

SUMMARY OF THE REPORT RELATING
TO THE REQUEST FOR RENEWAL OF
THE OPERATING PERMIT FOR
SANTA MARÍA DE GAROÑA NUCLEAR
POWER PLANT FOR THE PERIOD
2009 – 2019

SUMMARY OF THE REPORT

The Nuclear Safety Council (CSN) submitted the report relating to the request for renewal of the operating permit for the Santa María de Garoña nuclear power plant for the period 2009–2019 to the Ministry of Industry, Tourism and Trade pursuant to Law 15/1980, article 2, section b, which attributes to the CSN the function of “issuing reports to the Ministry of Industry, Tourism and Trade in relation to nuclear safety, radiological protection and security, prior to the resolutions that might be adopted by the said Ministry as regards the granting of authorisations for nuclear facilities”.

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1. BASIC CHARACTERISTICS AND HISTORY OF THE PLANT

The Santa María de Garoña nuclear power plant is located on one of the 6 Spanish nuclear plant sites, in the Tobalina Valley in the province of Burgos. The reactor is of the boiling water (BWR) type and is a General Electric design with a BWR 3 nuclear steam supply system, a Mark I containment and an electrical output of 466 MW.

The plant was constructed in the 1960's, taking the US Dresden 2, Oyster Creek and Monticello plants as a reference, and began its commercial operation in May 1971, the owner company being NUCLENOR S.A., currently owned equally by Iberdrola S.A. and Endesa.

Since it began its commercial operation, the plant has been upgraded to the safety standards applicable at each moment in time, and important design modifications have been implemented in order to ensure suitable compliance with the requirements in force. In the 1980's, the plant carried out a systematic safety evaluation programme as a result of the new safety criteria applied following the accident at the Three Mile Island (TMI) plant in the United States, this giving rise to the introduction of important improvements to the electrical equipment, to the reinforcement of containment structures, the installation of a control room habitability system for accident situations and the replacement of recirculation piping, among other modifications.

In the 1990's, Garoña implemented the CSN directives based on the new safety criteria of the Code of Federal Regulations of the Nuclear Regulatory Commission (NRC), in particular in relation to the analysis of fire risk and improvements in this field, this giving rise to additional improvements relating to the physical separation of part of the electrical circuits, the redundancy of this equipment, improvements in the instrumentation and the installation of a remote shutdown panel for control room loss events.

During the present decade, Garoña has carried out the improvement programmes required by the permit in force, such as for example the construction of a simulator replicating its control room for training of the operations personnel, who previously had to carry out their training programmes at the Monticello plant in the United States.

2. CONTINUOUS SUPERVISION OF PLANT OPERATION

The CSN carries out the supervision and control of the operation of the plants, among other things, by the tracking of incidents and the programme of inspections and operating indicators.

Since 2006, the CSN has integrated the results of the inspections with the indicators provided by a system known as the "Integrated Nuclear Power Plant Supervision System" (SISC), which defines both the level of performance of the regulatory body and that of the licensee.

The results obtained by the Garoña plant as regards this SISC underline the fact that it has at all times been in what is known as the "Licensee Response" situation, i.e. a situation in which all the indicators and findings are in adequate conditions and in which, therefore, the regulatory

activity of the CSN is limited to the basic inspection programme, the licensee being responsible for the correction of whatever deficiencies might be identified through its own corrective actions programmes. Since the entry into force of the SISC, Garoña has always been in this situation.

In addition to the SISC, the CSN uses the analysis of operating experience, of incidents and of the events that the plants are obliged to report for the supervision and evaluation of plant operation and the establishment of corrective actions.

The IAEA's International Nuclear Events Scale (INES), adopted in 1990 as an instrument for prompt information for the public on the importance of events occurring at nuclear power plants, classifies such events on a scale of increasing importance from 0 to 7.

Since 1990 Garoña has reported **136 events, 6 of which were classified as level 1 “anomalies”,** the second lowest level on the INES Scale. **All the others, 96%, have been classified as level 0,** below the scale and “without any safety significance”. **So far this year (2009),** the Spanish nuclear power plants have reported 47 events, 7 of which have corresponded to **Garoña and all classified as level 0 on the INES Scale.**

In summary, the results of the supervision of the operation of the Garoña plant, through the SISC and analysis of the complementary information arising from the reported events, show that the plant has performed adequately from the point of view of safety.

