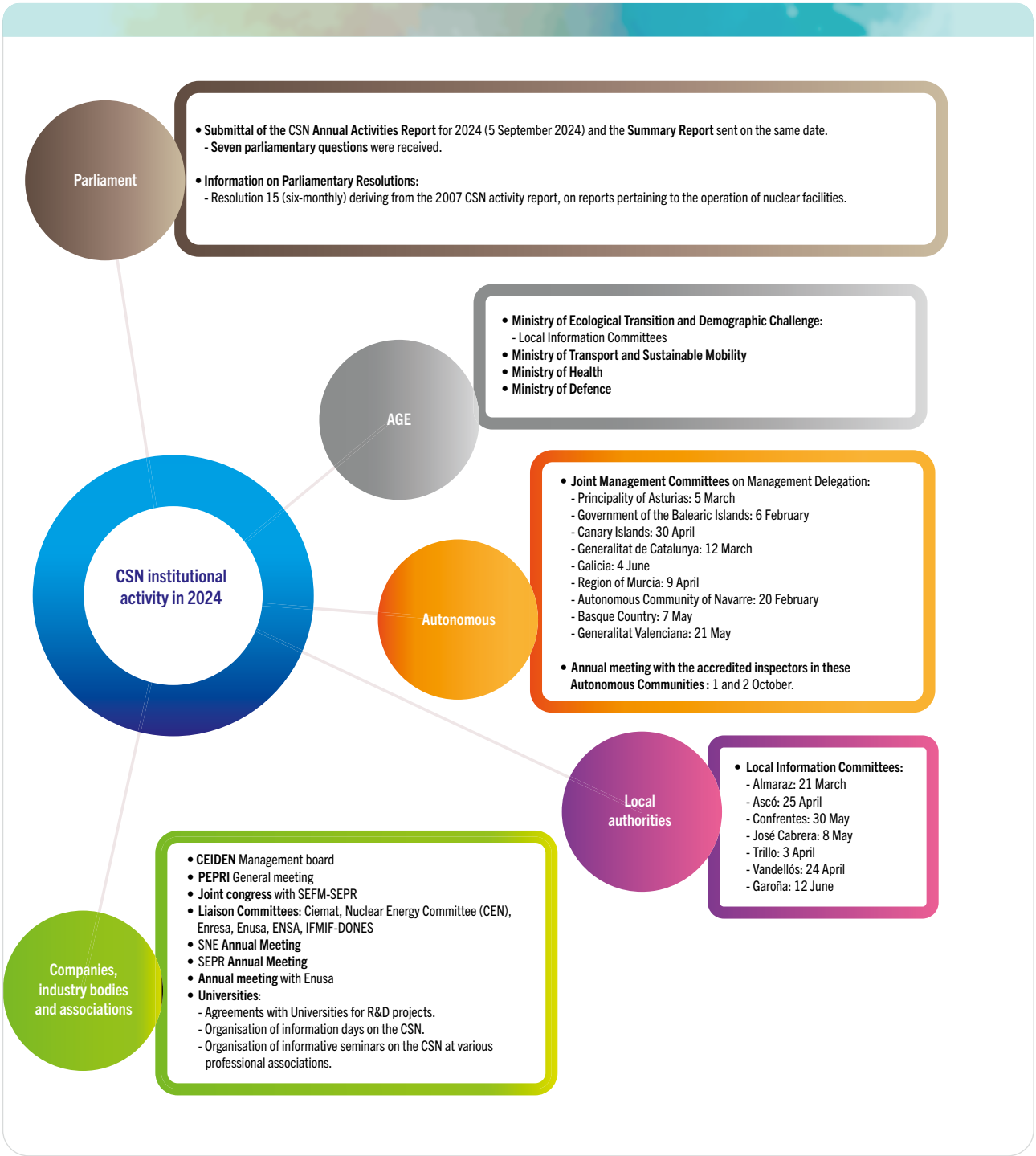
1.5. CSN relations and institutional activity

1.5.1. Institutional relations

One of the functions of the Nuclear Safety Council is to maintain official relations with State institutions at a central, regional and local level, as well as with professional organisations and non-governmental associations, including international ones. Special emphasis is placed, due to its special relevance and uniqueness, on the institutional relationship between the Nuclear Safety Council and the Parliament and the Senate.

Figure 1.5.1.1 summarises the CSN's institutional activities in this area of institutional relations during 2024.

Figure 1.5.1.1. Institutional relations. Activities in 2024



In 2024, seven questions were received and answered within the deadline. The issues raised included the purchase of public debt by the CSN, Palomares, the general action protocol with the Ministry of Health and the refuelling of Ascó I during the flooding caused by the cut-off low or DANA that occurred in the area.

1.5.2. International relations

The CSN's international policy and strategies take the form of a set of activities of a technical and institutional nature which are carried out in four areas, as shown in figure 1.5.2.1.

Figure 1.5.2.2 depicts the activities carried out by the CSN during 2024 at an international level.

A total of 335 international meetings were held in 2024, 222 of which were face-to-face, with Vienna, Paris and Brussels being the main destinations, as has been the norm, as they are the headquarters of the International Atomic Energy Agency (IAEA), the Nuclear Energy Agency (NEA) and the institutions of the European Union, respectively.

1.5.3. Public information and communication

Article 2, section ñ) of Law 15/1980, of 22 April 1980, determines the CSN's obligation to inform public opinion on matters within its realm of competence to the extent, and with the frequency, determined by the Council, without prejudice to the publication of its administrative actions under the terms established by law.

The CSN has continued its efforts to improve and boost both internal and external communication, as demonstrated by the inclusion of one of the strategic lines of the current CSN Strategic Plan for the period 2020-2025, identified with transparency. Figure 1.5.3.1 illustrates the most relevant actions in this regard.

All publications are available for free download at the Documentation Centre of the CSN institutional website.

In terms of requests for access to public information, 31 requests for access to public information were received directly and four from another body (Miterd) in 2024. All of them have been resolved. With regard to those cases which were inadmissible, it is worthy of note that these mainly include queries relating to administrative procedures which, despite

Figure 1.5.2.1. International relations of the CSN with counterpart bodies and other organisations in 2024

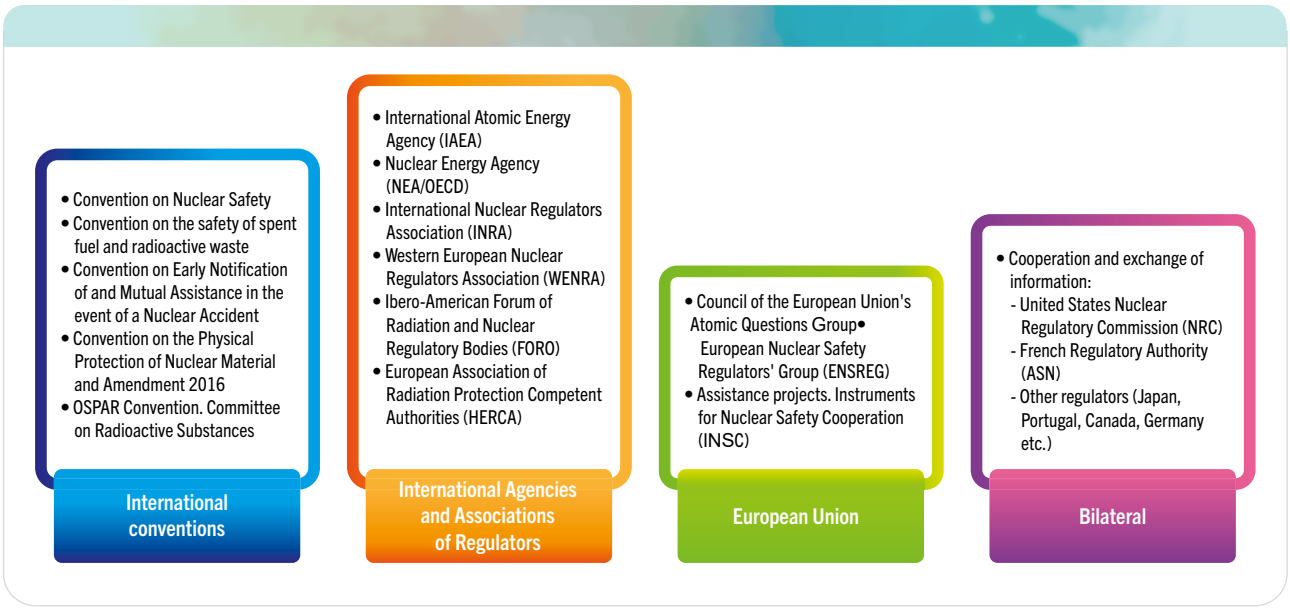


Figure 1.5.2.2. International activity of the CSN in 2024

being inadmissible as they are not included in the scope of application of Law 19/2013 of 9 December, on transparency, access to public information and good governance, are always resolved concurrently by the competent unit.

1.6. Advisory committee for public information and participation

The Advisory Committee for Public Information and Participation on nuclear safety and radiation protection was set up under article 15 of Law 15/1980. It set out to issue recommendations to foster and improve transparency, access to information and public participation in the fields of competence of the CSN.

All the information on the activities of the Advisory Committee may be consulted at the institutional website of the CSN.

Two meetings were held in 2024, the twenty-seventh and twenty-eighth, on 20 June and 21 November respectively. The first was held by electronic media and the second in person.

At the 27th session, the monograph on "Temporary Storage of Spent Fuel in Containers in Spain" and the "Internal Assessment Report" were presented. 2024. Advisory Committee for Public Information and Participation of the Nuclear Safety Council".

At the twenty-eighth session, the monograph "Renewal of the operating authorisation for the Trillo nuclear power plant" was presented and it was reported that, since its creation, the Advisory Committee had made 14 recommendations.

As of 31 December 2024, only one recommendation is still unresolved, which concerns the revision of CSN publications containing tables with the effective doses per imaging scan.

Figure 1.5.3.2. Requests for access to public information in 2024

Figure 1.5.3.1. Relevant communication activities in 2024

2. STRATEGY AND MANAGEMENT OF RESOURCES

2.1.Strategic Plan

The current strategic plan covers the period 2020-2025 and it sets out the agency's mission and vision. It sets two goals; one aimed at nuclear and radiation safety and the other aimed at achieving sustainable development goals.

Figure 2.1.1. CSN Strategic Plan logo

The plan foresees five strategic aims. The progress made in 2024 in relation to these objectives is presented in table 2.1.1.

Table 2.1.1. Strategic goals of the CSN and their degree of fulfilment by 2024

GOAL	ACTIVITY	FORESIGHT AND COMPLIANCE	
Strategic Goal 1	To maintain effective supervision of the activities of operators of installations or activities, focusing on the most safety-relevant aspects.	Renewal of the operating authorisation of Trillo NPP	Aim: To complete the assessment of the application for the renewal of the operating authorisation of the Trillo NPP. Action: Completed.
		Regulatory development	Aim: To achieve the processing of 25 % of the new regulatory developments associated with the transposition of Directive 59/2013. Action: The CSN Board announced the draft royal decree approving the Regulation on nuclear and radioactive facilities and other activities related with exposure to ionising radiation on 10 July 2024 published in the BOE on 3 December. Action: Completed.
Strategic Goal 2	To increase efficiency and effectiveness in the performance of the CSN's functions and competences.	Implementation of the IRRS 2018 action plan.	Aim: To prepare the advance reference material for the IRRS follow-up (2025) and to complete the action plan. Action: Completed.
		Implementation of the results of the self-assessment of the safety culture at the CSN.	Aim: To draw up the action plan and start implementing it. Action: the process to implement the results of the safety culture self-assessment is 50 % complete and progressing according to schedule. .
		Improving the coercive process	Aim: Implementation of the actions deriving from the coercive process improvement analysis. Action: The target is 75 % complete. The main actions are already in place.
Strategic Goal 3	To ensure that the CSN maintains and improves its emergency response capabilities, as well as to strengthen its physical safety capabilities.	IPPAS mission development in Spain	Aim: Preparation of the IPPAS mission in Spain. Action: The activities associated with this aim are at an early stage (25 %). Once the IPPAS mission is requested, at least one year will be available for its preparation.
Strategic Goal 4	To encourage CSN workers to increase their commitment and sense of belonging to the organisation.	Training programme update	Aim: Implementation of the SAT. Action: The process to define and implement the SAT has been completed.
Strategic Goal 5	To improve the perception of the regulator's activity by citizens and stakeholders through thoroughness, truthfulness and reliability.	No performance indicators were set for strategic aim 5 in 2024.	

2.1.1. Equality Plan

As mentioned above, goal 4 of the current Strategic Plan establishes the obligation to draw up the Council's own gender equality plan that properly takes into account the specific aspects of the organisation in order to ensure effectiveness and obtain the best possible results. This milestone visualises the organisation's commitment to equal opportunities and supports its actual development and implementation.

At time of writing, 67 % of the actions foreseen in the plan have been fully implemented and the remaining 33 % have been partially implemented.

Furthermore, the proposal for major activities for 2025 that are integrated in the Annual Work Plan (PAT) was analysed, as well as the proposal of the aforementioned plan for that year.

Every year, the CSN draws up a report on compliance with the annual work plan, which is published at the corporate website and at the transparency portal.

In addition, the status of implementation of the 2018 IRRS-ARTEMIS mission action plan of the IAEA was reviewed during the year. On 1st March, the CSN formally requested the initiation of the procedures to host in Spain the monitoring mission of the aforementioned IRRS mission, which took place from 27 January to 3 February 2025, in line with the IAEA's proposal.

2.2. Management System

The management system is discussed in the Management System and Information Security Committee.

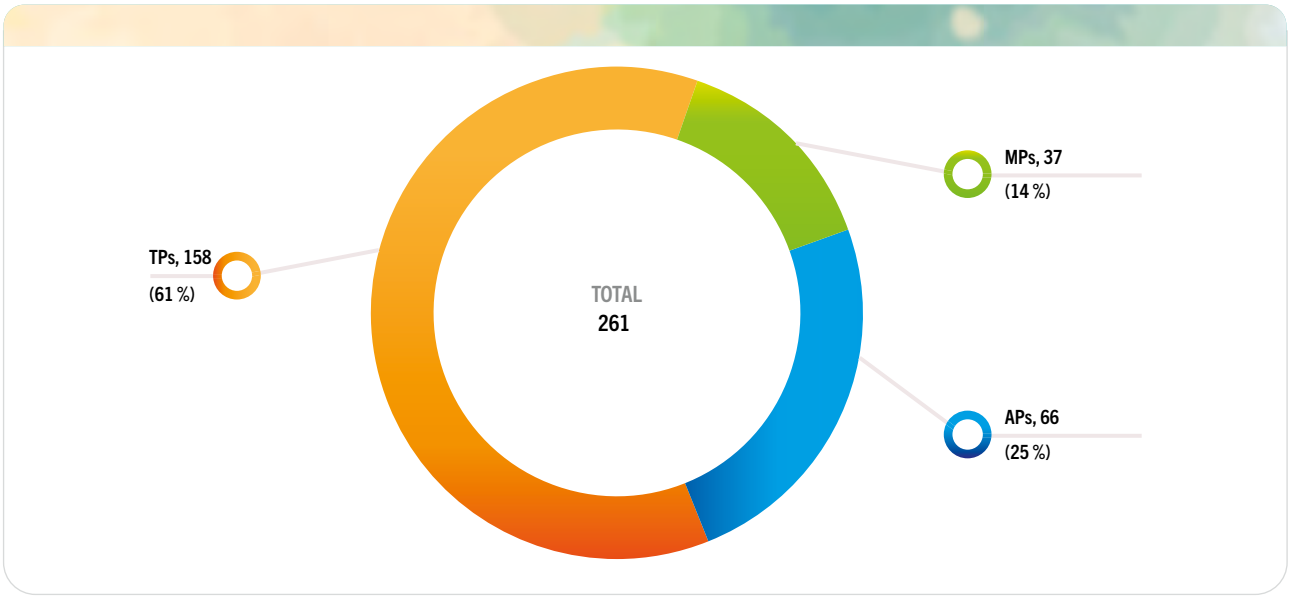
Five meetings of the Committee were held in 2024, at which reviews were presented of the management and administrative procedures that develop the management system manual, the internal audit plan and the status of the non-conformities and opportunities for improvement arising from them, as well as the modifications to be introduced in the annual planning of activities and their follow-up.

2.2.1. Internal procedures and audits

The management system documentation consists of a series of high-level documents and three different types of procedures: management MPs, administrative APs and technical TPs.

The CSN currently has 261 procedures, whose breakdown has been provided in the graph below, indicating in brackets the percentage for each type:

Graph 2.2.1.1. Total number of procedures and breakdown by type



Six audits were performed in 2024, five of them of CSN management system processes and one of the assignment of functions to the Autonomous Community of the Region of Murcia. Four procedures were reviewed and a further seven were approved at the start of 2025 further to completion of their review process in 2024.

2.2.2. Training Plan

In 2024, the Training Plan (TP) was structured into the seven programmes and sub-programmes illustrated in Figure 2.2.2.1.

In 2024, campaigns were carried out with all the organisational units of the Technical Directorate for Nuclear Safety and the Technical Directorate for Radiation Protection to identify the training needs of the staff assigned to them for inclusion in the Training Plan for 2024

2025. Hence, the Training Plan 2025 (TP 2025) has already been drawn up taking into account the *SAT (Systematic Approach to Training).*

2.2.3. Knowledge management

The CSN's aim in recent years has been to develop and apply a knowledge management model adapted to its own needs, based on IAEA recommendations, and to incorporate it into the management system. To this end, a support process called "Competence development and creation" was established in 2024, which encompasses all activities related with the concept of *capacity building* which were already being developed, but separately. In turn, one of the programmes foreseen in the CSN Human Resources Plan refers precisely to knowledge management.

Figure 2.2.2.1. Type of courses and hours spent

• Nuclear Safety and Radiation Protection Technical Programme • Nuclear Safety • Radiation Protection • Cross-cutting management areas • Initial technical training • ORE training	30 courses - 4449 hours 14 courses - 2690 hours 7 courses - 439 hours 4 courses - 882 hours 16 courses - 1912 hours
• Management development programme	0 courses - 0 hours
• Administrative and Legal Management Programme	8 courses - 830 hours
• Occupational Risks Prevention and Health Programme	8 courses - 729 hours
• IT Programme	16 courses - 3991 hours
• Languages Programme	7 courses - 6401 hours
• Skills Programme	2 courses - 47 hours
• INAP courses	13 courses - 485 hours

2.3. Research, development and innovation

The CSN R&D&I Plan serves as an instrument for defining the strategic lines and aims of the CSN in relation to this function, putting into place the conditions applicable to the activities to be performed. In 2024, the implementation of the R&D&I Plan in force for the period 2021-2025 continued.

A total of 22 R&D&I projects were initiated in 2024. With regard to completed projects, a total of eight projects were completed in all their stages during 2024. The total number of ongoing projects is 88 as at 31 December 2024.

In 2024 the CSN Board approved a total of five agreements for the commissioning and implementation of R&D&I projects with national research entities. In addition, four agreements have been signed (*Agreement*) have been signed with the NEA/OCDE and one with the NRC, all of them for CSN participation in international projects. Finally, grants were awarded to 12 R&D&I projects.

2.4 Normative and regulatory activity

In accordance with its legal framework and functions, the CSN proposes to the Government regulations on nuclear safety and radiation protection, both new regulations and reviews of existing ones. In addition, it issues a report on those legislative projects processed by the Government which affect its sphere of action. In this regard, during 2024 the CSN issued a report on the draft of the new Regulation on nuclear and radioactive facilities and other activities related with exposure to ionising radiations. In this regard, the new RINR encompasses all the actions of this CSN, whether through the issuing of reports within the framework of the authorisation procedures foreseen, or through the authorisation pertaining to the CSN or the adoption of favourable assessments. Furthermore, the introduction of other activities relating to exposure to ionising radiations within the objective scope of the regulation has a direct impact on the activities of this CSN.

A mandatory report was also issued on the draft Ministerial Order approving and publishing the training programme for the specialised area of nuclear medicine, the assessment criteria for specialists undergoing training and the accreditation requirements for nuclear medicine teaching units.

Furthermore, it draws up and approves Instructions, which are technical standards of a regulatory nature that the Nuclear Safety Council prepares in the areas of nuclear safety, radiation protection and physical protection, and which are thus of a binding nature.

Furthermore, the CSN, pursuant to the regulations whereunder it was created, may draw up circulars and safety guides relating to facilities and activities in relation to the areas within its competence. The circulars are purely informative and the safety guides, which relate to the standards in force on nuclear safety, radiation protection and physical protection, are not binding.

Figure 2.4.1 sets out policy and regulatory activity during 2024.

