

**Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
Answers to Questions Posted by the Contracting Parties on the Argentina First National Report**

Q/C No.	JC Art.	Nat. Rep. Citation	Question/Comment ANSWER
ca-ar-05	--	--	<p>To what extent are financial guarantees required for long-term storage of spent fuel and radioactive waste, and for how long are they required to cover costs such as regulatory monitoring and possible remedial actions (not necessarily accidents)?</p> <p>ANSWER: The Strategic Plan for Radioactive Waste Management submitted to the Executive Power, foresees the integration of a Financial Fund by waste generators contribution. These resources cover all management stages until 2076 and include the costs of regulatory monitoring, but exclude funds for remedial actions.</p>
ca-ar-08	--	--	<p>The strategies for the storage of SF from CNE and CNA 1 seem to be different. Why has NASA chosen dry storage for fuel from CNE, but not from CNA 1, or the proposed CNA 2?</p> <p>ANSWER: CNE began the feasibility of a dry storage for spent fuel when it was clear that by 1993 the pool storage capacity would be exceeded. The Canadian experience was taken as reference, based on the fact that it would enable a well defined technical alternative, versatile availability and economically convenience due to its low maintenance costs. Regarding CNA I, in 1982 when it was necessary to enlarge the pool storage capacity, there was no alternative proposal to the one proposed by the designer (pools), considering the design characteristics of the SF, the building layout and the arrangement of the different inter-related systems. The same situation had to be dealt with in the design of CNA II. It is worthwhile noting that about 10 years ago, Siemens proposed a dry storage facility, but it did not reach commercial stage.</p> <p>It is important to note that due to its dimension, it was easy to design a dry storage system for CANDU SF.</p>
ca-ar-30	--	Section K	<p>Under “Activities Planned to Improve Safety” the sources of funding for PRAMU (<i>the Uranium Mining Environmental Restitution Project</i>) are the World Bank and the National Treasury (CNE’s Budget). What is the ratio between these two sources?</p> <p>ANSWER: The negotiations with the World Bank in relation to funding to the Uranium Mining Environmental Restitution Project has not yet concluded, therefore there is no information available about the funding sources ratio.</p>
ca-ar-31	--	Appendix	<p>From a technical perspective, is all of the waste rock unmineralized, or is some of it potentially acid generating or subject to producing leachates with elevated heavy metal concentrations? If so, how is this material to be managed?</p>

			ANSWER: Of all the sites of the PRAMU studied up to date, waste rock unmineralized were found in Los Gigantes and potential risk of acid leachates was not detected.
ca-ar-32	--	Appendix	<p>How are the environmental aspects of heavy metal, or other chemical contaminants present in tailings or waste rock regulated?</p> <p>ANSWER: Argentina has the National Law 24.585 – Environmental Legal Framework for Mining Activities. Additionally, in the framework of the present federal structure of our country, environmental aspects of heavy metal and other chemical contaminants are also considered in all provincial general environmental regulations related to protection of superficial and underground waters.</p>
no-ar-01	--	Several places	<p>Misprinting? It is not always clear what, \hat{a}/\tilde{a}, \hat{o}, \hat{i}, means.</p> <p>ANSWER: As was stated in the ERRATA sent to Contracting Parties where it says: \hat{a}/\tilde{a} <i>emitters</i> should read: β/γ <i>emitters</i> where it says: \hat{a} <i>emitters</i> should read: α <i>emitters</i> where it says: \hat{o} it should read: τ</p>
bg-ar-02	3,00	Section C	<p>Are there spent SIR used in the army (e.g. for technological purposes or calibration of dosimetry equipment) and, if any, are they subject to this convention?</p> <p>ANSWER: Argentina had not and has not a military/defense program involving any kind of nuclear material in any way. The only wastes originating from applications developed by military/defense related institutions are those arising from technological purposes like electronic tubes (sparks) containing Radium or Cesium used in radar, strips covered with Radium used in powder fabrication plants (at present not in use), lightning rods with Am 241, sources for instruments calibration, etc. Those wastes are subject to this Convention.</p>
ca-ar-13	3,00	Section C	<p>The program for restoration of former uranium mining and milling sites (PRAMU) is comprehensive and well described in Annex section M. Please explain why these wastes do not appear to be considered as Radioactive Waste subject to the Convention. If uranium production continues at a low rate, or is expanded in future, would the resulting wastes be considered subject to the Convention?</p> <p>ANSWER: The Scope of Application, Section C, p C-1 does establish that waste arising from uranium mining and milling are contemplated in the scope of this Convention. They were included in a separate section (M) because a topical meeting on this subject was supposed to take place during the Review Meeting, an option that was dropped later on during a preparatory meeting. Consequently, any waste arising from present or future mining and milling activities, are subject to the Convention.</p>

us-ar-01	3,00	Section C, p. 1	<p>Article 3 of the Joint Convention specifies that the Convention shall not apply to the safety of management of spent fuel or radioactive waste within military or defense programs, unless declared as spent fuel or radioactive waste for the purposes of the Convention by the Contracting Party. It further states that the Convention shall apply when such materials are transferred permanently to and managed within exclusively civilian programs. Under the report preparation guidelines, section C should contain a statement with declaration on military or defense waste. In the report from Argentina, there is no statement on spent fuel or waste from military or defence programs. Because the report has no statement, is it correct that no spent fuel or waste from military or defense programs is covered in the scope of the report? Is any spent fuel or waste transferred from military/defense programs permanently to and managed within exclusively civilian programs?</p> <p>ANSWER: Argentina had not and has not a military/defense program involving any kind of nuclear material in any way. The only wastes originating from applications developed by military/defense related institutions are those arising from technological purposes like electronic tubes (sparks) containing Radium or Cesium used in radar, strips covered with Radium used in powder fabrication plants (at present not in use), lightning rods with Am 241, sources for instruments calibration, etc.</p>
de-ar-01	3,20	Section C, p. C-1	<p>It does not become clear how NORM is treated in the context of the Joint Convention. How is the borderline drawn between nuclear waste and NORM?</p> <p>ANSWER: As it is stated in Section C of the Argentinean National Report: "This National Report is not applicable to naturally occurring radioactive material (NORM) present outside the fuel cycle."</p>
ch-ar-01	3,30	C, p. C-1	<p>The Report does not refer to any waste originating from military applications. Is there any waste from defense programs in Argentina? If yes, are there any plans to transfer this waste into the civilian program?</p> <p>ANSWER: Argentina had not and has not a military/defense program involving any kind of nuclear material in any way. The only wastes originating from applications developed by military/defense related institutions are those arising from technological purposes like electronic tubes (sparks) containing Radium or Cesium used in radar, strips covered with Radium used in powder fabrication plants (at present not in use), lightning rods with Am 241, sources for instruments calibration, etc. Those wastes are transferred to the Radioactive Waste Management National Program.</p>
us-ar-10	3,30	Section J, Subsection 7, p. 4	<p>Section J.7, "Readmission to the Country of Sealed Decayed Sources," states the import of decayed radioactive sources is authorized only if their use is properly justified. What criteria are applied to determine if the receipt of disused sources is properly justified? Are all sources exported by Argentinean manufacturers or suppliers allowed re-entry for return to the manufacturer or supplier when they become disused, even if the sources can no longer be used for their intended purpose?</p>

			<p>ANSWER: Argentina exports radioactive sources, and the Regulatory Body explicitly approves their export, following procedures established in concordance with the Code of Conduct on the Safety and the Security of radioactive Sources (IAEA). Regarding the re-entry of such sources, the National Constitution, prohibits the import of radioactive waste, consequently, it is not permitted the import of radioactive material for which there is not foreseen any further application or any use as raw material in the country. According to such legal constrains, decayed sources might be authorised to re-enter only if the ARN verifies that their use is properly justified within an authorised practice in our country, (e.g. fabrication of new sources for industrial uses).</p>
hu-ar-03	4,00	G.1, p. G-1	<p>Are there any requirements for the fuel suppliers concerning the SF management?</p> <p>ANSWER : The Company that supplies the fuel elements complies with the design requirements making an exhaustive quality control of said elements during the manufacturing stage. Also, NASA's inspectors at the plant perform periodical controls of the quality of the manufacturing stages and the transport of fuel elements. The objective is to keep, under operating conditions, the integrity of the cladding of the rod that forms the SF to avoid the release of fission products when they are in the reactor. Defective fuel elements remain in an area of the storage pool apart from the other spent fuel and CANDU type fuel is encapsulated as dry storage is not permitted for this type of fuel.</p>
hu-ar-04	4,00	G.1, p. G-1	<p>Do the pools provide possibility for SF removal in emergency?</p> <p>ANSWER: In Atucha I NPP a PSA has been done for SFM and RWM systems, which include the pools for the storage of spent fuel. The study shows that the probability of occurrence of accidents in these sources, that imply radioactive material dispersion to the environment, is negligible. In CNE, similar study is under way.</p>
us-ar-02	4,00	Section G, Subsection 1.4, p. 2	<p>Please provide information on how the results from monitoring are used. For example, are corrective actions prescribed as a result of the monitoring program?</p> <p>ANSWER: Monitoring is performed by the Responsible Organization, as it is requested by ARN, with the aim of controlling that effluent discharges comply with the requirements of the Operation License. The Regulatory Authority conducts independent verifications of discharges and performs environmental monitoring in the proximity of the installations. The results of the monitoring program allow the verification of the fulfillment of established requirements. In case of non- fulfillment, corrective actions are requested by ARN.</p>
au-ar-01	5,00	G2.2.4	<p>With regard to the research reactor spent fuel, is it the intention to send any more spent fuel elements to the US under the Foreign Research Reactor Spent Nuclear Fuel Acceptance Program?</p> <p>ANSWER: Yes. As a general policy, Argentina has the intention to return all the Spent Fuel originating in Research Reactors, to the country of origin, particularly the HEU nuclear material.</p>

bg-ar-04	5,00	Section G, subsection G.2.2.4	<p>It is mentioned in subsection G.2.2.4 that the main part of the generated SF from the research reactors is of MTR type. What other type of SF from research reactors is stored on the DCMFEI site?</p> <p>ANSWER: In the AGE there is a storage area also corresponding to DCMFEI in which 232 LEU fuel rods are stored. These SF belong to the core of the research reactor RA 1.</p>
de-ar-02	5,00	Section G.2, p. G-4	<p>When adding a new building to an existing site some years later why is it not constructed appropriate to the actual design basis (the lay out of P II set up 8 years later as P I is the same as P I)?</p> <p>ANSWER: The Regulatory Authority assessed the design of the new pool house (designed and built by the Atucha I NPP designer) and it satisfied the regulatory requirements in force.</p>
no-ar-02	5,00	p. G-8	<p>The use of potassium permanganate solution inside the tubes. Can you please explain in some more detail about this practice.</p> <p>ANSWER: The stored SF has aluminium cladding. The referred compound was added to produce a passive (or inactive) oxide coating to avoid further corrosion.</p>
de-ar-03	6,10	Section G, p. G-8	<p>How is the public or how are neighboring countries involved in the process of siting of proposed facilities?</p> <p>ANSWER: Although neighboring countries are not legally involved in the process of siting facilities, when a feasibility study about a project for disposal of high level waste was conducted in the eighties (proposed location was 200 km in straight line from the Chilean border) Chile asked about the project and explanation about it was given. In the case of public, the siting of new disposal facilities, a public communications campaign will accompany the search for a possible emplacement, taking into account favorable geological, social and economic conditions. For the site where the local community will have accepted the emplacement of the disposal facility, public hearings to inform them about the future siting of a project for the final disposal of waste. The political decision will be achieved by sanctioning a provincial Law.</p>
ch-ar-05	6,13	G.3.4, p. G-10/11	<p>Article 6.1 of the Convention requires that information on the safety of a proposed facility should be made available to the public, and that Contracting Parties in the vicinity of the facility should be consulted. These items seem not to be addressed in the Argentinian report.</p> <p>ANSWER: Regarding proposed radioactive waste management and spent fuel management facilities, it is foreseen to implement a social communication program that will be carried out to inform society clearly and objectively in order to build a favorable social atmosphere towards the decision making process. For the site where the local community will have accepted the emplacement of the disposal facility, through process of public hearings, is intended to achieve a political decision by sanctioning a provincial Law.</p>

