



SEGUNDA REUNION DE REVISION DE LA CONVENCION CONJUNTA

RESPUESTA A LAS PREGUNTAS RECIBIDAS SOBRE EL INFORME NACIONAL DE ESPAÑA

- 10 DE ABRIL DE 2006 -

NOTA ACLARATORIA: ESTE DOCUMENTO SOLO EXISTE EN INGLES, AL SER ESTE EL LENGUAJE DE TRABAJO DE LA CONVENCION



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1	<ul style="list-style-type: none"> - For the waste of NPP origin besides the total activity value only Co-60 and Cs-137 are mentioned (in case of one NPP Ni-63 is also given). - For decommissioning waste and SSRS no information is given (amount, volume, activity, activity concentration). 	<p>The data included in Vandellos I NPP reference, are those from operational (1580m³) and decommissioning wastes (1396m³) that were not shipped to El Cabril.</p> <p>Regarding SSRS, ENRESA has in the storage facilities of El Cabril 1,473 SSRS with a total activity of 1.34.10⁸MBq β-γ and 5.09.10⁶MBq α and a total volume of 9.05 m³.</p>
2	<ul style="list-style-type: none"> - What are the milestones for the construction of CTS? Are there any candidate site (or sites) for CTS? - To create such a centralized storage facility public acceptance is an issue of crucial importance. Does Spain have an accepted site? - Is there any preferred technological solution for CTS? (dry – wet; container – vault, etc.) 	<p>There is neither a definitive schedule for the construction of a CTS nor a candidate site yet. The intention is to start, as soon as feasible, a public consultation procedure as a first step for site selection. The procedure will be started desirably over 2006, in order to have the facility in operation by 2010. In this regard, it must be taken into account, that pre-licensing activities of a generic design of CTS are well advanced, and a statement of the on the general basis of such generic design is expected to be issued over yea 2006r.</p> <p>The Spanish Authorities are studying ways of public participation through municipality authorities, interested in having such a facility. It is intended to start the process over the year 2006. Furthermore, the public will also participate in the licensing procedure of the site finally chosen as provided for in the Regulations for the nuclear and radioactive installations.</p> <p>The preferred technology is storage in dry vaults.</p>
3	<p>The 5th PGRR establishes the need to refer to the possibilities for open cycle or for the closed cycle. What will be the procedure for making the decision? Are there any regulations, guidelines to influence the decision upon fuel cycle back-end option? How far the decision is foreseen to be flexible for the future?</p>	<p>Although the 5th PGRR does not discard the closed cycle option for spent fuel management, for the time being open cycle was the main strategy foreseen. Nevertheless, the 6th PGRR draft considers also the open cycle for planning and economic calculations purposes, supposing that by 2050 a disposal facility could be commissioned</p> <p>Currently, there are not regulations or guidelines influencing such decisions. In case this option could be pursued in the future, both strategic and safety considerations would be taken into account before the decision is made.</p>
4	<p>Is there any plan for using MOX fuel in the Spanish NPPs and has any analysis been carried out to estimate the consequences of the</p>	<p>For the time being, there is no plan for using MOX fuel in Spanish NPPs.</p>



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	realization of closed fuel cycle to the radioactive waste problem?	
5	<p>It has been stated that the total volume of conditioned radioactive waste to be managed in Spain and open to definitive disposal at the El Cabril facility, i.e. LILW, amounts to some 176,000m³, 57% of which, that is to say some 100,000 m³, might be managed specifically due to their having very low levels of activity (VLLW). What is the total capacity of El Cabril facility in terms of volume and activity? Will existing repository together with the one that will be commissioned for very low level waste be enough to accommodate all the LILW from existing nuclear operation in Spain?</p>	<p>The total volume of the actual El Cabril facility is 8,960 containers, able to contain 18, 220l drums of conditioned wastes, each (approximately 35,000m³). One important part of the wastes is compactable wastes that are supercompacted at the site, so the real capacity is in the range of 50,000m³. With the new facility for VLLW the total capacity will be close to the expected total wastes generation.</p> <p>The maximum total activity is given for different radionuclides, among them ⁶⁰Co, 2.10⁴TBq, ⁹⁰Sr 2. 10³TBq, ¹³⁵Cs 3.10³TBq at any time, and 27TBq total α at 300 years.</p>
6	<p>It is not clear does the classification of radioactive waste include distinction between short lived and long lived LILW and distinction between very low level and low and intermediate level waste. Such a distinction is not mentioned in the text explaining the classification system (Page 13) even thou a Table 1 are showing a run down of radioactive waste in such a manner.</p>	<p>The classification of radioactive wastes established in Spain is associated with the currently defined disposal options. Table 1 included in the 2nd national report presents the situation achieved to date as regards the implementation of solutions for disposal, along with the options under study or in the licensing process.</p> <p>Bearing the above in mind, the distinction between short-lived and long-lived LILW is established depending on the possibility of a given LILW meeting the acceptance criteria for disposal at the El Cabril facility. If this were possible, the waste would correspond to the short-lived LILW category; for other cases (long-lived LILW) the management route for disposal has not yet been defined in Spain (draft proposal of the 6th General Radioactive Waste Plan made public).</p> <p>As regards the distinction between very low level and low and intermediate level wastes, the definition in the case of short-lived wastes will be accomplished taking as a reference the activity per unit of mass (Bq/g), after having defined the waste acceptance criteria for the future VLLW disposal facility, which is currently under construction within the licensing process.</p>
7	<p>Could you please describe what plans for the closure of the El Cabril repository are provided in the future after its operational lifetime?</p>	<p>After the operational life El Cabril will be subject to the Nuclear Safety Council technical conditions to be settled for its closure. For the works to be implemented it is expected to have several non permeable layers and the landscape will be the same as it was before the facility was constructed. The period for institutional control is expected to be 300 years maximum.</p>



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8	<p>In the report it is stated: "To date the Nuclear Safety Council (CSN) has approved declassification and determined the conditions under which it should be performed in the cases of used oils (by combustion and regeneration), metallic materials, used activated carbon (except its regeneration) and spent ion exchange resins." Can you give more details on the criteria that are applied, especially whether the 10 micro Sievert concept is applied or clearance levels are used that are in compliance with the IAEA Safety Standard Series No. RS-G-1.7?</p>	<p>The clearance system for residual materials generated in regulated practices in Spain is based on:</p> <ul style="list-style-type: none"> - The need of an authorisation granted by The Ministry of Industry. - Radiological criteria prescribed by the 96/29 EURATOM Directive for the clearance of materials. - Art.31 Group of Expert recommendations RP-89 and RP-113. - Pathway analysis and impact studies considering the existing conventional waste management framework implemented in Spain for the different waste streams like used oils, spent resins, active charcoal and others. - The use of a conservative approach in order to obtain derived clearance levels for a wide range of disposal options, considering the most restrictive situation. - Sometimes a realistic approach is considered in order to obtain specific derived levels to be applied in specific cases. - Time-frame considerations usually based on prescriptions related to institutional control periods in landfill disposal or hazardous disposal facilities. - Dose Criteria. - 10 microSv/year to the most exposed individual of the critical group in case of scenarios of normal occurrence. - Below 1 mSv/year to the most exposed individual of the critical group in case of accidental (low probability scenarios). <p>Intruder construction, intruder well and intruder agricultural are considered as future use of landfill disposal sites after institutional control period is finished</p>
9	<p>According to Section 6.3 and Annex B, public information begins in the early stages of the licensing process by announcement on State and Community level. In the case of the planned centralised spent fuel storage facility, is the involvement of the public also performed or intended during the site selection process preceding the licensing procedure?</p>	<p>In this regard, it is useful to distinguish two different aspects:</p> <ul style="list-style-type: none"> - The different licensing procedures, which are foreseen in the Spanish legislation (in particular, in the Regulations on nuclear and radioactive facilities). Almost all of them contain expressly acts of information to the public and submittal of allegations to the regional office of the Government in the Autonomous Community. The description of these procedures is provided in Annex B of the national report. - With regard to the Centralised Storage Facility, the Spanish Authorities are studying ways of public participation through municipality authorities, interested in having such a facility. It is intended to start the process over the year 2006
10	<p>Concerning the safety review of spent fuel pools it is stated that this is included in the safety review programmes and the Periodic Safety Review of the NPPs. Are there any comparable requirements for periodical safety re-assessments for the facility</p>	<p>The temporary dry storage facilities located at the nuclear power plant sites, known as Individualised Temporary Storage (ITS) Facilities, as is the case for the installation at Trillo nuclear power plant, are under the control of the licensees and are, therefore, subject to the same requirements as the plant itself, as a result of which the periodic safety review programmes are applicable. These programmes are carried out in accordance with CSN Safety Guide 1.10, entitled Nuclear power plant periodic safety reviews, which is currently under revision for adaptation to</p>



