JOINT CONVENTION

Supplement Questions and Answers
The Netherlands 3rd national report 2009

Joint Convention
Questions Posted To Netherlands in 2009

Q.No 1	Country Australia	Article General	Ref. in National Report Section L Page 102
Question/ Comment	Is the 100 year package life a regulatory requirement or an operational decision of the licensee?		
Answer	COVRA has the statutory aim to implement the Dutch national policy on radioactive waste and spent fuel. As mentioned on page 15 of the national report, this policy stipulates storage of the waste for a period of 100 years. For this reason, the 100 year package life was used as an operational design feature for the operations at the COVRA facilities. The requirement was also used as a design feature for the storage facility itself.		
Q.No 2	Country Denmark	Article General	Ref. in National Report
Question/ Comment	During decommissioning of nuclear facilities a large amount of material may be expected to be cleared without restrictions and a competent clearance function is needed in order to assure compliance with the given clearance levels. However, compliance with clearance levels is usually based on complex measurement programmes and statistical tests in order to ensure a high probability of correct clearance of materials. It is therefore important to ensure the necessary competence of the clearance function. For instance: The clearance function (lab, procedures and personnel) could be accredited by an independent institution, with reference to an international standard such as e.g. the EN ISO/IEC 17025:2005 (General requirements for the competence of testing and calibration laboratories) and special emphasis on particular functions such as measurements on surface contaminated objects or objects with a radioactive content. Please describe how the necessary competence of the clearance function is ensured and how the clearance levels were determined.		
Answer	Until now, there is little experience with clearance, as only a few nuclear facilities were (partly) decommissioned: The BARN research reactor in Wageningen, the KSTR reactor in Arnhem and parts of the NPP Dodewaard. In all these cases, the competence of the clearance function was a proposal of the licensee, based on the clearance levels in the Radiation Protection Decree, and validated and approved by the Regulatory Body. These proposals encompassed measurement procedures as well as quality assurance systems. To ensure that the approved methods and systems were applied by the licensee, on site inspections were carried out on a regular basis by the VROM inspectorate.Currently, decommissioning regulation is under development, including requirements on		

clearance.

Q.No	Country	Article	Ref. in National Report
3	Ireland	General	Page 13 of the Section A (Introduction)

Question/ Comment	It is noted that all the Dodewaard NPP spent fuel has been transferred to Sellafield, UK for reprocessing and that the separated plutonium will be transferred to AREVA for MOX fuel fabrication. Could Netherlands explain the basis for deciding to send the separated plutonium to France instead of keeping it on site at Sellafield where MOX fuel can also be fabricated?
Answer	Sending the separated plutonium to France was a commercial decision of the operator of the Dodewaard NPP, as, according to Dutch legislation, these decisions are up to the operator. The plutonium was sold to be reused in MOX-fuel in NPP's.Other than commercial reasons, no special reason is known not to choose for MOX-fuel fabrication at Sellafield.

Q.No	Country	Article	Ref. in National Report
4	Ireland	General	Page 121 in Annex 2 Inventory of radioac

Question/ Comment	Can the Netherlands provide some information regarding the "mobile waste processing facilities" and how such facilities are treated under the Dutch regulatory system (e.g., type of licence, considerations for issuing licence, conditions of use, etc.)?
Answer	A mobile waste processing unit to immobilize liquid waste (by cementation) is shared between the NPP Borssele and COVRA. The unit is contained in a standard 20-feet container. The unit is operated within the radiological controlled area of the NPP or COVRA. Under the Dutch regulatory system, this installation is treated as any other immobile installation, meaning that COVRA, as well as the NPP Borssele, require a license for it.