			Regarding neighboring countries, at present they are not legally involved in the process of siting facilities. Nevertheless, when a feasibility study about a project for disposal of high level waste was conducted in the eighties (proposed location was 200 km in straight line from the Chilean border) Chile asked about the project and explanation about it was given.
ca-ar-24	7,00	Section G, p. G-18	<p>Section G.4.3 discusses compliance with regulatory standards and states that CNA 1, CNE and AGE do not all comply with standards issued after their construction. Although large parts of standards have been satisfied and compliance with the rest of them is being accomplished, have the facilities been given a target date by which they must be in compliance with all updated standards?</p> <p>ANSWER: ARN requested NASA to perform a PSA of RWM and SFM systems to verify their compliance with the updated standards. Regarding the targets, requested dates are under proper fulfillment. The situation for each case is as follow:</p> <p>CNA I: In the safety assessment of the waste management systems (PSA 904 - PSA 903 and PSA 909) and safety assessment of the spent fuel management system (PSA 911), it was verified the adequate performance in relation to the safety conditions established in the Mandatory Documentation of these different systems, concluding that there was not reasons to introduce any modification.</p> <p>CNE: At present the safety assessment of waste and spent fuel management systems is carried out and it will be completed by the end of the present year. According to its conclusions, target date for the eventual necessary modifications will be determined.</p> <p>In relation to AGE facilities, a safety re-assessment of the complete AGE is underway. The results and the evaluation of these studies will define the actions to take and a target date to comply with it.</p>
hu-ar-05	7,00	G.4, p. G-15	<p>What are the planned lifetimes for interim storage facilities? When do they expire?</p> <p>ANSWER: Planned lifetimes for interim dry storage facilities of spent fuel elements are of 50 years. Storage pools for spent fuel elements were designed for the useful life of the plant. In order to continue using them as temporary storage after the withdrawal from service of the facility, the organization responsible for this task (CNEA) is assessing the useful life of the pools to determine the need or not of an interim dry storage of fuel as in CNA I.</p>
bg-ar-05	8,00	Section G, subsection G.5.5.2	<p>Has a safety analysis been performed during the implementation of the project for increasing capacity of the storage facility, described in subsection G.5.5.2, for SF from research reactors on the DCMFEI site?</p> <p>ANSWER: Yes. The Regulatory Authority performed at that time the respective safety assessment. The safety issues that were considered, among others, are criticality, shielding, removal of residual heat, quality of water in deposits.</p>
de-ar-04	8,00	Section G / Section	<p>The existing storage facilities for spent fuel and radioactive wastes were constructed and assessed according to the respective state of the art. What criteria are applied to the safety assessment and EIA for future facilities? For which existing facilities are there re-assessments?</p>

		H	<p>ANSWER: Sections G and H of our National Report describe in detail the safety assessment criteria that will be applied for the licensing process of future facilities. The radiological impact of such facilities in the general public is assessed comparing the results of dose calculations with the corresponding dose constraint of such facility. The dose calculations are based, within several factors, on the pathways of radionuclides in the environment (See F.4.4. of our National Report).</p> <p>Other conventional EIA are part of the requirements established by local governmental authorities not related to radiological safety, as mentioned in G.1.5 of our National Report.</p> <p>As part of a continuous improvement criterion, ARN requires that Safety re-assessments of nuclear installations, included storage facilities, be performed, according to the operating experience feedback. This should be done after changes in the systems or processes relevant to safety or after the detection of safety issues during regulatory inspections or any time a site re-assessment is needed (Ref. G.3.6 and G.5.5.2 of our National Report).</p> <p>The characteristics of a site which may potentially affect safety may require re-assessments during the useful life of the plant on account of new data or changes in criteria and methods arising from breakthroughs in recognized practices and state-of-the-art evolution in respect of siting studies. At both nuclear power plants, reassessments of the site in connection with most significant external events were made.</p> <p>In the case of CNA I the hydrological characteristics of the site and in the case of CNE the seismic risk were specifically reassessed after the construction of said plants.</p> <p>In the case of Atucha, the impact due to a possible failure of the dam upstream the Paraná de las Palmas river was assessed. As a result, the maximum flood level provided was modified and some modifications were made to CNA II cooling water inlet. The seismic risk of this site was also assessed, and changes were introduced to the original design in order to satisfy the new seismic loads.</p> <p>In the case of CNE, the reassessment of the seismic risk also resulted in a higher seismic load due to the severe earthquake level and, as result of the structural response analysis, various changes were introduced in the security system and associated components before commissioning of the power plant but after the construction was completed.</p> <p>As the facilities assigned to spent fuel and radioactive waste management are an integral part of the nuclear power plant, said reassessment also involves said facilities.</p> <p>At present, the only existing facility in CNEA designed and constructed as centralized storage for research reactors SF is the DCMFEI, emplaced in AGE. In order to improve the storage conditions of the SF, it is intended to replace this storage facility by a new pool-type one until the definitive dry storage is designed.</p>
de-ar-05	8,00	Section G / Section H	<p>Have improvement measures been carried out in existing facilities in order to adapt them to the current state of the art and science? If so, which?</p> <p>ANSWER: With the only exemption of the DCMFEI emplaced at AGE (the centralized storage of research reactor SF, see our National Report, section G.6.5 and section K.2.2) and the low level radioactive liquid waste original</p>

			<p>immobilization plant at CNA I (see our National Report, section K.2.1.1.), the remainder of the RWM and SFM installations has not required improvement measures to adapt them to the current state-of-the-art and science.</p> <p>In order to improve the storage conditions of the SF in DCMFEI, it is intended to replace this storage facility by a new pool-type one until the definitive dry storage is designed.</p> <p>Besides, at the moment CNEA is performing the reassessment of the AGE site hydro-geological parameters. Those facilities which have ceased operating are included in the reassessment process of the AGE, as it is mentioned in Section G page G-29, Section H, page H-8 and Section K, page K-4.</p>
hu-ar-06	8,00	G.5, p. G-19	<p>Are there any on site inspections carried out by the Regulatory Body or by other independent organizations?</p> <p>ANSWER: As it is specified in our National Report, point G.5.1, all inspections related with radiological and nuclear safety in Argentina are carried out by ARN. They include on site inspections and off-site monitoring of RWM facilities.</p>
hu-ar-07	8,00	G.5, p. G-19	<p>Are there any periodical tests for the hermeticity of SF or/and their containers?</p> <p>ANSWER: Leak-tightness of SF containers, which are later stored in silos, is ensured by quality controls of the silos welding process. Qualified procedures are followed in the welding process. The operator of the welding equipment has undergone special training and achieved a qualification that is periodically validated following the indications of the procedure. An independent welding inspector attends the process, check and review the records and approves the welding of each canister.</p> <p>The final closing of each silo is authorized with a Deficiency Report when it has been completed with nine canisters. The welding of the seal is made by an skilled welder who follows the applicable procedure. Later, the welding is subject to non-destructive tests and it is adequately protected. Up to the moment no anomalies have been detected in the results of the welding of canisters and silos. Notwithstanding the above stated, periodically a sample of the air in the silo is taken with a designed device, aerosols and noble gases monitor, in order to assess escape of radionuclides from the container to the interior of the silo.</p>
hu-ar-08	8,00	G.5, p. G-19	<p>Are there any measures against aeroplane crashes?</p> <p>ANSWER: The results of the assessment of external events for the NPP's in Argentina, considering the risk of accident airplane crashes, provided some recommendations to air traffic:</p> <ul style="list-style-type: none"> - In the case of CNE there are no civil air corridors in the area of the plant, therefore, no big commercial airplanes fly over the area. About 3 Km from the Plant there is a military airfield mainly for airplanes used for training, but the NPP is located in an area where flights are prohibited. - In the case of the Atucha site, the area is not within civil air corridors. The air paths for leaving or landing at the Buenos Aires airport (100 km from Atucha) are about 45 km far from the NPP.

hu-ar-09	8,00	G.5, p. G-19	<p>Were there any international inspections conducted on SF safety management? What are the main results?</p> <p>ANSWER: The Responsible Organization has implemented external technical audits as for example the Peer Review performed by the World Association of Nuclear Operators at both nuclear plants, IPERS mission to CNA I and OSART mission by IAEA to Embalse Nuclear Power Plant. Said missions have conducted the inspection of the facilities, including the spent fuel management.</p>
au-ar-02	9,00	G6.5	<p>How is research reactor fuel tested in storage to ensure that it is maintained in good condition?</p> <p>ANSWER: Water control is applied, as well as continuous corrosion monitoring by applying aluminum coupons, isolated and coupled to stainless steel coupons. Regarding to water control and follow up, samples taken periodically are analyzed both chemically and radiochemically.</p>
us-ar-03	9,07	Section G	<p>Article 9 (vii) of the Joint Convention requires the Contracting Party to take appropriate steps to ensure that decommissioning plans for spent fuel management facility are prepared and updated, as necessary, using information obtained during the operating lifetime of that facility, and are reviewed by the regulatory body. What general steps has Argentina taken to meet this requirement?</p> <p>ANSWER: Since several years ago, decommissioning plans are one of the requirements included in the license of operation for Type I radioactive installations. These plans shall be presented well before the end of the useful life of the installation. More recently, in the case of nuclear installations, the preliminary decommissioning plan is also required when their license of operation is renewed.</p>
ca-ar-26	10,00	Section G, p. G-41	<p>Section G.7 states that the year 2030 is the final date to assess and decide on the policy for reprocessing. Is there sufficient temporary storage available for the projected operation of the reactors until then? (Taking into account design and construction of a facility required for either reprocessing or disposal.)</p> <p>ANSWER: The existing temporary storage capacity to date has been taken into account, as well as the construction of a dry storage for the CNA I and the enlargement of the dry storage capacity of CNE.</p>
ca-ar-12	11,00	Section C	<p>This section lists mining and milling of uranium as a source of radioactive waste. However, throughout the main section of the report, tailings management is not discussed. In the inventory section (L.4), the tailings inventory is also not listed. Section M (The Restoration of Mining and Milling Uranium Waste Sites) discusses the environmental assessments that have been performed for the tailings sites. Please discuss the waste management of the tailings sites in the context of Convention Articles 11-17. The statement is also made that SF reprocessing is not included in the Radioactive Waste Management activities. If reprocessing becomes an option in Argentina, will it be included in the scope of application for the Convention?</p>