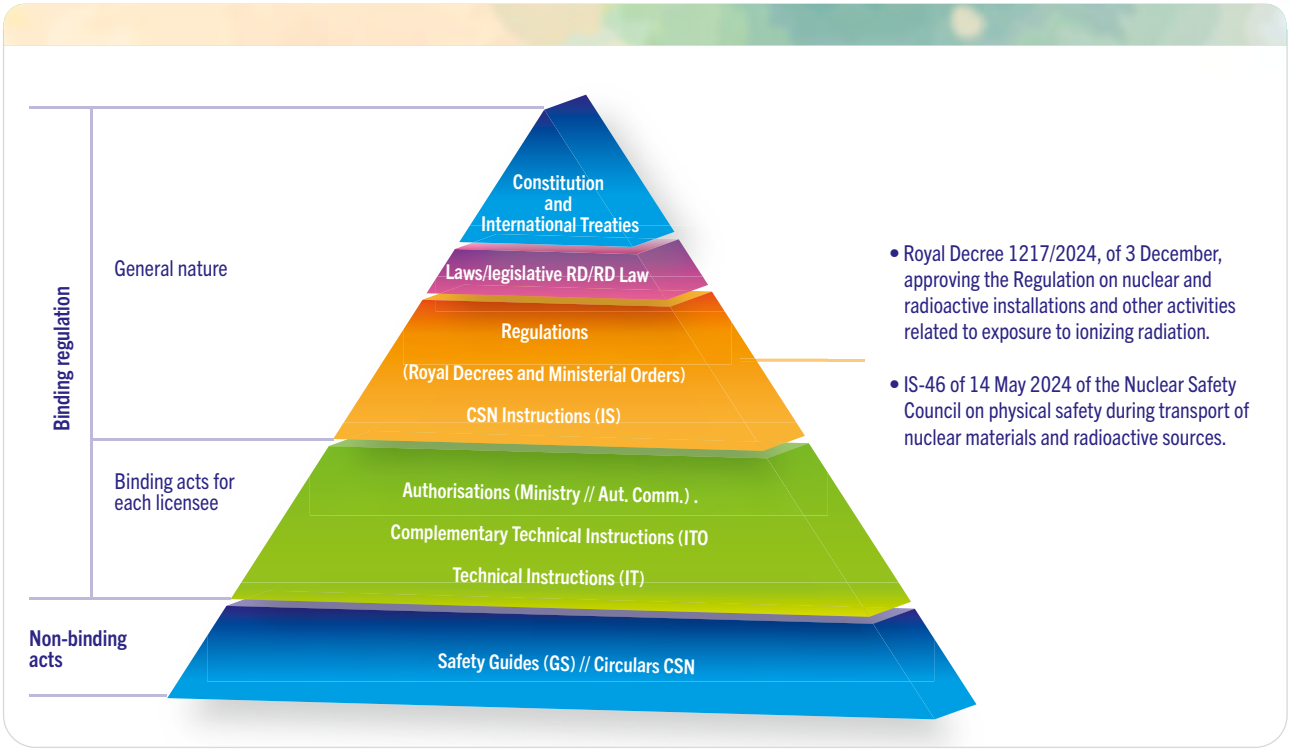
Finally, as part of the CSN's regulatory activity, in 2024 Complementary Technical Instructions and Technical Instructions were issued, which are also of a binding nature, complementing the limits and conditions foreseen in the authorisations of each licensee to whom they are addressed.

2.5 Organizational safety culture

The CSN recognises the importance of the safety culture, not only at the facilities it regulates but also in its own organisation, as borne out by the setting of a strategic goal (OE 2.3) in the organisation's own Strategic Plan 2020-2025.

Further to completion of the initial assessment performed in 2020-2021 and in accordance with the roadmap established by the CSN management, the CSN Board agreed to approve an executive report with the results of the CSN safety culture assessment, which was published on the CSN intranet.

Figure 2.4.1. Normative and regulatory activity 2024



It also agreed to contract external services to provide support services to the CSN in the definition of an action plan and its subsequent implementation for the improvement of the CSN's safety and organisational culture.

The contract sets out to provide the necessary external support from the CSN specialising in organisational culture, in order to identify precise indicators and joint working methods, as well as the definition and implementation of an action plan aimed at cultural improvement and transformation.

The works included in the contract include the following:

1. Definition of the strategy and action plan.
2. Raising of awareness.
3. Implementation of the action plan.
4. Continuous improvement plan.

Operational work began on 20 September 2023, with the project kick-off meeting and the definition of the project plan, as well as a timetable for project development and implementation. The actions of the external consultant are periodically discussed and evaluated with an CSN group created *ad hoc*. In October 2024, the project was presented to the organisation.

As at December 2024, work on stage 0 (project launch) was completed and the aims have been successfully achieved, and stage 1 (strategy definition) has been completed. The project is currently at stage 2 of awareness-raising.

3. OVERVIEW OF NUCLEAR SAFETY AND RADIATION PROTECTION IN 2024

Overall, it can be said that all nuclear and radioactive facilities operated safely throughout the year. Furthermore, the transport of radioactive material was carried out safely and the activities were undertaken within the regulatory requirements, without any risk situations having arisen.

Likewise, the environmental quality around the facilities has been maintained at acceptable radiation conditions, with there being no risk to people as a result of their operation or of the decommissioning or closure activities carried out.

The overall assessment of the operation of the authorised facilities is carried out fundamentally taking into account the results of the different supervision systems, specifically the Integrated Plant Supervision System (SISC) for nuclear power plants, as well as the rest of the supervision and control processes of the various nuclear and radioactive facilities and of the transport of radioactive material. Two of the aspects used for this assessment are operating incidents and reported events, in particular those classified as above zero level on the IAEA International Nuclear and Radiological Event Scale (INES Scale), the radiation impact, the dosimetry of the workers, the relevant modifications proposed and the enforcement regime.

The table below summarises the main data on the licensing, supervision and monitoring activities carried out by the CSN in 2024. These activities are been detailed in the sections below.

Figure 3.1. Summary of licensing and monitoring activities 2024

	LICENSING REPORTS	INSPECTIONS	EVENTS	WARNINGS	PROPOSED SANCTIONS
NPP in operation	41	110	36	6	2
NPP undergoing decommissioning	2	18	1	0	0
Juzbado	9	12	2	0	0
El Cabril		10	0	0	0
Transport	16	56	8	3	0
Radioactive Facilities	338	1103	17	20	0
SPR/UTPR/SDP/ERX	23	13	0	2	0
Other facilities / activities	59	229	0	0	0

Figure 3.2. Licenses for personnel at nuclear power plants, fuel cycle facilities and radioactive facilities issued in 2024

TYPE OF LICENSE		STAFF LICENSES		
		NPP .	PLANT FACILITIES	RADIOACTIVE FACILITIES
Supervisor	Granting	11	12	348
	Renewal	4	11	559
Operator	Granting	8	12	1,688
	Renewal	19	6	1,173

Figure 3.3. Dosimetry of exposed workers at nuclear power plants, fuel cycle facilities and radioactive facilities issued in 2024

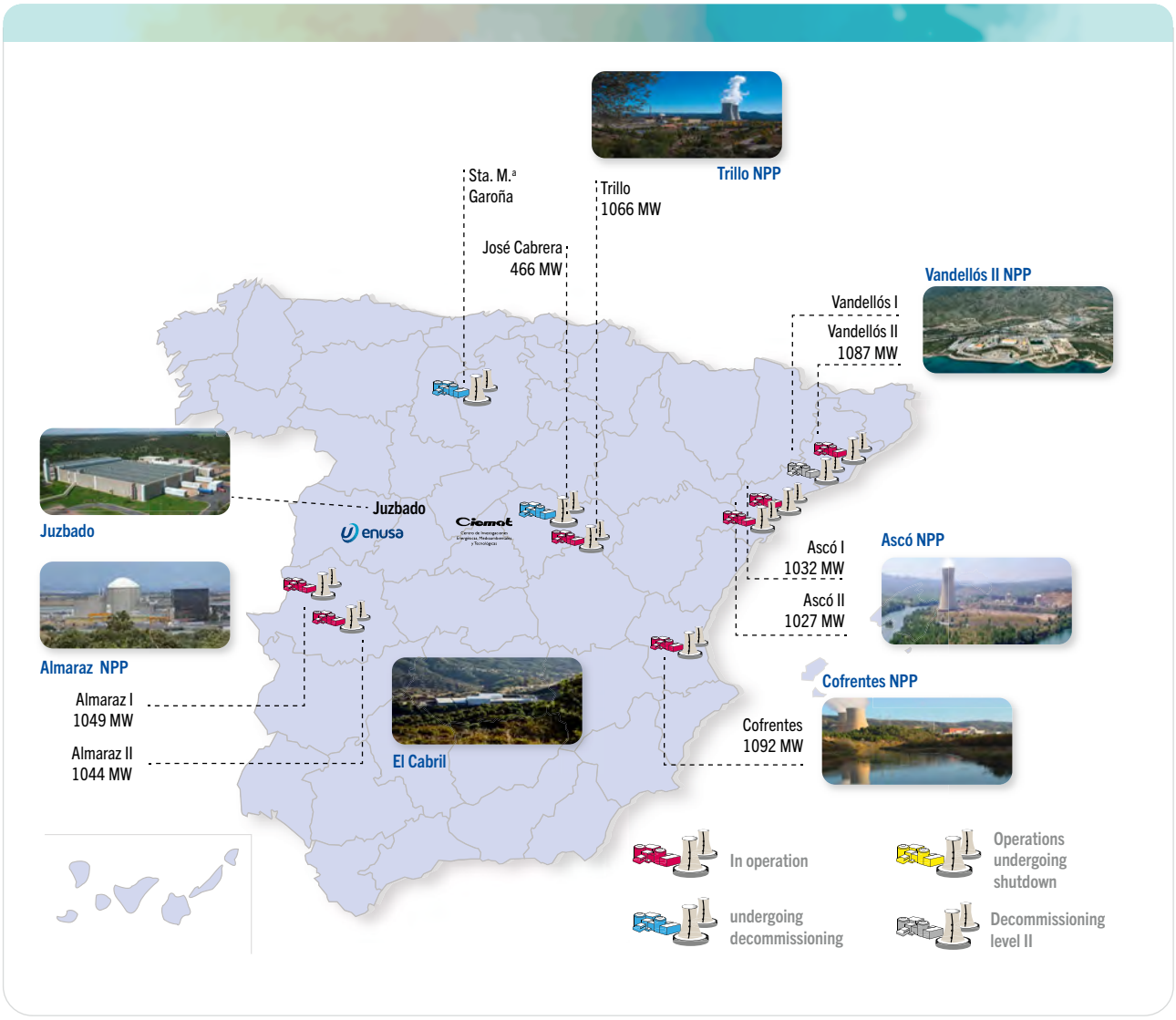
DOSIMETRY OF EXPOSED WORKERS				
FACILITY/ACTIVITY		NO. OF PEOPLE	COLLECTIVE DOSE MAN-SV·PERSON	AVERAGE INDIVIDUAL DOSE MAN-SV/YEAR
NPP .		7,288	2,086	0.86
Nuclear Fuel Cycle Fac./Waste Fac/Ciemat		1,096	33	0.31
Radioactive Facilities	Medical	101,481	12,959	0.65
	Industrial	8,359	1,917	0.96
	Others	10,662	366	0.41
Facilities being dismantled/decommissioning		600	13	0.21
Transport		236	222	1.58

4. MONITORING AND CONTROL OF FACILITIES AND ACTIVITIES

4.1. Nuclear power plants in operation

Figure 4.1.1 shows the location of the nuclear facilities existing in Spain: nuclear power plants in operation, undergoing decommissioning and other nuclear facilities. The following sections summarise the characteristics and activities of each of them during 2024.

Figure 3.1.1. Nuclear facilities in Spain



4.1.1. Nuclear power plant operating authorisations

Table 4.1.1.1 summarises the operating data for nuclear power plants for 2024.

Table 4.1.1.1. Summary of nuclear power plant operating data for 2024

	ALMARAZ I/II	ASCÓ I/II	VANDELLÓS II	TRILLO	COFRENTES
Existing License	27-07-20 27-07-20	02-10-21 02-10-21	27-07-20	17-11-24	20-03-21
Validity period (years)	01/11/2027 31/10/2028	01/10/2030 01/10/2031	10	10	30/11/2030
Net Generation (GWh)	7285.283	6933.944	7713.802	7734.717	7916.204
Load factor (%)	82.33	79.92	84.22	88.83	85.86
Operational factor (%)	86.69 89.92	82.40 86.46	86.77	91.72	91.44
Hours coupled to the Grid	7615.0 7898.5	7237.67 7595.06	7621.9	8035	8031.800
Refuelling Outages	UI: 6-10/8-11 UII 3-04/6-05	UI 2-11/23-12	27/04-12/06	24-05/23-06	N/A

Table 4.1.1.2 End-of-life and end-of-operation dates

END-OF-LIFE AND END-OF-OPERATION DATES		
REACTOR	DESIGNED END-OF-LIFE DATE	END-OF-OPERATION DATE
ALMARAZ I	1 May 2021	1 November 2027
ALMARAZ II	8 October 2023	31 October 2028
ASCÓ I	29 August 2023	2 October 2030
ASCÓ II	23 October 2025	2 October 2031
COFRENTES	14 October 2024	30 November 2030
VANDELLÓS II	12 December 2027	February 2035
TRILLO	23 May 2028	May 2035

(*) According to the National Integrated Energy and Climate Plan (PNIEC)

4.1.2. General aspects of CSN supervision and monitoring. Operating Experience

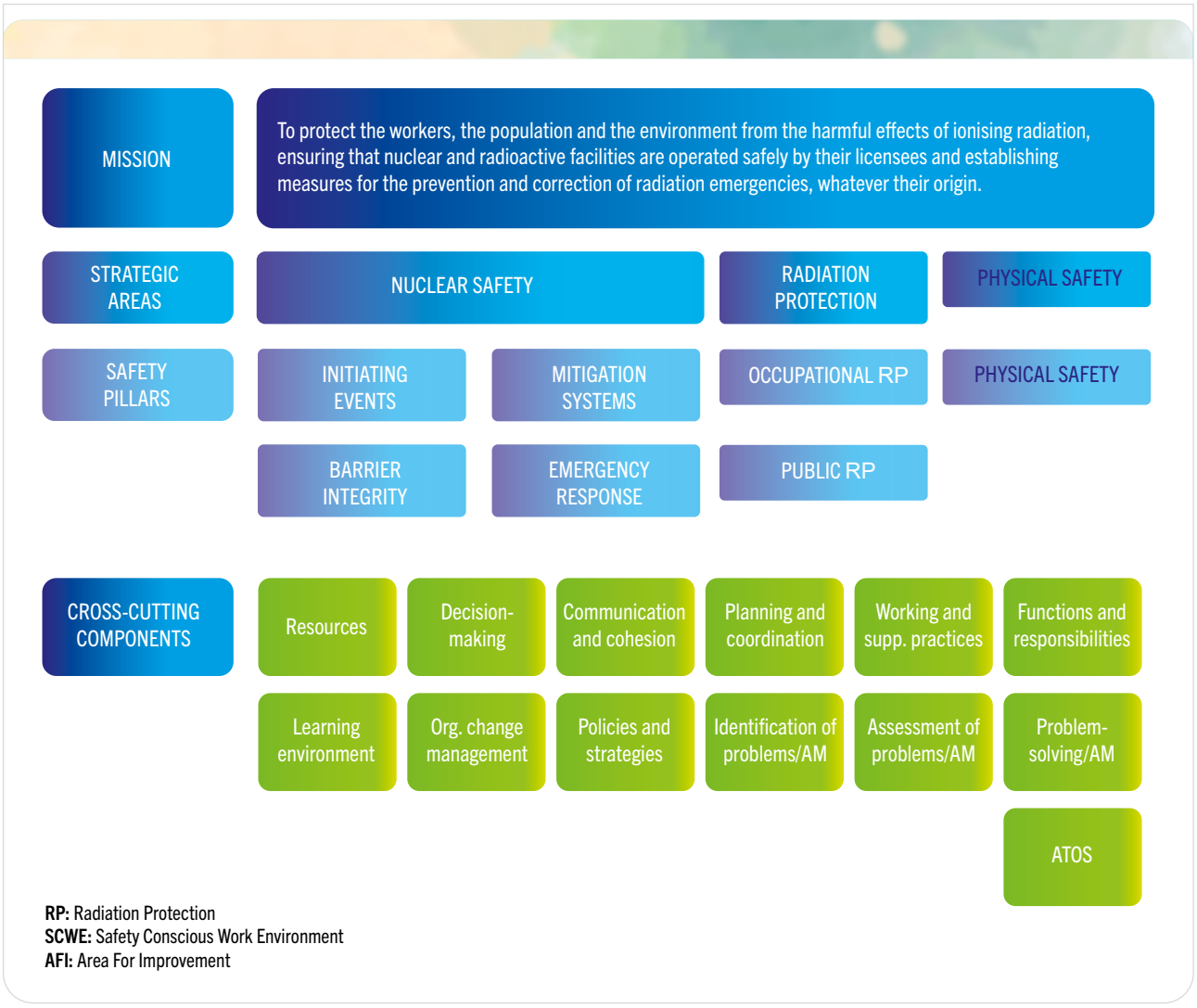
Every year, the CSN carries out an overall assessment of the operation of the nuclear power plants, basically looking at the results of the SISC, the reported events, the radiation impact assessment, the dosimetry of the workers, licensing applications and requests for relevant modifications, warnings and penalties and operating incidents.

4.1.2.1. Integrated Plant Oversight System (SISC)

The SISC is based on the continuous monitoring of a set of performance indicators and on an inspection programme called the Basic Inspection Plan (BIP), which enables supervision to be focused on the most safety-relevant aspects, in accordance with Probabilistic Safety Assessments (PSA).

The supervision of the SISC is structured into three "strategic areas" (Nuclear Safety, Radiation Protection and Physical Protection) and seven "safety pillars", as illustrated in the figure below:

Figure 4.1.2.1.1.1. Operating scheme of the SISC



RP: Radiation Protection
SCWE: Safety Conscious Work Environment
AFI: Area For Improvement

From the SISC results on the operation of nuclear power plants in operation in 2024, the following can be highlighted:

- A total of 110 inspections were carried out in 2024. The implementation of the inspection programmes shows a similar development in the number of inspections as in the years prior to the pandemic, and the number of inspection findings has also been situated at similar levels.

- In 2024, 103 findings were categorised as green and two findings as white.

- During 2024 all performance indicators were green.

- The plants were in the normal situation known as licensee response (RT) of the SISC action matrix, applying standard inspection and deficiency correction programmes, except for both units of the Almaraz nuclear power plant, which was placed in the regulatory response (RR) column in the second quarter of 2024 owing to the characterisation of a white finding common to both units, and which has remained in this column during the third and fourth quarters.

The Garoña SM Supervision and Tracking System (STS) is focused on nuclear safety, radiation protection and the safety of the spent fuel storage pool. Hence, the Basic Inspection Plan (BIP) has been adjusted to the operational situation of the plant and only the SISC performance indicators related with the radiation protection of workers and the public and emergency preparedness are applied. The BIP is complemented by other planned inspections and the results of possible reactive inspections.

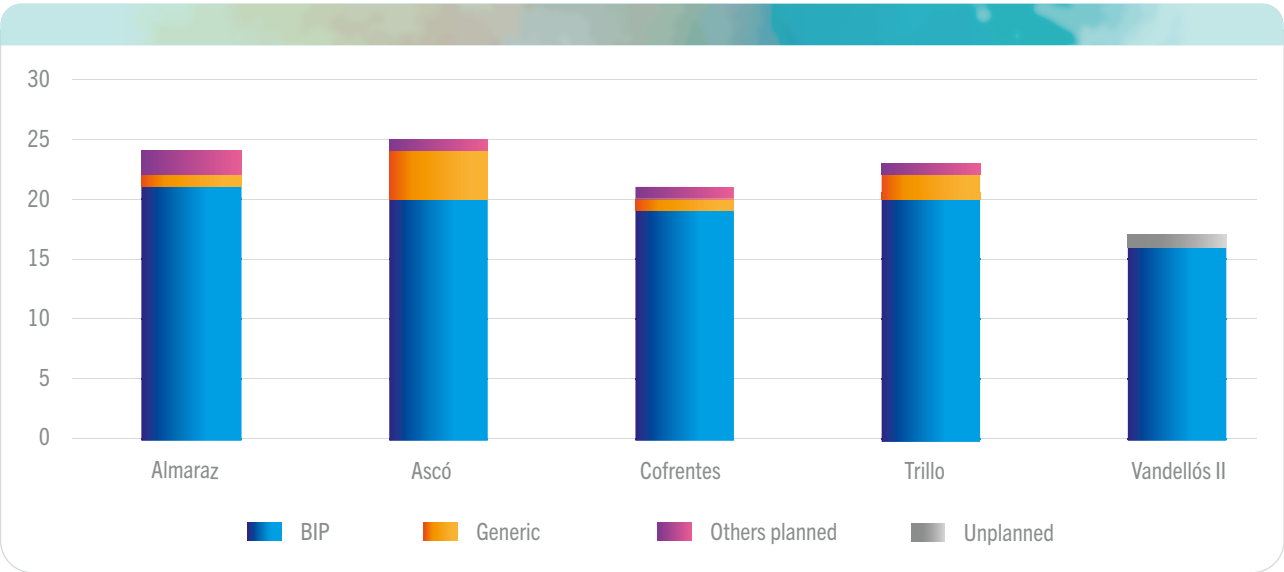
The STS will gradually be adapted to the plant situation as decommissioning evolves. A total of 10 inspections were carried out in 2024, and no findings were identified.

In summary, during 2024, a total of 110 inspections were carried out within the SISC of the seven nuclear reactors in operation and the STS of the Santa María de Garoña nuclear power plant undergoing shutdown.

Table 4.1.2.1.1.1. Breakdown of inspections carried out by CSN units (2024)

	BIP	GENERIC	OTHERS PLANNED	UNPLANNED	TOTAL
Radiation Protection	10			1	11
Nuclear safety	56	1	8	3	68
Resident inspection	20				20
Emergencies	5			1	6
Physical safety	5				5
Total	96	1	8	5	110

Graph 4.1.2.1.1.1. Overall number of inspections per nuclear power plant carried out in 2024



The following table shows the SISC performance indicators for the four quarters of 2024.