3. AUTHORISATION IN FORCE AND REQUIREMENTS FOR RENEWAL

The operating permit for the Garoña nuclear power plant currently in force was granted by the Ministry of Industry and Energy on July 5th 1999 for a period of 10 years.

Unlike what happens in the United States, where operating permits remain in force for 40 years, the authorisations for the operation of the Spanish plants are granted for periods of 10 years. These renewals constitute a system in which the granting of operating permits is conditioned by the performance of an in-depth review of the most relevant aspects of plant safety over a given period of time (Periodic Safety Review).

At present, the process of renewing a nuclear power plant operating permit takes into account the following elements:

- Compliance with the conditions of the authorisation in force and the associated Complementary Technical Instructions (CTI) issued by the CSN.
- An in-depth review of the most relevant aspects of plant safety over the last ten years (Periodic Safety Review, PSR), in accordance with CSN Guide 1.10.
- The application of standards additional to those included in the licensing basis in force (Conditioned Application Standards, CAS).

If the renewal exceeds the 40 years of design lifetime, what is known as “Long-term operation”, the following additional items must be submitted and analysed:

- An Integrated Ageing Assessment and Management Plan.

- A Draft Supplement to the Safety Study.
- A Draft Review of the Operating Technical Specifications.
- A Study of the radiological impact associated with long-term operation.
- A Draft Review of the Radioactive Waste and Spent Fuel Management Plan.

The analysis of all these requirements for the granting of an operating permit is aimed at verifying whether or not the safety conditions required for the continued operation of the plant for the period requested exist, this verification referring fundamentally to three aspects:

- Checking that the status of the plant at the end of the operating period that is coming to an end continues to meet the required level of safety. This materialises through the Periodic Safety Review and analysis of compliance with the previous authorisation.
- Assurance that the new period of operation is associated with an increase in the level of safety that may be required during the period contemplated by the new authorisation to be issued. This corresponds to the study of the application of the Conditioned Application Standards.
- Confirmation that the operation of the plant and the processes of ageing that might affect the Structures, Systems and Components (SSC) of the facility will not affect the maintenance of the required level of safety during the new period of operation. This implies evaluation of the ageing management and long-term operation plans.

4. RENEWAL OF THE PERMIT FOR SANTA MARÍA DE GAROÑA

The current renewal of the operating permit of the Santa María de Garoña nuclear power plant constitutes the first extension of the design lifetime of a Spanish nuclear power plant beyond 40 years of operation.

Exceeding the design lifetime of a nuclear power plant does not mean that the service or operating lifetime of the facility has finished. The design lifetime is a concept used in engineering to establish the minimum duration of the Structures, Systems and Components. What is assumed within this concept is that under the foreseeable operating conditions, including the safety margins, the plant will operate throughout the period under conditions of safety. Consequently, running beyond the design lifetime does not mean that the plant cannot continue to operate safely. We have examples such as the United States, where the operating permits of 54 nuclear reactors have been renewed and where the renewal of 12 others is being assessed. As regards the Santa María de Garoña reference plants, the licences for the Dresden 2, Monticello and Oyster Creek plants have been extended to 60 years (in 2004, 2006 and 2009, respectively).

The licensee of the plant, NUCLENOR S.A., requested the renewal of its operating permit for a further period of 10 years on July 3rd 2006, three years prior to the expiry of the current permit, in accordance with the procedure established in the Regulation on nuclear and radioactive facilities and the provisions of the Ministerial Order of July 5th 1999, by which the current authorisation was granted. The current permit expires on July 5th 2009.

The request was accompanied by the obligatory documentation, which included the Periodic Safety Review, the Integrated Ageing Assessment and Management Plan, the Radioactive

Waste and Spent Fuel Management Plan, the off-site Environmental Radiological Impact Study for long-term operation and the corresponding Safety Study Reviews and plant Enhanced Operating Technical Specifications.

In addition, in October 2006 the CSN requested that the plant analyse the Conditioned Application Standards, standards published after the authorisation of the plant and not, therefore, included in the original licensing basis. These standards imply plant improvements and the CSN considers it necessary that they be applied within the framework of the renewals of current permits, in order to reinforce safety and require a more demanding and updated legal basis than that included in the licensing basis of the currently operating plants. The licensee responded to this CSN requirement in November 2007.