			<p>ANSWER: As is mentioned in the answer to the question ca-ar-13, the uranium mining and milling wastes in Argentina are subject to this Joint Convention.</p> <p>Tailings inventories are in Table 1 – “The PRAMU sites: wastes quantities, current status and restoration plans” (page M-11), under the paragraph “THE PRAMU PROJECT (PHASES I AND II)” of the separate body SECTION M.</p> <p>All the uranium mining and milling facilities, including tailing sites, are under the regulatory control since the beginning of their operations. These facilities, including the tailing sites, are under the responsibility of the operating organisation, which performs the radiological monitoring of the sites and maintains the physical control of the places. The ARN performs periodic inspections and assessments in order to verify the fulfilment of the safety criteria inside the installations and performs environmental monitoring in their immediate nearby.</p> <p>The Regulatory Authority had already approved the management and restitution for the closure of the more recently authorised uranium mining facilities, and Section M of our National Report describes the situation of the previous ones. The waste management of the tailings are discussed in an attached document herewith, not included in this table due to its length.</p> <p>Regarding wastes arising from reprocessing, in the Scope of Application, Section C, p. C-1, is clearly established that up to now there are no reprocessing plants operating in Argentina. Therefore it is not possible to define right now the future inclusion of this matter in the scope of the Convention. Section G.7 indicates 2030 as a deadline to adopt a decision regarding the back-end of SF. Consequently, these wastes have not been considered.</p>
ca-ar-23	11,00	Section G, p. G-3	<p>Are there any specific criteria associated with the “safety rights” of future generations in Article 1 of Law 25018? (p.G-3)</p> <p>ANSWER: As it is presented in our National Report, “Paragraph 32, of Regulatory Standard AR 10.12.1, Radioactive Waste Management, sets forth the radiological protection criteria for future generations, that is, that the estimated doses shall not exceed the dose constraints established at the beginning of the isolation period.”</p>
de-ar-06	11,00	Section H.1, pp. H-1, H-2	<p>Are chemical and biological hazards and heat generation part of your safety requirements?</p> <p>ANSWER: Chemical and biological hazards and heat generation are considered when they have an incidence on the radiation safety of the project, in particular on the mobility of radionuclides. In this line of reasoning, Regulatory Standard AR-10.12.1 makes reference to the safety assessment of disposal facilities, requiring that both normal and disruptive scenarios shall be considered (criteria 30 to 33). In defining these scenarios, not only chemical, biological or heat generation hazards should be considered, but also, any other features, events or processes that could impair the safety of the repository.</p>
fr-ar-04	11,00	Section H.1.1, p.	<p>It is said that segregation of waste needs some exclusion of non-radioactive waste. Could Argentina provide the applied exemption criteria, corresponding quantities and related procedures?</p>

		H-3	<p>ANSWER: The criteria applied for the clearance of radioactive waste is derived from the exemption criteria, defined in the Regulatory Standard AR 10.1.1, “Basic Radiation Protection Standard”, as it is presented on page B-4 of the National Report.</p> <p>The management method of the waste for clearance is defined by specific procedures of each installation.</p>
ca-ar-28	12,00	Section H, p. H-7	<p>Section H.2.2 states that radioactive wastes generated outside the province of Buenos Aires do not enter into AGE. What do hospitals or small radioactive waste producers (beside CNE) do with their radioactive wastes?</p> <p>ANSWER: Hospital and Nuclear Medicine centres can allow the decay of their radioactive waste until they can be released from regulatory control. Research centres or other small radioactive waste producers (besides CNE) may dispose of their wastes, excluding spent sealed sources, taking into account that the impact of the disposal of those waste produced by research centres in Argentina does not exceed in the critical group the doses set for exemption of practices, even though they were managed as conventional waste.</p>
ca-ar-29	12,00	Section H, pp. H-9, H-10	<p>Do the <i>historic wastes</i> mentioned in sections H.2.2.1.2 and H.2.2.1.4 follow the same safety and monitoring requirements as wastes that were generated under current operating licenses?</p> <p>ANSWER: Yes. <i>Historic wastes</i> are those that were disposed according to criteria different from those considered in the present regulatory framework. Nevertheless, those wastes are emplaced in facilities located within the AGE, which are subject to the same safety requirements and the same Monitoring Plan established by the present License of Operation.</p>
fr-ar-05	12,00	Section H 2.2.1.2, p. H-9	<p>Could Argentina provide information on the environmental monitoring procedures applied to the "historic wastes" stored in “non-lined” trenches. Could Argentina provide information on the corresponding institutional and technical management plans?</p> <p>ANSWER: Historic wastes are disposed in facilities emplaced in AGE. Therefore, these facilities are subject to the same monitoring plan than the licensed ones. The monitoring procedure consists of a periodical (monthly) sampling of underground water under the trench, at 4 m depth, by means of piezometers around the facility. The samples are analyzed in order to detect possible contaminants. Uranium, tritium and fission products are particularly determined.</p>
fr-ar-06	12,00	Section H.2.2.1.3, p. H-9 and H-10	<p>Could Argentina provide information on the results of the safety re-evaluation of the “liquid sorbed” solution storage and corresponding follow-up actions?</p> <p>ANSWER: At present, a safety re-evaluation of AGE is being carried out. One of the installations under study is the Low Level Liquid Waste Disposal System. Systematic sampling around the Disposal System and in the direction of the water table, has never showed any activity</p>

			<p>over the detection limit. Although this water is not used for human consumption due to its high bacterial contamination, the measurement detection limits are quite below the established limits for drinking water.</p>
fr-ar-07	12,00	Section H.2.2.2.1 , p. H-11	<p>Could Argentina provide detailed figures on quantities and activity of the mentioned "Liquid wastes" that are immobilized on appropriate absorbers?</p> <p>ANSWER: In the <i>Near Surface Disposal System for Low Level and very Short Lived Liquid Radioactive Waste</i> It has been considered the total activity contained in the liquid but not its volume, due to the characteristics of the system which retain only the radioactive material. The total activities for each relevant nuclides are listed in Table L.5.1.5 (p. L.9) under the lines named SSRRL1, 2 and 3. During 2002 a series of important changes in the procedures and in the production process have been introduced in the Radioisotopes Production Plant (PPR) so that the volume and the contaminants in the low level liquid waste stream have been reduced substantially.</p>
au-ar-03	13,00	H	<p>What have been the key factors in obtaining public acceptance of the plans for nuclear waste disposal?</p> <p>ANSWER: Regarding the existing final disposal of low activity waste facilities emplaced in AGE, they were constructed during the 70's and for that time, the siting process did not required public acceptance. Regarding future final disposal facilities, a social communications program that will be carried out to inform society clearly and objectively in order to build a favorable social atmosphere towards the decision taking process.</p>
ca-ar-06	13,00	--	<p>Please explain the public consultation process prior to making decisions related to waste disposal sites, and how the results of this process are factored into those decisions.</p> <p>ANSWER: As part of the Strategic Plan, a social communications program will be implemented comprising permanent information activities for all sectors of society and specific support actions for each one of the technical projects mentioned in the Plan. The program will provide clear and objective information to enable the population to know the scope of the proposed plans, as well as the benefits they will receive according to what has been mentioned in the Strategic Plan (PEGRR), Chapter VIII. The Law also foresees the application of the Public Consultation Mechanism (Public Hearings) as part of the decision making process for the emplacement of final radioactive waste disposal facilities. In order to achieve this objective, the Strategic Plan foresees the development and application of an information and public participation methodology towards a genuine decision making process. The tools to be used to achieve the established objectives are: - Information by mass media about the technological developments associated to the Radioactive Waste Management</p>

			<p>National Program.</p> <ul style="list-style-type: none"> - Frequent stands, exhibitions and lectures about the activities that generate radioactive waste in the country. - Information and discussion forums about this subject for all education levels. - Advising to governmental and non governmental organizations in relation with the different aspects of the Strategic Plan. - Diffusion activities for entrepreneurial sectors, professional societies, neighborhood associations, etc. - Workshops in the involved communities and public hearings.
de-ar-07	13,00	pp. H-3 ff.	<p>What measures are taken to ensure that information on the safety of a proposed facility is made available to the public?</p> <p>ANSWER; A public communicating campaign will accompany for a possible emplacement of a proposed facility. The sites will be selected taking into account favorable geological, social and economic conditions. For the site where the local community will have accepted the emplacement of the facility through a process of public hearings, is intended to achieve a political decision by sanctioning a provincial law.</p>
ch-ar-06	13,13	H.3, p. H-18	<p>Our comment ch-ar-5 on Article 6.1 applies equally to Article 13.1.</p> <p>ANSWER: Is valid the same answer given in question ch-ar-05</p>
de-ar-08	13,20	Section H, p. H-18	<p>Section G does not describe the closure of a disposal facility. Are there consequences from this aspect? What provisions for the closure of a disposal facility are in place?</p> <p>ANSWER: At present, the only closed radioactive waste disposal facility is located in AGE. As all other facilities emplaced in AGE, this disposal system is permanently monitored. Since it is the first one of a set of facilities that will be closed, it will be subject to longer institutional control period. The results of the permanent monitoring control will enable to have a better knowledge about the performance of these disposal systems in order to apply these results in the safety re-evaluation that is being underway at present in AGE.</p> <p>For the other facilities located in AGE, actions will be taken according to what has been established in Section H, p. H-19 of the National Report.</p>
de-ar-09	14,02	Section G.4, pp. G-15, G-16	<p>Which are the conceptual plans and technical provisions taken into account at the design stage for the decommissioning of radioactive waste management facilities?</p> <p>ANSWER: The RWM facilities in Argentina are 20 to 30-year-old installations. The state-of-the-art of the design of this type of installations at that time had no recommendations on technical provisions for decommissioning in its design phase.</p> <p>Furthermore, since several years ago, decommissioning plans are one of the requirements included in the license of operation for Class I radioactive installations. These plans shall be presented well before the end of the useful life of the</p>