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	for dry storage of spent fuel at Trillo and for the planned centralised storage facility? If so, what are the main features of these programmes?	<p>the recent legislation and standards.</p> <p>As regards the centralised temporary storage facility foreseen, the regulatory framework has not yet been developed to its fullest extent. However, in view of the fact that such installations are nuclear facilities, they will be subject to the same safety measures and safety reviews as other nuclear facilities, this including periodic safety reviews.</p>
11	Who is in charge of the administration costs of Empresa Nacional de Residuos Radiactivos, S.A. (ENRESA)? Is the fund for the financing of activities contemplated in the General Radioactive Waste Plan (PGRR)?	<p>All ENRESA's administration and operational costs are charged to the fund.</p> <p>The fund is specifically established for financing all the activities contemplated in the PGRR.</p>
12	<p>"The licensee of the facility is also responsible for unloading the fuel from the reactor and from the irradiated fuel storage pools or, otherwise, for having available a spent fuel management plan approved by the MITYC [Ministry of Industry, Tourism and Trade], following a report from the CSN (art. 28 thereof)."</p> <p>a) Are the aforementioned technical measures content of the operating or the decommissioning permit?</p> <p>"The operating permit of a nuclear facility having expired, the responsibility for decommissioning is initially to the licensee himself who, prior to granting of the corresponding authorisation, undertakes the so-called pre-dismantling activities."</p> <p>b) Are the aforementioned "pre-dismantling activities" content of the operating or the decommissioning permit?</p> <p>c) What are "pre-dismantling activities"?</p>	<p>(Note: There is a mistake in third paragraph of page 89 of the national report. The correct reference is article 28 of the Regulations on nuclear and radioactive facilities)</p> <p>a) No. They are described in the "Statement of definitive shutdown", as provided for in article 28 of the Regulations on nuclear and radioactive facilities.</p> <p>b) No. As already said, they are contained in the "Statement of definitive shutdown", granted by the Ministry of Industry, Tourism and Commerce after receiving a binding report from the CSN, which governs the activities of a nuclear installation from the cease of operation (definitive shutdown) until the "decommissioning permit" is awarded.</p> <p>c) The pre-dismantling activities are those established in the Statement of definitive shutdown. The most important are the unloading of the fuel from the reactor, the removal of the fuel assemblies from the spent fuel pool and the conditioning and management of the radioactive wastes generated during operation of the facility</p>
13	a) Is the safe enclosure of a NPP a (legal) option pursuant to any law or binding regulation?	No. There is no a legal requirement imposing any specific technological option for dismantling a NPP. The technical decision is proposed by ENRESA to the Ministry of Industry, Tourism and Commerce, the licensee and the Nuclear



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	<p>b) If so: Is any decommissioning strategy (safe enclosure vs. dismantling) legally preferred?</p> <p>c) If so: What are the reasons for the preference?</p>	<p>Safety Council, taking into account both technological and safety constrains.</p> <p>For instance, in the case of Vandellos 1 (decommissioning undertaken to Level 2), there were certain radiological and waste management constrains associated to pile design, activated materials and the management of highly irradiated graphite of the pile, which made advisable to have around 30 year latency period before full dismantling of the reactor building.</p>
14	<p>As the formulation in Section C.2 of this report: "Radioactive waste from the nuclear fuel cycle, as well as wastes arising from the application of radioisotopes in industry, agriculture, research and medicine or as a result of past activities, incidents and accidents involving radioactive materials" seems to leave open the question of NORM, could you please specify whether NORM is treated as radioactive waste if it arises as a result of past activities? Is there an inventory of wastes from "past activities, incidents and accidents", including NORM residues, which would be covered by the definitions concerning Article 3.2?</p>	<p>The scope of application of the Convention (art. 3) excludes NORM, unless it constitutes a disused source or it is declared as radioactive waste for the purposes of the Convention.</p> <p>The scope of application of the Convention in Spain so far excludes NORM wastes from current and past activities.</p>
15	<p>For the disposal of low and intermediate level wastes, a near-surface repository has been constructed at El Cabril and taken into operation in 1992. As the total capacity of this repository could not be found in the report, could you please provide this figure?</p>	<p>The total volume of the actual El Cabril facility is 8,960 containers, able to contain 18, 220l drums of conditioned wastes, each (approximately 35,000m³). One important part of the wastes is compactable wastes that are supercompacted on site, so the real capacity is in the range of 50,000m³.</p>
16	<p>What will happen to the fissile material from reprocessing in France (Vandellos I) and the United Kingdom (Santa María de Garona)?</p>	<p>There is no fissile material from reprocessing in France to be sent back to Spain.</p> <p>The fissile material from reprocessing in UK is a relatively small amount of material and ENRESA is assessing a number of alternatives to find a final solution.</p>
17	<p>A design target for the dose from a long-term disposal facility of 0.1 mSv seems high for the</p>	<p>As indicated in Section 11.6 of the national report, the radiological protection criterion established by the CSN for the definitive disposal of radioactive wastes is a risk of 10⁻⁶/year or an annual equivalent dose to individuals in the</p>



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	<p>design of a new facility that, unlike an NPP, could give doses to many successive generations. At the ICRP's generally accepted figure of risk from ionising radiation, a risk of 10-6/year would require a dose much closer to 20 µSv/year. Page 135 of the report says that one of the objectives in the design of El Cabril "was that of zero releases". Could Spain please clarify (i) what annual dose to an individual member of the critical group is expected from El Cabril, both during routine operation, and post-closure, and (ii) what dose CSN would expect as the design target for a deep geological repository for spent fuel and other HLW?</p>	<p>critical group lower than 0.1 mSv. This criterion, issued in 1987 with the CSN decision on the dose proposed in the first General Radioactive Waste Plan, will be revised as part of the currently on-going regulatory framework developments, in order to take into account the subsequent positions of the ICRP and other international organisation in this respect.</p> <p>A zero discharge criterion was considered in the design for liquid radioactive effluents of El Cabril (non radioactive effluents may be discharged after activity control with concentration values above limits for dinking water).</p> <p>Consequently, during the routine operation of El Cabril, the only radioactive effluents released to the environment are gaseous, and the doses to the most exposed member of the public due to these effluents are required to be lower than 1.0 E-02 mSv/year. During 2003 and 2004 the average dose to the critical individual as a result of these effluents represented 4% of the authorised limit.</p> <p>At present, the El Cabril nuclear facility has an operating permit granted by the Ministerial Order of October 5th 2001. This Order by means of its 6th condition, requires the licensee to submit a review of the Safety Assessment to include actualize information for the long term assessment. ENRESA submitted the document "Propuesta de Texto 0 del Estudio de Seguridad para cumplimiento de la condición 6 de la autorización de explotación" in response to this condition. The expected doses estimated to the exposed individual for each considered scenario in the post-closure phase is presented in the Table below.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>SCENARIO</th> <th>Individual Effective Dose (mSv/a)</th> </tr> </thead> <tbody> <tr> <td>Building construction</td> <td>2,2 E-2</td> </tr> <tr> <td>Sport and residential activities</td> <td>5,3E-2</td> </tr> <tr> <td>Residence</td> <td>1,1E-1</td> </tr> <tr> <td>Road Construction</td> <td>4,6E-1</td> </tr> <tr> <td>Water table rise</td> <td>1,1E-3</td> </tr> <tr> <td>Plane accidental crash</td> <td>3,3 E-2</td> </tr> <tr> <td>Cover failure</td> <td>8,8 E-4</td> </tr> <tr> <td>Groundwater release</td> <td>8,8 E-4</td> </tr> </tbody> </table>	SCENARIO	Individual Effective Dose (mSv/a)	Building construction	2,2 E-2	Sport and residential activities	5,3E-2	Residence	1,1E-1	Road Construction	4,6E-1	Water table rise	1,1E-3	Plane accidental crash	3,3 E-2	Cover failure	8,8 E-4	Groundwater release	8,8 E-4
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18	The final paragraph on page 120 says that	ENRESA and the NPP had reached agreements for volume reduction. It was in the interest of ENRESA and of the																		