Since July 2006, the CSN has been evaluating the documentation submitted by the licensee, along with the licensee's response to the analysis of the Conditioned Application Standards. In July 2008, the licensee provided the CSN with a general update of the documentation associated with the request for renewal.

The process of renewing the operating permit for the Santa María de Garoña plant has been carried out in accordance with the requirements established by the CSN in Safety Guide 1.10 "Periodic Safety Reviews at nuclear power plants", in the Complementary Technical Instruction of 20-10-2006 on Conditioned Application Standards and in the document "Conditions for long-term operation", approved on September 7th 2005.

As a result of the evaluations carried out by the technical services of the CSN, included in specialist technical reports, the Technical Division for Nuclear Safety submitted the corresponding Draft Technical Decision to the Plenary of the Council for its assessment and decision-making prior to issuing of the CSN report to the Ministry of Industry, Tourism and Trade.

In keeping with the agreement reached during its meeting of 16-04-2009, the Plenary has organised several meetings to study the different aspects implied by the request for renewal of the plant operating permit.

In this respect, the Plenary meeting of 13-05-2009 analysed the degree of compliance with the conditions on nuclear safety and radiological protection associated with granting of the current plant operating permit (Supplement 1: Status of compliance with the nuclear safety and radiological protection conditions and with the Complementary Technical Instructions associated with the granting of the operating permit currently in force).

On 20-05-2009 the Plenary analysed the detailed description and evaluation of the Periodic Safety Review (PSR) of the plant's current operating permit (Supplement 2: Detailed description and evaluation of the periodic safety review).

On 27-05-2009 the Plenary analysed the detailed description and evaluation of compliance by the plant with the Conditioned Application Standards (Supplement 3: Detailed description and evaluation of compliance with the conditioned application standards).

Finally, on 03-06-2009, the Plenary analysed the plant's Integrated Ageing Assessment and Management Plan (IAAMP), the Study of Radiological Impact associated with long-term

operation (RIS) and the Radioactive Waste and Spent Fuel Management Plan (RWMP) (Supplement 4: Detailed description and evaluation of the integrated ageing assessment and management plan, the study of the radiological impact associated with long-term operation and the radioactive waste and spent fuel management plan).

5. RESULTS OF THE CSN EVALUATION

5.1. REVIEW OF COMPLIANCE WITH THE CURRENT PERMIT

The Ministerial Order issued on 05-07-1999 awarded NUCLENOR the renewal of the operating permit for the Garoña plant for a period of 10 years, establishing the limits and conditions for safe operation of the plant, the conditions for eventual renewal following expiry of the period of validity, the causes that might lead to suspension of the authorisation and obligations relating to the coverage of nuclear risk. The limits and conditions regarding nuclear safety and radiological protection are included in 13 points that refer essentially to the following matters:

- Ownership, powers of the licensee and technical framework for operation of the plant.
- Official documentation review processes.
- Obligation regarding information to be submitted to the CSN.
- Requirements in the event of the licensee deciding to cease operation.
- Improvement programmes to be carried out during the period of validity of the permit.
- The CSN's powers to issue additional instructions.

Pursuant to this last condition, the CSN issued 29 Complementary Technical Instructions (CTI) associated with the permit, in order to guarantee the maintenance of the plant safety conditions and requirements and contribute to better compliance with the requirements set out in the permit, these generally referring to the following aspects:

- Details corresponding to the processes for the review of the official operating documents and to the contents of the reports to be submitted to the CSN.
- The specific actions or improvement programmes to be implemented by the licensee during the period of validity of the permit.

The following are particularly significant among the improvement actions and improvements requested by the CSN in the authorisation currently in force:

- The programme for the surveillance of the control rod drive penetrations (CTI-26): This includes surveillance to ensure the absence of leakage during plant operation, the refuelling outage inspections programme, communication to the CSN in the event of leakage appearing and application of the actions contemplated in the Enhanced Operating Technical Specifications (EOTS) in the event of the foreseen leakage rates being exceeded, among other aspects.
- The programme for the improvement of the habitability of the control room and related aspects (CTI-14, CTI-15 and CTI-16): The licensee installed a new control room habitability system during the 2003 refuelling outage, thus resolving the issues pending

from the habitability analysis, and installed an automatic isolation device in the control room ventilation system to respond to high radiation values at its exterior air intakes. Likewise, and complementary to the installation of the new control room habitability system, the licensee has installed a new essential services chilled water system encompassing the air-conditioning system for the turbine building low and medium voltage electrical bus rooms.