			<p>installation. More recently, in the case of nuclear installations, the preliminary decommissioning plan is also required when their license of operation is renewed.</p>
ca-ar-25	16,00	Section G	<p>In the paragraph discussing feedback from operative experience (G.6.6.2), please explain why there is no mention of COG (CANDU Owners Group) or of the OPEX program(Operating Experience). Please also explain how feedback of operating experience is acted upon, and corrective measures evaluated.</p> <p>ANSWER: At the moment both nuclear plants receive information from the following data bases:</p> <ul style="list-style-type: none"> - Candu Owners Group (COG). - World Association of Nuclear Operators (WANO). - IAEA International Reporting System (IRS). <p>The Responsible Entity has organized a work group to review the information received from other facilities, select the events applicable to each plant, exchange experiences between plants, examine the causes that originated them, implement corrective actions, that is, to draw all possible conclusions from international operative experience.</p>
ca-ar-07	16,08	--	<p>The report does not seem to mention requirements pertaining to decommissioning plans for facilities currently in operation. Does ARN require decommissioning plans during the licensing stages, or only when the facility is ready to be shut down?</p> <p>ANSWER: Since several years ago, decommissioning plans are one of the requirements included in the license of operation for Class I radioactive installations. These plans shall be presented well before the end of the useful life of the installation. More recently, in the case of nuclear installations, the preliminary decommissioning plan is also required when their license of operation is renewed.</p>
ca-ar-27	17,00	Section H, p. H-7	<p>Argentina reports an active institutional control period of 50 years after closure of the radioactive waste disposal facility, then release of land for unrestricted use. Please explain the rationale for selecting 50 years.</p> <p>ANSWER: The Operation License for the final disposal facilities of low level solid radioactive waste allows to dispose in them wastes that contain mainly 5 years half-life radionuclides and with such an activity concentration that after an isolation period equivalent to 50 years (ten half-lives for the principal radionuclides), the involved doses will represent doses be at the time of release equal to those accepted today for unrestricted use of the land.</p>
us-ar-04	17,02	Section H, Subsectio	<p>Section H states following an active institutional control period of 50 years, the disposal site is released for unrestricted use. For radionuclides having longer half-lives, what prevents subsequent misuse and public exposure to the remaining radiological and non radiological hazards?</p>

		n 7, p. 19	<p>ANSWER: The Operation License for these facilities limits the inventory for the disposition of material containing radionuclides of longer than 5 years half-lives, so that the involved doses will not represent unacceptable risks at the time of release of land for unrestricted use.</p>
ca-ar-15	19,00	Section E, p. E-2	<p>Does ARN regulate the safety of the environment from nuclear facilities? (Section E states: "The ARN...is responsible...for the regulation and supervision of nuclear activities in all matters related to nuclear and radiological safety, physical protection and control of the use of nuclear materials, licensing and surveillance of nuclear facilities and international safeguards.")</p> <p>ANSWER: ARN regulates the radiological safety of nuclear installations according to the Law N° 24804, "National Law of Nuclear Activities". Within the radiological safety field, the environment is one of the protected areas.</p>
ca-ar-16	19,00	Section E, p. E-11	<p>Section E.2.3.4 states that ARN regulatory actions may originate from the knowledge of abnormal events that have occurred either at the installation or at a similar installation. How is the ARN informed about abnormal events? Do licensees have a specific timeline and method for reporting abnormal events?</p> <p>ANSWER: The ARN has established, as a general criterion in the Basic Radiation Protection Standard, the communication of abnormal events by the licensee. Besides, specific requirements are included in the Operation License, which usually request the immediate communication of abnormal events. Furthermore, in the case of events that have or would have significantly affected the radiological safety of the facility, an investigation is requested, whose results shall be reported within 30 days after occurrence of the event.</p>
ca-ar-10	19,10	--	<p>The report refers to the RWMRO (Radioactive Waste Management Responsible Organization) as well as CNEA, as the operator of AGE. What is the difference between RWMRO and CNEA?</p> <p>ANSWER: The National Report on page E-3 says: "Law N° 25018, enacted on 23 September 1998, lays down CNEA's responsibilities, as Responsible Organization for Radioactive Waste Management (RWMRO)." Therefore, RWMRO is CNEA.</p>
fr-ar-01	19,20	Section E.2.3.2, p. E-8	<p>Could Argentina provide information on the licensing process related to liquid or gaseous releases?</p> <p>ANSWER: The discharge of effluents itself do not has a specific license. The restrictions imposed on the discharge of radioactive effluents are established in the operating license of each nuclear installation. The licensing process of nuclear installations is presented in the National Report, Section E.2.3.2.</p>
fr-ar-02	19,20	Section E.2.3.2, p. E-9	<p>Could Argentina provide information on the licensing process related to dismantling activities (content of the documents, reviews, authorizations), description of illustrating examples of implementation should be useful.</p>

			<p>ANSWER: The National Law for Nuclear Activity establishes, in Article 16 (b) that the Nuclear Regulatory Authority has the faculty for granting decommissioning licenses for nuclear power plants. Furthermore, the Regulatory Standard AR-0.0.1 establishes that a licence issued by the Regulatory Authority is required for each stage of an installation Type I life cycle: construction, commissioning, operation and decommissioning. Besides, the Regulatory Standard AR-3.17.1, “Dismantling of Nuclear Power Plants”, is applicable, with the proper grading, to other nuclear installations. To obtain the decommissioning licenses, the Responsible Organization shall present for the approval of the Regulatory Authority a dismantling program. The dismantling process shall consider aspects such as:</p> <ol style="list-style-type: none"> a) Project management b) Site management c) Responsibilities and roles of the organizations involved d) Radiological Protection e) Quality assurance f) Radioactive Waste Management g) Report of monitoring results at completion of each stage of the program h) Physical Protection i) Report on the fulfilment of International Agreements on safeguards <p>Up to now, formal actions haven’t been taken because it is not foreseen any nuclear installation dismantling during the next decade.</p>
fr-ar-03	19,20	Section E.2.3.3, p. E-10	<p>Could Argentina provide information about typical topics, procedures, statistics and main lessons learned from the past audits and inspections?</p> <p>ANSWER: The typical topics in inspections are the verification of the fulfilment of the requirements of the License of Operation. Some topics are listed below.</p> <ul style="list-style-type: none"> - Licences of personnel responsible of operations - Radiological surveillance - Surveillance of discharge of effluents or disposal of RW - Compliment with Code of practices - Monitoring Programme - Communications to ARN <p>The inspection procedures, according to our performance based standards, are not prescriptive, and are aimed at verifying the fulfilment of high level of safety at the facilities.</p> <p>Even though the licensed staffs operating the RWM facilities is highly skilled, one of the most important lessons is the necessity to warrant the maintenance of their safety culture and the appropriate training/re-training of the personnel responsible of operations. Furthermore, the appropriate attitude of the responsible organisations toward that culture has to be monitored.</p>

ca-ar-09	19,24	--	<p>Please discuss the frequency of inspections by the ARN of waste facilities in Argentina, as well as possible actions available to inspectors for non-compliance.</p> <p>ANSWER: The SFM and RWM facilities at NPP's are inspected by the resident inspectors at the plant, following a programme of routinely inspections of all the activities of the facility that are related with its safety conditions. In the case of RWM facilities at CAE (see in our National Report, section H.2.2) the frequency of inspections is four in one year, in normal conditions. In case of non-compliance with the Operation Licence and regulatory standards, ARN applies its enforcement policy that includes regulatory requirements to correct such non-compliance and sanctions to the licensees: fines, suspension of operations or withdrawal of the licence (See in our National Report, sections, E.2.3.4, E.2.4, E2.5).</p>
ca-ar-17	20,00	Section E, p. E-12	<p>Section E.3.1 states that some of the powers vested in the ARN are to “Undertake inspection and regulatory assessments.....that are subject to ARN regulations...” Are there nuclear facilities in Argentina that are not subject to ARN regulations? Section C states that the report deals with “wastes arising in all uses of nuclear energy...”</p> <p>ANSWER: Spanish version in our National Report in this section says: “Realizar inspecciones y evaluaciones regulatorias en las instalaciones sujetas a la regulación de la ARN, con la periodicidad que estime necesaria.” <i>This wording is in accordance with item d), Article 16 of the National Law of Nuclear Activity (see page L.6, Section L6.2.1)</i> The proper translation of the previous paragraph is: “Undertake regulatory assessments and inspections in the facilities under ARN regulation, with the periodicity needed” The English translator added the qualifier “nuclear”, without noticing the false impression that could cause the introduction of the qualifier.</p>
ca-ar-18	20,00	Section E, p. E-17	<p>Section E.3.3.2 discusses the financial resources of the ARN. License fees for “other license holders” are a predetermined percentage of income or equivalent indicator of the activity subject to regulation in the previous year. How would a license holder's fee be determined if income were not generated?</p> <p>ANSWER: The license holder must present to the ARN an estimation of his future annual income, in order to determine a reasonable equivalent indicator of the activity subject to regulation. ARN may compare that estimation with typical incomes of other similar licensees.</p>
de-ar-10	20,00	Section E.3.3.2, pp. E-17, E-18	<p>Is there a special fund for the construction of a repository?</p> <p>ANSWER: The Radioactive Waste Management Fund, mentioned in F.2.2., will be integrated by approximately 2% of the NASA nucleoelectric production, by CNEA funding for the management of its own waste, by charges to services for</p>