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	<p>“ENRESA has invested more than 9 million euros in volume reduction projects at NPPs”, whereas page 35 says that “the major producers (the NPPs and the fuel manufacturing facility) are contractually obliged of condition their low and intermediate wastes in order to produce packages meeting the ENRESA acceptance criteria.” Could Spain please clarify whether the NPP licensees are responsible for waste compaction at the NPPs, or whether this is the responsibility of ENRESA?</p>	<p>Power Plants to reduce the volume generated at the plants. Due to the cost of disposal and the, at that time, externalised cost system, it was cheaper for ENRESA to fund partially the volume reduction costs. NPPs have in general low force compactors while in El Cabril there is a high force compactor of 1200t. NPP have to compact their wastes with their compaction systems, and later on those compactable wastes are supercompacted.</p>								
19	<p>The report provides no data on the doses to workers or the public from the dry storage of spent fuel at Trillo and the planned dry storage at Jose Cabrera. Could some further information be provided on these doses? It would also be useful if the dose to a member of the critical group could be added for each site to Tables 10 and 11 on page 80 of the report. It would be useful for such data to include any dose contribution from direct radiation shine, as well as from radioactive effluent discharges.</p>	<p>The operational dose estimates presented in the Safety Study for the Trillo Spent Fuel Cask Storage Facility are as follows: storage conditions 0.82 mSv.person unloading/maintenance 120 mSv.person</p> <p>The operational dose estimates presented by ENRESA in the Safety Study for the Zorita NPP Spent Fuel Cask Storage Facility (in the assessment process) are as follows surveillance and maintenance 3.90 mSv.person loading operations 104.1 mSv.person unloading operations 57.8 mSv.person</p> <p>For the licensing of the Trillo NPP spent fuel temporary storage facility, the public dose calculation was performed at the site perimeter, at a distance of 300 metres from the cask store, assuming that 128 casks were located in the facility. This was the maximum number initially foreseen, and although it was finally reduced to 80, the figure of 128 was used for dose calculation.</p> <p>According to the above, the maximum effective dose foreseen for the most exposed member of the public with the facility full would be as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">EXPOSURE ROUTE</th> <th style="text-align: left;">DOSE (microSv/year)</th> </tr> </thead> <tbody> <tr> <td>Direct radiation from the facility</td> <td>22</td> </tr> <tr> <td>Disperse radiation from the facility</td> <td>24.8</td> </tr> <tr> <td>Effective dose due to gaseous releases</td> <td>2</td> </tr> </tbody> </table>	EXPOSURE ROUTE	DOSE (microSv/year)	Direct radiation from the facility	22	Disperse radiation from the facility	24.8	Effective dose due to gaseous releases	2
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20	Could Spain please provide more information on	<div style="border: 1px solid black; padding: 2px; margin-bottom: 10px;"> Equivalent skin dose due to gaseous releases 31.5 </div> <p>In the case of José Cabrera NPP, the facility is licensed such that the total dose to the most exposed member of the public located at or beyond the site perimeter does not exceed 250 microSv/y, and the contribution made by the overall liquid and gaseous effluents cannot exceed 100 microSv/y.</p> <p>Table: Effective Dose to the Critical Individual of the Public due to Radioactive Effluents (mSv/y)</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th colspan="7" style="text-align: center;">PWR PLANTS</th> </tr> <tr> <th>Year</th> <th>José Cabrera</th> <th>Almaraz I & II</th> <th>Ascó I</th> <th>Ascó II</th> <th>Vandellós II</th> <th>Trillo</th> </tr> </thead> <tbody> <tr> <td>2003</td> <td>7.76E-4</td> <td>2.35E-4</td> <td>6.14E-5</td> <td>8.97E-5</td> <td>3.32E-4</td> <td>8.52E-4</td> </tr> <tr> <td>2004</td> <td>4.96E-4</td> <td>2.61E-4</td> <td>1.63E-4</td> <td>6.31E-5</td> <td>6.40E-5</td> <td>1.45E-3</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th colspan="3" style="text-align: center;">BWR PLANTS</th> </tr> <tr> <th>Year</th> <th>Santa María de Garoña</th> <th>Cofrentes</th> </tr> </thead> <tbody> <tr> <td>2003</td> <td>3.36E-5</td> <td>5.56E-5</td> </tr> <tr> <td>2004</td> <td>1.74E-5</td> <td>1.30E-4</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Year</th> <th>El Cabril</th> </tr> </thead> <tbody> <tr> <td>2003</td> <td>4.28E-4</td> </tr> <tr> <td>2004</td> <td>2.52E-4</td> </tr> </tbody> </table>	PWR PLANTS							Year	José Cabrera	Almaraz I & II	Ascó I	Ascó II	Vandellós II	Trillo	2003	7.76E-4	2.35E-4	6.14E-5	8.97E-5	3.32E-4	8.52E-4	2004	4.96E-4	2.61E-4	1.63E-4	6.31E-5	6.40E-5	1.45E-3	BWR PLANTS			Year	Santa María de Garoña	Cofrentes	2003	3.36E-5	5.56E-5	2004	1.74E-5	1.30E-4	Year	El Cabril	2003	4.28E-4	2004	2.52E-4
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	the measures taken to prevent short burnup fuel being placed in Region II of the spent fuel pools?	<p>II of the pools, a region established to give credit to the degree of burnup. These conditions and requirements are contained in the Operating Technical Specifications (OTS's) of the nuclear power plants, applicable to refuelling and to the storage of irradiated fuel.</p> <p>The OTS's are mandatory documents for the operation of nuclear power plants. The specific limiting condition indicates that the assemblies stored in region II should have a given degree of burnup, depending on their initial enrichment. The corresponding surveillance requirement establishes the need to verify the degree of burnup of the fuel assembly prior to its being placed in region II.</p>
21	The dose data presented in three places on these pages refers to a "collective dose" measured in "mSv/person". "Collective dose" is a term normally used to refer to the aggregate of a defined number of individual doses, either for a defined task, or over a defined time period. It is usually measured in mSv or Sv. Could Spain please correct the report to delete "/person" or otherwise clarify the meaning of the report?	<p>This is a typographic error. The magnitude of collective dose is expressed in terms of mSv.person or simply mSv or Sv.</p> <p>The aforementioned error should be corrected in the joint Convention report, replacing the term "mSv/person" for "mSv.person".</p>
22	Why does the Article 23 in Section F of the National Report make no reference to any internationally recognised QA standard?	<p>It is true that the second National Report makes no reference to any recognised international QA standard, since these were identified in the first National Report. However, to clarify matters, the QA standard applicable in Spain is UNE 73-401 "Quality Assurance at nuclear facilities", which is based on the IAEA's 50-C-QA and on Appendix B of 10CFR50.</p> <p>Annex A, section 4 "Safety Guides" of the second National Report references the CSN Safety Guides for the application of Quality Assurance to various activities.</p>
23	Please, could you detail presenting the ways of work and some activities performed by the working groups dealing with the reduction of the presence of chemical, biological and toxical substances?	<p>These groups had the aim to establishing and assessing the inventory of toxic and other hazards that might be included in the wastes looking forward to minimising all hazards upwards the waste generation</p>
24	In Spain there are clearance mechanisms in place and plans for the development of a facility for the disposal of very low activity waste. What exactly is the waste that will be disposed in that facility?	<p>In this facility most of the wastes to be disposed will come from decommissioning activities; also waste whose origin is melted sources, and that are already stored, are subject to disposal in the facility.</p> <p>The types of waste to be included will be metal boxes with scrap, big bags with slag, dust or immobilised wastes.</p>



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25	<p>Please, could you indicate us if CSN authorize the storage of damaged spent fuel in the Individual Spent Fuel Storage Installation located at a Trillo NPP site? If, yes, please shortly describe the storage conditions.</p>	<p>No, the CSN limits and conditions accompanying the approval of use of the ENSA-DPT dual-purpose cask for fuel storage at Trillo Nuclear Power Plant specify that the fuel to be stored shall meet the specifications included in chapter 12 of the Safety Study (SS), which allow for the storage of up to 21 intact KWU 16x16-20 assemblies. According to the definitions of the SS, on which approval of the ENSA-DPR cask is based, intact fuel is understood in the following terms:</p> <p>“Fuel assemblies without known or expected defects larger than pinhole leaks or hairline cracks that may be managed normally (integral skeleton). Fuel assemblies from which one or more fuel rods have been removed may be classified in this category, as long as these rods are replaced with zircaloy or stainless steel rods displacing the same amount of water as the replaced rod(s)”</p> <p>In the case of the HI-STORM storage system, currently in the licensing phase for storage of the fuel the José Cabrera Nuclear Power Plant, it is foreseen that the system may contain up to 8 damaged fuel assemblies per cask in certain positions and housed in a Damaged Fuel Cask (DFC). The DFC is a container specifically designed to house damaged fuel, allowing liquids and gases to escape while minimising the dispersion of large particles. The DFC is fitted with a hoisting device allowing for its remote handling when empty or loaded. A DFC may house a damaged fuel assembly or fissionable material equivalent to an intact fuel assembly</p>
26	<p>What types of radioactive waste cannot be managed at El Cabril and are temporarily stored in the reactor building of Vandelos NPP 1?</p>	<p>Wastes generated that do not comply with approved WAC. Graphite sleeves were left in situ in order to have, in the future, a common management with the graphite pile.</p>
27	<p>Do the Spanish NPPs have their own facilities for the treatment of the spent ion exchange resins or for the treatment of organic liquid radioactive waste?</p>	<p>All of NPPs have their own systems for processing and conditioning spent ion exchange resins in order to obtain solid waste forms to be disposed of in El Cabril facility. The process of solidification implements the mixture of ion exchange resins with a hydraulic conglomerate (cement) and some additives. Waste acceptance criteria are previously defined in terms of ratios of the different mixture components (cement, resins, additives and water).</p> <p>No specific systems for treatment of organic liquid radioactive wastes are installed in Spanish NPPs.</p>
28	<p>What are the specificities of the emergency plan and scenarios of nuclear facilities (other than NPP's) dealing with radioactive waste. Are specific scenarios developed according to specific risks (fire, dispersion</p>	<p>Spanish nuclear regulations require existence emergency plan for every nuclear facility, including radioactive waste management facilities.</p> <p>According to the emergency plan, each nuclear facility must carry out an annual emergency drill, which involves all the organization members dealing with emergency response. The annual drill serves as a test of personnel training level and adequacy and operability of nuclear installation means to face emergency situations.</p>



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		<p>Before ending a year, nuclear facility owners propose to CSN the specific scenario and scope for the drill that will be carried out following year, which is assessed and approved by CSN.</p> <p>Facility owners propose the most characteristic accident situations that could happen in their installation, and the CSN assures scenarios are different every year and cover a wide range of situations. This practice, allows covering a very complete review of the most typical accidents situations of the installation every five year.</p> <p>Accident scenarios are very specific of a waste facility. Examples are as follows: Fire in radiological areas within the facility, operational failures like drum dropping and breaking resulting in spread of radioactive material, personnel accident including contamination and/or irradiation, waste transportation inside the facilities, natural event affecting facility beyond design specifications, communication failure, waste incinerator failure, etc.</p> <p>In all cases, technical scenarios consider only on site consequences, because external radiological impact probability is extremely low due to the nature of the stored waste (solidified in a concrete matrix).</p>
29	<p>Considering texts of 20.1 (p 56) and 19.3 (p 52), could some clarification be given on the separation of regulatory roles between MITYC and CSN regarding:</p> <ul style="list-style-type: none"> - authorisation process - regulatory provisions - controls on-site 	<p>The Spanish legal framework on nuclear energy provides for share and exclusive competences. The main competences are assigned as follows:</p> <ul style="list-style-type: none"> ▪ Competence on nuclear safety and radiological protection belongs exclusively to the Nuclear Safety Council (CSN). ▪ Competence on safeguards belongs to the Ministry of Industry, Tourism and Commerce. ▪ Competence on physical protection is shared between the Ministry of Industry, Tourism and Commerce, the CSN and State Security Forces. ▪ Competence on emergency planning is shared between the Ministry of Interior (Direction General for Civil Protection) and the CSN. ▪ Competence on environment protection is shared between the Ministry of the Environment (non-radiological matters) and the CSN (radiological matters) <p>Then CSN is a public body established by law, which is fully independent of and separated form the Spanish Central Administration (the Government). The CSN has its own legal entity and patrimony.</p> <p>Global licenses to nuclear installations, including radioactive waste management installations, are granted by the competent Ministry of the central Government (*) after consulting all the authorities which may have competences depending on the type of license (CSN, Ministry of Interior, Ministry of Environment....). Currently, the competent Ministry for granting licenses is the Ministry of Industry, Tourism and Commerce.</p>