- The seismicity improvement programme (CTI-12, CTI-17 and CTI-18): The licensee has placed in service instrumentation for the seismic surveillance of structures, has revised the off-normal operating procedure for earthquakes and has included the seismic surveillance instrumentation in the EOTS's.
- The programme for improvement of the conditioning of radioactive wastes (CTI-20): The licensee has submitted to the CSN a Management Plan for radioactive operating wastes and a programme for the conditioning of these wastes during the plant operating phase, specifying activities and terms.
- The personnel training simulator improvement programme (CTI-19): The licensee has constructed a simulator replicating the control room on the plant site, this having been in operation since 2005.
- The configuration control improvement programme (CTI-9): The licensee has carried out a programme for the revision of the design basis of various safety systems and comparison with the operating practices and the Safety Study.

- The human factors improvement programme (CTI-13): The licensee has submitted the programme requested to the CSN, which has been subjected to periodic inspections within the framework of the CSN's Basic Inspection Plan.
- The programme for improvements relating to electrical feed systems (CTI 1-INEI, CTI 2-INEI and CTI 3-INEI): The licensee has carried out different design modifications to guarantee the independence of electrical sources and equipment and compliance with the standards, in the terms and periods required by these instructions.

The conclusion drawn from the CSN's evaluation of compliance with the conditions and CTI's is that the conditions of the authorisation in force have been duly met.

5.2. PERIODIC SAFETY REVIEW (PSR)

The licensee submitted the PSR in July 2006, including in general data up to 31-12-2004. Following the preliminary evaluation by the CSN, the licensee submitted an update of the PSR in July 2008, with data up to 31-12-2007. Complementary to the information submitted by the licensee in the PSR, the CSN has taken into account the information corresponding to 2008 and 2009.

The objective of the PSR is to revise in depth the aspects of greatest relevance for safety during the period of validity of the permit currently in force, specifically:

- Operating experience.
- Experience relating to radiological impact.
- Changes to the regulations and standards.
- Equipment performance.
- Modifications to the facility.
- Probabilistic Safety Assessment (PSA).
- Safety assessment and improvement programmes.

The licensee has identified the following improvement actions as a result of the PSR:

- Improved dissemination of operating experience within the organisation.
- Improved tracking of individual doses.
- Increased environmental radiological surveillance measures.
- Improved development of procedures for the evaluation of design modifications.

For its part, and as a result of the evaluation performed in accordance with Guide 1.10, the CSN has established the following additional requirements and reinforcements of the actions contemplated by the licensee:

- In-house operating experience: As a general standard the corrective actions should be resolved within a period of time equivalent to one operating cycle.
- Optimisation of individual doses: The licensee must establish specific mechanisms allowing the optimisation of individual doses to be ensured, reducing the number of persons in the highest dose ranges and the maximum individual dose.
- Surveillance and measures to control plant radiation levels: The licensee is required to maintain the surveillance of radiation levels in the plant, analysing the trends and adopting measures to control them, including the performance of a new recirculation loop decontamination process depending on the radiological evolution of the dry well.

Likewise, the licensee should specify in a forthcoming review of the PSR document the organisation responsible for watching over the radiation levels at the facility, for analysing trends and for proposing action measures.

- Probabilistic Safety Assessment (PSA):
 - Revise the analysis performed to ensure that the design modifications carried out in 2003 have not reduced the plant's seismic margin.
 - Complete within six months the analysis of the possibilities of relocating the RP gas bottles (90% argon and 10% methane) in a non safety-related area, undertaking the actions considered necessary in the light of this analysis and reporting to the CSN.
 - Perform within six months the plant walkthrough referred to in the PSA task report relating to other off-site events (PSA-IT-T4) to identify possible updating requirements.
- Improvement programmes: Establish the new improvement programmes deriving from the PSR proposals and assessments.

In conclusion, the CSN considers the PSR to be acceptable.