Q.No	Country	Article	Ref. in National Report
5	France	Article 4	G.4(ii) - p. 66-67 / H.11(ii) - p. 84

Question/ Comment	These sections of the report are more focused on the reuse of the fissile materials (U and Pu) than the minimization of radwaste. In the Netherlands' existing nuclear facilities involved in the spent fuel or radwaste management, could Netherlands indicate if any arrangement has been defined to reduce as much as possible the waste resulting from those operations? Do the Dutch authorities issue any requirement or define any target concerning the minimization of radwaste?
Answer	First of all, and in accordance with the Basic Safety Standards, Dutch regulation requires that the use of radioactive material shall be justified, meaning that they should be used only if there is no reasonable non-radioactive alternative available. Furthermore, according to the Dutch Radiation Protection

Decree, a licensee in possession of radioactive material is obliged to minimise the generation of radioactive waste. The licensee is in principle free to choose its measures to achieve this. An example of such a measure is the preferred use of radionuclides with short decaytimes, allowing for a rapid decay below the exemption levels.In the case of materials (not declared as waste) containing radionuclides of natural origin with activity concentrations below ten times the exemption levels, Dutch legislation leaves the possibility to reuse these materials as far as reasonably practical. These materials can for instance be mixed with conventional bulk materials for the use in public works and infrastructure.

Q.No	Country	Article	Ref. in National Report
6	France	Article 5	G.5 - p. 71

Question/ Comment	Some spent fuel is kept in storage in the Borssele NPP's fuel pool, waiting for transport to the reprocessing plant. Since 2006, no transport could have been carried out, as a new bilateral agreement will have to be concluded between the concerned states. Could Netherlands specify the estimated delay before the possible saturation of the Borssele NPP's fuel pool? Compared with risks from a negative conclusion for the bilateral agreement, what are the other options foreseen by the Borssele NPP's operator and the Dutch authorities' requirements ?
Answer	Conservative calculations show that the capacity of the Borssele NPP’s fuel pool is sufficient for spent fuel generation until 2014, respecting a recommended reserve storage capacity for unloading the reactor when needed.The bilateral agreement was recently signed by the Dutch and the French governments. The next and final step is approval by the Dutch Parliament, which is expected in 2009. After this approval the operator can apply for a transport license, and resume transports of spent fuel.In the unfortunate case no bilateral agreement could be concluded, the preferred option is to license and build a new building at the COVRA-site dedicated to the storage of irradiated spent fuel assemblies. Because of the time required to license and build such a facility, temporary dry storage in appropriate containers will probably be necessary.

Q.No	Country	Article	Ref. in National Report
7	United States of America	Article 5	Section G 5, Page 71

Question/ Comment	This report indicates the current policy in the Netherlands with regard to spent fuel management of the NPP’s is not to use full capacity of the available storage pool for on site storage of spent fuel. During the last two years spent fuel from NPP’s has been stored on site and not transported for reprocessing due to a new bilateral agreement. What arrangements are in place to manage spent fuel until a new bilateral agreement is implemented?
Answer	As the Borssele NPP is the only (operational) NPP in the