			<p>third parties, by accumulated interests arising from deferred costs planned investments, and by the National funding owed since 1974 (when CNA1 started operating) until the date when the Fund will be constituted.</p> <p>The main investments covered by this Fund are:</p> <ul style="list-style-type: none"> - Low and intermediate radioactive waste management. - Final disposal of low and medium activity radioactive waste. - Laboratory and construction of a deep geological repository. - Construction of silos for the CNA I SF storage. - Environmental restoration of the uranium mining and milling sites. - Management of waste arising from the decommissioning of nuclear facilities. - Necessary R&D activities. - Other minor activities. <p>It is important to remark that this Fund does not consider the decontamination and decommissioning (D&D) activities which are covered by other resources. On the other hand, the approximate value of 2% results from the economic-financial study made considering what is indicated in the former paragraph and in the Plan of Activities scheduled in the Strategic Plan which applies until 2076. This study was made in 1999.</p>
ua-ar-01	20,00	Section E.3.1, p. 13	<p>What department of the Argentine regulatory body develops regulations on nuclear and radiation safety and to what extent are recommendations of the IAEA and other international organizations used in their development?</p> <p>ANSWER: At ARN exists an expert group, reporting directly to the Board of Directors, that develops regulatory standards and guides on nuclear and radiation safety, safeguards and physical protection. These regulations and guidance are coherent with most of the IAEA basic documents, ICRP-60 recommendations and other safety related issues (i.e. INSAG). Consistency with other international related organizations and international recommendations (ISO, UNSCEAR) is also considered.</p>
ua-ar-02	20,00	Section E.3.4, p. 20	<p>Is ARN the only state regulatory body which is responsible for radiation safety of personnel and the public in Argentina? Is there interaction with the Ministry of Health concerning these issues?</p> <p>ANSWER: ARN is the only state regulatory body of nuclear activities (including radiation safety of personnel and the public) in Argentina, as it is established by the Law N° 24804, “National Law of Nuclear Activities”.</p> <p>Article 7 of the aforementioned Law, establishes that “The Nuclear Regulatory Authority shall be responsible for regulating and controlling nuclear activities to ensure radiological and nuclear safety, personal protection, a controlled use of nuclear materials, licensing and surveillance of nuclear facilities, and compliance with international safeguards. The Nuclear Regulatory Authority shall also be advisor to the Executive Power on issues within its field of expertise” .</p> <p>Article 10 of the aforementioned Law, establishes that “As established in Article 11 of this Law, regulation and surveillance of nuclear activities concerning matters defined in Article 7 are submitted to the national jurisdiction”.</p>

ua-ar-03	20,00	Section J.2, p. 2	<p>Is there a system of financial sanctions applied to the licensees when they fail to comply with standards, rules, and regulations on nuclear and radiation safety?</p> <p>ANSWER: As is stated in Section E.2.4, exist a Regime of Sanctions to apply to the License Holders when non-compliance with the Regulatory Standards and requirements set out in the respective License or Permit are verified.</p>
bg-ar-03	21,00	Section F	<p>What are the legislative measures that have been taken to regulate the responsibility for the safety of radioactive waste and spent fuel management when the owner is unknown or due to other reasons there is no licensee with a valid license?</p> <p>ANSWER: In the hypothetical case when RW or SF have not an owner, the ARN would regain control of those material and CNEA would manage them at their own cost. In this way ARN would discharge its obligations set in Law 24804 which provides that ARN shall take the necessary measures to protect people against deleterious effects of ionizing radiation. Furthermore, CNEA would discharge its obligation set in Law 25018 which establishes that CNEA is the responsible organization for the Radioactive Waste Management.</p> <p>In cases such as those referred above, the Regulatory Authority would proceed with an investigation in order to find out the cause of that abnormal event and after analyzing if that circumstances could be considered a criminal act, it must initiate the legal actions at a Federal Court.</p>
ca-ar-19	22,00	Section F, p. F-4	<p>Referring to Section F.2.2, why is “2% of income from the production of electricity” the legal requirement for input into the Radioactive Waste Management Fund? Please explain what would happen if reactors shut down with insufficient money in the fund?</p> <p>ANSWER: To cover the total Plan costs it is foreseen that the Radioactive Waste Management Fund (F.2.2.) will be integrated by approximately 2% of the nucleoelectric production, by CNEA funding for the management of its own waste, by charges to services for third parties, by accumulated interests arising from planned investments and by the Governmental funding owed since 1974. If the Nuclear Power Plants stop operating, the Nation will assume the corresponding rate.</p>
ca-ar-22	22,00	Section F, p. F-30	<p>Referring to Section F.6.4, does the Government expect that privatization of the power company is likely in the near future? If not, what is the alternative plan for the decommissioning fund? (p.F-30)</p> <p>ANSWER: NASA privatization is not likely in the near future The decree which regulates the National Law of Nuclear Activity set up the creation of a Trust Fund to cover the decommissioning costs of argentine nuclear power plants with a fixed amount for each plant. The contributions to the fund had to be made on an annual basis by the NPP operating company.</p> <p>In fact, the nuclear power plants have not yet been privatized and the Trust Fund has not been constituted. Today CNEA has only the funds of the national budget assigned to the institution to assume such responsibility. At</p>

			<p>present there is no alternative plan, unless the present legislation is amended and a trust fund independent from the privatization is created. Nevertheless, CNEA is analyzing alternatives for the decommissioning fund.</p>
es-ar-05	22,00	§ F.2.2, p. F-4	<p>Will the Radioactive Waste Management Fund include provisions for long term management of spent fuel?</p> <p>ANSWER: The Strategic Plan for Radioactive Waste Management foresees the long term storage for nuclear power SF. For the CNE case, it was established that the operator will construct the necessary silos for the dry storage of SF arising during the operative life of the NPP.</p> <p>For the CNA I case the Fund for Radioactive Waste Management considers the construction of silos for the dry storage of SF arising during the operative life of the NPP.</p>
es-ar-06	22,00	§ F.6.3.2, p. F-30	<p>What are the current expectations in relation with the privatisation of Nucleoeléctrica Argentina and the establishment of the Trust Fund for decommissioning nuclear power plants? Will this fund be used to cover contributions from and expenses for decommissioning other fuel cycle facilities?</p> <p>ANSWER: The decree which regulates the National Law of Nuclear Activity set up the creation of a Trust Fund to meet the expenses after the withdrawal from service of argentine nuclear power plants with a fixed amount for each plant. The contributions to the fund had to be made on an annual basis by the operating company.</p> <p>Law N° 24804 and its Regulatory Decree provides that the National Atomic Energy Commission (CNEA) shall define the decommissioning project for each nuclear power plant in compliance with the requirements that the Regulatory Authority may implement to this effect. In order to act in accordance with said responsibility the CNEA would make use of the balances accrued in the mentioned Trust Fund.</p> <p>As nuclear power plants have not yet been privatized, the Trust Fund has not been constituted. Today CNEA has the funds of the national budget that have been assigned to the institution to assume such responsibility, unless the present legislation is amended and a trust fund independent from the privatization is created. At present there is no alternative plan.</p> <p>The Trust Fund set up by said Law is specifically for the Decommissioning of Nuclear Power Plants. CNEA is analyzing alternatives for the mentioned fund, covering both nuclear power plants and other relevant nuclear facilities.</p>

ro-ar-01	22,00	F 2.2	<p>In the report is mentioned that the NPPs are contributing with 2% of their income from the generation of nuclear power to the Radioactive Waste Management Fund. Please explain what does cover this fund, and how it was established the value of 2%. More precisely, please precise if the fund does cover decommissioning activities and final disposal of all wastes, including spent fuel. If spent fuel disposal is not covered, please explain how this activity will be financed.</p> <p>ANSWER: The Radioactive Waste Management Fund, mentioned in F.2.2., will be integrated by approximately 2% of the NASA nucleoelectric production, by CNEA funding for the management of its own waste, by charges to services for third parties, by accumulated interests arising from deferred costs planned investments, and by the National funding owed since 1974 (when CNA1 started operating) until the date when the Fund will be constituted.</p> <p>The main investments covered by this Fund are:</p> <ul style="list-style-type: none"> - Low and intermediate radioactive waste management. - Final disposal of low and medium activity radioactive waste. - Laboratory and construction of a deep geological repository. - Construction of silos for the CNA I SF storage. - Environmental restoration of the uranium mining and milling sites. - Management of waste arising from the decommissioning of nuclear facilities. - Necessary R&D activities. - Other minor activities. <p>It is important to remark that this Fund does not consider the decontamination and decommissioning (D&D) activities which are covered by other resources. On the other hand, the approximate value of 2% results from the economic-financial study made considering what is indicated in the former paragraph and in the Plan of Activities scheduled in the Strategic Plan which applies until 2076. This study was made in 1999.</p>
ca-ar-02	24,00	--	<p>How do the results achieved, as a consequence of applying Argentina's requirements and regulations, compare with international standards or recommendations, and with neighboring countries' requirements, particularly when a natural resource such as water is shared?</p> <p>ANSWER: The results achieved by the Argentinean Regulatory System are satisfactory according to the recommendations of the International Atomic Energy Agency and compatible with the most stringent standards of safety.</p> <p>The only Waste Disposal Facility in Argentina is not close to a neighbouring country and no water or natural resource is shared in that respect. ALARA principle is applied.</p> <p>Additionally, the discharges of effluents are optimised in the operation of nuclear installations in Argentina. Therefore, the disposal of waste or the discharge of effluents could not affect neighbouring countries (nor our country) or any shared water resource.</p>
ca-ar-20	24,00	Section	<p>Section F.4.1 states that the exposure of persons to ionizing radiation shall be justified only if such practice results in a</p>

		F, p. F-12	<p><i>positive benefit</i> to society. Is the ARN responsible for determining what a <i>positive benefit</i> constitutes? Is the public allowed to provide input in this determination?</p> <p>ANSWER: The applicant of an authorisation for introducing a practice, has to demonstrate to ARN that the intended practice results in a positive benefit to the society. If the ARN is satisfied with that justification, issues the corresponding licence or authorises the practice.</p> <p>Even though there is no legal framework to allow the public opinion on these issues, the ARN takes into consideration any input of members of the public.</p>
ca-ar-21	24,00	Section F, p. F-15	<p>The annual occupational exposures in radioactive waste management installations presented in Section F.4.3 show a significant difference between CNA 1 and CNE. Please explain the reason(s) for this difference. Is the ALARA principle applied in CNA 1 waste management operations?</p> <p>ANSWER: CNA I and CNE annual occupational doses presented in Table 7 are global values, so they correspond to all activities performed during normal operation and maintenance shutdowns, not only due to radioactive waste management activities. But the differences in these global values are the result of the differences in the design of both NPP. The activated corrosion products and the Co-60 generated in CNA I primary circuit components, which originally contained cobalt alloys, are highly responsible for the occupational doses due to external exposure in this NPP. Due to a Regulatory Authority requirement, the fuel channels of this plant have been replaced with others without cobalt alloys.</p>
de-ar-11	24,00	Article 24	<p>How is it ensured that those responsible for radiation protection for facility staff are sufficiently qualified?</p> <p>ANSWER: The qualification of the responsible for radiation protection for facility staff is ensured by compliance with specific regulatory standards and guidance:</p> <ul style="list-style-type: none"> - AR 0.11.1 (Rev.3) Facilities Type I personnel licensing. - AR 0.11.2 (Rev. 2) Requirements of psychophysical aptitude for specific authorizations. - AR 0.11.3 (Rev. 1) Facilities Type I personnel retraining. - AR 7.11.1 Rev 1 Individual authorization for operators of industrial radiography equipment. - AR 8.11.1 Rev 1 Individual authorization for the utilisation of radioactive material or ionising radiation in human beings. - AR 8.11.2 Rev. 0 Minimum requirements of active clinic formation for the granting of individual authorization for medical purposes. - AR 10.1.1 Rev 3 Basic Regulatory Standard on Radiological Safety - Guide AR 3 Rev. 0 Conditions to be verified by medical doctors accepted by the RA in accordance with the psychophysical profile of each position subjected to the licensing process. - Guide AR 5 Rev 0 General recommendations for the granting and renovation of individual authorization for industrial radiography operators.