Table 4.1.2.1.2. Performance indicators. SISC 2024

	1ST QUARTER	2ND QUARTER	3RD QUARTER	4TH QUARTER
Almaraz I	green	green	green	green
Almaraz II	green	green	green	green
Ascó I	green	green	green	green
Ascó II	green	green	green	green
Cofrentes	green	green	green	green
Trillo	green	green	green	green
Vandellós II	green	green	green	green

Along with the performance indicators and the findings at each plant, this leads to their position (status and analysis) in the action matrix, as shown in the following table:

Table 4.1.2.1.3. Action Matrix Status. SISC 2024

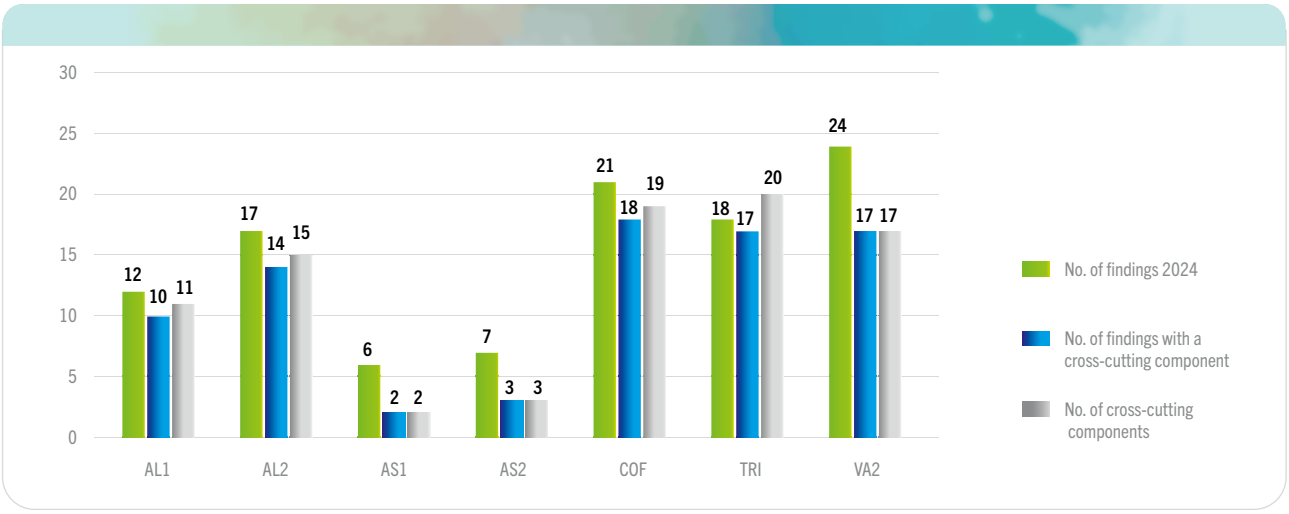
	1ST QUARTER	2ND QUARTER	3RD QUARTER	4TH QUARTER	TOTAL
Almaraz I	2	6*	1	3	12
Almaraz II	4	10*	2	1	17
Ascó I	1	3		1	6
Ascó II	1	3	1	1	7
Cofrentes	6	3	6	6	21
Trillo	7	5	0	7	18
Vandellós II	5	9	6	4	24
Total	39	37	17	23	105

[1] Four green findings and one white finding are ascertained for unit I and nine green findings and one white finding are ascertained for unit II..

The results of the SISC are published on a quarterly basis at the CSN institutional website, where additional information on this supervision and control system is also available.

Since 2017, the SISC has been completed with the supervision of the Safety Culture of the nuclear power plants, which consists of two parts: the cross-cutting components and the action matrix. The results of the cross-cutting components in 2024 have been shown in the graph below.

Graph 4.1.2.1.2. Total number of findings and cross-cutting components in 2024, for each nuclear reactor

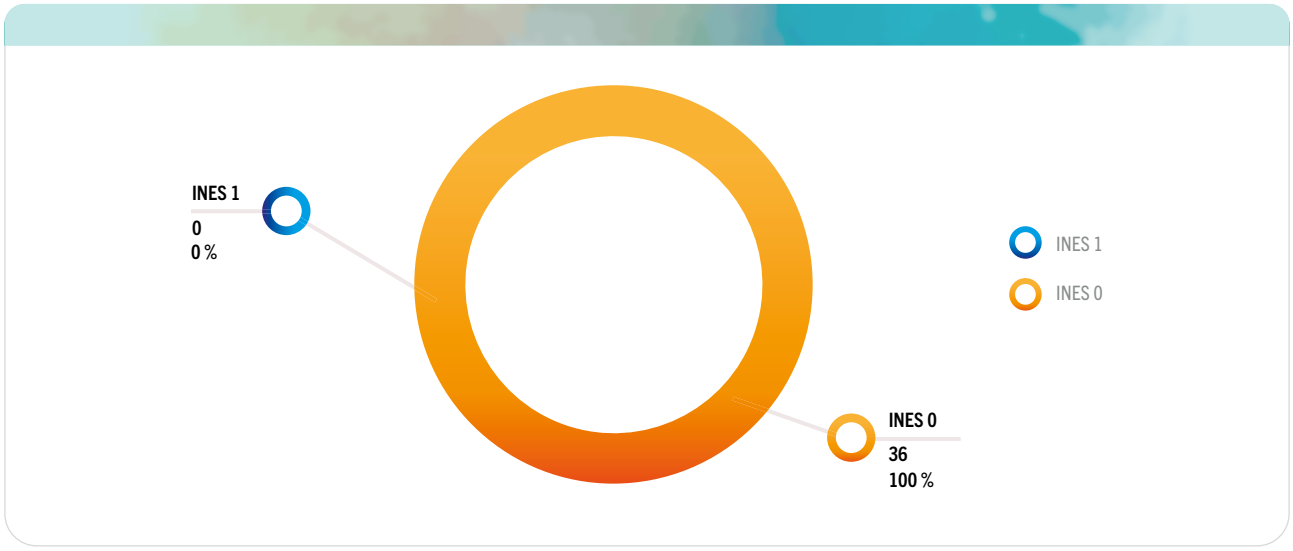


4.1.2.2. Reported events, proposals for disciplinary proceedings and warnings

During 2024, a total of 36 events were reported by the licensees of the operating plants to the CSN, three (3) of which at the start of the year, were notified in accordance with the provisions of Nuclear Safety Council Instruction IS-10, revision 1, determining the criteria for reporting events to the Council by the nuclear power plants.

Revision 2 of this Instruction IS-10 came into force on 4 February 2024 and as of that date, based on the new revision, operators reported 33 occurrences. All of them were classified as level 0 on the International Nuclear Event Scale (INES).

Graph 4.1.2.2.1. INES classification of events reported to the CSN in 2024



In 2024 the CSN issued six (6) warnings and proposed to the Ministry for Ecological Transition and the Demographic Challenge the initiation of two (2) sanctions proceedings (Miterd) on NPP in operation.

Table 4.1.2.2.1 summarises the relevant information on the causes leading to these enforcement actions.

Table 4.1.2.2.1. Information on warnings and proposals for sanctions to the NPP.

WARNINGS	
NUCLEAR POWER PLANT	
Ascó NPP	• Delay in reporting in accordance with the provisions of Council Instruction IS-10, revision 1, determining the criteria for reporting events to the Council by nuclear power plants. • Non-compliance with article 3.4.13 of Council Instruction IS-30, on fire protection programme requirements at nuclear power plants. • Non-compliance with article 8.7 of Instruction IS-19, on the requirements of the management system for nuclear facilities. • Failure to comply with Council Instruction IS-10, Revision 1, by failing to report the discovery that the control room enclosure had inadvertently remained inoperable. • Non-compliance with surveillance requirement 4.0.4 of the Operating Technical Specifications (ETF).
Vandellós II NPP	• Non-compliance with article five of Nuclear Safety Council Instruction IS-21 of 28 January 2009 on the requirements application to modifications at nuclear power plants.

Table 4.1.2.2.1. Information on warnings and proposals for sanctions to the NPPs. (ctd.)

INITIATION OF SANCTIONS' PROCEEDINGS	
NUCLEAR POWER PLANT	
Almaraz NPP	• Non-compliance with condition D of CSN/ITC/SG/AL0/20/13, associated with the transition to NFPA-805, and with the commitments acquired by the licensee associated with said condition D.
Ascó NPP	• Non-compliance with monitoring requirement 4.3.1.1 due to delay in identifying the discrepancy in the over-temperature and over-power protection instruments.

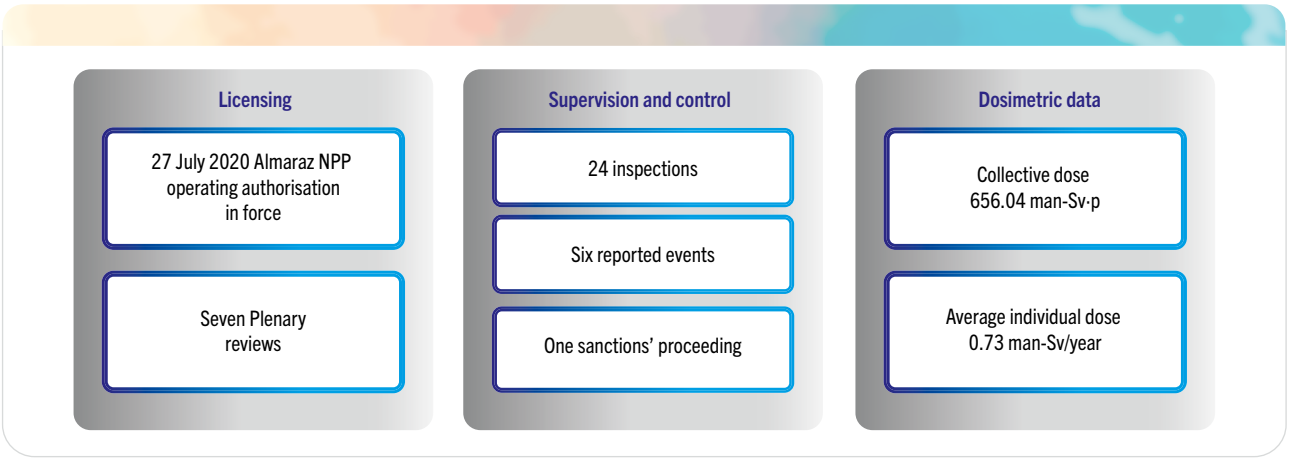
4.1.3. General topics and operating experience monitoring and analysis

A general issue is defined as any safety-related issue that may affect several plants and that requires special monitoring by the CSN. CSN monitoring may include the sending of general instructions or letters to the plants, requesting an analysis of the applicability of new requirements, the performance of inspections and assessment of specialist areas, the inclusion of analyses in the Operating Experience (EO) reports of the plants, amongst other possible actions. No new general topic was initiated in 2024.

The most significant milestones regarding the status of nuclear power plants in operation in 2024 have been summarised below in graph form.

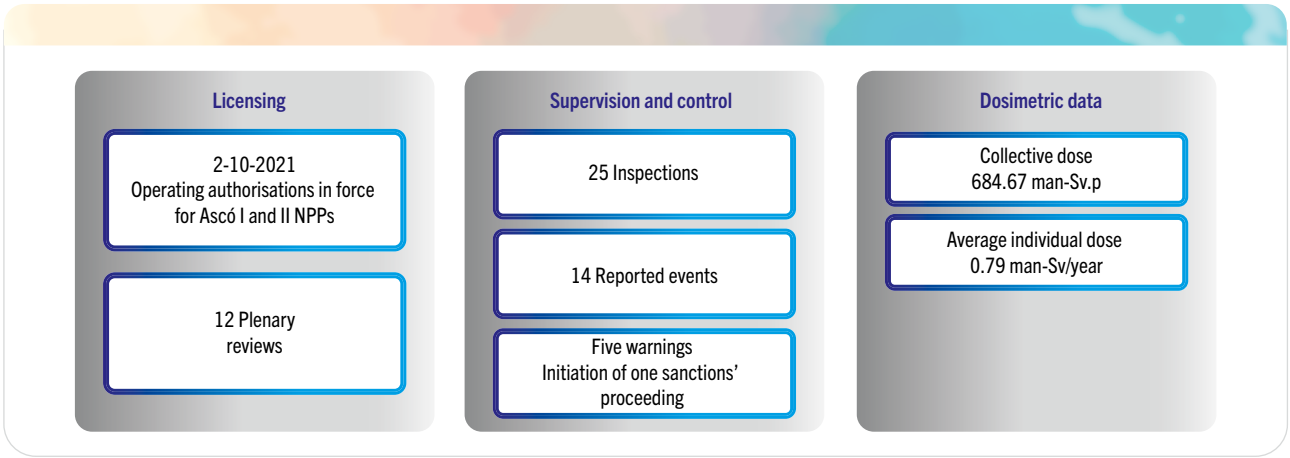
4.1.3.1. Almaraz nuclear power plant

Figure 4.1.3.1.1. Relevant activities of the Almaraz nuclear power plant (2024)



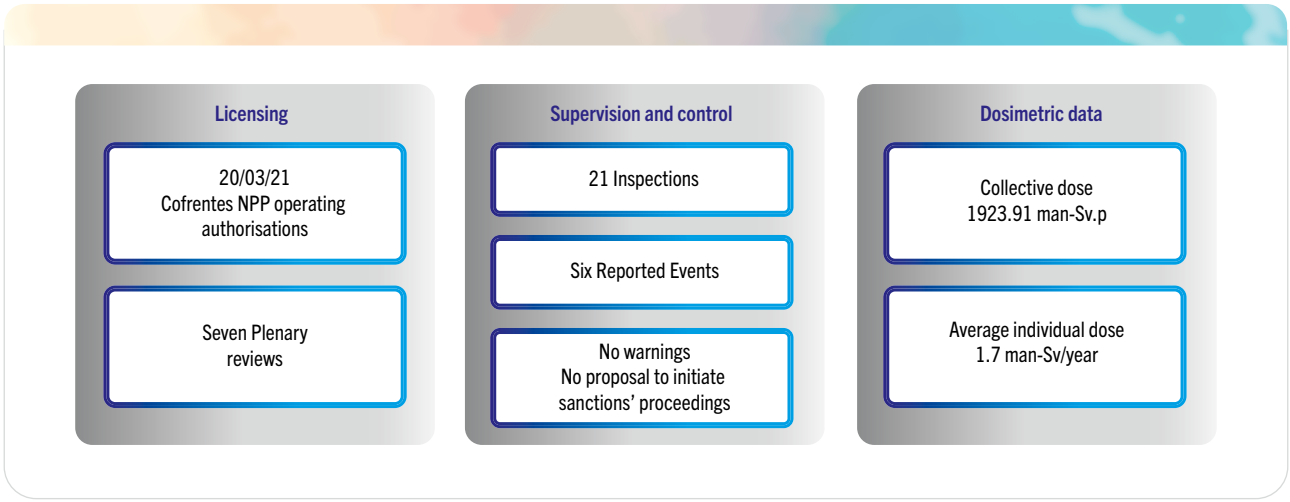
4.1.3.2. Ascó nuclear power plant

Figure 4.1.3.2.1. Relevant activities of the Ascó nuclear power plant (2024)



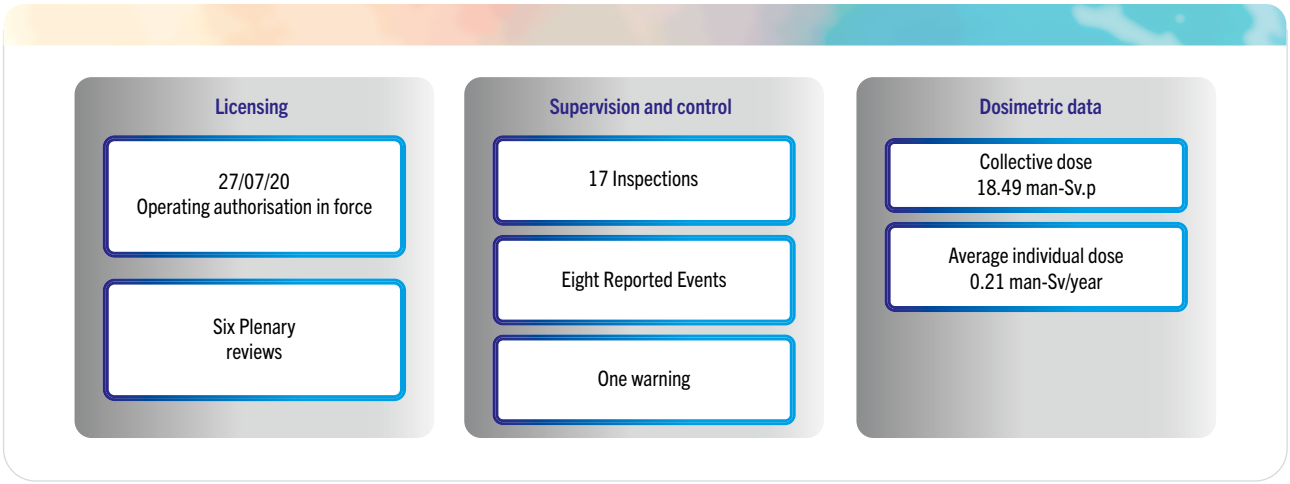
4.1.3.3. Cofrentes nuclear power plant

Figure 4.1.3.3.1. Relevant activities of the Cofrentes nuclear power plant (2023)



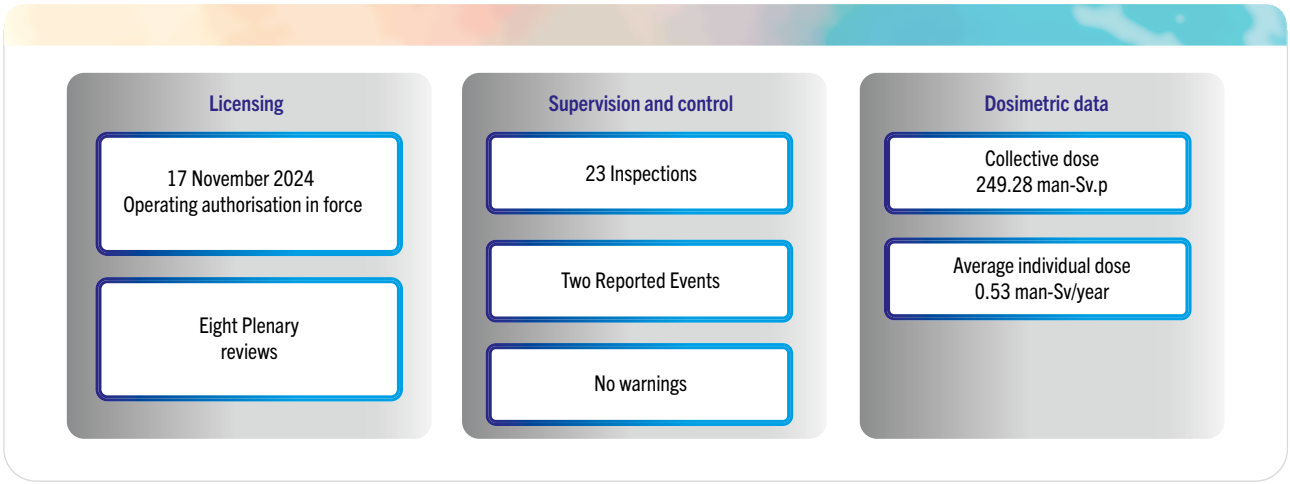
4.1.3.4. Vandellós II nuclear power plant

Figure 4.1.3.4.1. Relevant activities of the Vandellós II nuclear power plant (2024)



4.1.3.5. Trillo nuclear power plant

Figure 4.1.3.5.1. Relevant activities of the Trillo nuclear power plant (2024)



4.2. Nuclear power plants at decommissioning stage

There are currently three nuclear power plants in Spain undergoing decommissioning, with varying degrees of progress: Vandellós I NPP, located in Tarragona and currently at the latency stage; José Cabrera NPP in Guadalajara; and Santa María de Garoña NPP in Burgos.

Table 4.2.1 provides an overview of the nuclear power plants undergoing decommissioning, location, licensing milestones etc.

Table 4.2.1. Overview of characteristics of nuclear power plants undergoing decommissioning

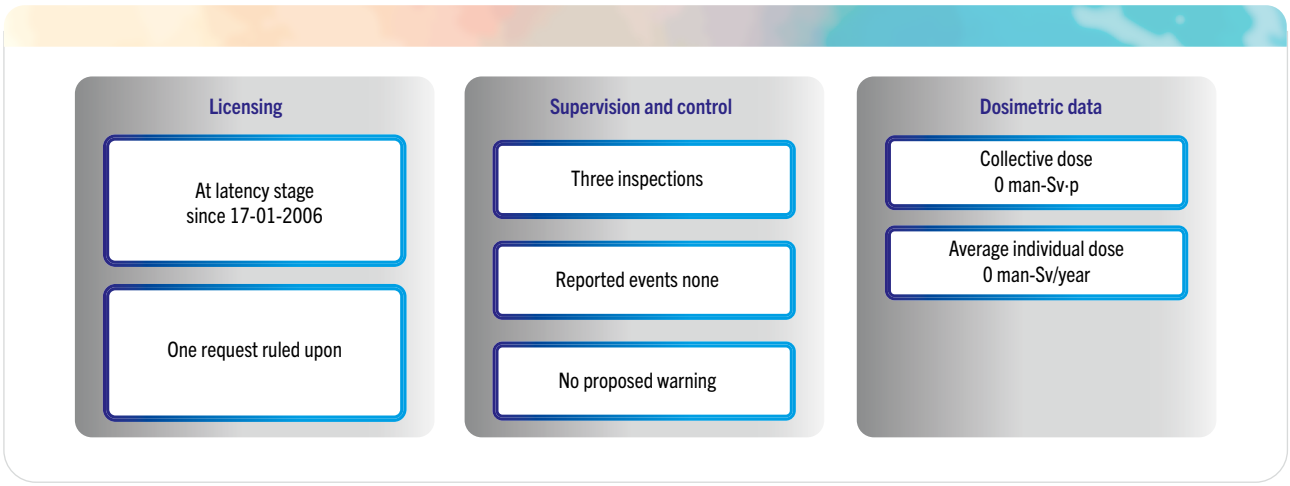
PROGRAMME	FACILITY (LOCATION)	LICENSING MILESTONES	STATUS	IMPLEMENTATION
Vandellós I nuclear power plant decommissioning project	Vandellós I (Vandellós Tarragona)	Start of operation Feb-1972 Declaration of shutdown July 1990 Decommissioning Jan-98 Latency Jan 2005	Latency (level 2 decommissioning)	1998-2004
José Cabrera nuclear power plant decommissioning project	José Cabrera (Zorita de los Canes-Guadalajara)	Start of operation Oct-1968 Declaration of shutdown April 2006 Decommissioning Feb-2010	Implementation of decommissioning and closure	2010-2023
Santa María de Garoña nuclear power plant decommissioning project	Santa María de Garoña (Santa María de Garoña-Burgos)	Start of operation May 1970 Declaration of shutdown July 2013 Decommissioning and change of ownership to Enresa July 2023	Implementation of stage 1 of Decommissioning and closure Plan	2023-2026

The activities carried out at each of the facilities were conducted during 2024 in line with the required safety limits and conditions and without any radiation impact on the public and the environment.

The most significant milestones regarding the status of the nuclear power plants at different stages of decommissioning during 2024 have been summarised below in graph form.