	Netherlands, and the operator of the Borssele NPP is the only organisation that has chosen the option of reprocessing of spent fuel, this issue only concerns the Borssele NPP.Until a new bilateral agreement is in force, the spent fuel will be stored in the storage pool of the Borssele NPP. Conservative calculations show that the capacity is sufficient for spent fuel generation until 2014, respecting a recommended reserve storage capacity for unloading the reactor-core when needed.The bilateral agreement with France is expected to be concluded in 2009.		
Q.No 8	Country Croatia	Article Article 8	Ref. in National Report page 79
Question/ Comment	In the table 14 there is a scheme with all steps given for Environmental Impact Assessment procedure in the Netherlands. For some steps time limits are clearly indicated. How much time did it take to conduct the whole EIA procedure, from inception memorandum till evaluation, for COVRA facility? And in which steps the presumed allocated time was underestimated and what were the main reasons for that?		
Answer	The procedure of the EIA as detailed in Table 14 was developed after the license application process for the COVRA facility.The license application process of HABOG-facility started in 1994 followed all steps listed in table 14. This process took seven years from inception memorandum until the enforcement of the final license, which is much longer than usual. The most important reasons for the delay were the extensive public participation, extension of the scope of the initial project (to also include the storage of spent fuel elements from research reactors), and two appeals in the main proceedings. In 1994 the procedure formally started, after a year of preparation, with the publication of the inception memorandum. The memorandum was approved by the Regulatory Body in the beginning of 1996. The Environmental Impact Statement was published later that year. Finally, after appeals in 1996 (leading to annulment of the license) and 1999, the final HABOG-license became definitive in 2001.		
Q.No 9	Country Bulgaria	Article Article 9	Ref. in National Report p. 81
Question/ Comment	Would you provide examples of operational safety limits and conditions (apart from radiological ones) for the interim storage XBOG for storage of SNF and RAW.		
Answer	Examples of operational safety limits are conventional safety measures like the availability of emergency power-supply, noise-limits, standard crane operational requirements.		
Q.No 10	Country Spain	Article Article 9	Ref. in National Report Page 82 Point 9 (iv)
Question/ Comment	Capacity of COVRA´s HLW facility Considering that the operational life of Borsselle NPP was extended until 2033 in 2006, whilst its initial operational period was only foreseen until 2015, is there any specific plan already envisaged to enlarge the storage capacity of the COVRA's High		

	Level Waste facility?
Answer	The operator of the Borssele NPP has concluded a reprocessing contract for all the spent fuel generated until 2015, and the capacity of the COVRA HLW facility is sufficient for all the returned HLW under this contract.For the spent fuel generated after 2015, the operator of the Borssele NPP will have to decide on its back-end strategy. In case the operator will continue reprocessing, a modular extension of COVRA's HABOG facility will be sufficient. However, in case the operator chooses for direct disposal, a new building will have to be designed, as the HABOG is not suitable for storage of spent fuel assemblies.

Q.No	Country	Article	Ref. in National Report
11	France	Article 12	H.12(i) - p. 85
Question/ Comment	In this section, it is indicated that the only existing radwaste management facilities are the COVRA radwaste treatment and storage facilities. However NORM materials with radioactivity concentrations in excess of the exemption limits are stored at some sites of raw materials processing industries (Section B.32.1(iv) of the report). These NORM materials storage facilities should be taken into account to illustrate the report of the Netherlands.		
Answer	It is important to note that the stored NORM materials on the sites of raw material processing industries are not considered as waste. It concerns for instance bulk materials like Uranium or Thorium-bearing ores or Zircone-oxides, for which some future use is foreseen. Generally speaking, the activity concentrations of these materials are above the exemption limits, but below ten times the exemption-limits, which implies that a notification to the authorities is sufficient. If the activity concentrations exceed ten times the exemption levels, a license is required. In case NORM material is declared as waste, and the activity concentration exceeds the exemption levels ten times or more, it is sent to COVRA. Examples of this kind of waste are Po-or Pb- bearing waste from high temperature phosphorus-production. In case NORM material is declared as waste, and the activity concentration levels are less than ten times the exemption levels, it can be disposed of at two dedicated disposal sites for hazardous materials. An examples of this kind of waste are sludges.		

Q.No	Country	Article	Ref. in National Report
12	Germany	Article 12	p. 85; Sec. H
Question/ Comment	Under Section G (p. 71), it is described that an evaluation of the actual safety level of the spent fuel management facility in the High-level Waste Treatment and Storage Building (HABOG) at Borssele has to be performed every five years. Do these evaluations have to be performed for the waste management facilities in the HABOG facility as well? If so, what kinds of assessments have to be performed within theses evaluations?		
Answer	Yes, the evaluations are performed for the whole COVRA		

facility, including the HABOG facility. All procedural, operational and administrative aspects are evaluated.