			<p>When the Responsible Organization needs an individual license or specific individual authorization for a member of its personnel requires it to the ARN and forwards the necessary documentation. The Advisory Board on the Licensing of Type I Installations Personnel (<i>Consejo Asesor en el Licenciamiento de Personal de Instalaciones Relevantes - CALPIR</i>), evaluates the background of each applicant and recommends the granting of the certificate, or otherwise, requires to the Responsible Organization the training of the applicant in compliance with the applicable standards.</p>
de-ar-12	24,00	Article 24	<p>Has an effective radiation dose limit been set for pregnant women who work in a spent fuel / radioactive waste management facility?</p> <p>ANSWER: For pregnant women Regulatory Standard AR 10.1.1, “Basic Radiation Protection Standard”, criterion 100, establishes the following requirements:</p> <ul style="list-style-type: none"> - Every working woman as soon as her pregnancy has been declared (or she suspects of it) shall notify it immediately to the facility or practice responsible. - With the aim of not exceeding the fetus dose limit respective to members of public, since the moment the pregnancy has been declared, working conditions shall be such that it results highly improbable that the personal equivalent dose, Hp(10), in abdomen surface do not exceed of 2 milisievert, and that the intake of every radionuclide involved do not exceed 1/20 of the respective annual intake limit, during the remaining period of pregnancy. It shall be complied that: $\frac{H_p(10)}{2mSv} + \sum_j \frac{20I_j}{I_{L,j}} \leq 1$ <p>where,</p> <p>Hp(10) = personal equivalent dose at 10 mm deep in abdomen surface, integrated during pregnancy period, I_j = radionuclide j intake during pregnancy period and I_{L,j} = annual intake limit of radionuclide j, resulting from the division of 20 mSv and the dosimetric factor of committed effective dose, for adults, for intake units of that radionuclide (Regulatory Guide GR 1/AR10.1.1).</p>
de-ar-13	24,00	Article 24	<p>How high is the permissible exposure of the public arising from release of slightly radioactive materials directed to recovery or to disposal?</p> <p>ANSWER: The criteria applied for the clearance of radioactive waste is derived from the exemption criteria (10 μSv/y), defined in the Regulatory Standard AR 10.1.1, “Basic Radiation Protection Standard”, as it is presented on page B-4 of the National Report.</p>

kr-ar-01	24,00	p. B.7, (B.4)	<p>What criteria are applied for the clearance of radioactive waste? And what is the management method for the waste after clearance?</p> <p>ANSWER: The criteria applied for the clearance of radioactive waste is derived from the exemption criteria, defined in the Regulatory Standard AR 10.1.1, “Basic Radiation Protection Standard”, as it is presented on page B-4 of the National Report.</p> <p>The management method of the waste for clearance is defined by specific procedures of each installation.</p>
kr-ar-02	24,00	p. F-13, (F-4.1)	<p>The report states that the regulatory body has established constraints on the effective public collective dose for the facilities such as nuclear power plants, research reactors, and radioactive facilities Type I respectively. What is the basis for the regulatory constraints on the public collective dose for each type of facility and what are the operational trends against these constraints?</p> <p>ANSWER: Constraints on the public effective collective doses have been set to control future exposures and to restrict the contribution that the practice under consideration will make to the exposure of other critical groups, regionally or globally (Ref: IAEA - SM-258/52).</p>
ua-ar-04	24,00	Section F.4.1, p. 13,	<p>Is there a practice at Argentine NPPs of establishing individual restrictions on personnel exposure doses for radiation hazardous activities, or is only annual dose restrictions are monitored?</p> <p>ANSWER: In Argentine NPPs, ALARA principle is applied for individual and collective occupational exposures in planning radiation hazardous tasks and only occupational dose limits are applied. In such cases, individual dose constraints are not used. Furthermore, the License for each facility establishes the exposure doses which have to be observed and the protective means that have to be used for different tasks in different areas during plant operation.</p>
ua-ar-06	24,00	Section M, p. 7, paragrap h 3	<p>What criteria are used in establishing priorities for the development of projects and sanitation of uranium ore mining and milling enterprises?</p> <p>ANSWER: Actually, the tailings at the existing U mining and milling facilities do not add any significant dose to the critical group of such installations, compared with the natural background.</p> <p>The criteria for defining priorities for remediation of those areas take into account, within other factors, how close are them to population groups, the incidence of Radon emanation or the eventual impact of the leaching of compounds on watercourses in the surroundings.</p> <p>Other non-radioactive chemical compounds are also taken into account for these decisions.</p>
ua-ar-07	24,00	Section M, p. 12, paragrap	<p>Are there special rules envisaged in Argentina for closure and reclamation of uranium ore mining and milling enterprises?</p>

		h 1	ANSWER: There is a specific draft standard developed on these issues. It is under internal discussion within ARN. Until a national standard is issued, international recommendations are applied (as IAEA-SS-85).
ua-ar-08	24,00	Section M, p. 24, paragraph h 1	<p>Is content of Th-230, Pb-210 and Po-210 monitored in surface and ground water during radiological monitoring of facilities for uranium ore mining and milling after their closure?</p> <p>ANSWER: The analysis of these radionuclides is not usually done because:</p> <ul style="list-style-type: none"> - Discharges of effluents to the environment haven't been done and most of liquid effluents are in impermeable dams. - Th-230 is precursor of Ra-226. Ra-226 is always analysed after closure because Th-230 is partially leached during uranium recovery and besides, Ra-226 analysis is easier. <p>Pb-210 and Po-210 are radon's daughters of long half life and their principal risk comes from the fallout. They are not monitored because Uranium laws of the mineral extracted in Argentina were low to very low and are in a clear conditions of secular non-equilibrium.</p>
ca-ar-01	24,21	--	<p>How is it determined that the requirements and regulations currently in place are effective in maintaining doses as low as reasonably achievable, social and economic factors taken into consideration, that the burden on future generations is minimized and that releases to the environment have no adverse short- or long-term effects?</p> <p>ANSWER: The Regulatory Standard AR 10.12.1, "Radioactive Waste Management", establishes the following criterion "The radiation protection systems used in the radioactive waste management shall be optimized, to the satisfaction of the Regulatory Authority, taking into account the reduction of the effective doses, the cost of diverse feasible options, the uncertainties associated to the long term and the applicable dose restrictions."</p> <p>This criterion shall be applied prospectively to future disposal or pre-disposal management systems to be developed.</p>
ca-ar-04	25,00	--	<p>Are there joint emergency plans and emergency exercises with neighbouring countries, and are the permissible release limits under both normal and abnormal conditions developed jointly?</p> <p>ANSWER: Argentine participates in JINEX IAEA international exercises. Limits are only established for normal conditions. Abnormal conditions are regulated by a risk criteria.</p>
de-ar-14	25,00	Article 25	<p>In an emergency, is an alarm issued to the crisis team by the operator alone or also by the independent ambient monitoring system?</p> <p>ANSWER: Alarms are issued only by operator based on plant conditions, on site radiological monitoring (automatic and manual) and meteorological conditions. There is no (off-site) ambient monitoring system.</p>
ua-ar-05	25,00	Section F.5, p. 21-24	<p>What measures have been taken to try emergency plans in practice in the event of a radiation emergency nearby the Argentina territory?</p>

			ANSWER: There is interaction between regulatory bodies of neighboring countries and information exchange under bilateral arrangements or Early Notification and Assistant Conventions.
ch-ar-02	25,10	F.5.2.2, p. F-22	<p>It is understood that the plant manager is the primary responsible for off-site emergency measures and is in charge of the initial actions. How is this responsibility ensured outside working hours?</p> <p>ANSWER: There is always a representative of the plant manager at NPPs. The shift supervisor take the role of plant manager when he is off.</p>
ch-ar-03	25,10	F.5.2.2, p. F-23 and p. F-25	<p>“Sheltering” in residential buildings is mentioned under urgent protective measures on page F-23, but is not mentioned in Table 8 on page F-25. What is the application and what are the intervention levels for sheltering?</p> <p>ANSWER: Sheltering in residential and public buildings is applied automatically as soon as a significant emission start [up to 10 km downwind (60 degrees), and up to 3 km at any direction]. Sheltering is kept from 10 to 100 mSv based on projected dose. Below 10 mSv people could stop sheltering (if there is no other threat). If dose projections exceed 100 mSv, evacuation should be taken in place.</p>
ch-ar-04	25,10	F.5.4.1, p. F-27/28	<p>During the last ten years, the population of various cities has participated in emergency exercises. To what extent was the population involved, and what are the lessons learnt from these exercises?</p> <p>ANSWER: All the people 10 km around is informed about the risk that a nuclear accident represents, which are the protection measures and how they must be applied. There are continuous permanent informing and education campaigns. Particular attention is paid to the schools at all levels. During the exercises (once a year), people practice sheltering and ingestion of stable iodine tablets (candies simulating the iodine tablets are distributed in each house of the zone and people are retained in their houses or in public buildings listening to radio messages). Regarding the population, all inhabitants or just a fraction of them (that changes every year), are involved. In each exercise participate actively between 2500 to 6000 inhabitants. Massive evacuations are not simulated. The lessons learned are: importance of a centralized conduction, the relevance of the of messages and communications content, the importance of diffusion campaigns, the high interest expressed by students and teachers at schools and the relative lower interest expressed by ordinary citizens.</p>
kr-ar-03	26,00	p. F-21, (F.5)	<p>What are the types of accidents to declare emergency for spent nuclear fuel storage and radioactive waste management facilities that are included in emergency preparedness plans for the nuclear power plants?</p> <p>ANSWER: The emergency plan for each plant includes the necessary information on planning and management. That is all the information that the facilities have in order to deal with an emergency event jointly with other public agencies. Emergency plans establish participation levels considering the potential consequences but do not establish types of accident to declare the emergency. Notwithstanding this, the design of the related plans and countermeasures are based</p>