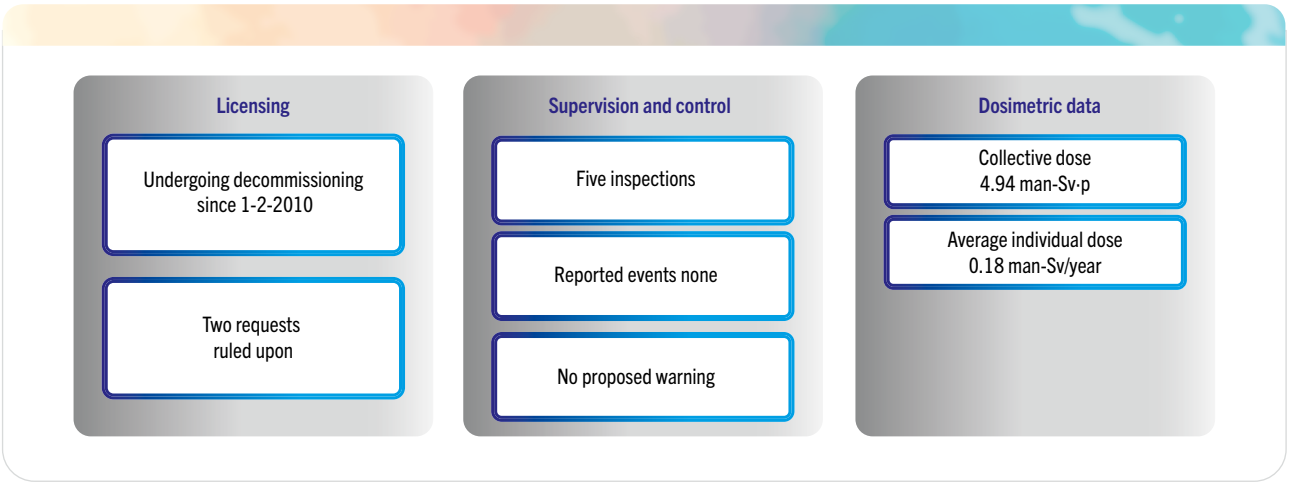
4.2.1. Vandellós I nuclear power plant

Figure 4.2.1.1. Relevant activities of the Vandellós I nuclear power plant (2024)



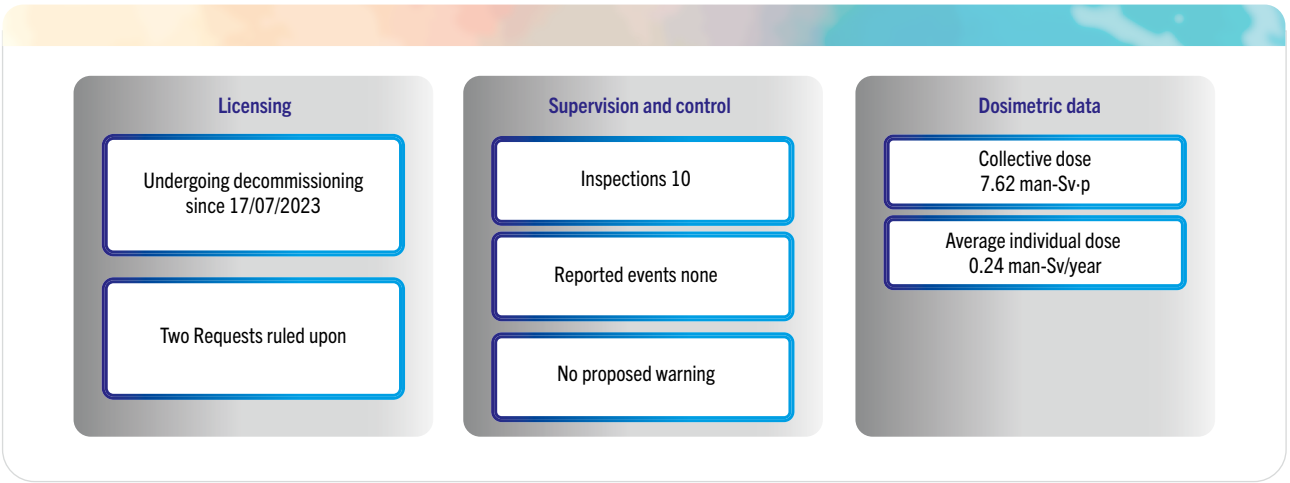
4.2.2. José Cabrera nuclear power plant

Figure 4.2.2.1. Relevant activities of the José Cabrera nuclear power plant (2024)



4.2.3. Santa María de Garoña nuclear power plant

Figure 4.2.3.1. Summary of information on the Santa María de Garoña nuclear power plant. Year 2024

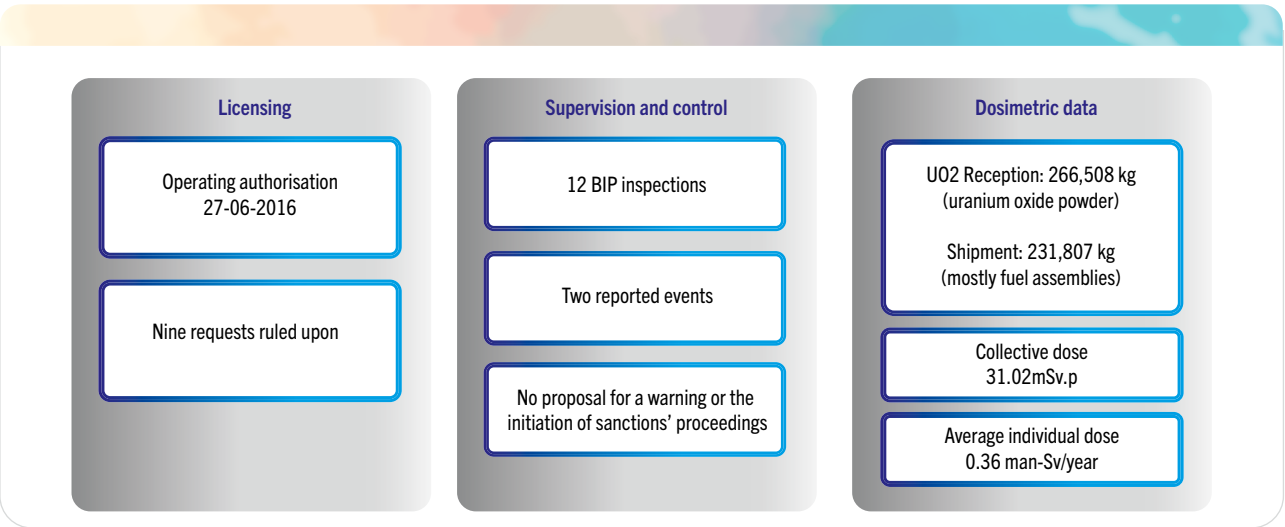


4.3. Fuel cycle facilities, storage of radioactive waste and Ciemat

4.3.1. Juzbado fuel assembly factory

The Juzbado nuclear facility manufactures uranium oxide and uranium oxide/gadolinium oxide mixture fuel elements, with maximum enrichment of U-235 of 5 % by weight, for use in pressurised light water and boiling light water nuclear reactors.

Figure 4.3.1.1. Relevant activities Juzbado fuel assembly factory (2024)

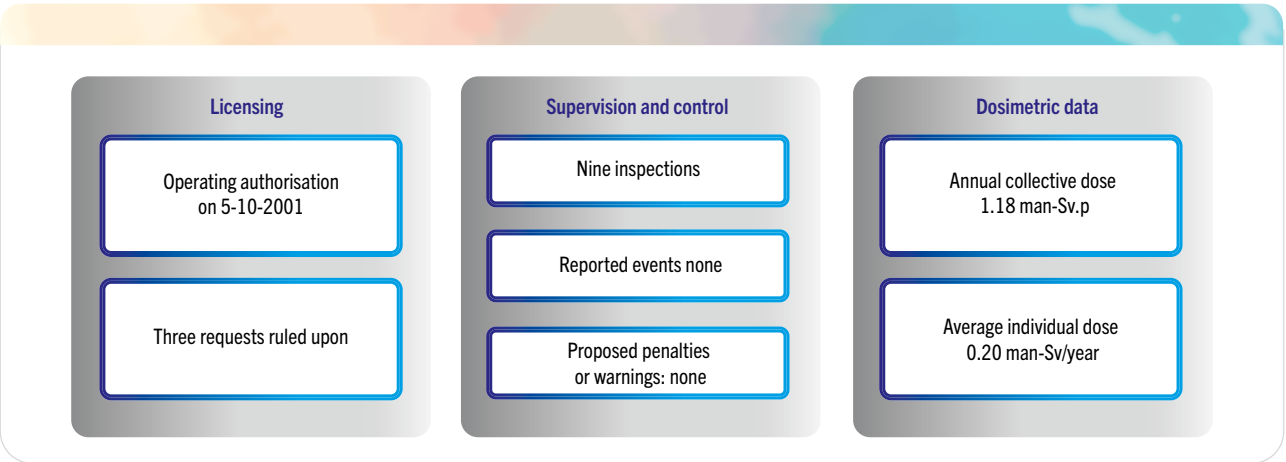


4.3.2. El Cabril radioactive waste storage facility

The El Cabril Storage Facility (CA) is a nuclear facility for the storage of low and intermediate level waste (LILW) and very low level waste (VLLW). It began its operations in 1992 and has been authorised since 5 October 2001.

Figure 4.3.2.1 shows the most relevant activities in relation to the El Cabril radioactive waste storage facility during 2024.

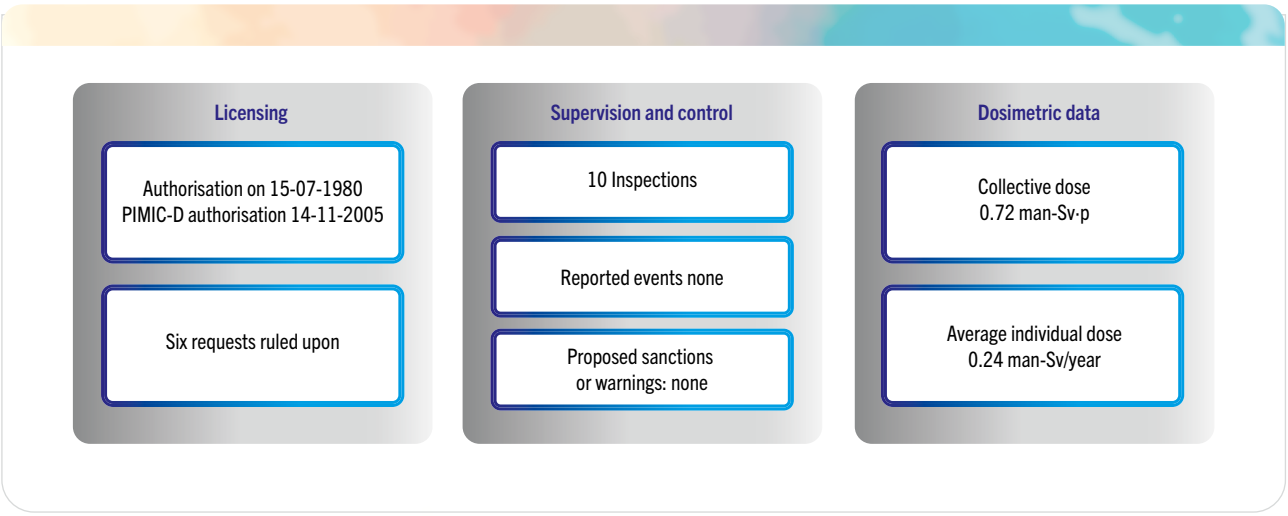
Figure 4.3.2.1. Relevant activities of the El Cabril storage facility in 2024



On 10 April 2024, Enresa requested an extension of the term of operation of cell 29 until December 2024 in order to complete the assembly of the coverage of the entire cell. In addition to the reinforcement of the conditions requested from Enresa for the first extension, additional surveillance conditions were added for this second extension of December 2024 to ensure the safe operation of the cell until the completion of its full coverage. This coverage was completed in December 2024 and its effectiveness is currently being verified, as required by the conditions imposed by the CSN.

4.3.3. Centre of Energy, Environment and Technology Investigations. (Ciemat)

Figure 4.3.3.1. Relevant Ciemat activities (2024)



4.3.4. Uranium concentrates manufacturing and uranium mining plants

Table 4.3.4.1 summarises the total descriptive overview of all facilities under this heading.

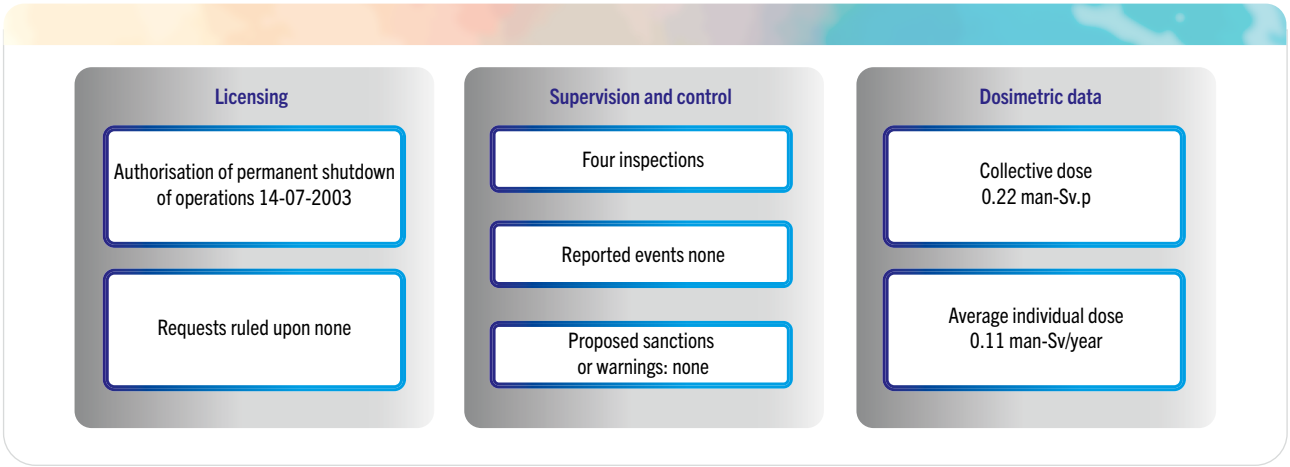
Table 4.3.4.1. Descriptive overview of uranium mining and concentrates manufacturing plants

URANIUM MINING SITES AND URANIUM CONCENTRATES PLANTS			
FACILITY		**SITUATION**	**DESCRIPTION 2024**
Saelices mining facilitie	Elefante Plant	Decommissioned and refurbished (under compliance period since 2005)	• Elefante Plant: subject to a long-term Monitoring and Surveillance Programme that includes various environmental radiation monitoring programmes and control of leachate discharges produced at the site. • Quercus plant: subject to a site-wide environmental radiation monitoring programme, worker surveillance programme, discharge control and radioactive waste management. • The mining sites have been refurbished and a groundwater monitoring and structural stability plan is in place.
	Quercus Plant	Shutdown (decommissioning and closure authorisation requested in 2015. Stage 1)	
	Mining facilities	Refurbished in 2008	
FUA Andújar uranium concentrates factory		Decommissioned and refurbished (under compliance period since 2015)	• The programmes for environmental radiation surveillance, worker radiation protection, physical protection, discharge control and waste management are up and running.
Old mines of Valdemascaño and Casillas de Flores (Salamanca)		Decommissioned and refurbished (compliance period since 2008)	• The surveillance and maintenance programmes approved by the CSN in 2010 and 2012 are up and running.
LOBO-G (U La Haba mineral plant, Badajoz)		Closed in 2004 (stabilised tailings in enclosure)	• Long-term surveillance programme operational in compliance with ORDER ITC/2942/2004 of 2 August 2004 declaring the closure of the refurbished site of the Lobo-G plant.

4.3.4.1. Quercus Plant

Figure 4.3.4.4.1.1 summarises the most relevant activities carried out at the Quercus plant during 2024.

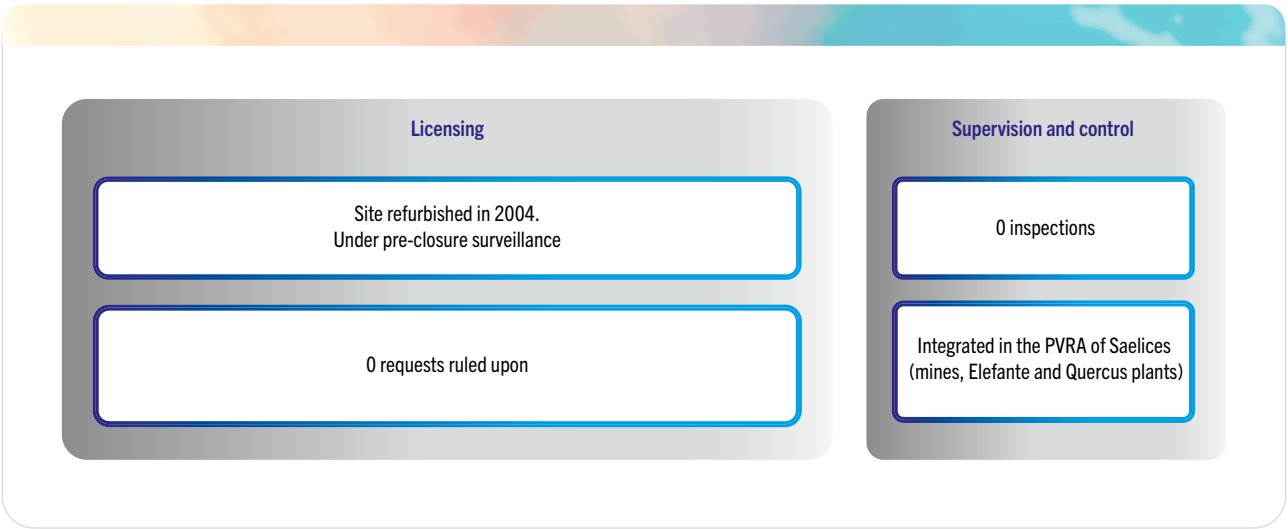
Figure 4.3.4.1.1. Most relevant activities Quercus plant (2024)



4.3.4.2. Elefante Plant

Figure 4.3.4.2.1 summarises the relevant activities in relation to the Elefante plant during 2024.

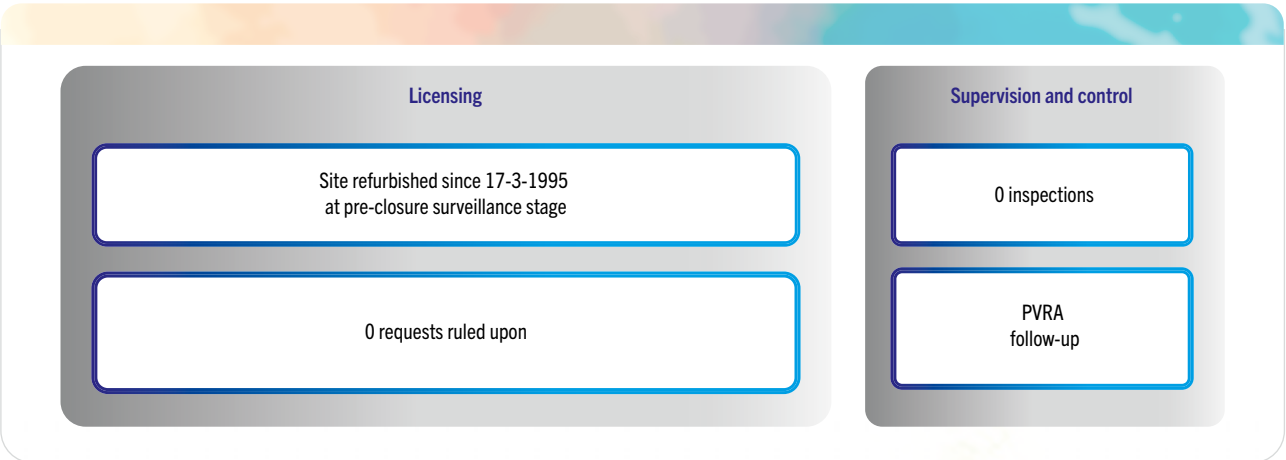
Figure 4.3.4.2.1. Most relevant activities Elefante Plant (2024)



4.3.4.3. Andújar Uranium Factory (FUA)

Figure 4.3.4.3.1 summarises the relevant activities with regard to the Andújar uranium factory during 2024.

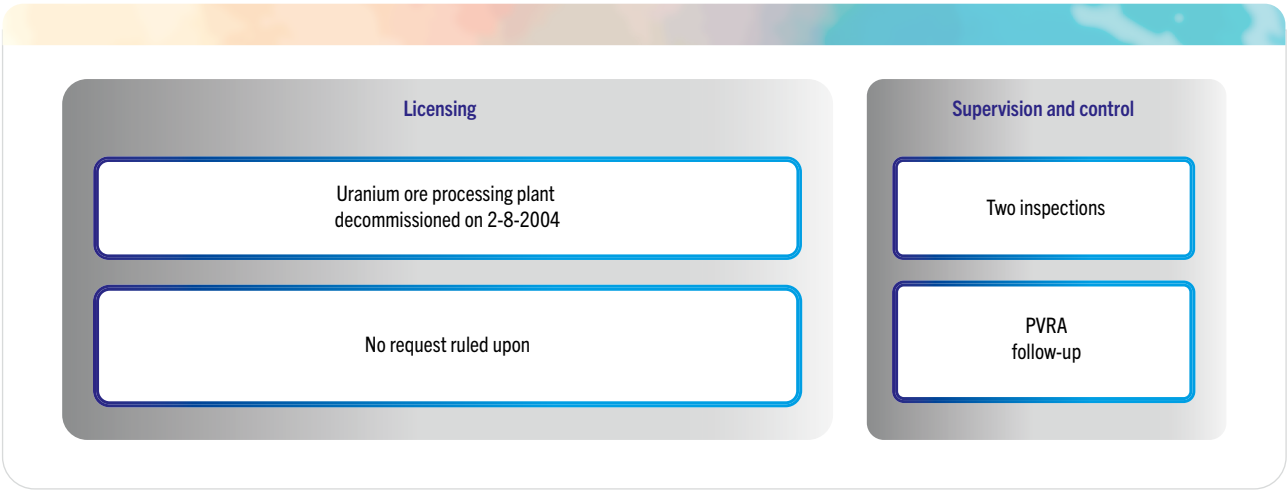
Figure 4.3.4.3.1. Most relevant activities Andújar uranium factory (FUA)



4.3.4.4. Lobo-G Plant

Figure 4.3.4.4.1 summarises the relevant activities in relation to the Lobo-G plant during 2024.