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		<p>Specifically concerning nuclear safety and radiological protection matters, the competent Ministry is obliged by law to request a binding report to the CSN addressing nuclear safety and radiological protection matters. The conclusions of the report are binding for the Government when they are negative, as well as on the conditions imposed by the CSN when positive.</p> <p>Neither the Government nor any other State institution (including regional Governments) may make any decision on nuclear safety or radiological protection without seeking prior bidding consultation from the CSN.</p> <p>The Spanish legal and regulatory framework on nuclear energy is made of laws (enacted by the Parliament) and binding legislation enacted by the Government and the Public entities entitled to do so. Typically, regulations establishing the licensing procedure are approved by the Government or by the competent Ministries, while nuclear safety and radiation protection technical instructions are approved by the CSN. The CSN instructions are legally binding and enforceable requirements addressing technical requirements to be fulfilled by the licenses.</p> <p>On-site oversight on nuclear safety and radiological protection matters are implemented by both resident and headquarter-based CSN's inspectors. Controls on other competences are implemented in an exclusive or shared manner, depending on the subject. For instance, on-site physical protection controls are typically implemented in a coordinated way between the State Security Forces and the CSN, while national safeguards obligations are oversight by the Ministry of Industry. Tourism and Commerce alone.</p> <p>(*) Note: licenses of second and third category of radioactive installations may be granted by the regional Governments if the competence has been transferred from the central Government. The CSN remain as the sole authority competent on radiological protection, although may entrusts specific functions to the regional Governments upon agreement.</p>
30	What is the role as well as utilization of probabilistic methods in the frame of long-term performance assessment for El-Cabril facility?Is such approach used for evaluation of intrusion scenarios at least?	The identified uncertainties are related to uncertainties in the scenario, models and data treatment. The current version of the Safety Assessment does not treat in a purely probabilistic manner the uncertainties in data that represent release and transport properties and processes. For specific parameters, such is the case of the solid to liquid distribution coefficient, a maximum and a minimum values are assigned and a further results comparison is performed. A probabilistic analysis of the adopted values for those parameters that quantify the intrusion scenarios is not carried out.



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31	Do you have any experience with parallel co-existence of different parts of repository within the site covered by different type of license, e.g. in the same time one part of disposal facility under operation and other part under closure or construction, respectively. (e. g. possible extension of the capacity)	Up to now there has not been any co-existence. Taking into account that last February the VLLW facility was approved for construction, as an extension of the one in place, from now on two different activities will have to be undertaken at the same time.
32	What are the financial sources and who is responsible for each step in disused sealed sources management?	<p>Pursuant Royal Decree 229/2006, which transposes the European Directive 2003/122/EURATOM on the control of high-activity sealed radioactive sources and orphan sources, the owner of a disused sealed source must return it to the supplier. To this end, the owner shall conclude an arrangement with the supplier of the source. Other valid alternatives foreseen in the Royal Decree are to transfer it either to another authorised owner for further use or to a recognised installation for final disposal (i.e. the national radioactive waste management company, ENRESA).</p> <p>Responsibility for financing final management of disused radioactive source, whatever the alternative followed, lies always on the owner, who must place adequate financial securities to ensure availability of funds even in the case of insolvency, cease of the activity or any other contingency. The financial security can be an insurance policy, a blocked bank account, or any other kind of financial security placed on a duly authorised financial entity.</p>
33	Can your near surface disposal facility accept also disused sealed sources, and if yes - Which are the acceptance criteria? - What kind of scenario is applied?	<p>At this moment, at El Cabril facility it is allowed to dispose SSRS with half life lower than ⁶⁰Co. Other are stored in the storage facilities of the site.</p> <p>Additionally to the general scenarios, archaeological recovery of materials was considered for SSRS.</p>
34	What is practical application of repository re-assessment results for its further operation, mainly in terms of technical specification (L&C) modification, technical measures taken, monitoring and surveillance program revision, etc.?	<p>The operating permit for El Cabril establishes a system of Periodic Safety Reviews (PSR's), the objective being to undertake an overall assessment of the safety and radiological protection of the facility and to analyse the experience acquired and the possible improvements that might be implemented, taking into account the current situation and whatever new technological or regulatory circumstances might have occurred.</p> <p>The PSR's should lead to the setting up by the licensee of a set of commitments regarding on-going improvement actions, including a schedule for their implementation.</p> <p>The scope and contents of the PSR's should include the following:</p> <ul style="list-style-type: none"> • Analysis of the operating experience of the facility, with a view to assessing whether operation is performed in accordance with adequate safety measures, whether the resources required to detect possible deviations are in place and whether adequate corrective measures are adopted.



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		<ul style="list-style-type: none"> • Analysis of the experience relating to assessment of the radiological impact associated with operation of the facility, this to include analysis of the evolution of operating doses and doses to individuals in the public. • Analysis of the experience relating to the environmental radiological surveillance of the facility. • Analysis of the experience acquired by the licensee in relation to application of the methodology for the acceptance and evaluation of the quality of the radioactive waste packages that may be accepted at the facility. • Analysis of the experience of studies of the parameters affecting the long-term safety of the facility, with a view to gaining better insight into the existing engineered barriers and the site itself. • Analysis of the experience acquired by the licensee in the long-term safety assessment of the facility. • Analysis of changes to the regulations and standards, with a view to checking that the licensee has adequately analysed the applicability of the new national standards, those issued by countries having similar facilities and international recommendations on the subject. <p>The programmes for on-going assessment and improvements to the safety and radiological protection of the facility already implemented or scheduled to be addressed on the basis of the experience acquired, the results of the R&D programmes performed, the demands and requirements issued by the regulatory authorities, international recommendations and the operating experience acquired by facilities having a similar technology</p>												
35	Could Spain provide more detailed information on the waste categorization, applicable limits and acceptance criteria applied for the El Cabril facility?	<p>The basic Disposal Unit (DU) of El Cabril is a prismatic container able to accept 18, 220l drums of conditioned wastes, and includes the conditioned wastes and the filling and sealing mortar. There are two Levels with different acceptance criteria, depending essentially on mass activity limits and activity distribution criteria, in addition Level 2 DU need to meet confining objectives. All have to meet non radioactive contain criteria, and recoverability and transportability criteria.</p> <p>Regarding the conditioned wastes, there are also two levels with activity limits derived from those of the corresponding DU. Matrices of immobilised wastes have to meet different criteria and quality objectives for compression and immersion tests. In addition matrices for Level 2 packages need to demonstrate its capacities to leaching and thermal cycles. If wastes are conditioned with a hydraulic agglomerate wall, this is also subject to diffusion tests.</p> <p>Activity limits are established for individual radioisotopes. In the table below, limits for some specific isotopes are given (kBq/g):</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Isotope</th> <th>DU Level 1</th> <th>DU Level 2</th> </tr> </thead> <tbody> <tr> <td>H-3</td> <td style="text-align: center;">7.4</td> <td style="text-align: center;">1000</td> </tr> <tr> <td>Co-60</td> <td style="text-align: center;">3.7</td> <td style="text-align: center;">50000</td> </tr> <tr> <td>Cs-137</td> <td style="text-align: center;">3.7</td> <td style="text-align: center;">330</td> </tr> </tbody> </table>	Isotope	DU Level 1	DU Level 2	H-3	7.4	1000	Co-60	3.7	50000	Cs-137	3.7	330
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		<table border="1"> <tr> <td>Total β-γ</td> <td style="text-align: center;">37</td> <td style="text-align: center;">n.a</td> </tr> <tr> <td>Total α (at 300y)</td> <td style="text-align: center;">0.185</td> <td style="text-align: center;">3.7</td> </tr> </table>	Total β - γ	37	n.a	Total α (at 300y)	0.185	3.7
Total β - γ	37	n.a						
Total α (at 300y)	0.185	3.7						
36	Could Spain provide elements on the planned schedule for the project of centralized storage (siting option, main licensing milestones, design options, etc.)	<p>The licensing review of a generic non-site dependent centralised storage facility started several years ago and is well advanced.</p> <p>The next step would be the selection of potential technically compliant candidate sites. The intention is to start the public consultation procedure over the year 2006. The procedure would end up with a reduced number of technically compliant sites willing to host the installation. The Government would take a final decision based on the short list sites.</p> <p>The schedule of the procedure aims at meeting the 2010 target for having available an interim centralised HLW and SF storage installation. In this regard, it must be taken into account that pre-licensing activities of a generic design of CTS are well advanced, and a statement of the CSN on the general basis of such generic design is expected to be issued over year 2006</p>						
37	Could Spain provide indication on the inventories of waste generated out of the nuclear industry (methodologies for building up the inventories, data, etc.)	<p>Wastes generated out of the nuclear industry are collected and shipped to El Cabril upon demand of the generator. So, more than an inventory at any given moment it is more representative to have an average inventory. From 1st January 2000 to 31st December 2004, some 257m³ of wastes were collected from 415 facilities, it means an average of 51.5m³/year with a tendency to get lower, partially due to the Ministerial Order indicated in Section H page 120, so the actual generation is in the range of 35-40m³/year. Out of those, 48% (volume) are compactable wastes, 8% other solids, 3% SSRS, 3% organic liquids, 6% aqueous liquids, 32% mixed wastes (solid and liquid)</p>						
38	Could Spain provide some additional elements for the selected dormancy period and associated measures (rationale, retained action plan for future waste management, documentation keeping, etc.) ?	<p>ENRESA had begun the process of confining the reactor box, following the removal of all the equipment and systems connected to it. This complex task consisted of plugging and thermally insulating more than 1,700 penetrations, with the objective of ensuring static confinement in order to guarantee the impossibility of any contact between the inside and the outside of the box during the latency period. On completion of this process in early 2000, ENRESA successfully carried out a leak tightness test of five phases, under the control of the Nuclear Safety Council. The five phases are as follows:</p> <p>- Pressurisation phase</p>						