Q.No	Country	Article	Ref. in National Report
13	Spain	Article 12	Page 85 Point 12 (ii)

Question/ Comment	Management of waste resulting from past practices. COVRA will have to face in the future the management of waste currently stored at Peten resulting from past practices. Which entities are responsible for financing its management and how will this be done?
Answer	The Nuclear Research and Consultancy Group (NRG) in Petten, the owner of this waste, will have to pay for all management costs, including the commissioning, operation and decommissioning of the necessary hot cell facility at the Petten site, where the waste will be conditioned and repacked before transportation to COVRA. Regarding costs for storage and final disposal, these have been paid to COVRA already before construction of the HABOG-facility.

Q.No	Country	Article	Ref. in National Report
14	France	Article 16	H.16(v) - p. 92

Question/ Comment	The radionuclide content of the radwaste delivered to COVRA is declared and assured by the radwaste producer. Could Netherlands indicate if COVRA performs any control before (inspections at the producer) or during (measurements on line) the acceptance of the radwaste in its facilities?
Answer	As transferral of the waste to COVRA includes transferral of all liabilities, COVRA performs dose rate measurements before transport on site (there is a relation between dose rate and waste tariff). Furthermore, before processing the waste, random sampling of liquid waste is carried out.In the case that during conditioning the characteristics of the waste turn out to deviate from those provided by the waste producer, COVRA may have to apply of additional processing steps. According to COVRA's acceptance conditions, the waste producer will then be charged for all additional costs, creating an incentive for providing the correct data.

Q.No	Country	Article	Ref. in National Report
15	Croatia	Article 19	page 31

Question/ Comment	It is stated that formally adopted Nuclear Safety Rules (NVRs) for spent fuel and radioactive waste management facilities did not exist at the time your Report has been issued. Are these two NRVs now in the status that they have passed the review process or the Safety Authority relies on the generic IAEA Safety Standard Series documents as reference material?
Answer	Apparently this has been a mistake in the Dutch National Reports of 2005 and 2008. Only NVR's for reactors (NPP's and Research Reactors) exist or are under development.COVRA is and will be the only spent fuel and waste management facility in the Netherlands. Therefore, it is of no added value to develop general legislation for spent fuel and waste management

facilities. All (additional) legal requirements will be implemented in the COVRA license.

Q.No	Country	Article	Ref. in National Report
16	Spain	Article 19	Page 31 Point 19.2 (i) b

Question/ Comment	NVR development. According to the Report, formally adopted NVRs (nuclear safety rules based on the requirements and safety guides in the IAEA Safety Standard Series) for spent fuel and radioactive waste management facilities do not exist yet. The text also says that draft NVRs are under development: one on predisposal management of radioactive waste and the other on decommissioning of NPPs. Could the Netherlands provide further information about the situation of these rules?
Answer	Apparently this has been a mistake in the Dutch National Reports of 2005 and 2008. Only NVR's for reactors (NPP's and Research Reactors) exist or are under development.COVRA is and will be the only spent fuel and waste management facility in the Netherlands. Therefore, it is of no added value to develop general legislation for spent fuel and waste management facilities. All (additional) legal requirements will be implemented in the COVRA license.

Q.No	Country	Article	Ref. in National Report
17	Spain	Article 19	Page 34 Point 19.2 (ii)

Question/ Comment	Licensing procedure Could the Netherlands give more details on what steps are being taken to "reduce the number of authorities involved in order to streamline the licensing procedures and reduce the administrative burden"?
Answer	The proposal for a revision of the Nuclear Energy Act, which is still in the phase of parliamentary discussion, aims to reduce the number of ministers involved in issuing licenses for nuclear facilities, practices, work activities and transport of nuclear or radioactive material from six to one. In this new licensing regime, the Minister of Housing, Spatial planning and the Environment will be competent to decide on its own on these licenses.It is envisaged that the revision will be in force in the beginning of 2010.