5.3. CONDITIONED APPLICATION STANDARDS (CAS)

The objective of this programme is to include the new standards in the plant licensing basis. Most of these standards come from the country of origin of the project – in this case the USA – and to date have not been part of the plant licensing basis due to their not being applicable to the facility, but only to more modern plants. The application of these standards is conditioned on a previous process of analysis and assessment of the benefits from the point of view of safety.

On 20-10-2006 the CSN approved a CTI establishing the CAS associated with renewal of the plant operating permit. On 02-11-2007 the licensee submitted to the CSN its analysis of compliance with the CAS, proposing design modifications in those cases in which deviations had been identified.

The CSN required an analysis of the applicability of the following CAS standards:

- NRC standards: 10 CFR 50, 10 CFR 50 Appendix A and 10 CFR 50.55a.
- NRC Regulatory Guides (RG): RG 1.118 Rev.3, RG 1.1153 Rev.1 and RG 1.189.
- NRC Generic Letters (GL) and Bulletins published prior to 1983.
- IEEE (Institute of Electrical and Electronics Engineers) standards: IEEE 279-1971, IEEE 308-2001, IEEE 384-1992, IEEE 603-1991 and IEEE 379-2000.
- Requirements arising from the TMI (Three Mile Island) accident.
- IAEA codes and safety guides: NS-R-2, NS-G-2.3 and NS-G-2.4.

The actions required to comply with the CAS have been identified, these including various design modifications to update and reinforce the safety of the facility, and a schedule for the performance of these modifications has been established (2008-2013). The most significant are as follows:

- Prior to start-up following the 2011 refuelling outage: The installation of a new radioactive gas treatment system for accident situations (standby gas treatment system) entirely fulfilling the requirements for physical separation between filtering trains and control panels. The start-up of this system will require previous authorisation as set out in article 25 of the Regulation on Nuclear and Radioactive Facilities.
- Prior to start-up following the 2013 refuelling outage:
 - Reinforcement of the isolation of the containment penetrations and corresponding tests, within the periods and in compliance with the requirements established in the Council decision.

- Improved independence of electrical circuits and equipment, fulfilling the criteria regarding physical separation and distances between safety-related and non safety-related systems.
 - Improved protection against fire for safety-related equipment and systems.
- The Plenary meeting held on the 5th also introduced the condition that these three modifications would require a favourable report by the Council prior to start-up of the plant following the 2013 refuelling outage. This condition guarantees the necessary investments, within the foreseen period, as a requirement for the continued operation of the plant.

As a result of the evaluation of the proposals made by the licensee and deriving from the CAS, the CSN establishes a series of additional requirements aimed at accurately establishing the schedule and technical details to be met by the aforementioned modifications, along with the associated documents. Likewise, the CSN requires the introduction of additional improvements in relation to the control of combustible gases and the environmental design of systems and equipment, among others.

In conclusion, the CSN considers the proposal submitted by the licensee for application of the CAS, including the commitments deriving from the actions identified in its analysis, to be acceptable, and establishes a series of additional requirements for renewal of the authorisation.

5.4. INTEGRATED AGEING ASSESSMENT AND MANAGEMENT PLAN, STUDY OF RADIOLOGICAL IMPACT ASSOCIATED WITH LONG-TERM OPERATION AND RADIOACTIVE WASTE MANAGEMENT PLAN

As has been pointed out above, requests for operating permits that imply the long-term operation of the plant, i.e., beyond the 40 years of plant operating lifetime, are required to fulfil a series of additional conditions, in accordance with CSN Guide 1.10.

These additional requirements are materialised through the submittal and evaluation of the following items:

- Integrated Ageing Assessment and Management Plan, which must contain the Ageing Management Studies and the Analyses Performed using Defined Design Lifetime Hypotheses.
- Draft Safety Study Supplement, which must contain studies and analyses justifying long-term operation.

- Draft OTS Revision, which must contain the changes necessary to maintain safe operating conditions during long-term operation.
- Study of Radiological Impact associated with long-term operation.
- Draft Revision of the Radioactive Waste Management Plan for long-term operation.

Integrated Ageing Assessment and Management Plan (IAAMP)

The objective of the IAAMP is to demonstrate that the effects of ageing are adequately managed, such that the functions of the structures, systems and components (SSC) of the plant are kept consistent with the design basis throughout the period of long-term operation.