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		<ul style="list-style-type: none"> - Stabilisation phase - Controlled leakage phase - Verification phase - Depressurisation phase <p>The indicators of reactor box confinement depend, therefore, on the possible pressure difference. This test, to be repeated every five years during the latency period, is included in the reactor surveillance programme, which will also include checking for internal corrosion by periodic sampling and visual inspection by means of special cameras. Wastes stored, milled graphite sleeves, will be managed together with the graphite of the pile after dormancy period. Regarding record keeping, ENRESA has revised all the historic documentation generated during construction and operation time, relevant to the necessities of Level 3 dismantling. It has all been digitalised and several copies are kept in different locations. All was done under quality follow-up.</p>
39	Could Spain provide information on the observed doses? (maximal doses and bar charts)	<p>In relation to the dosimetry data for the professionally exposed personnel at <u>El Cabril</u>:</p> <p>The total number of workers controlled in 2004 amounted to 231, with a collective dose of 25 mSv.person.</p> <p>As regards the statistical distribution of the number of users throughout 2004, the following may be deduced:</p> <ul style="list-style-type: none"> ➤ 197 workers (85.28 % of the total) received no significant doses. ➤ 25 workers (10.82 % of the total) received doses lower than 1 mSv. ➤ 6 workers (2.60% of the total) received doses of between 1mSv and 2 mSv. ➤ 2 workers (0.87% of the total) received doses of between 2mSv and 3mSv. ➤ 1 worker (0.43% of the total) received a dose of between 3mSv and 4mSv. ➤ No worker received a dose higher than 4 mSv. <p>When consideration is given only to workers receiving significant doses, the average individual dose is 0.72 mSv/year.</p>



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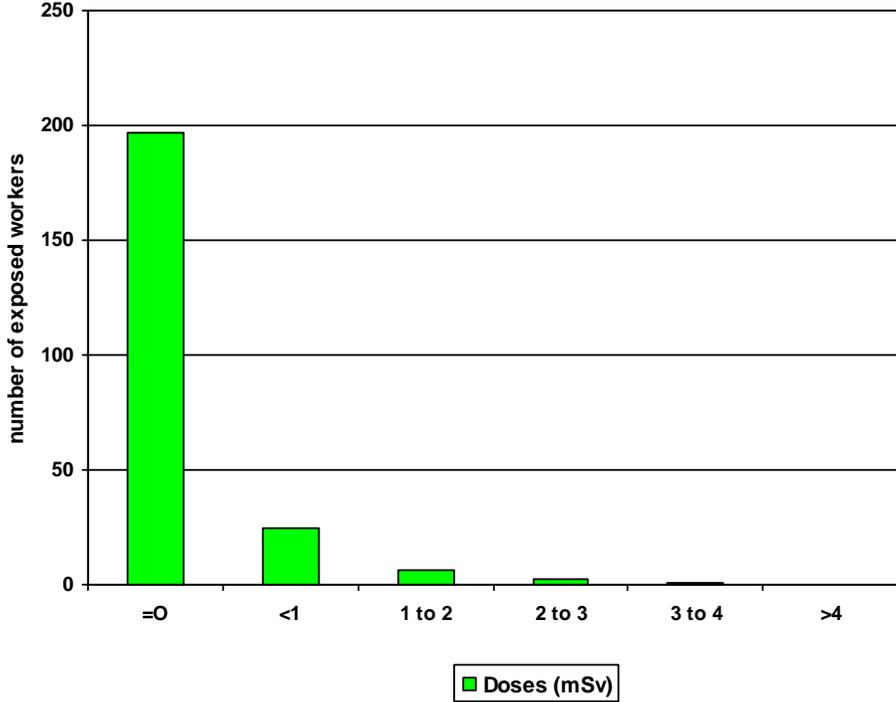
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Nº	COMENTARIO/PREGUNTA	RESPUESTA
		A graphic representation of dose distribution is given below



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		<p data-bbox="958 533 1861 587">Dosimetric Data on exposed workers for El Cabril radioactive waste disposal facility. Year 2004</p>  <table border="1" data-bbox="965 624 1861 1326"><caption>Dosimetric Data on exposed workers for El Cabril radioactive waste disposal facility. Year 2004</caption><thead><tr><th>Doses (mSv)</th><th>Number of exposed workers</th></tr></thead><tbody><tr><td>=0</td><td>195</td></tr><tr><td><1</td><td>25</td></tr><tr><td>1 to 2</td><td>5</td></tr><tr><td>2 to 3</td><td>2</td></tr><tr><td>3 to 4</td><td>1</td></tr><tr><td>>4</td><td>0</td></tr></tbody></table>	Doses (mSv)	Number of exposed workers	=0	195	<1	25	1 to 2	5	2 to 3	2	3 to 4	1	>4	0
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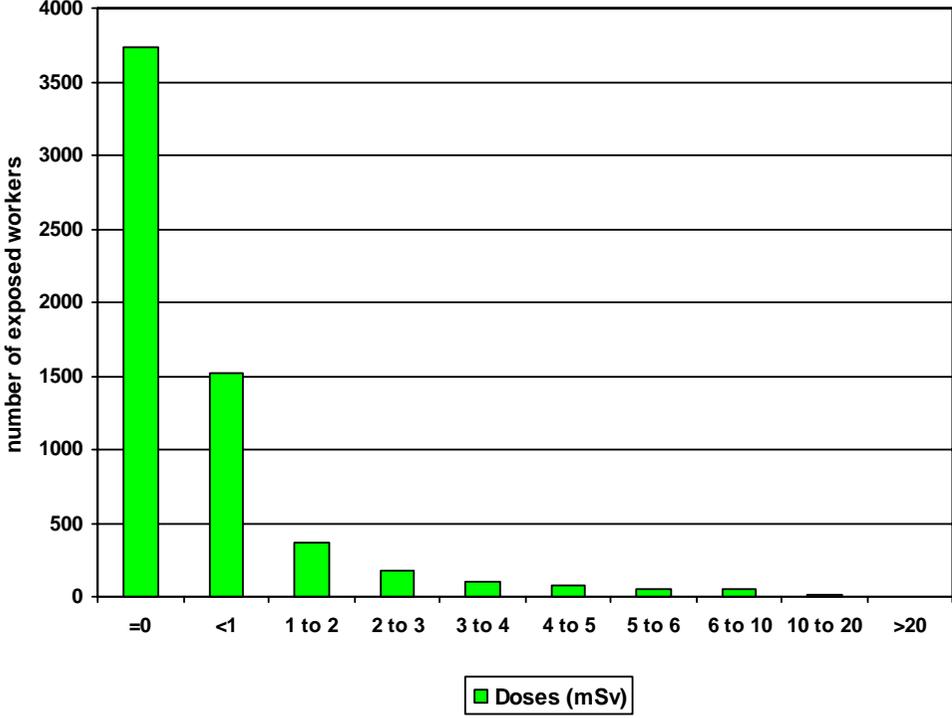
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		<p>As regards the dosimetric data for the professionally exposed personnel of the <u>nuclear power plants</u>:</p> <p>The total number of workers controlled in 2004 was 6,077, the corresponding collective dose amounting to 3.068 mSv.person.</p> <p>As regards the statistical distribution of the number of users throughout 2004, the following may be deduced:</p> <ul style="list-style-type: none">◆ 3,730 workers (61.38 % of the total) received no significant doses.◆ 1,520 workers (25.01% of the total) received doses lower than 1 mSv.◆ 368 workers (6.06% of the total) received doses of between 1mSv and 2 mSv.◆ 171 workers (2.81% of the total) received doses of between 2mSv and 3mSv.◆ 101 workers (1.66% of the total) received doses of between 3mSv and 4mSv.◆ 71 workers (1.17% of the total) received doses of between 4mSv and 5mSv.◆ 49 workers (0.80% del total) received doses of between 5mSv and 6mSv.◆ 52 workers (0.86% of the total) received doses of between 6mSv and 10mSv◆ 15 workers (0.25% of the total) received doses of between 10mSv and 20mSv. The maximum dose received by one worker during this interval was 19.2mSv.◆ No worker received doses higher than 20 mSv. <p>When consideration is given only to workers receiving significant doses, the average individual dose is 1.31 mSv/year.</p> <p>A graphic representation of dose distribution is given below:</p>