Figure 4.3.4.4.1. Most relevant activities Lobo-G plant 2024



4.3.4.5. Saelices el Chico Site

Enusa's project for the refurbishment of the Saelices el Chico (Salamanca) mining site was approved on 13 September 2004 by the Territorial Service of Industry, Trade and Tourism of the Regional Government of Castile and León.

During 2024, Enusa continued the Groundwater and Structure Stability Monitoring Programme to initiate the post-mining refurbishment stage, which was favourably assessed by the CSN on 19 March 2014.

4.3.4.6. Valdemascaño and Casillas de Flores Sites

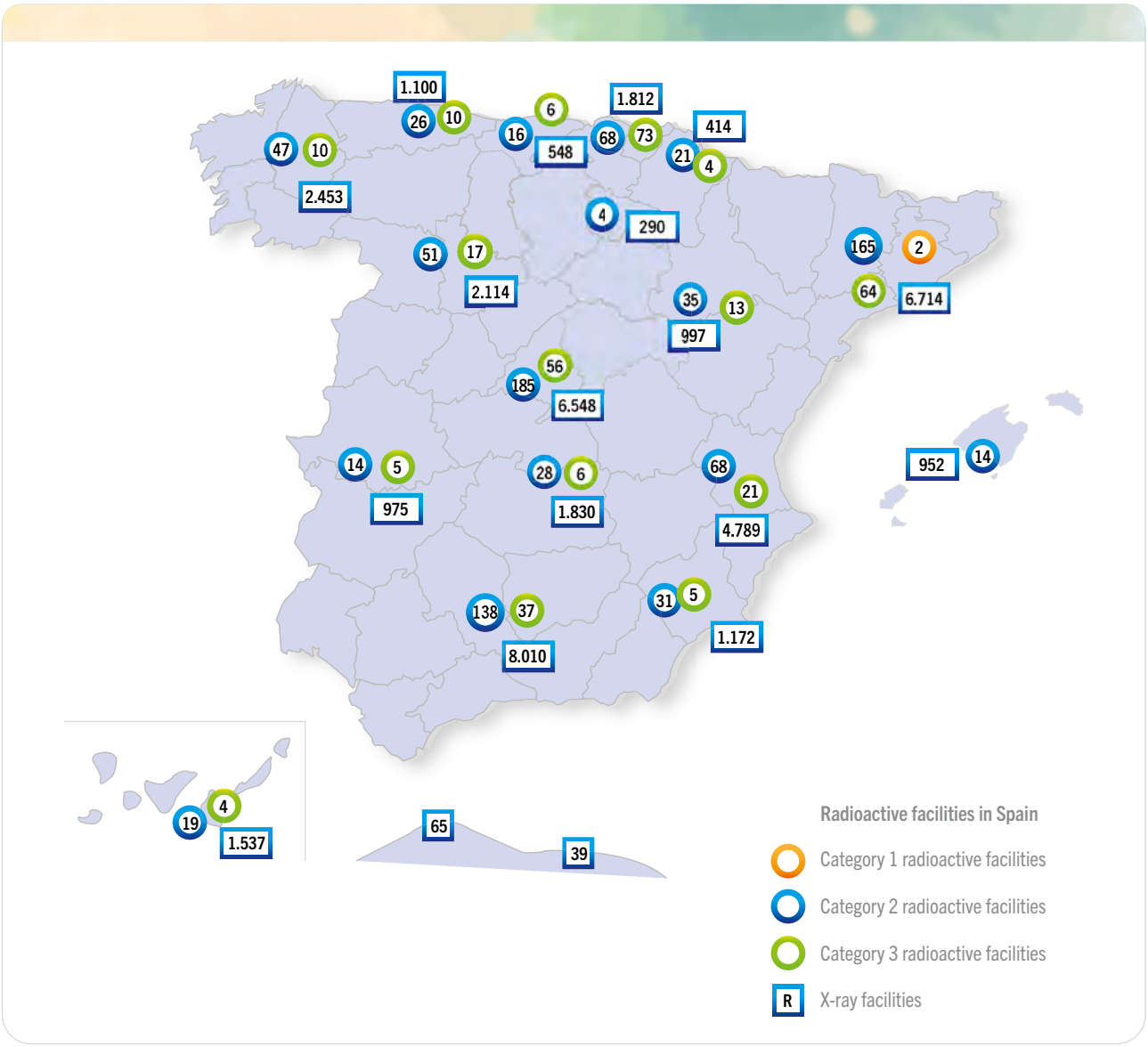
The refurbishment of these sites was completed in 2007 and it is currently undergoing a compliance period, in order to check that the refurbishment works are performing as planned. During this period the Surveillance and Maintenance Programme (PVM) which was approved by the CSN on 8 September 2010 for the Valdemascaño mine and on 11 April 2012 for the Casillas de Flores mine, is applied.

The PVMs carried out by Enusa during the compliance period were initially established with a minimum duration of three years. Further to a request by the licensee to abandon work, the CSN has been extending the validity of these PVMs in both cases.

4.4. Radioactive facilities

Figure 4.4.1 shows the distribution of radioactive facilities by category and autonomous community at the end of 2024.

Figure 4.4.1. Distribution of radioactive facilities in Spain



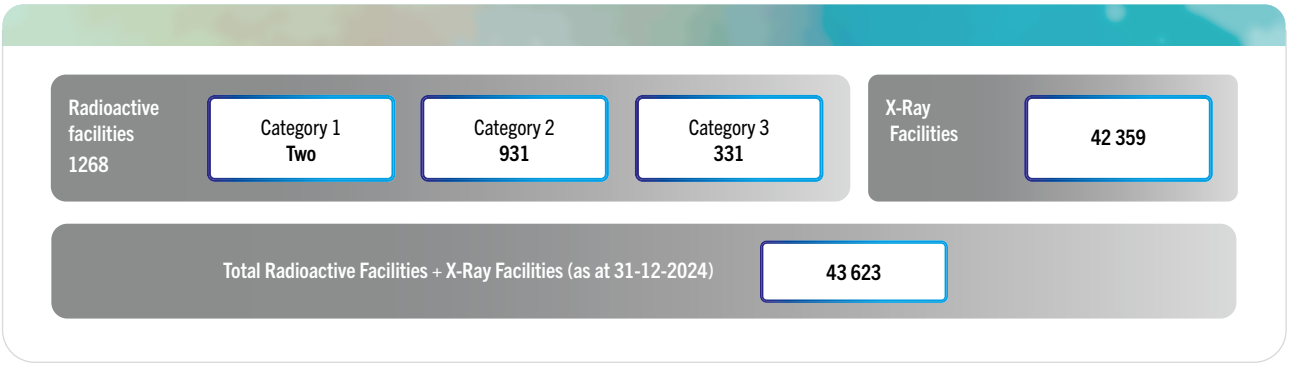
4.4.1. General aspects

As at 31 December 2024, executive powers over category 2 and 3 radioactive facilities had been transferred to the Communities of Aragon, Asturias, the Balearic Islands, the Canary Islands, Cantabria, Catalonia, Castile and León, Ceuta, Extremadura, Galicia, La Rioja, Madrid, Murcia, Navarre, the Basque Country and Valencia, although the CSN is responsible for monitoring the operation and inspection of radioactive facilities once authorised, including X-ray facilities for medical diagnosis with the assistance of the Autonomous Communities. with a function assignment agreement.

In this regard, due mention should be made of the fact that the CSN currently has assignment agreements with nine Autonomous Communities with inspection functions and three of the agreements also include radioactive facility assessment functions. The Autonomous Communities with an assignment agreement at present are Asturias, the Balearic Islands, the Canary Islands, Catalonia, Galicia, Murcia, Navarre, the Basque Country and Valencia.

Figure 4.4.1.1 provides in diagrammatic form the number of radioactive facilities existing at national level at the end of 2024.

Figure 4.4.1.1. Overall data on the number of radioactive facilities



The operation of radioactive facilities for scientific, research, medical, agricultural, commercial and industrial purposes was carried out during 2024 in accordance with the requirements laid down in terms of safety and radiation protection, without any undue risk situations arising.

4.4.2. General issues

A general issue is defined as any problem relating to radiation protection or safety that may affect several facilities and that implies special tracking by the CSN. This may include the issuing of instructions or circulars to all the radioactive facilities or to specific sectors in order to require actions, make requests or report on any relevant new issues.

General issues may also derive from an analysis of the experience of Spanish or foreign facilities, as well as standards issued by international or regulatory bodies in other countries. The CSN has the Panel for the Review of Operating and Regulatory Experiences at Radioactive Facilities and Incidents (PIRA), as well as the Incident Review Panel (PRI) and the International Incident Review Panel (PRIN), made up of CSN specialists in this area who meet periodically in order to review said experiences, to determine their applicability in Spain and assess the applicable actions.

Table 4.4.2.1 below summarises the general actions carried out by the CSN in 2024.

Table 4.4.2.1. Generic actions carried out by the CSN in 2024

GENERAL ISSUES	SITUATION 2024
Radioactive facilities with economic feasibility issues	27 facilities subject to special supervision
	131 facilities that have resolved their situation
Implementation of standards on the physical safety of radioactive sources	Favourable report on the Physical Protection Plans (PPF) of seven facilities.

Table 4.4.2.1. General actions carried out by the CSN in 2024 (ctd.)

GENERAL ISSUES	SITUATION 2024
Patient protection	During 2024, within the framework of the partnership agreement on radiation protection between the CSN and the Ministry of Health, international collaboration activities were carried out within the Steering Group for Quality and Safety (SGQS), set up within the framework of the European Commission's SAMIRA initiative (Strategic Agenda for Medical Applications of Ionising Radiations). The aim is to improve coordination at EU level, to ensure that radiation and nuclear technologies continue to benefit the health of EU citizens, and to contribute to the fight against cancer and other diseases.

4.4.3. Licensing, inspection, monitoring and control of radioactive facilities

Table 4.4.3.1 summarises the most relevant CSN activities during 2024 in relation to the licensing and monitoring of radioactive facilities.

Table 4.4.3.1. Key licensing and control activities at radioactive facilities

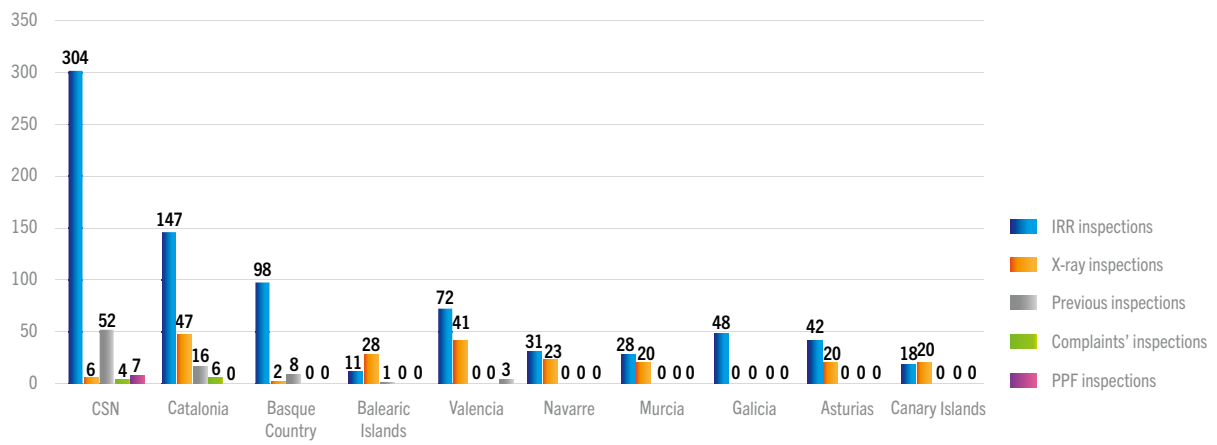
In 2024, 338 opinions were issued on authorisations for radioactive facilities. The CSN staff drafted 249 assessment reports for the issuing of technical reports, with the remaining 89 being performed and assessed by the technical staff of the respective Autonomous Communities entrusted with assessment functions.
1103 inspections of radioactive facilities and the assessment of 1260 annual facility reports.
71 complaints about radioactive and medical radiodiagnostic facilities. By the end of the year, they had all been resolved.
17 events reported to the CSN, pursuant to Council Instruction IS-18, on criteria for the notification of radiological events and incidents at radioactive facilities (Three classified as INES 1).
20 warnings have been issued to radioactive facilities.

Table 4.4.3.2. Major licensing processes of the most important radioactive facilities according to their scope of application. 2024

MAJOR LICENCES 2024, BY SCOPE OF ACTION	
APPLICATION	**PROCESSES**
Industrial facilities	• The high number of registrations and departures of delegations at bone scanning facilities has meant reporting revisions of PPPs, as well as new facilities. • During 2024, the implementation of safety measures in bone scanning and industrial radiography operating bunkers has continued to be assessed in accordance with the requirements of the Complementary Technical Instructions of Ref. CSN/SRO/IRIN/IRA/000/ITC-operating bunker-01/2021 and Ref.CSN/SRO/IRIN/IRA/000/ITC-operating bunker-02/2024. • A guidance document has been published with the aim of providing the licensees of radioactive facilities with information on how to draw up the supporting documentation for the requests for authorisation to be submitted for assessment by this organisation for the issuing of the mandatory prior report on matters within its competence: - Information Circular no. 3/2024 on standard format and content of the request for authorisation of soil density and moisture measurement installations.
Medical facilities	• The boom in the development and use of new radiopharmaceuticals in nuclear medicine therapy continues, which has led to a significant increase in requests both for clinical trials and for radiopharmaceuticals already authorised by the Spanish Medicines Agency for use in patients. • In 2024, three requests were received for the installation of proton therapy equipment, whose first stages are due to be authorised for operation during 2025. • The CSN has published two guidance documents with the aim of providing the licensees of radioactive facilities with information on how to draw up the supporting documentation for the requests for authorisation to be submitted for assessment by this organisation for the issuing of the mandatory prior report on matters within its competence: - Information circular no. 4/2024 on standard format and content of the request for authorisation of proton therapy installations. - Information Circular no. 2/2024 on standard format and content of the request for unencapsulated radionuclides for treatments with new radiopharmaceuticals in nuclear medicine.

In 2024, 1103 inspections of radioactive facilities were carried out. Graph 4.4.3.1 shows the inspections performed by the CSN and by the Autonomous Communities with an assignment agreement in 2024, distributed by type of inspection and radioactive facility.

Graph 4.4.3.1. Inspections carried out by the CSN and the Autonomous Communities with an assignment agreement in 2024 distributed by type of inspection and radioactive facility



4.4.4. Coercive actions

As a result of the supervision and control of the facilities, the CSN issued nine warnings to radioactive and medical X-ray facilities during 2024, including one to a Radiation Protection Service. During the performance of the functions entrusted to the CSN, the Basque Government issued five warnings and Catalonia issued eight warnings, making a total of 23 warnings in 2024, each of which identifies the deviations encountered and requires the licensee to correct them.

4.5. Service organizations, licensed personnel and other activities

Table 4.5.1 summarises the CSN's activity in 2024 in this type of activities.

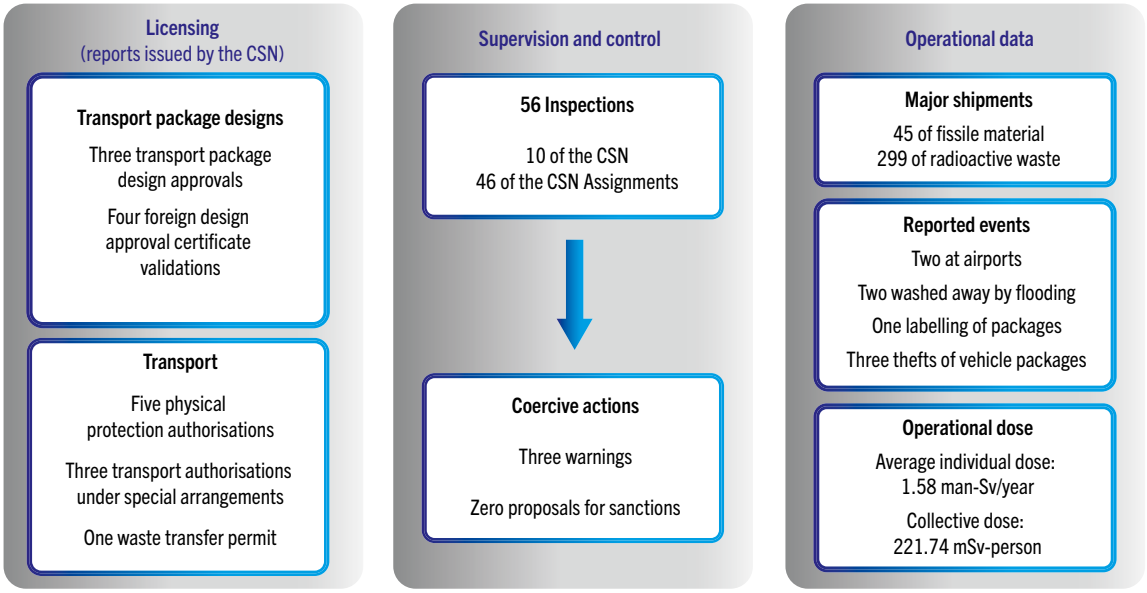
Table 4.5.1. CSN activity with respect to service entities during 2024

ACTIVITY 2024 IN RELATION TO COMPANIES AND SERVICE ENTITIES		
SERVICE	**IN FORCE**	**ACTIVITY**
Radiation Protection SERVICE (RPS)	98	• Two new authorisations • One authorisation modification • One licensing inspection
Radiation Protection Technical Units (RPTU)	45	• One new authorisation • Three licensing inspections • Three monitoring inspections
Personal Dosimetry Services (PDS)	20 (external) Eight (internal)	• One proposal for temporary suspension of operation • Five authorisation modifications • Three licensing inspections • Two monitoring inspections
Outside companies (contractors)	2405	• Monitoring through Operational PR inspections during refuelling • Two monitoring inspections
Medical X-Ray sales and support (EVAT)	377	• Six reports for new authorisations • One application file • Four amendment reports
Other Regulated Activities (ORA)	159	• Five new entities reported • 16 authorisation modification reports
Licenses and Accreditations	14 381 Radioactive Facilities 213 053 IRX 248 NPP 182 Cycle Facilities	• Radioactive Facilities (2126 concessions and 1732 extensions) • IRX (4212 accreditations issued and 5388 by way of accredited course records) • NPP . (19 concessions and 23 renewals) • Cycle facilities (24 concessions and 17 renewals)
Entities approved for Radioactive Facilities and X-ray courses	34 entities courses Radioactive Facilities 74 entities IRX	• Three new entities approved • 21 modifications of approvals • 115 inspections of training courses
Equipment type approval	292	• Five reports for new approvals • 19 approval modification reports

4.6. Transport of radioactive material

Figure 4.6.1 summarises the CSN's transport milestones in 2024, detailed in the following sections.

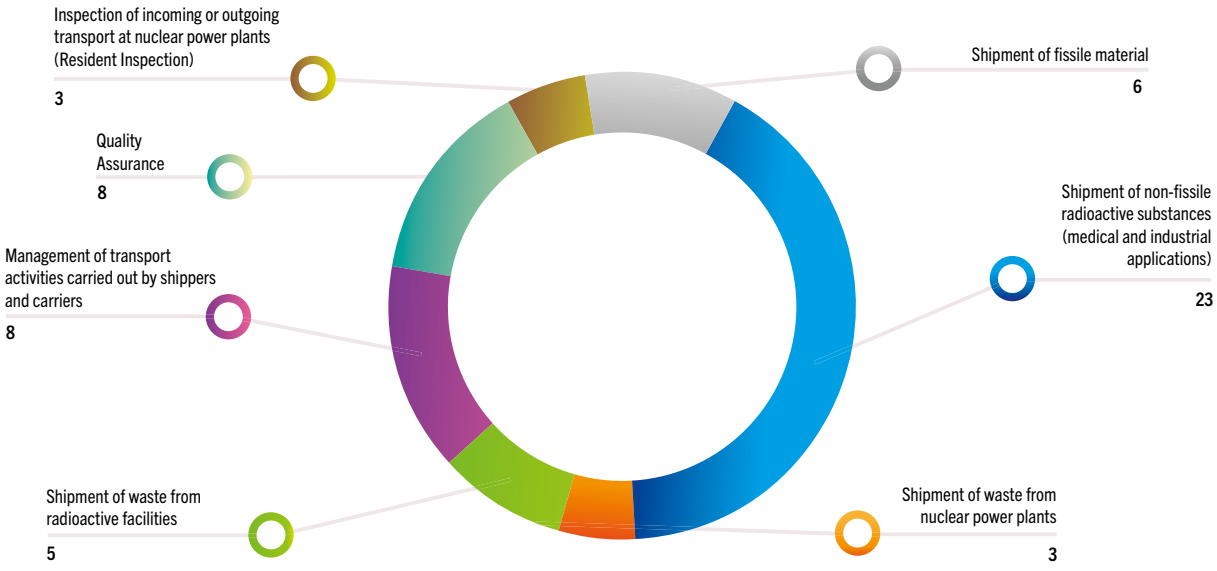
Figure 4.6.1. CSN transport milestones in 2024



In 2024, 56 inspections were performed specifically related with transport, 10 by the CSN itself and 46 through the assignment of functions to the Autonomous Communities (one of them in collaboration with the CSN).

Graph 4.6.1 breaks down, by type of inspection, the total number of inspections carried out during 2024.

Graph 4.6.1. Types of transport inspections in 2024



4.7. Activities and facilities not covered by nuclear regulations

Radioactive material detected at seaports

In June 2010, the CSN, the Ministries of the Interior, at that time the Ministry of Public Works, and Miteco, the State Tax Administration Agency (AEAT) and Enresa, jointly signed the *Response protocol in the event of detection of inadvertent movement or unlawful trafficking of radioactive material in ports of general interest* (Algeciras, Valencia, Barcelona, Bilbao, Vigo, Tarragona and Santa Cruz de Tenerife), constituting the reference framework for the radiological surveillance of goods entering Spain by sea. This protocol is often referred to as the Megaport Protocol.