The licensee submitted the IAAMP in July 2006. Following the preliminary evaluation by the CSN, updates were submitted in July 2008, February 2009 and April 2009, these including systems and structures relating to or important for plant safety and covering the following aspects:

- Ageing management studies: The ageing management programmes foreseen for each SSC are analysed on the basis of the construction materials used, the environments to which they are exposed and the effects of their potential deterioration, in order to determine whether the effects of ageing are adequately controlled, such that the functions contemplated in the current licensing basis are maintained throughout long-term operation.
- Analyses performed using defined design lifetime hypotheses: These refer to SSC ageing management analyses and calculations implying limited time considerations defined by the current period of operation (40 years). The licensee has identified 28 assumptions, those referring to neutron embrittlement of the reactor vessel, metal fatigue in mechanical systems and the environmental qualification of electrical equipment being especially significant. All are extendable, validatable or manageable for a lifetime of 60 years.
- Draft supplement to the Safety Study (SS): This includes studies and analyses justifying the long-term operation of the plant. It includes a description of 43 ageing management programmes (coinciding with NUREG-1801 and other specific items), a description of the 28 analyses performed using defined design lifetime hypotheses already reviewed and identification of the 16 ageing management programmes with respect which improvement actions are to be performed.
- Draft revision of the Enhanced Operating Technical Specifications (EOTS's): Updating of the EOTS's with the new vessel Pressure-Temperature curves, prior to expiry of the period during which the current curves will remain valid.

The CSN evaluation has been based on the position defined in its document “Conditions for long-term operation”, of 7/9/2005, which is consistent with the US standards 10 CFR 54, Regulatory Guide 1.188, NUREG 1800 and NUREG 1801.

In conclusion, the CSN considers the IAAMP to be acceptable, as regards its scope, the selection of structures, systems and equipment, the methodology and practical application, the ageing management studies and review of the analysis performed using the defined design lifetime, the draft supplement to the Safety Study (SS) and the draft revision of the EOTS's.

Study of Radiological Impact associated with long-term operation (RIS)

The licensee submitted the RIS in July 2006. In the wake of the preliminary evaluation performed by the CSN, an update was submitted in July 2008.

The objective of the RIS is to analyse the cumulative effects of radiological impact in the area surrounding the plant and associated with long-term operation.

The licensee concludes that the estimated dose to the critical individual as a result of the plant liquid and gaseous radioactive effluents during normal operation is far below the regulatory limits for public dose:

- Effective dose of 3.18 $\mu\text{Sv/year}$, compared to a limit of 1,000 $\mu\text{Sv/year}$ (1 mSv/year)
- Equivalent skin dose of 3.20 $\mu\text{Sv/year}$, compared to a limit of 5,000 $\mu\text{Sv/year}$ (5mSv/year)

The CSN considers the RIS and the estimate of the radiological impact performed to be acceptable, and establishes additional requirements for renewal of the permit.

Radioactive Waste and Spent Fuel Management Plan

The objective of the RWMP associated with long-term operation is to identify all the streams of solid radioactive wastes generated at the plant, in order to speed up conditioning and analyse possible additional needs for conditioning or storage associated with long-term operation.

The licensee submitted the RAMP in July 2006. Updates were submitted in July 2008 and February 2009 following the preliminary evaluation by the CSN.

The CSN considers the RWMP to be acceptable, in accordance with Safety Guide 9.3 “Content and criteria for the drawing up of the RWMP for nuclear facilities”.

As regards the storage of irradiated fuel, the licensee has a storage capacity in the pool, authorised by a Resolution of the Ministry of Industry and Energy on 31-03-1998, until the 2015 refuelling outage, and has justified the feasibility of having available a capacity for the storage of irradiated fuel from that date until the end of the period for which renewal of the operating permit is requested.

The Plenary of the CSN requires the licensee to submit a request for the extension of the spent fuel storage capacity within a term of at least 18 months before the current capacity of the plant pool is saturated.