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		<p data-bbox="1003 528 1816 595">Dosimetric Data on exposed workers for Nuclear Power Plants . Year 2004</p>  <table border="1"><caption>Dosimetric Data on exposed workers for Nuclear Power Plants - Year 2004</caption><thead><tr><th>Doses (mSv)</th><th>Number of exposed workers</th></tr></thead><tbody><tr><td>=0</td><td>3750</td></tr><tr><td><1</td><td>1500</td></tr><tr><td>1 to 2</td><td>350</td></tr><tr><td>2 to 3</td><td>150</td></tr><tr><td>3 to 4</td><td>100</td></tr><tr><td>4 to 5</td><td>80</td></tr><tr><td>5 to 6</td><td>50</td></tr><tr><td>6 to 10</td><td>50</td></tr><tr><td>10 to 20</td><td>20</td></tr><tr><td>>20</td><td>10</td></tr></tbody></table>	Doses (mSv)	Number of exposed workers	=0	3750	<1	1500	1 to 2	350	2 to 3	150	3 to 4	100	4 to 5	80	5 to 6	50	6 to 10	50	10 to 20	20	>20	10
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40	Could Spain provide information on the decommissioning funds (organization, currently existing amounts)?	<p>In 1983 a fund was established to finance the activities foreseen in the General Radioactive Waste Plan for Radioactive Wastes (PGRR). Until 2005, the part of the fund corresponding to radioactive wastes, spent fuel and decommissioning of the NPPs was fed by means of a fee levied to the tariff for electricity sales. The part of the fund corresponding to other small radioactive waste producers was paid directly by them in terms of the services rendered by ENRESA.</p> <p>On 11 March 2005, the Royal Decree-Law 5/2005 entered into force changing the way that the fund was fed. From this date on the waste generators must address by themselves the costs stemming from managing radioactive wastes, spent fuel and decommissioning and feed directly the fund. The fund remains as an external dedicated fund managed by ENRESA on behalf of the State.</p> <p>On 18 November, the law 24/2005 was passed by the Parliament, establishing a specific tax to be paid by the waste generators in order to feed the fund. In addition, the legal standing of ENRESA is changed from a State-owned company to a public entity, embodied within the State administration, responsible for managing, on behalf of the State, the newly created public service for radioactive waste management (wastes, spent fuel and decommissioning) and its attached fund. However, the provisions of the law will not enter into force until the Government has approved a Royal Decree setting up the Statute of ENRESA as a public entity. The procedure for the Royal Decree is at its latest stage. Until the entry into force of the provisions of the new law the feeding of the fund will follow the procedure set down in the Royal Decree-Law 5/2005.</p> <p>Subject to approval 2005 of accounts, as of 31st December 2005 the fund has an accumulated value of 1,898M€, including accrued interest.</p>
41	Could Spain complete the presented table with the authorized limits?	<p>The authorised limit for the radioactive effluents from nuclear power plants is an effective dose of 0.1 mSv/12 consecutive months to the critical member of the public. This limit is applicable to liquid and gaseous effluents overall. There are no limits in terms of activity.</p> <p>In the case of the El Cabril facility, the effective dose limit is 0.01 mSv/12 consecutive months and is applicable only to gaseous radioactive effluents, since the facility is licensed for zero releases of liquid radioactive effluents</p>
42	Could Spain provide information on the technical content of the mentioned documents and on their review and approval process?	The documents mentioned in the page 51 correspond to the programme of pre nuclear tests and the programme of nuclear tests. In both cases, the programme include the set of tests, verifications and checks to be performed on each of the different systems of the facility important for the safety, which may vary according to type and



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		<p>characteristics of the facility.</p> <p>The pre-nuclear testing programme is proposed by the licensee and approved by the Ministry of Industry, Tourism and Commerce (MITyC) following a binding report by the CSN, which determines what tests and checks should be carried out in the presence of CSN's inspectors. The results of the pre-nuclear tests are also submitted to the MITyC and to the CSN for analysis before awarding the provisional operating permit. The provisional operating permit will be granted for the time required to carry out the nuclear testing programme and analyse its results</p> <p>The nuclear testing programme describes the tests, their objective, specific techniques and expected results. For each test there should be an indication of the procedure to be followed, the data to be acquired during performance and the maximum and minimum values expected for the variables of interest during test performance. It shall also include the safety criteria applicable to performance of these tests.</p> <p>The official representatives of the CSN may at any time during testing suspend the performance when, in their judgement, continuation might be potentially hazardous. On completion of the nuclear testing programme, the licensee shall submit to the above mentioned MITyC and to the CSN the results and his proposal for modifications to the operational technical specifications OTSs, if this were advisable in view of the tests performed. The CSN will issue a binding report to the MITyC on the results of the tests and the modifications to be incorporated in the OTSs, where appropriate, as well as on the conditions for renewal of the operating permit for the period established. The MITyC will then issue the new operating permit for the corresponding period.</p>
43	The chapter is relevant to the NPP's, What are the implementing conditions of the new regulations for the facilities relevant to the Joint Convention?	<p>The stages of licensing of facilities exclusively devoted to the temporary storage of spent fuel and high level radioactive wastes do not initially differ significantly from those established for nuclear facilities in the Regulations on nuclear and radioactive facilities (RNRF). However, as it is mentioned in Section K of the national report, the current legal and regulatory framework will be completed to consider the particularities of this kind of facilities and establishing the specific information to be included in the documentation to be presented at each licensing step, as well as the principles and criteria applicable to these facilities.</p> <p>As regards the disposal radioactive wastes, the licensing stages considered in the RNRF are, in general terms, also applicable, although the particularities of some specific steps of this kind of facilities will need special considerations in the new regulations.</p>
44	Could Spain provide information on the mentioned authorized clearances (selected levels, associated QA, impact studies, etc.) ?	<p>The clearance system for residual materials generated in regulated practices in Spain is based on:</p> <ul style="list-style-type: none"> - The need of an authorisation granted by The Ministry of Industry. - Radiological criteria prescribed by the 96/29 EURATOM Directive for the clearance of materials.



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		<ul style="list-style-type: none"> - Recommendations RP-89 and RP-113 of the Group of Experts established under Art.31 of the Euratom Treaty. - Pathway analysis and impact studies considering the existing conventional waste management framework implemented in Spain for the different waste streams like used oils, spent resins, active charcoal and others. - The use of a conservative approach in order to obtain derived clearance levels for a wide range of disposal options, considering the most restrictive situation. - Sometimes a realistic approach is considered in order to obtain specific derived levels to be applied in specific disposal facilities. - Time-frame considerations usually based on prescriptions related to institutional control periods in landfill disposal or hazardous disposal facilities. - Dose Criteria. - 10 microSv/year to the most exposed individual of the critical group in case of scenarios of normal occurrence. - Below 1 mSv/year to the most exposed individual of the critical group in case of accidental (low probability scenarios). <p>Intruder construction, intruder well and intruder agricultural are considered as future use of landfill disposal sites after institutional control period is finished</p>
45	It is stated that emergency response center (SALEM) participates in emergency exercises conducted by radioactive waste management facilities. For how many total exercises (waste facilities, NPPs, research reactors, and other) do you activate SALEM per year?	<p>Spanish nuclear regulations require to each nuclear facility owner to perform an emergency exercise once a year. According to this requirement, every year an emergency drill is carried out in the Low and Intermediate Waste Disposal Facility "El Cabril".</p> <p>The CSN Emergency Centre (Sala de Emergencia, SALEM) participates in all (around 10 times a year) emergency exercises carried out in the Spanish nuclear facilities. In particular, the Salem participates in the "El Cabril" annual exercise, which is usually based in an accident involving radioactive waste stored or managed in the facility.</p> <p>During each exercise, the CSN activates its own Emergency Response Organization (Organización de Respuesta ante Emergencias, ORE) according its Emergency Action Plan (Plan de Actuación ante Emergencia, PAE), which is activated to the Response Level derived from the severity or scope of the accident simulated. Number of people from the CSN participating in the exercise depends on the level of response activated, usually is around 10 people.</p>
46	What basic measures (technical, technological, etc.) permitted the reduction in the annual total volume of low- and intermediate-level waste to more than two times (1990 – 1430m3, 2004 – 600m3), and annual volume of radwaste of this	<p>ENRESA and the NPP had reached agreements for volume reduction. It was in the interest of ENRESA and of the Power Plants to reduce the volume generated at the plants. Due to the cost of disposal and the, at that time, externalised cost system, it was cheaper for ENRESA to fund partially the volume reduction costs.</p> <p>Among the technical measures implemented were better procedures agreed with the generators, R+D investments and modification of some systems. The agreements were reached with each one of the power plants after assessing</p>



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	category at NPPs to 4 times (1992 – 140m3, 2002 – 70m3, and since 2003 – 35m3)?	<p>the real possibilities and the potential results.</p> <p>With regard to radioactive facilities, ENRESA has developed annual meetings with the generators in order they get conscious of the technical conditions for waste management, have better internal procedures, and share similar problems and solutions among them. Under Ministerial Order ECO/1449/2003, of 21 May (as indicated in the report), solid wastes from small radioactive facilities with concentrations under specific levels (table included in the Min. Order) can be managed as non radioactive.</p>
47	Could you provide additional information on safety issues arising in high-level and long-lived radwaste management?	<p>The high level wastes are made up fundamentally of the vitrified wastes from reprocessing of the fuel from the Vandellós I Nuclear Power Plant, currently in France and to be returned to Spain as from 2010. This class also includes other wastes which, because of their activity or half-life, are not eligible for disposal at the El Cabril low and intermediate level radioactive waste disposal facility, and which will foreseeable mainly arise from the dismantling of the nuclear power plants.</p> <p>As regards the general safety requirements established in article 4 of the Convention, in addition to what is indicated in chapter 11.1 (relating to measures for the maintenance of subcritical conditions and heat removal), the criteria issued by the CSN in relation to the protection of persons and future generations, contained in chapter 11.6 of the Spanish national report, and the measures regarding responsibilities and financing, included in sections 4.7 and 11.7, are also applicable. In keeping with the strategic objectives of the CSN, the rest of the general safety requirements of Article 11 of the Convention will be subject to the development of the regulatory framework for the management of high level wastes in the coming years</p>
48	Is it required to carry out a comparative analysis of national and foreign standards in order to demonstrate that the facility designed in compliance with foreign standards will have the safety level not less than the level which could be reached in the facility design in compliance with national standards of Spain?	<p>There is not a formal requirement to carry out a comparative analysis of national and foreign standards; but normally the regulatory review procedure takes into account the recommendations of international organisations, specially the IAEA Safety Standards and the EC Directives, as well as the specific standards in force in the country of origin of the design.</p> <p>In particular, in the case of the review of the spent fuel and high level waste dry storage facilities, the IAEA Safety Series 116, 117 and 118 (on design, operation and safety assessment, respectively) have been considered, as well as the 10 CFR 72 and the Nureg which contains the corresponding review standard plan has also been applied.</p>
49	Are there any measures planned to minimise radwaste generation from spent fuel processing? If spent fuel is processed outside of Spain then what provisions of intergovernmental agreements	<p>As of today, Spain is not processing (reprocessing) Spent Fuel.</p> <p>Some LWR fuel was reprocessed in UK under very old contracts with no return of wastes. In addition, Spent Fuel from Vandellos 1 NPP was sent to France for reprocessing until 1994.</p> <p>There is an intergovernmental agreement on the return of wastes which does not indicate minimisation conditions</p>