No detections at seaports were reported to the CSN in 2024.

Monitoring of radioactive material detected in metallic materials

As a result of the application of the Collaboration Protocol on the Radiological Surveillance of Metallic Materials signed in 1999, in 2024 the CSN was informed of the detection of radioactivity in metallic materials on 71 occasions, totalling 2357 detections since 1998.

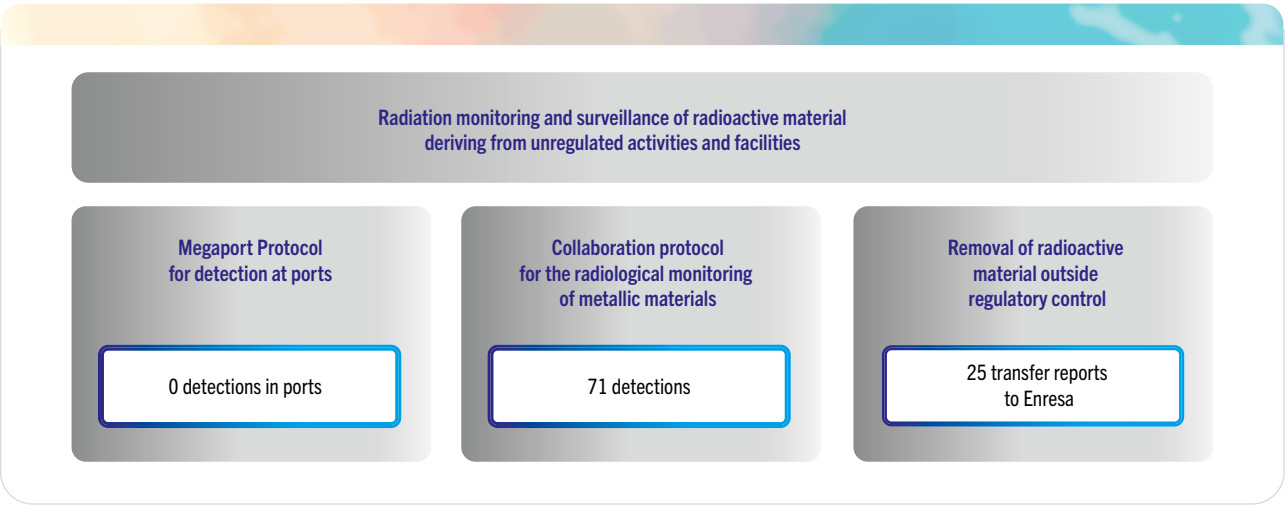
At the ministry website you can find a list of all the facilities that have signed up to the collaboration protocol on the radiological surveillance of metallic materials.

Removal of unauthorised radioactive material

In 2024, the CSN reported 25 authorisations for transfers to Enresa of various radioactive materials and sources. In 20 of these transfers the requesting entity was not authorised as a radioactive facility.

Figure 4.7.1 summarises the CSN's activity in 2024 in relation to these non-regulated activities.

Figure 4.7.1. Summary of activities carried out at facilities not regulated by nuclear legislation



5. RADIATION PROTECTION OF EXPOSED WORKERS, THE PUBLIC AND THE ENVIRONMENT

5.1. Radiation protection of workers

In 1985, the CSN created the National Dosimetry Bank, to serve as the database where the dosimetry records of exposed workers at nuclear and radioactive facilities are centralised.

Figure 5.1.1 summarises information on the types of records available at the National Dose Register (NDR) at the end of 2024.

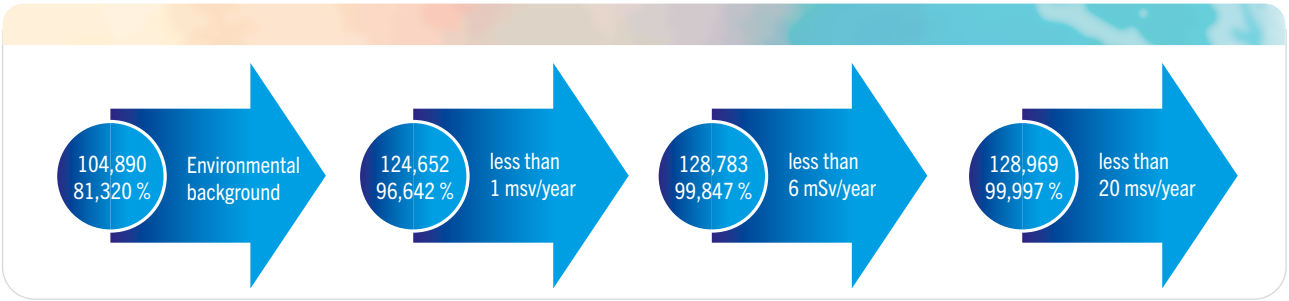
Figure 5.1.1. Data contained in NDR. 2024

Summary of dosimetric data for 2024

In 2024, the number of dosimetrically monitored workers was 128,984, pertaining to a collective dose of 17 594.95 mSv. person, and an average individual dose of 0.69 mSv/year, which represents 3.45 % of the maximum annual dose established in the legislation (20 mSv/year).

Figure 5.1.2 shows the number of workers and their percentage, reflecting those with dose values similar to environmental background values, those receiving doses lower than 1 mSv, 6 mSv and 20 mSv.

Figure 5.1.2. Number of workers and percentage according to the dose received



In 2024, 15 cases of potential exceedances of the annual dose limit set in the legislation were recorded, four of them at industrial facilities and the remaining 11 at medical facilities. In all the cases an analysis and investigation process has been initiated by the CSN that has not been completed as at the date of writing of this report, with the exception of two of the cases at industrial facilities, both of which were resolved as doses not received by the exposed worker.

Figure 5.1.1 shows the average individual dose per sector. It should be noted that transport activity is the activity with the highest average individual dose (1.58 mSv/year).

Graph 5.1.1. Average individual dose per sector

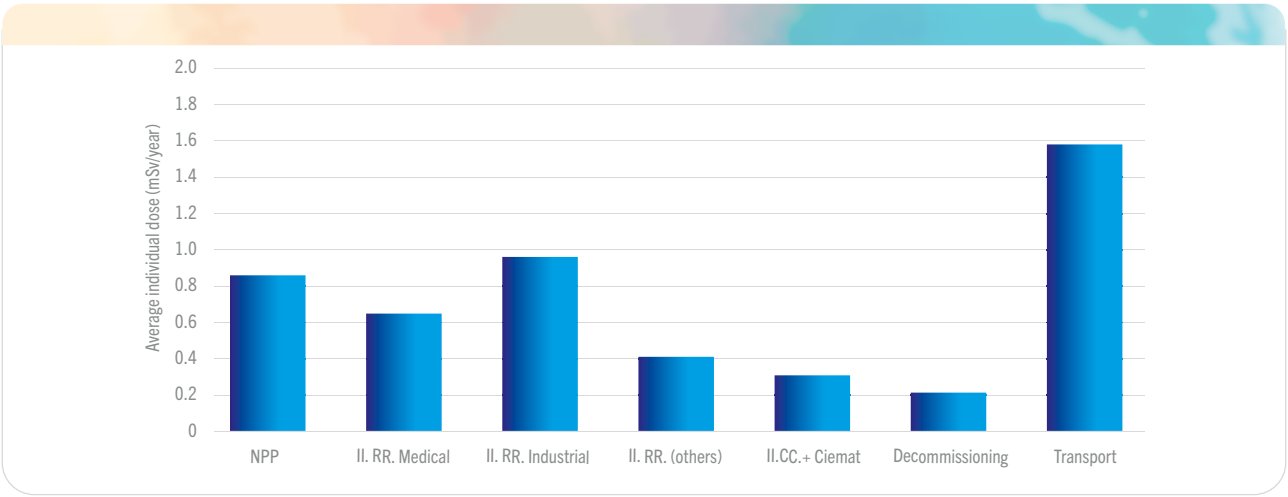


Table 5.1.1. provides details of the doses received by workers in each of the sectors considered.

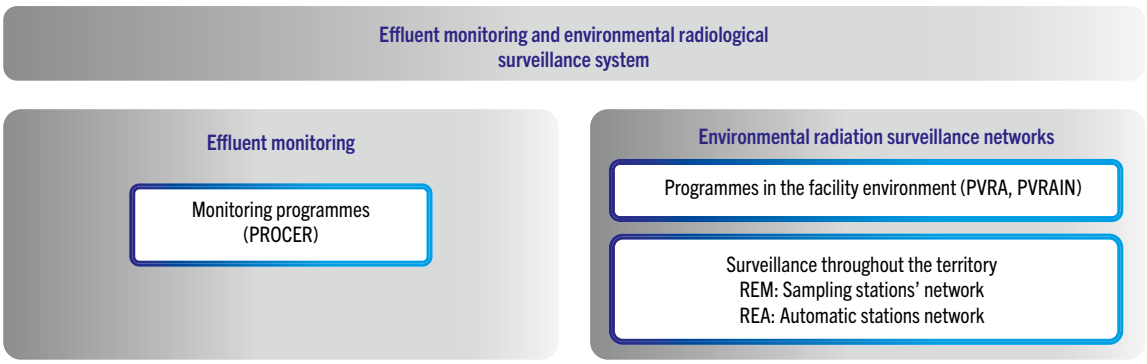
Table 5.1.1. Doses received by workers in each of the sectors considered

FACILITIES	NUMBER OF PEOPLE	COLLECTIVE DOSE MSV - PERSON	AVERAGE INDIVIDUAL DOSE MSV/YEAR
Nuclear power plants	7,288	2,086	0.86
Fuel cycle facilities, waste storage facilities and research centres (Ciemat)	1,096	33	0.31
Radioactive Facility			
Medical	101,481	12,959	0.65
Industrial	8,359	1,917	0.96
Others	10,662	366	0.41
Facilities at decommissioning and closure stage	600	13	0.21
Transport	236	222	1.58

5.2. Discharge control and environmental radiation monitoring

Figure 5.2.1 outlines the most important activities related with effluent monitoring and environmental radiation surveillance.

Figure 5.2.1. Main activities related with effluent monitoring and environmental radiation surveillance



In 2024 the effective doses due to liquid and gaseous radioactive effluents from nuclear facilities, estimated realistically for members of the public, never exceeded 0.9 % of the authorised limit (0.1 mSv in 12 consecutive months).

With regard to the environmental radiation surveillance plans (PVRA), the results for 2023 have been provided below, as the results for 2024 are not available at the time of issuing this report, due to the time required for processing and analysing the samples.

The results of the PVRAs for the 2023 campaign were similar to those of previous years, allowing the conclusion to be drawn that the environmental quality around the facilities remains under acceptable radiation conditions, with there being no risk to people as a result of their operation or of the decommissioning and closure activities performed.

The CSN carries out independent environmental radiation surveillance programmes (PVRAIN), whose volume of samples and determinations represent around 5 % of those performed by the licensees themselves. The results of these programmes for the 2023 campaign showed no significant deviations from those obtained in the respective licensee programmes.

Through the CSN website, at the link "Environmental values. REM and PVRA" the data on environmental radiation monitoring in Spain can be accessed.

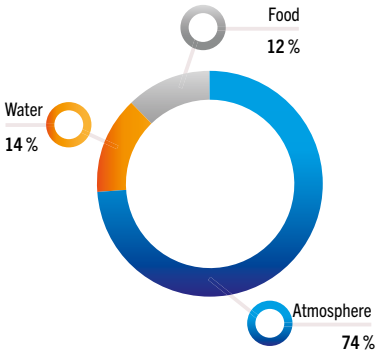
Figure 5.2.1 below includes the number of PVRA analyses of nuclear power plants. Campaign 2023.

Graph 5.2.1. Number of pura analyses of nuclear power plants

Atmosphere	
Dust particles	1664
Iodine in air	1664
TLD (quarterly exposure)	379
Soil (accumulated deposit)	40
Total Deposit (rain or deposit)	276
Total	**4023**

Food	
Milk	408
Fish, seafood	35
Meat, poultry, eggs	93
Crops	128
Honey	7
Total	**671**

Water	
Drinking water	205
Surface water	300
Groundwater	36
Seawater	62
Bottom sediments	52
Shoreline sediments	24
Indicator agency	42
Total	**721**



In addition to surveillance around the facilities, the CSN carries out nationwide environmental surveillance through a surveillance network, known as Revira, in collaboration with other institutions. This network consists of automatic stations for the continuous measurement of radioactivity in the atmosphere (REA) and sampling stations where samples are collected for subsequent analysis (REM).

The measurements recorded in 2023, both on the surveillance network managed by the CSN and on the regional networks, conformed to the environmental radiation background values, bearing testimony to the absence of any radiation risk for the population and the environment.

In 2023, there were no radioactive contamination events, inside or outside our borders, requiring specific monitoring of the national network of sampling stations.

For each of the stations the environmental radiation values for different types of samples can be consulted in the application mentioned above.The values for the period 2006 to 2024 are currently available, and are being extended annually with the data from each new campaign. In 2024, the application has been improved so that the spaced network data can be consulted in a more up-to-date way.

Euratom Article 35 Verification Missions

The European Commission carries out verifications of radiation monitoring systems in air, water, soil and food in all Member States of the European Union in accordance with Article 35 of the Euratom Treaty which states that:

Each Member State shall establish the necessary facilities to carry out continuous monitoring of the levels of radioactivity in air, water, soil and foodstuffs to ensure compliance with the basic standards. The Commission shall have the right of access to these facilities and may verify their operation and effectiveness.

Table 5.2.1. shows the history of Euratom Treaty Article 35 verification missions carried out in Spain by the EC.

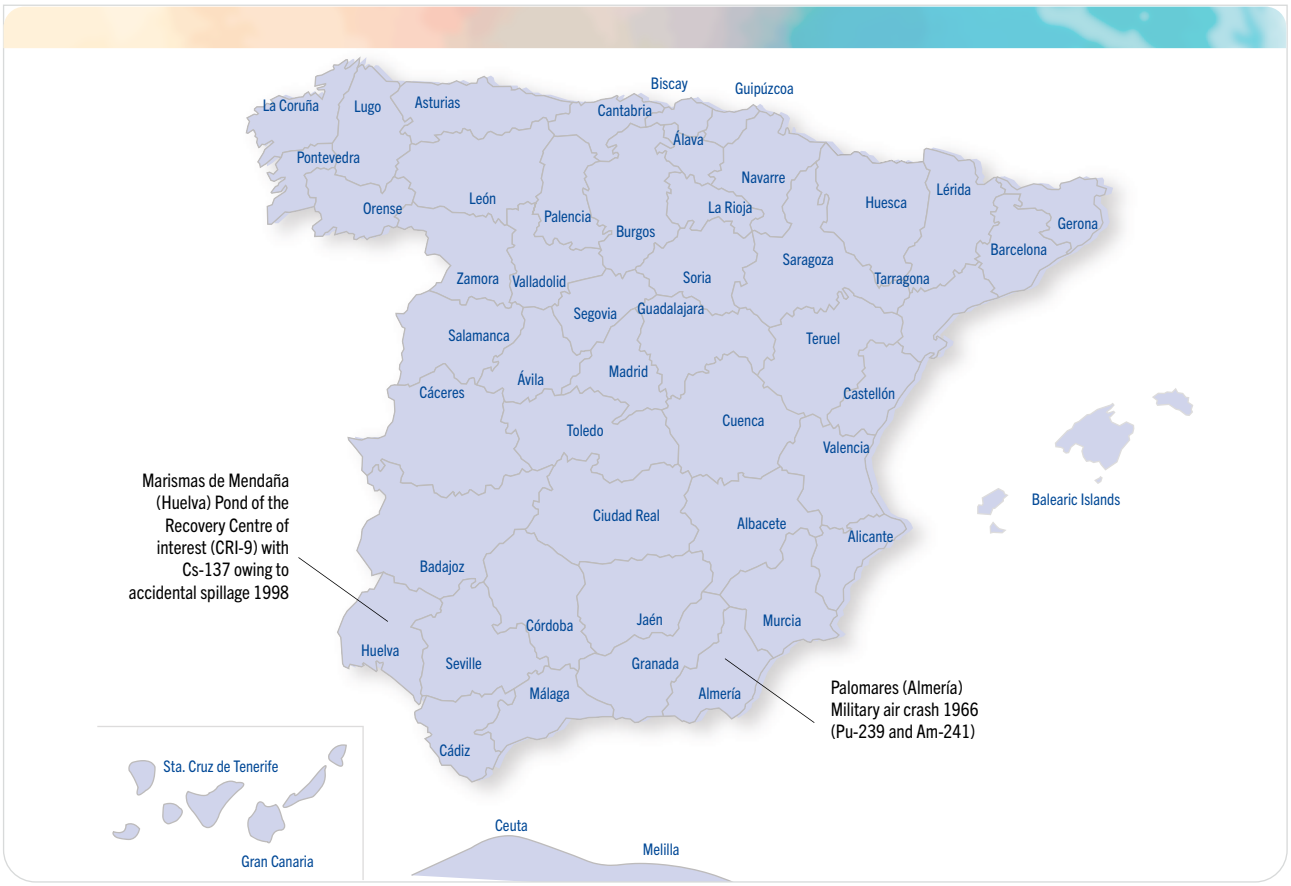
Table 5.2.1. History of Euratom Article 35 Verification Missions to Spain

YEAR	FACILITY	LABORATORIES	OTHERS
2004	Trillo NPP (Guadalajara)	Environmental Measures (Burgos) Ciemat URAyVR (Madrid)	SALEM-CSN (Madrid)
2007	Cofrentes NPP (Valencia)	Valencia University Polytechnic University of Valencia	REM stations (Cedex and CSN) REA stations (CSN) RAR Stations (Civil Protection)
2008	Ascó NPP		
2009	Fosfoyesos (Huelva) CRI-9 (Huelva)	Huelva University University of Seville Citius (Seville) Ciemat URAyVR (Madrid) Geocisa (Madrid)	
2010	Palomares (Almería)	Ciemat (Almeria)	
2012	Quercus and Elefante (Salamanca) Valdemascaño Mine (Salamanca) Andújar Uranium Factory (Jaén) La Virgen Mine (Jaén)	Salamanca University Enusa Juzbado (Salamanca) Enusa Saelices (Salamanca) University of Granada University of Seville	REM stations (CSN) REA stations (CSN) RAR Stations (Civil Protection)
2018	Almaraz NPP (Cáceres)	Cáceres University	Alert Centre (Community of Extremadura) RAE and RARE stations (Community of Extremadura) REM stations (CSN) REA stations (CSN)
2019	Palomares (Almería)	Ciemat-RARE (Madrid) Ciemat URAyVR (Madrid)	
2021	Santa María de Garoña NPP (Burgos)	Environmental Measures (Burgos)	RAR Stations (Civil Protection) REA stations (CSN)
2021	Marine environment of the coasts of the Cantabrian Sea and Galicia	Cedex (Madrid)	
2024	Madrid	Polytechnic University of Madrid Ciemat Cedex	National Centre for Environmental Health (CNSA), including its Mobile Unit. Civil Protection Coordination Centre. Mobile unit of the GIETMA UME. CSN and Salem facilities.

5.2.1. Site-specific surveillance

Although this type of site is dealt with in section 5.3 of this report, this section singles out the Palomares and CRI-9 sites, whose contamination is the result of accidents and for which the CSN has established specific surveillance programmes in the areas indicated in figure 5.2.1.1.1, where there is residual contamination due to different reasons, which have been described below.

Figure 5.2.1.1. Areas with specific surveillance programmes



Environmental radiation monitoring in the Palomares area

In 1986 the CSN was assigned responsibility for monitoring the surveillance plans in the Palomares area. Ciemat was responsible for the technical implementation of the Environmental Radiation Surveillance Programme (ERSP), with the obligation to report periodically to the CSN on the results obtained. The current Palomares PVRA was approved in 2012 and includes the collection and analysis of samples of air, rainwater or dry deposition, soils, food of animal origin, crops and different types of water, indicator agencies and sediments.

In 2024, Ciemat submitted to the CSN the annual report for the 2023 results. The results show that the residual contamination of Palomares remains within the range of values of previous campaigns. In no cases has the reference level assumed been exceeded: an annual average dose of 1 mSv has not been exceeded; accordingly, it may be assured that the exposure of the population of Palomares is very low and that the doses are irrelevant in terms of the radiation protection of the public.

In 2024, the CSN carried out an inspection of the PVRA.