6. FINAL CONCLUSIONS: REPORT, LIMITS AND CONDITIONS AND COMPLEMENTARY TECHNICAL INSTRUCTIONS

In view of the technical reports, the conclusions of the evaluation and the final analysis and assessment by the Plenary of the Council, **the CSN has unanimously agreed to report favourably on the renewal of the operating permit for the Santa María de Garoña nuclear power plant for a period of ten years, as requested by the licensee (05-07-2009 to 05-07-2019).**

The CSN proposal regarding the new authorisation includes limits and conditions on nuclear safety and radiological protection relating to the following:

- The owner companies, their faculties and the technical framework of plant operation.
- The obligations regarding information to be provided to the CSN.
- The requirements applicable to a future renewal of the permit or the decision by the licensee to voluntarily cease operation.
- The improvement programmes and actions to be performed during the period of validity of the authorisation.
- The most important modifications to be made during the period of validity of the authorisation and the schedules for implementation.
- The powers of the CSN to issue additional instructions.

These conditions include specifically the need for the licensee to carry out a series of **design modifications** to reinforce the safety of the plant and comply with the additional standards demanded by the CSN (Conditioned Application Standards), specifically the following:

- The installation of a new radioactive gas treatment system for accident events (standby gas treatment system), entirely fulfilling the requirements regarding physical separation between the filtering trains and control panels. This modification is required to be operative before the start-up following the 2011 refuelling outage and will require authorisation in accordance with article 25 of the Regulation on Nuclear and Radioactive Facilities.
- Improvement of the different containment penetration isolation groups, as well as of the corresponding tests and surveillance requirements. This modification is required to be operative before the start-up following the 2013 refuelling outage.

- Improvement of the independence of electrical circuits and equipment, fulfilling the criteria of physical separation and minimum distances between safety-related and non safety-related systems established by the current standards. This modification is required to be operative before the start-up following the 2013 refuelling outage.
- Improvement of the protection against fires for safety-related equipment and systems, to adapt it to the current standards. This modification is required to be operative before the start-up following the 2013 refuelling outage.
- The Plenary meeting held on June 5th also added the condition that the three aforementioned modifications would require a favourable report by the Council prior to start-up of the plant following the 2013 refuelling outage. This condition guarantees the necessary investments, within the foreseen period, as a requirement for the continued operation of the plant.

The limits and conditions are complemented with a series of Complementary Technical Instructions (CTI's) requiring the licensee to perform an additional series of surveillance, improvement or design modification activities identified during CSN evaluation, among them the following:

- The early implementation of corrective actions relating to operating experience.
- Improvement of the combustible gas measuring instrumentation in containment to allow for the management of severe accidents.
- The introduction of improvements relating to the plant probabilistic safety assessments, in particular those relating to off-site events and the occurrence of earthquakes.
- The performance of a prolonged emergency diesel generator operational test under conditions close to the maximum design temperature.
- Continuation of the control rod drive penetration surveillance programme.
- Continuation of the stainless steel weld inspection and action plan.
- Revision of the documentation supporting the request to include the results of the evaluation.

Finally, the ninth condition includes overall the rest of the findings identified by both the licensee and the CSN during the evaluation. This condition obliges the licensee to carry out the safety enhancement programmes or activities identified in the Periodic Safety Review (PSR), the Conditioned Application Standards (CAS), the Integrated Ageing Assessment and Management Plan (IAAMP), the Study of the Radiological Impact associated with long-term operation (RIS) and the Radioactive Waste and Spent Fuel Management Plan (RWMP). All these activities, and their periods for performance, will be included in a Complementary Technical Instruction to be issued in this respect by the CSN.

7. DECISION OF THE NUCLEAR SAFETY COUNCIL

Having examined the documentation submitted by the licensee, along with the evaluations and reports carried out and issued by the CSN within its areas of competence, The Plenary of the Council has agreed to issue a favourable report regarding the renewal of the operating permit for the Santa María de Garoña nuclear power plant, this including:

- Its favourable decision regarding the renewal of the permit for 10 years (2009-2019), establishing the applicable limits and conditions.
- Its favourable decision regarding the associated draft supplement of the Safety Study (Rv. 4 of the SS).
- Its favourable decision regarding the associated draft revision of the Radioactive Waste Management Plan (RWMP) (Rv. 4 of the RWMP).
- Approval of the Complementary Technical Instructions associated with renewal of the permit.

The official report is available on the CSN website: www.csn.es.