			<p>on the analysis of the consequences of the conceivable accidents. In the case of the storage pools at NPP's the conceivable accidents are: loss of coolant in fuel pools, external events (terrorism).</p>
us-ar-05	26,00	Section F, Subsection 6, p. 27	<p>Please clarify Argentina's experience in decommissioning nuclear facilities. The introduction to the decommissioning section states that no decommissioning activities have been performed at any of Argentina's 28 nuclear facilities; but later the report lists decommissioning projects that have been completed (e.g., decommissioning activities at the Constituyentes Atomic Center in the 1980's).</p> <p>ANSWER: No decommissioning activities are under way on any of the present 28 relevant nuclear facilities, as they are all operational and with no planned shutdown in the near future. In the past, decommissioning of the RA-2 critical assembly emplaced in Constituyentes Atomic Center, was carried on between 1984 and 1989, the site being free released to non-nuclear activities.</p>
us-ar-06	26,00	Section F, Subsection 6, p. 27	<p>Please explain the division of functions between the government regulator and the regulated entities responsible for the nuclear facilities. The report discusses tasks that CNEA will perform (e.g., "planning" and "training") but it's not clear whether the regulator will be reviewing the regulated entities progress in these areas, or taking an active role in the decommissioning activities.</p> <p>ANSWER: The National Law for Nuclear Activity establishes, in Article 16(b) that the Nuclear Regulatory Authority has the faculty for granting decommissioning licenses for nuclear power plants. Furthermore, the Regulatory Standard AR-0.0.1 establishes that a licence issued by the Regulatory Authority is required for decommissioning. Besides, the Regulatory Standard AR-3.17.1, "Dismantling of Nuclear Power Plants", is applicable, with the proper grading, to other nuclear installations. To obtain the decommissioning licenses, the Responsible Organization shall present for the approval of the Regulatory Authority a dismantling program. The dismantling process shall consider aspects such as:</p> <ol style="list-style-type: none"> a) Project management b) Site management c) Responsibilities and roles of the organizations involved d) Radiological Protection e) Quality assurance f) Radioactive Waste Management g) Report of monitoring results at completion of each stage of the program h) Physical Protection i) Report on the fulfilment of International Agreements on safeguards <p>The regulatory body will inspect, considering nuclear and radiological safety aspects, at every stage of the mentioned program, the fulfillment of the requirements of the licence and of additional requirements that might appear during dismantling process. The CNEA is the Responsible Entity during dismantling process.</p>

us-ar-07	26,00	Section F, Subsection 6, p. 27	<p>Please explain the regulatory process for decommissioning in more detail. Specifically, what responsibilities do regulated entities have before, during, and at the completion of the decommissioning process (e.g., what submittals, if any, are required before decommissioning activities begin at a site)?</p> <p>ANSWER: Is valid the answer to the previous question (us-ar-06)</p>
de-ar-15	26,01	Section F.6, p. F-29	<p>The operation of the nuclear power plants is done by NASA and the decommissioning will be planned and done by CNEA. Will there be conflicts because of different interests of these organizations? Will the staff/personnel be changed also?</p> <p>ANSWER : The Nuclear Law and its Regulatory Decree establish clearly the responsibilities of each organization and the manner and time for the transfer of the facilities, hence, there would be no possibility of conflict between CNEA and NASA. Both Organizations have agreed on working jointly in the decommissioning planning of the nuclear power plants. It is foreseen that NASA personnel will become involved in actual decommissioning work after final shutdown of a NPP.</p>
de-ar-16	26,01	Section F.6.3.2, p. F-30	<p>Who will pay the decommissioning in case of lack or shortage of financial resources (not enough money in the Trust Fund)?</p> <p>ANSWER: The responsibility for Decommissioning Nuclear Power Plants rests with an entity under the area of the national government, consequently, in case of lack or shortage of resources to comply with said responsibility, the State shall provide the necessary funds.</p>
de-ar-17	26,02	Section F.6, p. F-29	<p>No information is given on the provisions of Article 24 with respect to operational radiation protection, discharges and unplanned and uncontrolled releases from installations under decommissioning (normal operation and incidents), on emergency preparedness for these installations and on keeping of records (long-term storage of records). How are these issues dealt with in the decommissioning phase?</p> <p>ANSWER: Future decommissioning activities shall consider the requirements established in regulatory Standard AR-3.17.1, "Dismantling of Nuclear Power Plants", where it is requested a "Dismantling Program" where the provisions for Radiation Protection should be presented, in accordance to the regulations in force.</p>
ch-ar-07	27,00	I, p. I-1/2	<p>How are the requirements for Article 27 of the Convention specifically addressed?</p> <p>ANSWER: Decree N° 603/92, dated April 9, 1992, modified by Decree N° 102/00, dated February 1st, 2000, established the Regime for the Control of Sensitive and War Material Exports. In the frame of this regime, a potential Argentine nuclear exporter needs to obtain a license from the National Commission for the Control of Sensitive and War Materials Exports. This Commission is formed by representatives from the Ministries of Defense, Foreign Affairs and Economy</p>

			<p>and, in the case of nuclear exports, by a representative from the Nuclear Regulatory Authority. The applications are reviewed on a case-by-case basis and the decision is made considering Argentina's international commitments, the situation in the receiving country and the specific conditions that may appear on each possible case.</p>
de-ar-18	28,00	Section J, pp. J-1 to J-5	<p>Is the import licence given only for the import for use or would it be given too to an import for a source going back to the producer in Argentina?</p> <p>ANSWER: Argentina exports radioactive sources, and the Regulatory Body explicitly approves their export, following procedures established in concordance with the Code of Conduct on the Safety and the Security of radioactive Sources (IAEA). Regarding the re-entry of such sources, the National Constitution, prohibits the import of radioactive waste, consequently, it is not permitted the import of radioactive material for which there is not foreseen any further application or any use as raw material in the country.</p>
es-ar-03	28,00	§ J.4, p. J-3	<p>Does Argentina's regulatory framework force the user of radioactive sources to sign a contract with a waste management utility or to establish financial sureties to ensure that disused sources will be adequately managed?</p> <p>ANSWER: The users of radioactive sources are not required to sign such contract or to establish such financial sureties, because the ARN requires the licensee of radioactive sealed sources to be fully responsible for its safety until he is authorised to re-export it to the country of origin or to transfer it as radioactive waste to the CNEA. In order to verify the fulfilment of those responsibilities of licensees, ARN conducts necessary compliance inspections to their premises and applies a comprehensive enforcement programme.</p>
es-ar-04	28,00	§ J.5, p. J-3	<p>Does Argentina's regulatory framework allow re-entry of disused sealed sources manufactured in Argentina for recycling or treatment as waste?</p> <p>ANSWER: Argentina exports radioactive sources and the Regulatory Body explicitly approves their export, following procedures established in concordance with the Code of Conduct on the Safety and the Security of radioactive Sources (IAEA). Regarding the re-entry of such sources, the National Constitution, prohibits the import of radioactive waste, consequently, it is not permitted the import of radioactive material for which there is not foreseen any further application or any use as raw material in the country.</p>
no-ar-03	28,00	p.J-5	<p>It is written "decayed" should it be "disused"? What "use" would it be for "decayed" sealed sources? Will disused sealed sources be allowed for reentry for disposal in Argentina?</p> <p>ANSWER: Regarding the re-entry of sealed radioactive sources, the National Constitution, prohibits the import of radioactive material for which there is not foreseen any further application or any use as raw material in the country. In such sense, decayed sources might be authorised to re-enter if the ARN verifies that their use is properly justified within an authorised practice in our country, (e.g. fabrication of new sources for industrial uses).</p>

ro-ar-02	28,00	J	<p>According to art. 28.1 of the Joint Convention, each contracting party shall take the appropriate steps to ensure that the possession, remanufacturing or disposal of disused sealed sources take place in a safe manner. From your report results that Argentina does not dispose long lived sources. Please precise how long term safety of such sources is ensured (for example radium sources and other leaking sources).</p> <p>ANSWER: As it is mentioned in J.4 and H.2.2.1.5 disused sealed sources to which final disposal is pending, are stored in a special licensed interim storage facility at CNEA's premises. Its safety is ensured by the application of the regulatory control system (explained in section E of our National Report), that implies that the responsibilities of the licence holder are met (see section F.1 of our National Report). Its long safety will be ensured after final disposal at a repository that will receive HLW (or SF if this were the decision, see Section B.1 and B.4.1 of our National Report), wastes containing long lived radionuclides and long lived sources. In the case of Radium sources used in the past with medical purposes, they were recovered and conditioned in stainless steel capsules, in a retrievable way, avoiding invalidate future final disposal deep geologic repository requirements, not yet defined. Ref.: Ra²²⁶ sources in disuse, Radiological Safety Review, 18, July 2000.</p>
de-ar-19	28,10	Section J, p. J-3	<p>The regulatory body promotes the installation of radiation monitors at points of entry into the Country by either sea or land, to prevent illicit traffic of radioactive sources, to be able to detect orphan sources and to prevent the import of materials contaminated with radioactive substances. Do you have the same control system at points of exit to protect third countries?</p> <p>ANSWER: The ARN promotes the same control system at the points of exit. In that direction, the ARN periodically trains the personnel of the Border Military Police in charge of the control of frontier points, so they can act to cope with any illicit movement of radioactive material to third countries.</p>
de-ar-20	28,10	Section J, p. J-3	<p>Do you have control monitors to detect orphan sources before they may reach a foundry and be melted?</p> <p>ANSWER: At some ports of entry of steel factories, radiation monitors for detection of orphan sources are placed. Additionally, scrap workers are trained in relation to the recognition of devices containing radioactive sources and are instructed to take the necessary measures to isolate the device in order to preserve public health.</p>
us-ar-08	28,10	Section J, Subsection 5, p. 4	<p>Section J.5, "Actions Aimed at Maintaining an Appropriate Control of Radioactive Sources," states in case of bankruptcy or sources not registered, the Regulatory Body requires the radioactive sources be deposited in a safe place authorized to accept them. How is this accomplished when the responsible organization cannot afford to arrange for their sources to be deposited in a safe place authorized to accept them? For such sources, how is their safety and security assured until they are properly controlled at the new location? What mechanisms ensure disused sources are properly disposed?</p>

			<p>ANSWER: In case of bankruptcy or in case of Responsible Organizations owning sources not registered, and if those organizations can not afford to arrange for the safe storage of their sources, ARN takes care of the sources in order to deposit them in a safe place. Besides, the Regulatory Body claims the restitution of such costs.</p> <p>ARN applies a comprehensive enforcement program to ensure disused sealed sources are re-exported to the country of origin or are managed by CNEA as radioactive waste.</p>
us-ar-09	28,10	Section J, Subsection 5, p. 4	<p>Section J.5, "Actions Aimed at Maintaining an Appropriate Control of Radioactive Sources," refers to "sources not registered." Please clarify what is meant by "sources not registered".</p> <p>ANSWER: Generally speaking, "not registered sources" refers to sources, which ARN had detected, but the owner had not declared previously.</p>
ca-ar-03	28,20	--	<p>What restrictions/conditions, including financial guarantees, are in place relative to the export and re-entry of sealed sources, especially to and from countries which do not have any programs in nuclear power and/or research, or to and from countries which do not have a nuclear regulatory body and/or rules and regulations governing the use and shipping of radioactive material?</p> <p>ANSWER: ARN authorizes the export of radioactive sealed sources if, among other requirements for the exporter, the Regulatory Authority of the recipient country acknowledges the entry of that source.</p> <p>The re-entry of sealed sources is restricted because the National Constitution forbids the import of radioactive material when it is not foreseen its further use in our country.</p>
us-ar-11	32,00	Section D, Subsections 1, 2.2.3, p. 1	<p>Argentina has a dry fuel storage facility at the Embalse nuclear power plant. Please briefly describe the technology and how it meets safety requirements.</p> <p>ANSWER: In Section G.2.2.3, of the National Report the main characteristics of the design including spent fuel elements dry-storage safety requirements are described. Basically, the design consists in storing in concrete silos, which act as a biological shield, nine stainless steel canisters containing 60 air-refrigerated spent fuel elements. Leak-tightness is ensured with a certified welding which prevents any release of radionuclides if the cladding is fractured. When the load of a silo is completed the concrete silo is closed with a concrete cover which is welded to ensure that no releases occur as well as for safeguards reasons.</p>
us-ar-12	32,00	Section A, Subsection 2, p. 3	<p>Argentina has deferred any decision on reprocessing and SNF disposal, although a feasibility study and preliminary design study was cited. Is there a schedule in Argentina's Strategic Plan for such decisions? What research and technology development activities are being conducted to assist in decision making? What specific geologic structures are being considered?</p> <p>ANSWER: According to the current planning, the decision about the fuel cycle back-end strategy should be taken</p>