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	ensure measures for minimisation of radwaste during spent fuel processing? Are there any restrictions on the amounts of radwaste returned?	neither on limitation of amounts.
50	What are the main reasons (technical, technological, economic issues etc.) for delays in design and construction of deep geological facilities for disposal of high-level and long-lived radwaste (except for the indicated reason of radwaste return from spent fuel processing – 2010)?	<p>The delays were mainly due to the overall delays in the construction of deep geological facilities in other reference countries, as well as to the availability of proven interim solutions, which make unnecessary to take decisions in the short term.</p> <p>Although deep geological facilities are still considered for planning and economical calculations purposes, further investigation of the potential benefits of other technological solutions, such as partitioning and transmutation, which may alleviate the problem, will be strongly pursued.</p>
51	What measures (administrative, technical or technological) are taken or planned to minimise the generation and final amounts of high-level and long-lived radwaste?	Considering the Spent Fuel to be managed, there is no planned minimisation of wastes, nevertheless Spain has a modest R+D programme in Partitioning and Transmutation
52	The report states that the Spanish legislation establishes a sequential authorization process in which authorization is regulated specifically and that establishes the licensee's obligation to submit whatever safety analyses are specifically required of him. (15.4 P140.) And also it states that the El Cabril facility has an operating permit that will remain valid until such time as the volume available for LILW disposal in the existing cells has been completed, this having been granted by the Ministerial Order of October 5th 2001. (12.1 P125). Considering the sequential authorization of the El Cabril facility, what is the total capacity of the El Cabril facility? Was the capacity the same as the licensee applied for its construction permit in 1989 and provisional operating permit in 1992? What is the volume capacity of the existing cells granted in	<p>The storage capacity taken as a reference for both the construction permit and the initial provisional operating permit (1992) for the El Cabril facility corresponds to 35,000 m³ of conditioned low and intermediate level wastes. The reference capacity in the terms indicated has remained unchanged in the different renewals of the of the operating permits for the El Cabril facility and the forecast currently continues to be 35,000m³ of conditioned wastes, which may be stored in the 28 cells existing at the facility.</p> <p>The terms referred to in the October 2001 operating permit indicate that it will remain in force until such time as the licensee completes the capacity available in the 28 disposal cells, as a result of which the facility will not require any new permit until these circumstances arise.</p> <p>On the other hand this capacity will be increased in some 130.000 m³ when a new section for the disposal of VLLW would be licensed for operation (now under construction).</p>



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53	<p>2001, if not the same as the originally granted?</p> <p>What are the regulations or standards for the management of waste from decommissioning?</p>	<p>There is no specific regulation for wastes arising as a result of dismantling activities. The radioactive wastes generated during this phase are generally required to undergo similar management to those generated during the operating phase of the facilities. Article 30 of the Regulations on nuclear and radioactive facilities requires the submission of a Radioactive Waste Management Plan for the dismantling stage.</p> <p>The conditioning and management of a typical radioactive wastes generated during the dismantling of the facilities require specific authorisation. At present, a very low level radioactive wastes management facility for final disposal of this type of wastes within "El Cabril" site is in the process of authorisation, a repository that may undoubtedly be used in the management of a large volume of the wastes generated during dismantling</p>																		
54	<p>What are the criteria for decommissioning in the design stage of nuclear facilities?</p>	<p>Among the documentation to be approved for awarding of the construction permit for any new nuclear facility is included a description of the technological, economic and financing previsions for future dismantling and decommissioning. The facility design requirements referring specifically to dismantling have not yet been established.</p>																		
55	<p>How much LILW is generated annually in each NPPs?</p>	<p>In the next table are presented the quantities of waste packages (220 litter drums) of LILW generated in each of Spanish NPPs in 2005.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">NPP</th> <th style="text-align: center;">Packages</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">José Cabrera</td> <td style="text-align: center;">308</td> </tr> <tr> <td style="text-align: center;">Sta. M^a Garoña</td> <td style="text-align: center;">204</td> </tr> <tr> <td style="text-align: center;">Almaraz I y II</td> <td style="text-align: center;">356</td> </tr> <tr> <td style="text-align: center;">Ascó I y II</td> <td style="text-align: center;">311</td> </tr> <tr> <td style="text-align: center;">Cofrentes</td> <td style="text-align: center;">841</td> </tr> <tr> <td style="text-align: center;">Vandellós II</td> <td style="text-align: center;">230</td> </tr> <tr> <td style="text-align: center;">Trillo</td> <td style="text-align: center;">165</td> </tr> <tr> <td style="text-align: center;">TOTAL</td> <td style="text-align: center;">2415</td> </tr> </tbody> </table>	NPP	Packages	José Cabrera	308	Sta. M ^a Garoña	204	Almaraz I y II	356	Ascó I y II	311	Cofrentes	841	Vandellós II	230	Trillo	165	TOTAL	2415
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56	The report describes the main stages within the system of licensing of nuclear and radioactive facilities, e.g., preliminary or site authorization, construction permit, operating permit, and decommissioning permit, etc. How long usually does it take for each step?	<p>The duration of each step depends on the kind and complexity of the facility. The regulations do not provide for any time constrain, but the CSN's objective for the review process for each type of authorisation is the following:</p> <p>Site permit. One year Construction permit: three years Operating permit: three years for the issuance of a new operating permit and one year for the renewal of an existing operation permit. Decommissioning permit: two years.</p>
57	The report states that after the result of an incident involving the smelting of a radioactive source in a steelyard in 1998, the national authorities promoted the signing of the Protocol for collaboration in the radiological surveillance of metallic materials. What are the contents of the Protocol?. And what is the responsible government body for implementing the Protocol?	<p>On 2nd November 1999, the then Ministry of Industry and Energy (now the Ministry of Industry, Tourism and Commerce), the Ministry of Public Works, the Nuclear Safety Council (CSN), the Spanish radioactive waste management company (Empresa Nacional de Residuos Radiactivos - ENRESA), the Union of Iron and Steel Companies (UNESID) and the Spanish Recovery Federation (FER) signed the "Protocol for collaboration in the radiological surveillance of metallic materials". These were joined in 2000 by the Mining and Metal Federation of the trade union Comisiones Obreras and the State Metal, Construction and related activities Federation of the trade union Unión General de Trabajadores, and in 2002 by the Spanish Association of Aluminium Refiners, the National Union of Copper Industries and the Union of Lead Industries, and more recently, in November 2004, by the Spanish Federation of Smelting Associations.</p> <p>The Protocol constitutes the reference framework for the radiological surveillance of metals for recycling in Spain, and establishes a series of commitments and actions to be taken by each of the signatories, the aim being to guarantee the radiological surveillance of metallic materials and the management of radioactive wastes detected or that might be generated as a result of an accident.</p> <p>Adherence to the Protocol by a facility materialises through its entry into the register created for this purpose by the Ministry of Industry, Tourism and Commerce. Adherence is voluntary and free of charge and is formalised when the Ministry informs the interested party of its incorporation. The commitments of the parties to the Protocol are set down in its Technical Annex.</p>
58	You have indicated in your report that the State will be responsible for whatever surveillance might occur following the decommissioning of a nuclear or radioactive facility, once the period of time established in the corresponding Statement of Closure has elapsed. With respect to the	<p>1) The procedure to award the decommissioning permit includes an environmental assessment made by the Ministry of Environment (conventional risks) jointly with the Nuclear Safety Council (specific risks arising from ionising radiation). The "Statement of closure" is an administrative act made by the Ministry of Industry, Tourism and Commerce, after binding consultation with other competent authorities, stating the fulfilment of the decommissioning activities, as provided for in the official documents attached to the decommissioning permit, and, when necessary, establishing surveillance measures until full release from regulatory oversight of the site.</p>



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	<p>Statement of Closure;</p> <p>1) Does the Statement of Closure cover hazardous material as well as radioactive?</p> <p>2) If not, how does the regulatory body take into consideration the hazardous component of spent fuel or radioactive material?</p> <p>3) Are there specific radiological and hazardous criteria that must be met for a licensee to obtain a Statement of Closure?</p> <p>4) Is an outreach program a requirement for a Statement of Closure?</p>	<p>2) It doesn't apply.</p> <p>3) The release criteria are to be included in the site restoration plan, which is one of the official documents on which the aforementioned decommissioning permit is based.4) Public information and hearing is foreseen as part of the environmental assessment process that takes place before issuing of the Environmental Impact Statement. Information on the final situation in which the site is to be left following dismantling and prior to awarding of the Statement of Closure is also given.</p>
59	<p>The meaning of the title of this Annex (References to the Reports of International Examination Missions Performed on Request by a Contracting Party) is not very clear, and the text in the annex "None exist to date" make the reader wonder why it has been included in the National Report. Consider dropping, or explaining what is to be included in a future edition.</p>	<p>We tried to follow the standard format of the report provided for in INFCIRC/604. Paragraph 3.f) of it calls for reporting in annexes national and international peer reviews. Pursuant this requirement we included a void annex in the first national report and found logical to keep it in the second report. We plan to include again this section in the third report to report an IAEA integrated regulatory review mission to Spain to be carried out by the end of 2007, in which radioactive waste and spent fuel management regulatory matters will be within the scope of review.</p>
60	<p>The report states that a special case in relation to the orphan sources is their detection at facilities for the processing or recovery of metallic scrap. Please explain how the program for border protection, including radiation monitoring of exports precludes the inadvertent disposal of sources in shipments (e.g., scrap metal) that could result in the possible import by other countries and/or re-import of contaminated materials. Please</p>	<p>After an in-depth assessment of the risks associated to the presence of radioactive sources and materials in scrap metal, taking into account that metal scrap is shipped in bulk, which makes very difficult to design effective surveillance systems at every harbour (there are not land borders within the EU), it was concluded that the most effective strategy was to implement strong control procedures at origin and destiny, where appropriate radiological detection procedures and infrastructure to deal with detection cases can be easily installed (segregation, protection, search,...).</p> <p>To this end, an agreement was concluded with the concerned competent authorities and industry representatives to</p>