Q.No	Country	Article	Ref. in National Report
18	Germany	Article 22	p. 46; Sec. F

Question/ Comment	The Borssele NPP is the main producer of spent fuel, and HAW contributions to the waste management fund depend very much on the operating time of this NPP. Are the calculations for the fund, presented under Articles 22 ii and 9 vii (p. 83), based on an extended operating time until 2033? Which are the plans to ensure the adequacy of the fund in case of earlier termination of operation of the Borssele NPP or of relevant changes on the financial markets with considerable influence on real interest rates within the discounting period of 130 years? Does the current financial crisis change the Netherlands point of

view about the safety of such funds?

Answer All costs associated with the conditioning, storage and final disposal of the waste generated until 2013 have been paid for by the industry. The contributions to the fund for waste generated after 2013 have still to be negotiated between COVRA and the Borssele NPP. As the industry pays in advance, earlier termination of operation of the Borssele NPP will have no influence on the adequacy of the fund.Regarding the interest rates, a difference between the assumed and the real interest rate can lead to problems on the long term. To prevent these problems, every 5 year the capital growth - based on real interest rates - is evaluated. In case of inadequate fund-growth the fees for waste are adjusted. There is no retrospective adjustment of fees paid.Regarding the safety of the funds, the money is stored at an account at the Ministry of Finance, which is guaranteed by the state.The financial crisis certainly is a warning to be prudent with estimations. On the other hand, a period of 130 years will always be long in comparison with the duration of events such as an economic crisis. In practice this means that there will be enough time to repair.

Q.No	Country	Article	Ref. in National Report
19	Spain	Article 23	Pag 48, page 66 and page 93

Question/ Comment The radioactive residues from reprocessing activities in UK and France will in due time be returned to the Netherlands and stored in the HABOG facility at COVRA. For Borssele NPP a total of 140 vitrified waste canisters have been returned at the end of 2008, whereas for Dodewaard NPP the return of all HLW is planned for 2009.
The acceptance criteria for radioactive waste and storage procedures are only mentioned as part of the Quality Manual (under the information given within the Article 23 corresponding to Quality Assurance). On the other hand, Section I on Transboundary Movement, doesn't include information on the preparation of the returned process, and neither on the acceptance criteria and procedure.
Could you please briefly extend the information on the acceptance criteria for vitrified reprocessing wastes?. Could the Netherlands provide additional information about the process that was carried out for the vitrified waste canisters returned during 2008? Was there regular interaction between the reprocessing organisation and COVRA or the NPP (spent fuel owner) to deal with the acceptance criteria and the conditions for the shipments?

Answer The specifications of the vitrified waste residues from reprocessing activities were drawn by the reprocessing facilities, and approved by the operators of the NPP's and the Regulatory Body. These specifications were used – among other things - as input for design and licensing of COVRA's HLW-facility. These specifications include guaranteed parameters for contamination and radiation levels, heatload and chemical composition.Before shipment from reprocessing site to COVRA, all relevant data and

product files are provided and checked, compliance with transport regulation is assured, and the canisters are 100% witnessed by COVRA and the NPP-operator. Upon arrival at the COVRA-site a second check is performed.

Q.No	Country	Article	Ref. in National Report
20	Croatia	Article 24	page 52

Question/ Comment	From the table 9 it is obvious that collective dose at the High Flux Reactor in year 2006 (246.6 mSv) is significantly higher compared with doses for other years in presented eight years period (2000-2007). What is the reason for that? And what is the background for the increasing trend of collective dose in last three years?
Answer	A few reasons can be identified. For instance, in 2006, the heat exchanger needed to be repaired, which caused a significant contribution. Also other modifications to the primary system were carried out in this year. An additional reason is that there was an increase in new operators, who had to be trained “on-the-job”, leading to higher collective doses.General reasons for the increasing trend in the collective dose are the increase of Mo-99 production and the increase in workforce. Furthermore, as was mentioned on page 15 of the national report, in the years 2005-2007 a lot of irradiated fuel elements were shipped to COVRA and to the USA.