			<p>before the year 2030. That decision is mostly related to economical and political issues. At present, Argentina is not conducting R&D activities on reprocessing. The present research for repository sitting involve general desk geological studies. The main activities are:</p> <ul style="list-style-type: none"> - Elaboration of general diagrams for a Geographical Information System (GIS). - Performing of geological and geo-chemical databases, to use as part of GIS. - Processing and interpretation of satellite imagery. Digitalization of geological data, maps scanning and their geo-referenciacion at a national level. - Inventory of geological regions with selected types of rocks: granite, welded tuff (ignimbrite) and clay.
us-ar-13	32,00	Section G, Subsection 2.2.4, p. 7	<p>Section G describes the central storage for research reactor SNF. Please describe the technologies being studied for replacing current storage methods and when they will be implemented.</p> <p>ANSWER: The strategy adopted for the MTR type SF, arising from research and production reactors is geared:</p> <ul style="list-style-type: none"> - to complement the decaying period in water in a facility away from the RA-3; - to drying and encapsulation of SF for its dry storage and - to their management for final disposition.
us-ar-14	32,00	Section G, Subsection 2.2.4, p. 8	<p>Argentina is looking at alternatives, including encapsulation, to the current storage of research reactor spent fuel. Is it anticipated that encapsulated spent fuel would be suitable in geologic repository disposal packages? Please describe how encapsulated fuel would impact overall package performance.</p> <p>ANSWER: After 10 to 15 years of interim storage in the water pool (see answer to the question us-ar-12), the research reactor spent fuel (RR-SF) will be encapsulated, transferred to a dry storage system and eventually to final disposal. In regard to the final disposal of the encapsulated RR-SF, although at present there are not available the acceptance conditions of the future geological repository, there is a principal issue of concern: The quality of the RR-SF drying process, principally in the case of the (seldom) failed fuels. If there is remnant water inside the capsule, the H2 generation, as a consequence of the possible corrosion processes, could increase the internal pressure with the associated risk of bursting. A burst of the capsule would obviously produce a negative impact on the overall package performance. Therefore, drying procedures are being studied.</p>
us-ar-15	32,00	Annex L, Subsection 5.1, p. 8	<p>Has any solid radioactive waste been permanently disposed in Argentina? If so, how much? (Annex L.5.1 shows a total quantity stored of 2,676 cubic meters, while the latest IAEA Waste Profile Report for 2000 shows a total of 2,886 cubic meters disposed and only 80 in storage. Please clarify.)</p> <p>ANSWER: Section L.5.1 details the activity and the volume of radioactive waste stored and/or disposed in the different installations: NPPs (CNA I and CNE), Complejo Tecnológico Pilcaniyeu, Complejo Fabril Cordoba and AGE. Waste volumes disposed in the <i>Near Surface Disposal Systems for Low Level Solid Radioactive Waste</i> and in the</p>

			<p><i>System For Disposal Of Structural Radioactive Waste And Sealed Source</i> are indicated in AGE inventory.</p> <p>In the <i>Near Surface Disposal System for Low Level and very Short Lived Liquid Radioactive Waste</i> It has been considered the total activity contained in the liquid but not its volume, due to the characteristics of the system which retain only the radioactive material.</p> <p>Volumes of those radioactive waste not yet treated are not listed in the inventories. Their volume will be registered once completed their conditioning.</p> <p>The figures reported in IAEA Waste Profile Report 2000 refer to a different kind of requirement.</p>
us-ar-16	32,00	Section M, P. 10	<p>In the PRAMU (Uranium Mining Environmental Restoration Project) nearly 800,000 tons of tailings and soil were relocated (p. M-10). How were they moved and how far? Did Argentina use or consider using slurry pipelines?</p> <p>ANSWER: CNEA has started the phase out of Malargüe mining and milling facilities. It is foreseen to transfer them to a new location 400 m away from the present one, using pay load and loading trucks. It has not been considered the use of tubes and pumps for their transfer due to the physical characteristics of the tails (low humidity @ 12%)</p>
bg-ar-01	32,10	Section B	<p>How the policy on the SF management explained in the report is defined - by what documents, respectively issued by what authority?</p> <p>ANSWER: The policy on the SF management defined by CNEA in the Strategic Plan is submitted to the Executive Power, who sends it to the National Parliament. When the Parliament approves this Plan, it issues a Law that will become the legal document supporting all decisions taken in relation to SF management.</p>
de-ar-21	32,10	Sections B.1-B.4, pp. B-1-B-10	<p>Is there any dead-line for the decision whether the way of reprocessing or direct disposal of SF is followed?</p> <p>ANSWER: In Section G, pag. G-41 of the National Report, Argentine has stated the following: Until now, the SFs originated in the operation of nuclear reactors in Argentina are temporarily stored in installations designed for this purpose. The <i>Strategic Plan for the Management of Radioactive Wastes</i> produced by CNEA in consonance with National Law 25018, proposes the year 2030 as the final date to assess and decide the reutilization of the fissionable material contained in the SFs.</p> <p>Regardless of the decision adopted, the Strategic Plan establishes the need to have a deep geologic repository for the final disposal of the high-level disposable wastes originated as a consequence of the SF processing and/or conditioning.</p>
de-ar-22	32,10	Sections B.1-B.4, pp. B-1-B-10	<p>If a repository is not yet decided, what are the criteria for the conditioning of waste?</p> <p>ANSWER: It is understood that wastes are stored in adequate conditions until the final disposal repository conditions are defined.</p> <p>The used criteria for conditioning the radioactive waste are in relation with the characteristics of the repository to be used in each case.</p>

			<p>Particularly, for the medium level wastes (Class M), the repository model definition have enable to define the type of conditioning process required.</p> <p>Regarding radioactive wastes to be dispose of in a Deep Geologic Repository, at present they are stored without conditioning in the NPPs pools, with the exception of those long lived radioactive waste (i.e. Ra²²⁶ needles) which had been conditioned in such way to avoid invalidate future repository acceptance requirements not defined at present.</p>
es-ar-01	32,10	§ B.4.2, p. B-7	<p>Argentina points out that, in the case of low- and medium-level radioactive wastes, the model proposed is a near-surface disposal facility. What provisions have been made in Argentina for the construction of facilities aimed at the final disposal of low- and medium-level radioactive wastes?</p> <p>ANSWER: The Strategic Plan for the Radioactive Waste Management submitted to the Executive Power (PEN) foresees the investments required for the construction of the facilities indicated in Section B.4.2. These investments will be covered by the Radioactive Waste Management Fund, integrated by the contribution of waste generators.</p>
es-ar-02	32,10	§ B-2, p. B-1	<p>Can you elaborate on the specific activities (research, investigation of potential sites,...) under development regarding implementation of spent fuel management solutions?</p> <p>ANSWER: A geological repository will be needed for the disposal of either the spent fuel or the high level waste from its reprocessing. The present research for repository sitting involve general desk geological studies. The main activities are:</p> <ul style="list-style-type: none"> - Elaboration of general diagrams for a Geographical Information System (GIS). - Performing of geological and geo-chemical databases, to use as part of GIS. - Processing and interpretation of satellite imagery. - Digitalization of geological data, maps scanning and their geo-referenciation at a national level. - Inventory of geological regions with selected types of rocks: granite, welded tuff (ignimbrite) and clay.
hu-ar-01	32,10	B.1, p. B-1	<p>Have you strategies for decreasing the amount of SFs?</p> <p>ANSWER : The Responsible Organization for Nuclear Power Plants (NASA) has taken actions to reduce the production of radioactive waste generated by the use of nuclear fuel.</p> <p>At CNA I fuel elements with low-enriched uranium are being used and this has reduced the generation of spent fuel elements.</p> <p>At CNE the generation of half life waste was reduced changing the manner of storing SF. Dry storage does not require a cooling medium as for pools, which requires to be decontaminated by mechanical and ionic exchange filters.</p>

ca-ar-11	32,11	Section B	<p>Section B.1 states that SF from Research or Radioisotope Production Reactors will be shipped back to the country where it was originally enriched, if possible. Please explain if any SF has been shipped to any countries besides the USA, and the extent of this strategy's success.</p> <p>ANSWER: No SF has been shipped to any country besides USA. As a general policy, Argentina has the intention to return all the Spent Fuel originating in Research Reactors, to the country of origin, particularly the HEU nuclear material</p>
ca-ar-14	32,20	Section D, p. D-1	<p>According to Section D.5, none of the SF and radioactive waste management facilities is currently in the decommissioning process. Are any nuclear facilities currently being decommissioned?</p> <p>ANSWER: There are no nuclear facilities being decommissioned, either currently or in the near future.</p>
hu-ar-02	32,20	D.1, p. D-1	<p>What is the annual generation of SFs from the NPPs?</p> <p>ANSWER : The average annual generation of SFs from the NPPs is of 190 SF for CNA I and 4800 SF for CNE.</p>
de-ar-23	32,24	Section D.4, p. D-1	<p>No inventory of radioactive waste that has resulted from past practices is provided. Were there no past practices which are relevant to the convention or are these wastes regarded in other categories?</p> <p>ANSWER: Section H.2.3 of our National Report inform about the wastes arising from past practices. It describe the situation found, the measures adopted and the present situation. CNEA decided to give to the neighbor Municipality a land next to the stream that runs near CAE (Ezeiza Atomic Center). An environmental monitoring was carried out because during the 50s, mineral tails were stored there. The result of this monitoring determined that there was a slightly uranium contamination in one of the sectors. Since this contamination was very low, an intervention was considered unjustified. Notwithstanding and since this land was to be used for recreation purposes, it was decided to carry out a limited decontamination of the sector. The soil removed from the area is stored in drums waiting for a transference to other site with uranium mining and milling wastes.</p>
de-ar-24	32,25	Section D.5, p. D-1	<p>There is no list of nuclear facilities which are in the process of being decommissioned. In para F.6.4.1 there is only a list of dismantling and decommissioning tasks which have been performed. Which nuclear facilities are being decommissioned?</p> <p>ANSWER: There are no nuclear facilities being decommissioned, either currently or in the near future.</p>