Inert Waste Recovery Center at the Mendaña Marshes, CRI-9

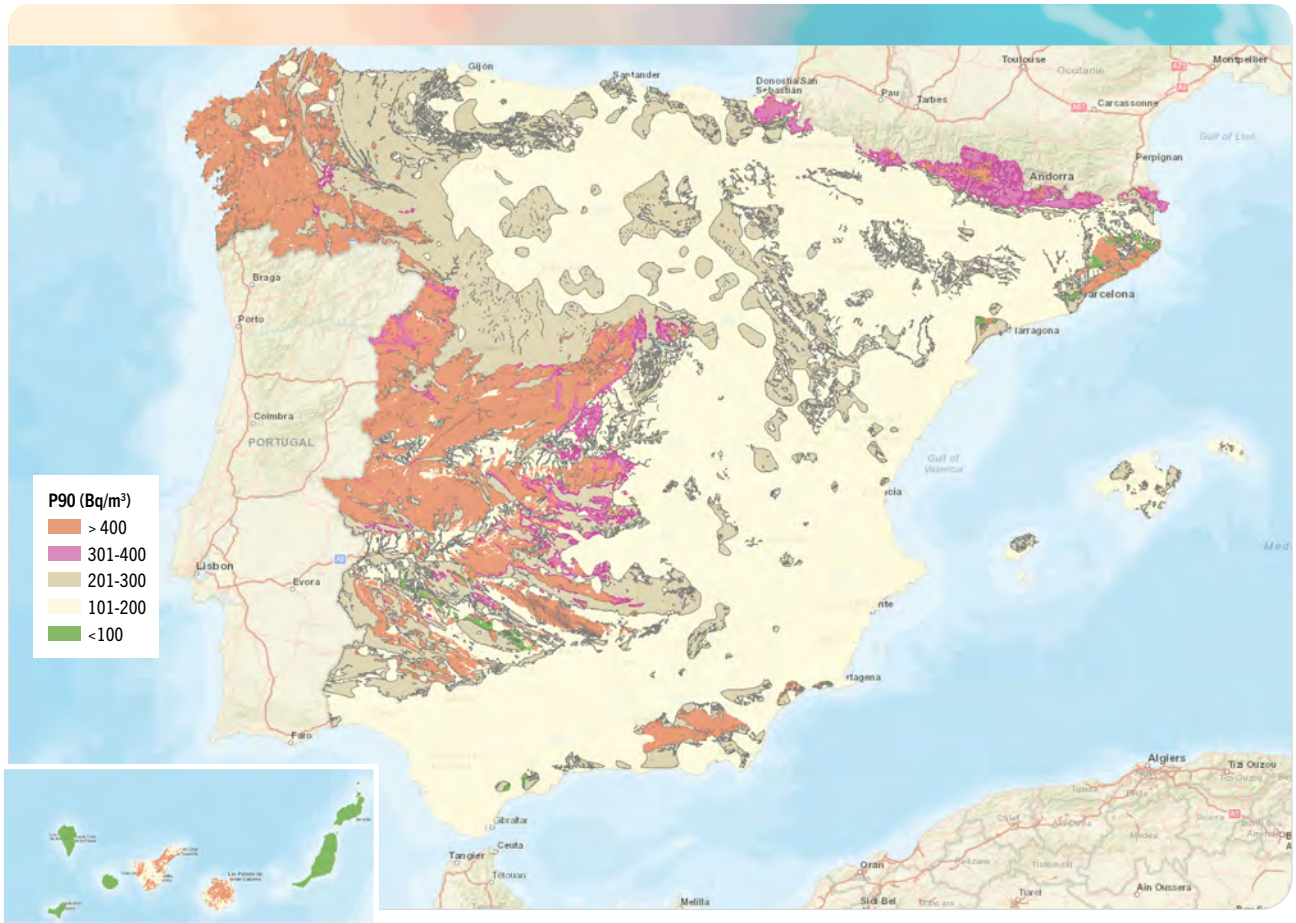
As a consequence of the fusion in 1998 of a source of caesium-137 in one of the furnaces of the ACERINOX steelworks in Los Barrios (Algeciras-Cádiz), pond no. 9 of the Inert Waste Recovery Centre (CRI-9) in the Marismas de Mendaña (Huelva) was contaminated. Pond no. 9 (CRI-9), with an approximate area of 1600m2. This centre holds the NORM waste generated by the Fertiberia company, which was closed down in 2010. During the process to restore the area, filler materials manufactured by EGMASA (Empresa Pública de Medio Ambiente de la Junta de Andalucía) were used, using inert waste (slag and fumes) from the steelworks.

As part of the supervision and control processes, the CSN carries out an annual inspection of the development of the PRVA, without any significant findings.

Protection from natural sources of radiation

The Earth's crust emits gamma radiation and radon gas. The maps of natural gamma radiation (MARNA) and potential radon, drawn up by the CSN, make it possible to visualise, respectively, the existing levels of exposure in Spain (see figure 5.2.1.2). This latter map is the reference basis for the zoning by municipality determined by the Technical Building Code (Basic Document HS, section HS 6 "Protection from exposure to Radon") in order to determine the construction solutions against radon that buildings should incorporate.

Figure 5.2.1.2. Radon potential map in Spain



Certain occupational activities lead to increases in exposure to natural radiation sources, which may be significant from a radiation protection point of view. The basic radiation protection standards for work activities involving exposure to natural radiation in Spain are drawn up in the Regulation on health protection from the risks deriving from exposure to ionising radiation (RPSI), approved by Royal Decree 1029/2022 of 20 December. In particular, these activities include:

- Industrial activities involving the processing of naturally occurring radioactive materials (so-called NORM materials), which are regulated in the same way as all other practices involving exposure to ionising radiation.

- Exposure to radon in certain workplaces, which is regulated as an existing exposure situation.

The table below summarises the most relevant activities carried out in 2024.

Table 5.2.1.1. CSN actions related with NORM industries in 2024

In 2024, the CSN carried out thirteen inspections in the field of the monitoring of natural radiation exposures; five the latter were related with the monitoring of industries processing naturally occurring radioactive material (NORM) and eight with workplaces with exposure to radon.
In 2024 there have been no significant variations in the number of declarations on the Register of Occupational Activities with Exposure to Natural Radiation.
In order to clarify the requirements for existing exposures in tourist caves due to radon exposure, in December 2024, the CSN issued an information circular to operators of these activities.
In 2024, the CSN signed a collaboration agreement with the Ministry of Labour with a view to the Labour and Social Security Inspectorate reporting to the CSN any possible situations of risk and possible non-compliance affecting the exposure of workers to radon.
In March 2024, the launch meeting of the working group on the Radiation Characterisation of Construction Materials was held at the CSN headquarters. The aim of this working group is to obtain a better understanding of the production processes and factory checks implemented for each family of products, and to study, together with the sector, the most appropriate radiation characterisation procedures in each case.

Other locations affected by long-term exposure

A list has been provided below of the areas in Spain with radioactivity caused by human activities. To date, all the checks carried out by the CSN indicate that these sites do not pose a significant radiation risk.

- In Marismas de Mendaña, located in the estuary of the Tinto River in Huelva, before its confluence with the Odiel River, there lies the Inerts Recovery Centre, which contains ponds of phosphogypsum waste containing radium-226 from the former Fertiberia fertiliser factory, closed in 2010. It covers an area of approximately 1200 hectares.

- In the area of El Hondón, in Cartagena (Murcia), with an area of around 108 hectares, there are deposits of phosphate sludge, with the presence of uranium-238, also from an old fertiliser factory.

- At locations in several municipalities in Madrid and Toledo, on the banks of the Canal Real del Jarama, there are eight trenches of varying length and depth, known as the Banquetas

del Jarama and fission products can be found there from a spillage accident in 1970 in which the artificial isotopes caesium-137 and strontium-90 were identified.

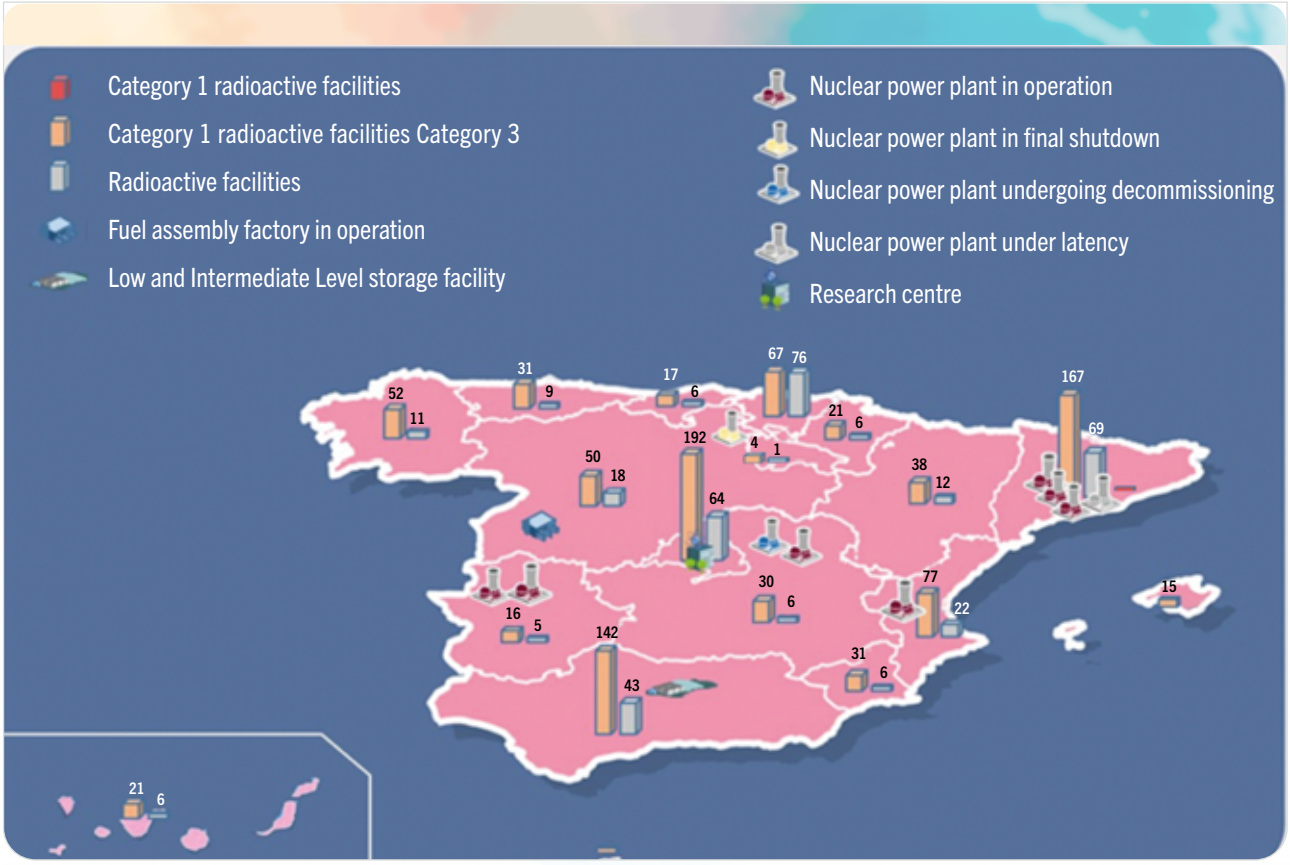
The Ebro river reservoir at Flix, Tarragona, contained phosphate sludge containing uranium-238 from the fertiliser industry. Its removal was completed during 2020.

Figure 5.2.1.3. Location of Sites Containing Soils Affected by Radioactivity Not Related to Mining

6. MONITORING AND CONTROL OF SPENT FUEL AND RADIOACTIVE WASTE MANAGEMENT

In Spain radioactive waste is generated at nuclear facilities and radioactive facilities distributed throughout the territory, as seen in Figure 6.1.

Figure 6.1. Facilities generating radioactive waste in Spain



The inventory of waste generated to date has the origin indicated in table 6.1.

Table 6.1. Activities generating radioactive waste

Operation of nuclear power plants (seven reactors at five sites)
Operation of the Juzbado nuclear fuel assembly factory (Salamanca)
Ciemat facility improvement project in Madrid (PIMIC-D and PIMIC-R)
Operation of radioactive facilities for industrial, medical, agricultural and research purposes,
Operation of the El Cabril low and intermediate level radioactive waste storage facility (Sierra Albarrana, Córdoba)
Decommissioning of José Cabrera NPP
Reprocessed fuel from Vandellós NPP I (generated during its operation) is currently stored in France and pending return to Spain
Decommissioning of the Santa María de Garoña NPP
Radiation incidents at conventional facilities, such as scrap metal recycling and the rehabilitation of affected sites
In addition, radioactive waste can be generated due to the presence of sources and other radioactive materials at facilities or in activities not included in the regulatory system

6.1. High-Activity radioactive waste and spent fuel

The spent fuel generated in Spain (except for the reprocessed fuel from the Vandellós I nuclear power plant, which is stored in France) is temporarily stored in the pools associated with the nuclear reactors and in the containers located at the Individualised Temporary Storage Facilities (ITFSs) to be found at the Trillo, José Cabrera, Ascó, Almaraz and Cofrentes nuclear power plants.

In 2024, the CSN carried out the monitoring and supervision of spent fuel management, the assessments associated with container licensing, both as regards the modification of design approvals and their renewal for existing containers, the supervision of pre-operational testing, loading at the ITFSs and pool management. The most relevant tasks in 2024 are detailed in later sections of this report.

It should also be noted that in 2024 the multidisciplinary team (Miterd, CSN and Enresa) created in 2020 continued to work to advance the development of a roadmap for the Deep Geological Repository (DGP) project, which follows the recommendations and suggestions included in the ARTEMIS component of the combined IRRS- ARTEMIS mission to Spain carried out by the IAEA in 2018.

As of 31 December 2024 the total number of fuel elements stored at nuclear power plants was 17 986 (10 305 PWR type and 7681 BWR type). Of the latter:

- 13,977 (4302 tonnes of uranium) are stored in pools.
- 4009 (1410 tonnes of uranium) are stored in containers at ITFSs.

The number of containers stored in the ITFSs of the plants is 128.

Graph 6.1.1 shows the inventory of fuel stored at the spent fuel pools of the Spanish nuclear power plants and, where appropriate, at the existing ITFSs, as at 31 December 2024.

Graph 6.1.1. Inventory of spent fuel storage facilities at Spanish nuclear power plants as at 31-12-2024 (in terms of the number of fuel assemblies)

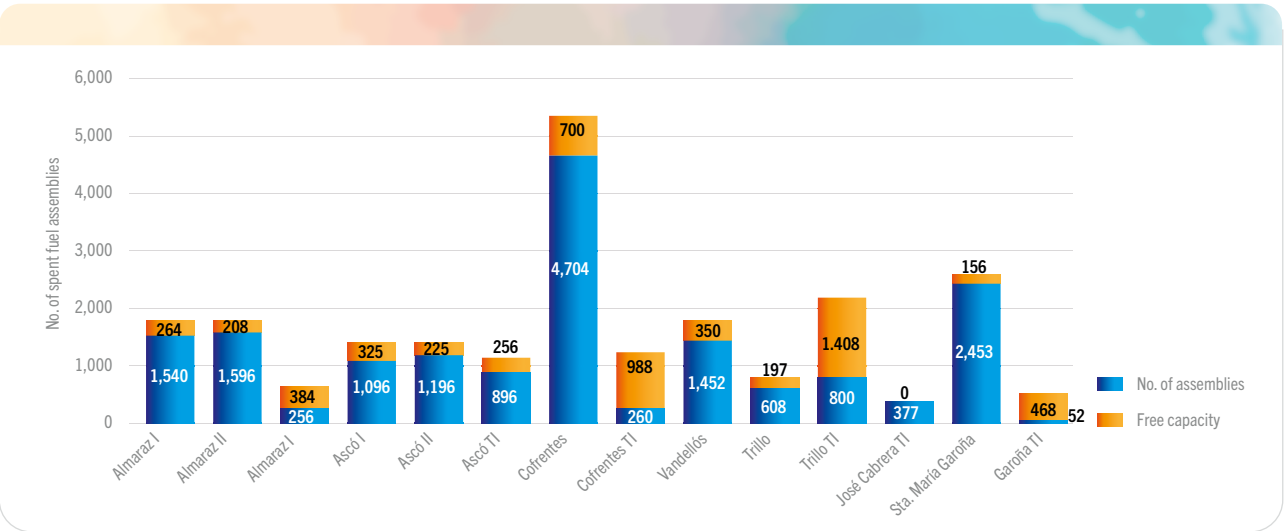
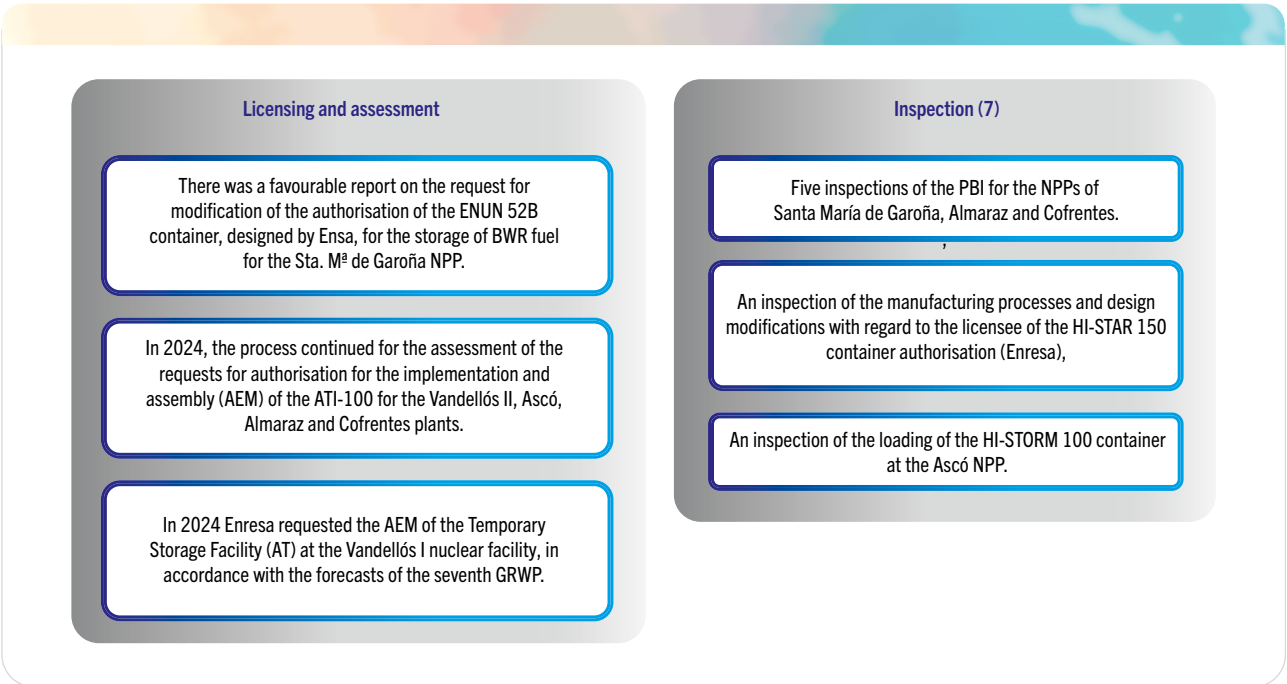


Figure 6.1.1 below summarises the main licensing, supervision and monitoring activities performed by the CSN in 2024 with respect to spent fuel management.

Figure 6.1.1. Main licensing, supervision and control activities performed by the CSN in 2024 with respect to spent fuel management



6.2. Low and intermediate level radioactive waste

In 2024, the CSN carried out the supervision and monitoring of the different stages of the management of low and intermediate level radioactive waste (LILW) generated at Spanish nuclear facilities, as described below:

6.2.1. Nuclear power plants in operation

In 2024, the operating and decommissioned nuclear power plants generated 2139 packages of solid low and intermediate level and very low level radioactive waste (VLLW), with an estimated activity of 2658 GBq, which were stored in 220-litre drums and other types of metal containers. Table 6.2.1.1 provides a breakdown of the packages per installation and those transferred to El Cabril in 2024.

Table 6.2.1.1. Radioactive waste packages (LILW and VLLW) generated at the operating nuclear power plants and transferred to El Cabril in 2024

FACILITY	PACKAGES GENERATED	PACKAGES TRANSFERRED TO EL CABRIL
Almaraz I and II	406	607
Ascó I and II	223	318
Cofrentes	929	601
Vandellós II	246	138
Trillo	336	331
Totals	**2,139**	**1,995**

Table 6.2.1.1 shows for each facility the waste stored, the capacity of the temporary storage facilities and their percentage of occupancy as at 31 December 2024.

Table 6.2.1.2 shows for each facility the waste stored, the capacity of the temporary storage facilities and their percentage of occupancy as at 31 December 2024.

Table 6.2.1.2. Status of temporary storage facilities for waste from operating nuclear power plants as at 31 December 2024

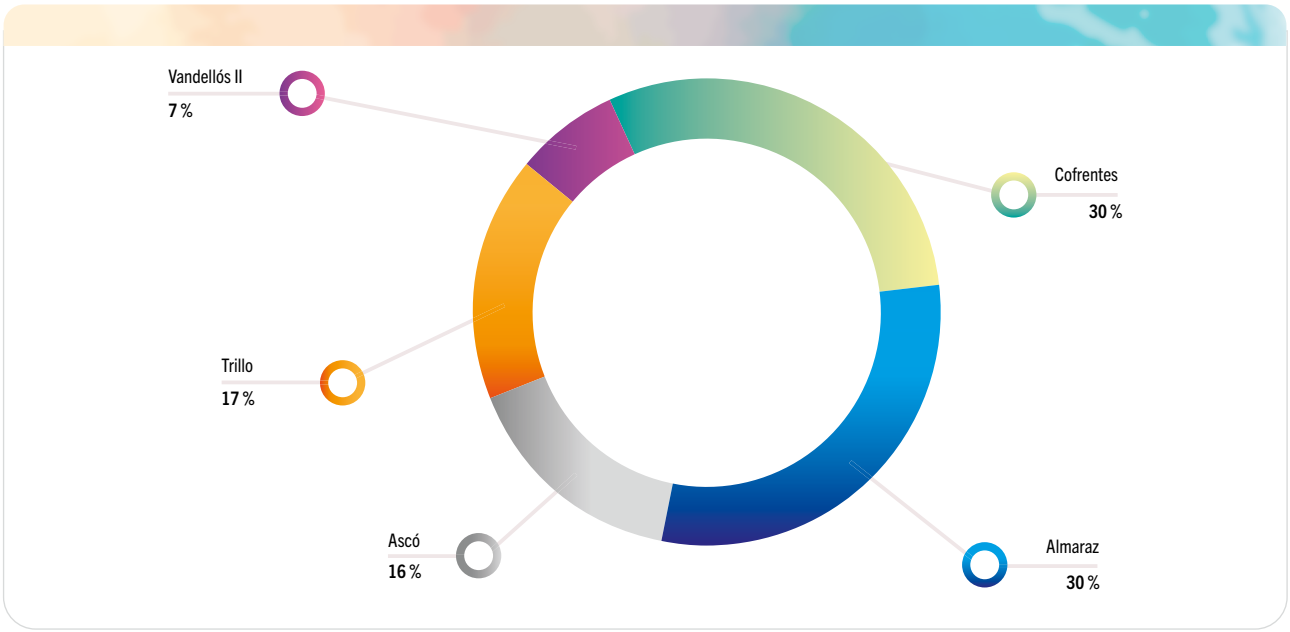
PLANT	PACKAGES STORED (EQUIVALENT TO 220- LITRE DRUMS)	STORAGE CAPACITY (IN 220-LITRE DRUM EQUIVALENTS)	STORAGE FACILITY OCCUPANCY (%)
Almaraz	13,678	23,544	58.1
Ascó	6,492	8,256	78.6
Cofrentes	12,093	20,100	60.2
Vandellós II	3,164	9,432	33.5
Trillo	3,207	11,500	27.9
Total	**32,227**	**72,832**	**53**

Graphs 6.2.1.1 and 6.2.1.2 show the percentage contribution of each plant to the total generation of radioactive waste packages and to the total activity content of these packages in 2024.