Q.No	Country	Article	Ref. in National Report
21	Ireland	Article 24	Page 53 in subsection “Protection of the

Question/ Comment	The report states that “a source limit amounting to one tenth of the annual effective dose limit for the public (1 mSv) has been set for any practice or facility”. Can Netherlands explain the basis for using this particular factor?
Answer	To assure that the annual effective dose limit of 1 mSv (implementation of the 96/29/Euratom directive) for an individual member of the public is not exceeded, the regulatory system applies one tenth of this limit as a source-limit for licensing individual practices or facilities, to be measured or calculated at the border of the facility.The reason for this is that an individual licensee cannot be held responsible for the exposure caused by other practices or facilities. Therefore, a tenth of the cumulative dose-limit of 1 mSv is allocated to every individual licensee as a source-limit. This is based on the assumption that, by applying these source-limits, it is very unlikely that for an individual member of the public the 1 mSv limit will be exceeded due to exposure by all sources together in a single year.

Q.No	Country	Article	Ref. in National Report
22	Korea, Republic of	Article 24	p.50 (F)

Question/ Comment	1. What kinds of radiation work permits (RWPs) are issued for radiation workers of Category A and B, respectively? 2. Table 7 shows most of workers' individual doses are below 6

	mSv. Are there any ALARA review programs for works expected to exceed the dose constraint of 6 mSv for Category A workers?
Answer	1. Apart from a valid radiation passport, no special work permits are necessary for radiation workers. According to the directive 90/641/Euratom, Dutch legislation obliges a licenseholder who hires a radiological worker to ask for the radiation passport, and to respect the annual dose-constraints of 20 mSv for A-workers, and 6 mSv for B-workers. No further distinction is made between A-workers and B-workers. The VROM-inspectorate is responsible for surveillance.As mentioned on page 50 in the National Report, dose summaries of all dosimetry services, including those of foreign workers, are made available to the National Dose Registration and Information System (NDRIS). Foreign workers have not exceeded the 6 mSv the last years. 2. There are no special ALARA review programmes for workers expected to exceed the 6 mSv dose constraint. However, some licenseholders have the policy not to hire workers with more than 10 mSv in their radiological passport.As shown in table 7 on page 50 of the National Report, in practice, the number of workers with a dose higher than 6 mSv is very low.

Q.No	Country	Article	Ref. in National Report
23	United States of America	Article 24	Section 24.2, Page 55-56
Question/ Comment	Figure 4a on page 55 shows airborne discharges from COVRA of H-3 and C-14 in 2007 that were an order of magnitude higher than the previous 3 years although remaining below the authorized discharge limit. Figure 4b on page 56 shows COVRA alpha emissions in water on a similar trend. What has contributed to these discharge "spikes" in 2007 and have any corrective measures been implemented?		
Answer	The higher H-3 and C-14 emissions in 2007 were a result of the management and conditioning of the overvoltage protection devices of radar-installations.The higher alpha-emissions can be explained by the fact that in 2007 there was a temporary increase in the supply of alpha-bearing waste.		

Q.No	Country	Article	Ref. in National Report
24	Croatia	Article 25	page 59
Question/ Comment	In chapter "Off-site emergency provisions" you say that another main objective was improvement of the organization and the means to inform the public and the media in case of nuclear emergency. Can you, please, explain in more details this system.		
Answer	Two issues had to be improved: 1. Flexibility of the assessment organization 2. Integration of Nuclear Emergency Management in the (existing) emergency management structure. 1. Flexibility The so-called ‘National Nuclear Assessment Team’ was formed,		

existing of two Back offices and a Front office. In the back-offices ‘Health’ and ‘Radiological Information’ several specialised institutes are represented such as for instance the Royal Dutch Weather Service. The back-offices are responsible for production of Situation Reports on the radiological situation as well as forecasts of the development of the accident. Based on intervention-levels (urgent) protective actions are suggested. The Back Offices are in duty-service 24/7, and its size can be upgraded in case of an emergency.
The Front-office consists of senior/management level representatives of the Regulatory Body, with potential backup from other governmental bodies like the Ministries of Health, Agriculture, Labor etc when needed. The Front-office will assess the situation, based on the information provided by the Back Offices and information from local authorities, and prepare strategic decisions. The ultimate decision-making is on the national level by a Ministerial Policy-Team.