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	describe the program for border protection, including radiation monitoring at airports.	<p>implement a protocol for cooperation on radiological oversight of metallic materials. The protocol is in force since 1999, with excellent results.</p> <p>It should be noted that, at present, there is no Spanish radioactive sources manufacturing and that Spain is a net importer of metal scrap (only negligible amount of very specific products are transferred within the EU).</p> <p>On the other hand, the Nuclear Safety Council controls the companies involved in trading of radioactive materials pursuant the Spanish regulations, as well as the companies (operators) that make use of them.</p> <p>Finally, , in the specific case of Algeciras harbour, there is in place a cooperation agreement signed by the US Department of Energy and the Spanish competent authorities (Megaports Initiative) to implement radiological oversight of the goods passing through.. Similar cooperation frameworks could be extended to other significant Spanish harbours in the future.</p> <p>.</p> <p>Apart from that, no other specific and systematic radiological surveillance programme is being carried out for border protection.</p>
61	There is little discussion of “public participation” in the National Report. Please describe Spain’s policy and practices for allowing the public and interest groups to participate in decision making for nuclear activities.	<p>The Spanish nuclear legal framework provides a public information procedure before granting the site permit. This procedure must take place at the same time than the public information procedure envisaged in the environmental legislation as part of the environmental impact assessment. Within the 30-day time duration of the public information procedure the citizens may submit allegations on the proposal to the Government. Upon the expiry of the procedure, the Government will carry out all the pertinent verifications and will prepare a report, concerning both the information included in the application and the allegations submitted and the dossier will be sent to the Ministry of Industry, Tourism and Commerce and copied to the Nuclear Safety Council.</p> <p>Recently, Spain has ratified the Aarhus Convention and as a member of the European Union is obliged to follow a number of European Directives envisaging public participation in decision making.... In this regard, the Spanish Government is in the final stage to pass two bills to Parliament approval aiming to establish a national procedure to address the obligations stemming from the Convention and the European directives.</p>



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		<p>Furthermore, the Spanish Government is also close to pass a bill to the Parliament on the need to subject certain general plans to environmental impact assessment.</p> <p>Finally, the Spanish Parliament is now discussing a bill to review the law establishing the Nuclear Safety Council, which may address the subject of public participation in nuclear regulatory businesses.</p>
62	The Arbi and Argos experimental reactors are listed as decommissioned and dismantled. What was the disposition of their spent fuel?	The Spent Fuel was sent for reprocessing to UKAEA, Dounreay facility; some L&ILW are to be returned.
63	Spent fuel from the Vandellos I NPP was sent to France for reprocessing prior to 1983. This NPP ceased operation in 1989 and its fuel had to be reprocessed. What happened to spent fuel between 1983 and 1989? Was waste from reprocessing returned from France? Was reprocessing after 1989 done, and if so where?	All the spent fuel from the operation of Vandellos I has been sent to France (COGEMA) until 1994, when the plant was fully de-fuelled. Wastes from reprocessing have not yet been returned.
64	Spain's Sixth General Radioactive Waste Plan, expected to be approved in 2005, updates the strategy for managing waste. What is the current status of this Plan? Please provide additional detail on the temporary storage facility for HLW and SF, and whether the 2010 schedule is still valid. Is there an allowance for public participation in the schedule? If so, briefly describe.	<p>The draft Sixth General Radioactive Waste Plan submitted by ENRESA to the Ministry of Industry, Tourism and Commerce during second quarter of 2005 undergone a thorough revision process. The final draft was published at the Ministry web site for public comments from 15 March to 15 April. In addition, a number of interested parties, including Official institutions, operators, research establishments and environmentalist groups have been officially addressed (written public hearing) to express their views on the Plan.</p> <p>The comments received from the interested parties addressed in the procedure, as well as from the general public, will be assessed and a new final draft will be elaborated in order to be forwarded by the Minister to the Cabinet of Ministers for approval.</p> <p>The current schedule is that the Plan will be approved before summer, although some slippage may occur depending on the result of the public consultation process.</p> <p>The Plan maintains 2010 as the reference target for the operation of an interim storage facility for HLW and SF. In this regard, it must be taken into account that the pre-licensing activities of a generic design of CTS are well advanced, and a statement of the CSN on the general basis of such generic design is expected to be issued over year 2006. The Spanish Authorities are studying ways of public participation through municipality authorities,</p>



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		interested in having such a facility The public may also participate in the licensing procedure of the site finally chosen.
65	Spain's response to a question about the 2003 National Report stated a study by ENRESA would evaluate disposal criteria for sealed sources "between Co-60 and Cs-137". Please describe progress on this study since it is not mentioned in the Second National Report.	No significant progress has been achieved.
66	Section C mentions that "certain quantities of spent fuel have been sent abroad in the past for reprocessing, as a result of which the different products that are to be returned to the country shall be considered to be included in the scope of application." Please provide information on (a) the quantity of the spent fuel sent abroad and/or inventories of the resulting waste to be returned to Spain, (b) the estimated time frame for the return of this waste, and (c) the plans for management and eventual disposal of the returned waste.	<ul style="list-style-type: none"> a) LWR spent fuel: 154 tU with no waste return UNGG spent fuel: 1910 tU; as indicated in page 14 of the report, 13 m³ of HLW and 670m³ of ILW are to be returned. ARBI and ARGOS Reactors: 0.031 tU, 1,71m³ of L&ILW are to be returned b) The return of wastes should start by 2010 and last for 5 years c) For the time being, the intention is to store them in the centralised storage facility expected to be commissioned by that time
67	Could you please provide us with a list of references related to VLLW project at El Cabril, which are publicly available?	Management of very low activity radioactive waste in Spain. <i>P. Zuloaga</i> . IAEA, Proceedings of the International Symposium on Disposal of Low Level Radioactive Wastes, Cordoba 2004
68	In the subchapter 23.1 it is reported that activities relating to the management of spent fuel and radioactive waste at nuclear facilities themselves are included within the scope of the quality assurance programme applicable to the operation of these facilities. How often do you assess the quality assurance plans and perform inspections on implementing the quality assurance programmes related to the management of spent fuel and radioactive waste	<p>The Quality Assurance Programmes of the operating facilities are assessed when these facilities are authorised and whenever there are changes to the Quality Assurance Programmes.</p> <p>No inspections are carried out on specific facilities regarding quality assurance in spent fuel and waste management. Specialists in waste management perform periodic inspections (yearly and/or two-yearly) to verify compliance with the applicable procedures and regulatory requirements.</p>



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	at nuclear facilities?	
69	Have been requirements considering not only quality assurance but also quality management system or integrated management system already introduced in the Quality Assurance Programmes and corresponding Manuals?	The facilities normally have a nuclear Quality Assurance Programme Manual meeting the requirements of standard UNE 73-401, and a Quality Management Manual complying with ISO 9000. The nuclear power plants are currently developing documents contemplating the Integrated Safety Management System.
70	Could you briefly (as the concept) describe what are the corresponding actions in the CSN Emergency Action Plan when the radioactive waste management facility declares Category III (Site Emergency)?	<p>According to the Emergency Action Plan of CSN (PAE), the response in the CSN Emergency Room (Salem) to an emergency situation depends on the level of this emergency.</p> <p>When the radioactive waste management facility declares an emergency category I or II, the Salem, which is in permanent alert, passes from Level 0 to Level 1. This mean that the Emergency Operations Director (EOD) is activated and also a number of approximately 12 technicians (Stand-by team), who would be the first response from the CSN Emergency Response Organization (ERO). In this Level 1 the CSN would be in "Reduced Response" of the ERO.</p> <p>When the emergency evolves to an emergency category III, the Salem passes to Level 2. The Emergency Director (ED) is activated by EOD and also approximately 40 technicians to the ERO's four operating groups: the analysis operating group, the radiological protection group, the information and communication group and the coordination group. In this Level 2 the CSN would be in "Basic Response" of the ERO.</p> <p>Although in a nuclear emergency the Salem can goes to Level 3, this level it is not forecast for an emergency in the radioactive waste management facility.</p> <p>The radioactive waste management facility has several telephone lines which connect to the Salem. One of these lines for emergency communications has been provided by CSN to inform about the emergency to the Salem, but also to the Government authorities.</p> <p>As result of the following emergency evolution the ED keeps informed the Government authorities responsible for managing emergency crisis and, if necessary, recommend them protective actions for the public.</p>
71	Quality Assurance: Is the Spanish Quality Assurance programme in compliance with ISO standards?	<p>The Quality Assurance Programmes are in compliance with standard UNE 73-401 "Quality assurance at nuclear facilities", which is based on the IAEA Code 50 -C-QA and on Appendix B of 10CFR50</p> <p>The requirements of standard ISO9000 are also normally met.</p>
72	In the first National Report, a complete annex was devoted to "Uranium Mining and Milling Activities".	At the first national report review meeting, it was suggested integrating the mining activities in the corpus of the text and not in a separated annex. Following that suggestion, mining and milling activities have been now regarded as a



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	<p>In the second National Report this annex is skipped, whereas throughout the report only scattered remarks can be found about this topic. Are there at present no activities or plans in Spain concerning this issue?</p>	<p>part of the main text and also presented in tables as such.</p> <p>The reason for the conciseness of the report in this regard is that almost all mines and mills have already been decommissioned. Only Saelices el Chico facility has not been fully decommissioned yet (see para. D.5 and D.6 and Table 9 of the Spanish national report). At present there are no plans to sustain front-end fuel cycle activities in Spain.</p>
73	<p>Throughout the report, there is a lack of references to important documents and reports that are mentioned in the text.</p>	<p>The report was written using footnotes and appendix listing the applicable legal references. Notwithstanding, we take your comment on board and will include a references section in our next report.</p>