Graph 6.2.1.1. Distribution of the 2139 packages of radioactive waste (LILW and VLLW) stored at the operating and decommissioned nuclear power plants during 2024

Graph 6.2.1.2. Distribution of the activity (27 658 GBq) contained in the radioactive waste packages (LILW and VLLW) generated in 2024 at operating nuclear power plants

Graph 6.2.1.3. Distribution by facility of radioactive waste packages transferred by Enresa to the El Cabril storage facility in 2024



6.2.2. Nuclear power plants under decommissioning (Vandellós I (latency), José Cabrera and Santa María de Garoña)

Table 6.2.2.1 includes the radioactive waste stored at the facilities available at Vandellós I as at 31 December 2024. During 2024 the compactable waste generated was stored in a "CMD" type container at the "ATOC" storage facility. No packages were sent to the El Cabril storage facility in 2024.

Table 6.2.2.1. Storage of radioactive waste at Vandellós I as at 31 December 2024

STORAGE FACILITY	WASTE STORED
Temporary storage of containers (ATOC)	31 220-litre packages of debris 8 packages of non-compactable material 37 220-litre packages and 2 CMD containers of compactable material 289 CMD type containers of heterogeneous non-compactable solids 303 220-litre drums with concrete scarifying powder 27 400-litre drums with concrete scarifying powder 26 CMD type containers with thermal insulation
Temporary storage of graphite (GTD)	230 CME-1 type containers with crushed graphite 93 CBE-1 type containers with brackets and absorbers 5 CBE-1 type containers with waste from the emptying of the pools 11 CE-2a type containers containing: 25 x 220-litre drums with non-compactable waste and 166 220-litre drums with graphite

CBE-1: Enresa shielded container. CME-1: Enresa metallic container. CE-2a: Enresa Container.
CMT: Metallic transport container. CMD: container for declassifiable waste material

Table 6.2.2.2 summarises waste management at the José Cabrera NPP in 2024.

Table 6.2.2.2. Management of radioactive waste stored at the José Cabrera nuclear power plant in 2024

	GENERATED		TRANSPORTED TO EL CABRIL	
	PACKAGES(1)	STORAGE UNITS(2)	PACKAGES(1)	STORAGE UNITS(2)
Year 2024	755	0	3990	0

(1) Waste stored in containers with different volumes (220, 400, 480, 750, 1000 and 1300 litres).

(2) Storage units in containers of type CE-2a and CE-2b.

As at 31 December 2024, the José Cabrera nuclear power plant has a temporary radioactive waste storage facility (storage facility 4) and the storage facilities known as the "declassifiables marquee" and "DESCLA", where it is possible to place both very low level waste and potentially declassifiable waste. In 2024 the decommissioning activities generated different volumes of wastes, which are grouped into Authorised Management Units (AMU), initially classified into one of two categories: very low or potentially declassifiable and located at the plant's storage facilities, pending their final management.

Table 6.2.2.3 summarises waste management at the Santa María de Garoña nuclear power plant in 2024.

As at 31 December 2024, the Santa María de Garoña nuclear power plant has the temporary drum storage facility and the potentially declassifiable material storage facilities C6, C7, C9 and C10.

Table 6.2.2.3. Management of radioactive waste stored at the Santa María de Garoña nuclear power plant in 2024

	GENERATED		TRANSPORTED TO EL CABRIL STORAGE FACILITY
	PACKAGES(1)	UV(2)	PACKAGES(1)
Year 2024	1606	16	408

(1) Waste stored in containers with different volumes (220, 400, 480, 750, 1000 and 1300 litres).

(2) Storage units in containers of type CE-2a and CE-2b.

6.2.3. Juzbado nuclear fuel factory

Table 6.2.3.1 summarises waste management at the Juzbado facility in 2024, indicating the packages generated, those transferred to the El Cabril facility and the occupation of the temporary radioactive waste storage facility at the facility as at 31 December 2024. Data on VLLW generation are detailed in section 6.3 of this report.

Table 6.2.3.1. Activities related with the management of LILW and VLLW radioactive waste at the Juzbado factory during 2024 and the occupation of its radioactive waste storage facilities

RADIOACTIVE WASTE MANAGEMENT ACTIVITIES (LILW+VLLW)	
Waste packages generated	88 220-litre packages
Packages with recyclable waste materials generated	21 220-litre packages
Packages transferred to El Cabril	45 220-litre packages
Packages transferred for external recycling	5 220-litre packages
OCCUPANCY RATE OF RADIOACTIVE WASTE STORAGE FACILITIES	
Temporary radioactive waste storage facility	57 %
Temporary declassifiable waste storage facility	6 %

6.2.4. Ciemat

Table 6.2.4.1 shows the degree of occupancy of the temporary radioactive waste storage facilities of the PIMIC-Decommissioning project as at 31 December 2024.

6.2.5. Radioactive Facility

In the case of radioactive facilities, waste segregation and classification is carried out at the facilities themselves, whilst collection, treatment and storage is performed by ENRESA at the El Cabril storage facility.

Generally speaking, the treatment carried out by Enresa with the waste generated at the radioactive facilities is as follows:

- Incineration of biowaste, organic liquids and mixed waste (consisting of organic liquids and phials).
- Compaction of solids such as clothes, gloves and laboratory equipment.
- Immobilisation of hypodermic needles, non-compactable solids and radioactive sources.
- Manufacture of mortar: aqueous liquids.

Table 6.2.4.1. Radioactive waste stored at the temporary storage facilities of PIMIC-Decommissioning as at 31 December 2024

STORAGE FACILITY	TYPE OF CONTAINER	NUMBER OF CONTAINERS	CAPACITY (1M3 BIG BAG)	OCCUPANCY
E11-REACTOR	0,5m³ Big Bag	0	2249	0,2 %
E11-ANEXO	CMD (2m³) 0,5m³ Big Bag	2 0	483	0 %
CAZE EXTENSION	CMD (2m³)	38	504	13,3 %
BUILDING 55	0,5m³ Big Bag	124	140	44,3 %

6.3. Very Low-Activity radioactive waste

6.3.1. Nuclear facility waste

Table 6.3.1.1 details the generation of VLLW packages in 2024 at the nuclear power plants in operation and undergoing permanent shutdown, as well as at the Juzbado fuel factory.

Table 6.3.1.1. Bulks of very low level radioactive waste (VLLW) generated in 2024 at the nuclear power plants in operation and at the Juzbado factory

FACILITY	PACKAGES GENERATED
Almaraz I and II	243
Ascó I and II	152
Cofrentes	103
Vandellós II	155
Trillo	112
Juzbado Factory	92
Totals	**857**

Graph 6.3.1.1 shows the percentage contribution of each NPP and of the Juzbado factory to the generation of VLLW packages in 2024.

Graph 6.3.1.1. Shows the percentage contribution of each NPP and the Juzbado factory to the generation of VLLW packages in 2024

6.3.2. Waste generated from other activities

Quercus plant waste. Water treatment and processing waste

The static leaching facility at the Quercus plant accumulates 1,107,896 tonnes (T) of exhausted ore with particle sizes of between 10 and 1 mm. In addition, 853,242 tonnes of tailings from the dynamic leaching process are accumulated in the tailings dam.

In 2024, 426,186 m3 of previously treated water was discharged, generating waste in the form of precipitate cakes in the process, which were subsequently repulped and sent back to the tailings dam.

6.4. Declassified radioactive waste

Table 6.4.1 lists the most relevant milestones for 2024 in relation to the declassification of waste at nuclear facilities.

Table 6.4.1. Key milestones in 2024 in relation to the declassification of waste at nuclear facilities

VANDELLÓS II NUCLEAR POWER PLANT
- On 8 January 2024, the Resolution authorising the declassification of spent ion exchange resins at the Vandellós II nuclear power plant, revision 1, was published by the Directorate-General for Mining and Energy Policy.

ASCÓ I AND II NUCLEAR POWER PLANT
- In May 2024 the Board of the CSN favourably assessed the results of the test plan for the unconditional declassification of non-sampleable waste materials from the Ascó NPP.
- In October 2024 the Board of the CSN favourably assessed the results of the test plan prior to the unconditional declassification of sampleable waste materials from the Ascó NPP.

CIEMAT
- In October 2024, the results of the test plan for the declassification of materials with isotopic "processed uranium" and the "SuperMUM" measuring equipment were favourably assessed.
- On 23 January 2024, Ciemat submitted to the CSN for its favourable assessment the results of the test plan for the declassification of wall facings, surfaces and large parts of the Ciemat IN-04 facility.

ALMARAZ
- In November 2024, the CSN carried out an inspection of the test plan for the unconditional declassification of scrap, and in December 2024 it received the results of said plan.

6.5. Disused consumer products

In 2024, 10 lightning rods were removed, although no sources were sent to the UK in 2024. As at 31 December 2024, the cumulative total of lightning rods withdrawn is 22 960 units and 59 796 sources shipped to the UK.

Table 6.5.1. End-of-life consumer products

ACCUMULATED LIGHTNING RODS AS AT 31/12/2023	ACCUMULATED LIGHTNING RODS AS AT 31/12/2024	LIGHTNING RODS REMOVED IN 2024	ACCUMULATED DISMANTLED HEADS AS AT 31/12/2024	AM -241 HEADS STORED CIEMAT 31/12/2024	NUMBER OF SOURCES SENT TO THE UNITED KINGDOM AS AT 31/12/2023	NUMBER OF SOURCES SENT TO THE UNITED KINGDOM AS AT 31/12/2024
22 950	22 960	10	19 224	0	59 796	59 796

7. NUCLEAR AND RADIOLOGICAL EMERGENCIES

The CSN has an emergency centre called Salem. It is the operational coordination centre for the Agency's emergency response. Furthermore, the CSN has an Emergency Communications System (SICOEM). This system ensures communications between the different bodies responsible for nuclear or radiation emergency management and nuclear facilities. The CSN also has a contingency emergency room (Salem 2) located at the headquarters of the Military Emergency Unit at the Torrejón de Ardoz air base (Madrid).

The activities carried out during 2024 are summarised in table 7.1.

Table 7.1. Summary of international emergency activities

TYPE OF ACTIVITY	DEVELOPMENT	DATES
Participation in the four exercises organised by the IAEA	ConvEx-1a ConvEx-1b ConvEx-2a ConvEx-2d	14 February 5 August 24 April 20 November
European Commission	Three communications' tests as the national contact point for Ecurie	15 February 19 September 12 October

Table 7.2 shows a summary of the national exercises and drills held in 2024.

Table 7.1.2.2.1. Carrying out of exercises and drills in 2024

EXERCISES OF THE RADIATION UNITS OF THE EXTERNAL NUCLEAR EMERGENCY PLANS		
PLAN	**TYPE OF EXERCISE**	**STAGING**
PENBU	Sorting and decontamination station (Busto de Bureba)	October 2024
PENCA	Access control and routing of Municipal Operational Coordination Centres	April 2024
	Classification and decontamination station (Plasencia)	March 2024
PENGUA	Access control and routing of Municipal Operational Coordination Centres	June 2024
	Sorting and decontamination station (Brihuega)	April 2024
PENTA	Access control and routing of Municipal Operational Coordination Centres (Ascó area)	October 2024
	Access control and routing of Municipal Operational Coordination Centres (Vandellós area)	May 2024
	Sorting and decontamination station (Maials)	June 2024
PENVA	Access control and routing of Municipal Operational Coordination Centres	October 2024
	Classification and decontamination station (Ayora)	September 2024
Nuclear accident drill NURIEX		October 2024

RADIOLOGICAL EMERGENCY EXERCISES	
TYPE OF EXERCISE	**STAGING**
Management of a maritime transport accident involving radioactive materials	December 2024
Accident drills at medical facilities (Santander and Barcelona)	October 2024
	October 2024

On 14 January 2024, the Interior Emergency Plan (IEP) of the Cofrentes nuclear power plant was activated at a pre-alert level, further to an automatic reactor shutdown caused by the loss of main feed water during scheduled maintenance work. All safety systems worked properly and there was no impact on workers, the public or the environment.

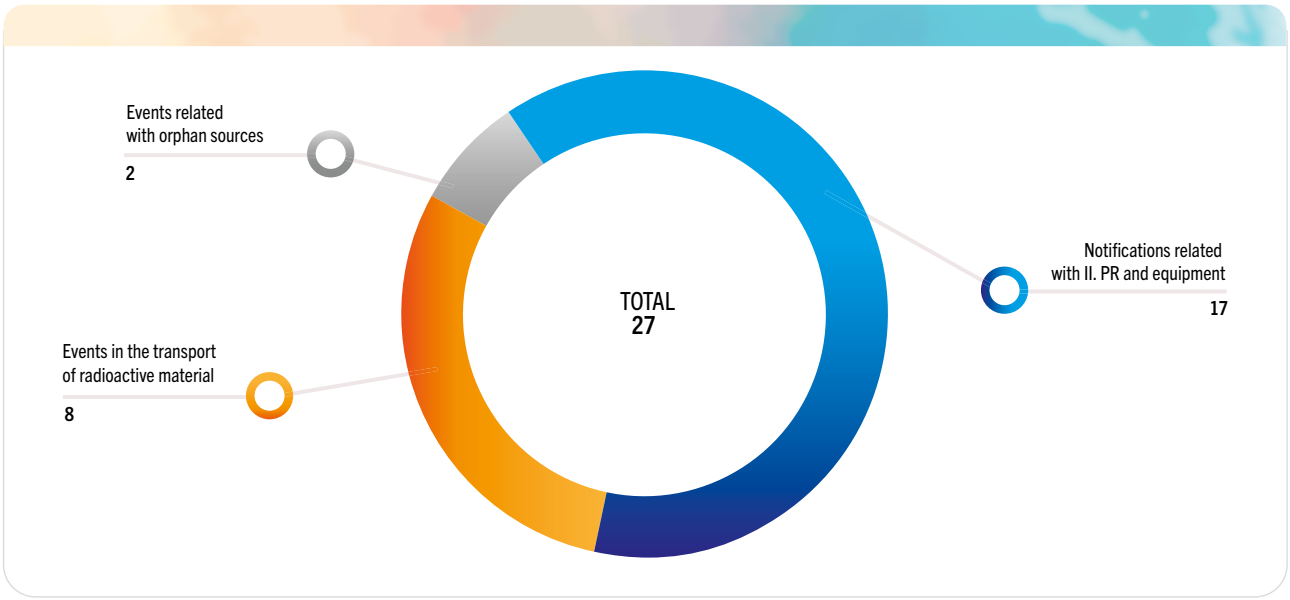
In addition, on 16 December 2024, the Checkpoint of the Emergency Response Organisation (ERO) of the Nuclear Safety Council (CSN) was partially activated due to the loss of a package at Barajas Airport containing four radioactive sources of selenium-75. Following the search, the package was successfully located at the cargo terminal and all sources were found to be in perfect condition.

In 2024, the Salem received the notifications of events at nuclear facilities described in chapter 1, section 3 of this report, as well as notifications of radiation incidents at radioactive facilities (RFs), and of incidents during the transport of radioactive material. In none of the cases were there any radiation consequences.

Excluding nuclear facilities, a total of 27 reportable events were received at Salem: 17 related with II. RR. and eight related with the transport of radioactive material. As regards the 17 events at RFs, 14 were classified as INES 0, two as INES 1 and one is pending classification. Of the eight transport events, six were classified as level 0 and two as level 1 on the INES scale.

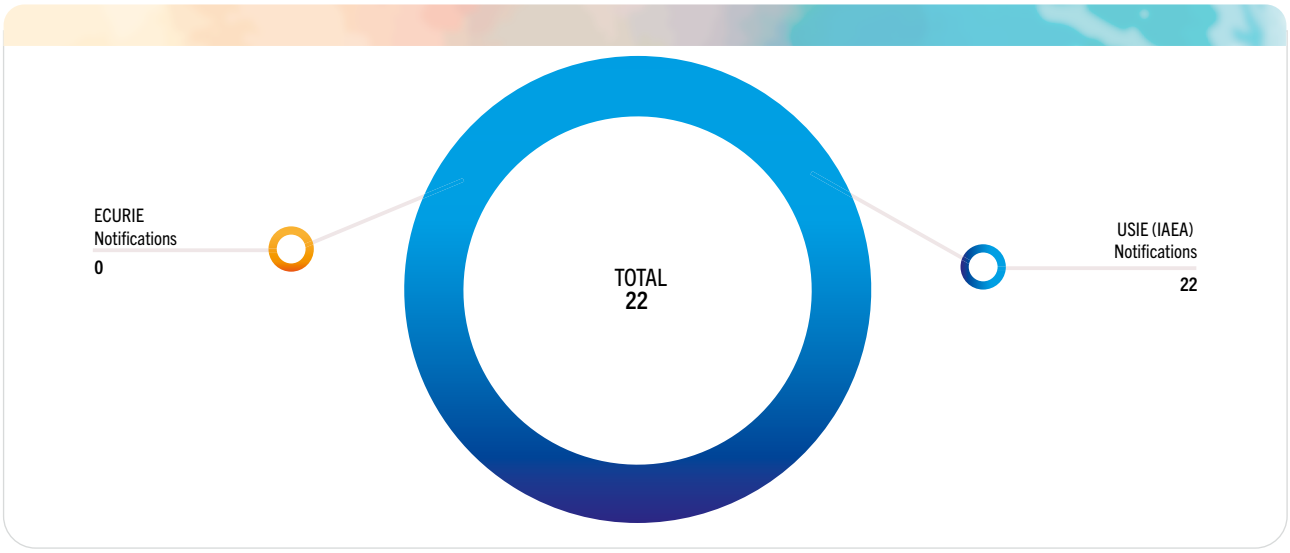
In addition, two communications were received reporting the emergence of orphan sources. During 2024, no detection of abnormal radiation levels in containers was received at seaports of national interest where the Megaport Protocol is in force.

Graph 7.1. Notifications received at Salem of radiation incidents in 2024



In 2024, 22 international notifications were received and are shown in Figure 7.1.3.2.

Graph 7.2. Notifications at international level



ECURIE notifications generally relate to events occurring within the European Union, within the Community space, whilst USIE notifications pertain to relevant events at global level.

Table 7.3 includes a list of the seven drills carried out by the Spanish nuclear facilities in 2024. All the drills of the Interior Emergency Plan (IEP) of these facilities were subject to on-site inspections by CSN technicians, always complying with the health recommendations and restrictions in force.

Table 7.3. Schedule and minimum scope of emergency drills of the nuclear facilities' EIP in 2024

NUCLEAR FACILITY	DATE CARRIED OUT	BRIEF DESCRIPTION OF THE SCENARIO IMPLEMENTED
NPP shutdown Sta. Mª de Garoña	25/04	High intensity earthquake resulting in fire and loss of external and internal power supply and loss of integrity of the spent fuel pool, requiring mitigation strategies in which workers will be injured.
Ascó NPP	23/05	Earthquake at the site resulting in one of the units having to enter GASS (category IV). In addition, there will be radiation emissions to the exterior and a loss of internal communications. The emergency will be managed from CAGE.
Almaraz NPP	06/06	Aircraft crash on the nuclear island causing a major fire and total loss of AC and DC electrical power, as well as the unavailability of the Control Room operating staff on duty. Implementation of GEDE and GMDE strategies is required, including alternative PCI ring to extinguish the large fire, as well as assistance to casualties.
Juzbado EC Facility	12/09	Explosion in a sintering furnace, with several people injured and contaminated, who have to be evacuated from the ceramic area.
Cofrentes NPP	26/09	Based on an earthquake whose evolution and consequences lead to the entry into GASS. Abandonment of the Control Room and the Technical Support Centre will be required to ensure safe shutdown from alternative centres.
Trillo NPP	24/10	Pipe rupture event in a steam generator with a IEP Category III declaration. There will be a fire in the ZV3 building which will prevent the use of the medical service and counting centre no. 4. At the end of the count, a missing worker will be put forward to be located and rescued if he or she is injured. The CAT staff will be fully relieved of their duties. It will be managed from Salem 2 at the headquarters of the Military Emergency Unit (UME).
Vandellós II NPP	21/11	Event in which a fire occurs affecting extensive areas. The event will evolve to Category IV and requires the implementation of GMDE. Internal and external communications will be affected, requiring the use of TETRA radio and satellite telephony. The emergency will be managed from CAGE and the CAE and the UME will be activated.

8. SECURITY OF NUCLEAR MATERIALS AND FACILITIES, RADIOACTIVE SOURCES AND TRANSPORT

Table 8.1 summarises the activities carried out during 2024 related with the physical protection of nuclear materials and facilities, radioactive sources and transport, in accordance with RD 1308/2011 on the physical protection of nuclear facilities and materials and radioactive sources, which is undergoing revision.

Table 8.1. Physical protection assessments of nuclear facilities and materials and radioactive sources

FACILITY/LICENSEE	REQUEST
PHYSICAL PROTECTION PLANS AND PHYSICAL PROTECTION AUTHORISATIONS FOR INSTALLATIONS AND TRANSPORT	
Ascó Nuclear Power Plant (ANAV)	Proposal for change PC-009 Rev.0 of the Physical Protection Plan for the Ascó I and Ascó II Nuclear Power Plants.
Cofrentes nuclear power plant (Iberdrola)	Request for authorisation for the modification of the physical safety system prior to the implementation of the Individualised Temporary Storage Facility with Total Capacity (ITSF-100).
Vandellós II nuclear power plant (ANAV)	Request for approval of the Proposal for Change PC-010 Rev. 0 of the Vandellós II Nuclear Power Plant Physical Protection Plan.
PHYSICAL SAFETY AUTHORISATIONS FOR TRANSPORT	
ETSA	Five ETSA requests for specific authorisation for the physical protection of the transport of category III nuclear material outside our borders.

Report of the Spanish Nuclear Safety Council to the Congress and the Senate

Year 2024

Summary Report

CSN CONSEJO DE SEGURIDAD NUCLEAR