2. Integration
In general, in the Netherlands the mayor is responsible for safety and emergency management on the municipal level. In case of severe situations, responsibilities are escalated to a higher level. Nuclear emergencies with potential off-site effects will be co-ordinated on the national level as explained above.The different authorities will have to work together in such a way that efficient and effective information-exchange and decision-making is ensured. Therefore, the chair of the ‘National Nuclear Assessment Team’ will be in close contact with local or regional authorities as well as with national authorities. The national authorities will take strategic decisions and deal with the general public information. Operational (e.g. traffic management measures) and tactical (e.g. timing of iodine distribution) decisions will be taken on the local or regional level respectively. To ensure proper communication, co-operation and information exchange, exercises are essential.

Q.No	Country	Article	Ref. in National Report
25	Spain	Article 25	Page 60 Point 25.1

Question/ Comment: Emergency drill.

A national full-scale exercise was held on May 25th 2005. Could the Netherlands provide some findings of the lessons learnt from this exercise that could be useful for other countries in their planning of emergencies?
The NPK (National Nuclear Emergency Plan) organisation has currently been revitalised. One of the objectives was the improvement of the organisation and means of informing the public and media in case of a nuclear emergency. Could the Netherlands provide more detailed information about these improvements?

Answer: The findings of the exercise are related to its main objective (the improvement of the organisation and means of informing

the public). In general, the exercise proved that the new system of nuclear emergency management worked well, although things can be improved further. An English version of the report of the exercise with lessons learned is available on request.

Some of the follow-up issues implemented or under construction are:
- The development of a new National Response plan for Nuclear and Radiological Accidents (draft version available);
- Improvement of the structure and cohesion of the preparation- and response- phase documentation. The documents will be made available in a 'database management structure', to be shared with the various organisations involved;
- Development of a nuclear emergency module in the existing information-management systems to facilitate decision making by the Front-office and the Ministerial Policy-Team;
- Integration of the monitoring and measuring policy of the various organisations involved;
- A public information-strategy for nuclear emergencies was developed. The public information will be co-ordinated on the national level, assisting local and regional authorities.

Q.No	Country	Article	Ref. in National Report
26	Croatia	Article 26	page 62
Question/ Comment	For the Dodewaard NPP the postponed dismantling after a waiting period of 40 years was selected by operator as a decommissioning strategy. Is this a final decision on the strategy of decommissioning? Or the operator can still reconsider this decision and shorten the waiting period or proceed to direct dismantling at current moment?		
Answer	The owner of the Dodewaard NPP applied for a license for a safe enclosure state for a period of 40 years. This license was issued in 2005, under the condition that the owner shall commence dismantling in 2045. The owner will have to apply for a dismantling license in due time. In the case that the owner would consider to commence dismantling activities earlier than 2045, he will have to apply for a new license, substituting the current safe enclosure license.		

Q.No	Country	Article	Ref. in National Report
27	Korea, Republic of	Article 26	p.64 (F.26(iv))
Question/ Comment	Section F.26(i) states that the safe enclosure period for the NPP Dodewaard is scheduled to last 40 years. What kind of information will be reserved for safe dismantlement of the NPP Dodewaard, which will be dismantled after 40-year-long safe closure period?		
Answer	The Dodewaard Inventory System (DIS) contains all known radiological data and other information provided by employees familiar with the operation of the reactor. The Dodewaard record keeping system, of which the DIS is an important part, appeared as a good practice example in an IAEA document on		

Long Term Preservation of Information for Decommissioning Projects (Technical Report Series, nr 467, august 2008). Information stored in DIS encompasses information on contaminated or activated parts and hot spots in the plant as well as technical information on the plant and its components.

Q.No	Country	Article	Ref. in National Report
28	Spain	Article 26	Page 64 Point 26 (iv) Record keeping

Question/ Comment	In the preparatory phase to the safe enclosure, the licensee of NPP Dodewaard completed the establishment of Dodewaard Inventory System (DIS). The objective of DIS is to describe in detail all relevant radiological data in the controlled zone of the NPP in a database. This database is designed both for present decommissioning activities leading to the safe enclosure, as well as for future dismantling operations. It is envisaged that COVRA will become responsible for the shut down of Dodeward NPP in 40 years. How will COVRA preserve the availability of expertise, knowledge and documentation needed for dismantling, as well as financial resources at the time of carrying out the decommissioning? Is there any arrangement or agreement regarding to it? Is there any similar requirement or practice for the operational Borssele NPP in order to facilitate its future decommissioning? As the operator is responsible for all aspects of decommissioning, and COVRA is responsible for the treatment and storage of all kinds of radioactive waste, including the associated with decommissioning, could the Netherlands explain the share of responsibilities between Dodewaard NPP's operator and COVRA during the safe enclosure period? Is it supported by an agreement or legislation?
Answer	COVRA will have to take care of the conditioning and storage of all the radioactive waste and spent fuel in the Netherlands until final disposal after 100 years. Therefore, COVRA will have to preserve the necessary (operational) knowledge and expertise in the nuclear field. Though, the preservation of knowledge during a waiting period of 40 years remains a challenge, even without a transfer of the safe enclosure of the Dodewaard NPP to COVRA. Therefore much attention is paid to good record keeping. The Dodewaard Inventory System (DIS) contains all known radiological data and other information provided by employees familiar with the operation of the reactor. The Dodewaard record keeping system, of which the DIS is an important part, appeared as a good practice in an IAEA document on Long Term Preservation of Information for Decommissioning Projects (Technical Report Series, nr 467, august 2008). In the case of the Borssele NPP, preservation of knowledge is less complicated, as the NPP will be dismantled directly after shut down. Furthermore, Dutch legislation requires that the operator keeps records and documentation during operation. During the 40 years safe enclosure period all the responsibilities

	remain with the operator of the Dodewaard NPP. After this, COVRA is envisaged to take over all liabilities, to dismantle the NPP, to condition and store the waste, and to take care of final disposal. Upon transferral of liabilities a lump sum is transferred from the operator to COVRA to cover all the associated costs. It is likely to be supplemented with a sum to cover conceivable risks associated with cost estimates over a long period of time. This will in due time have to be concluded in a (legal) agreement between COVRA and the operator.		
Q.No 29	Country United States of America	Article Article 26	Ref. in National Report Section 26, Page 61
Question/ Comment	Details are given on the decommissioning activities and requirements for both Borssele NPP and Dodewaard NPP. General decommissioning requirements for all nuclear sites are not explicitly stated. Please provide clarification on the types of nuclear sites to which decommissioning regulations apply.		
Answer	Currently, most of the decommissioning regulation for nuclear installations is incorporated in the license conditions for the individual nuclear installations. Only a few general requirements have been implemented in formal legislation, regarding the obligation of a decommissioning license. However, specific regulation on decommissioning is under development and expected to be in force in 2010. This regulation will apply to all nuclear installations, and will be based on the WENRA-recommendations for decommissioning.		
Q.No 30	Country Croatia	Article Article 28	Ref. in National Report page 95
Question/ Comment	Regarding issues of detecting enhanced radiation levels with portal detectors, you state that there are no radiation monitors at points of entry at the borders of the Netherlands, except at the container terminals in the Rotterdam harbour. Do you plan to cover some of the border passes with radiation monitors in the future?		
Answer	Currently, portal monitors are installed at container terminals of the Rotterdam harbour. In airports handheld radiation monitors are available. There are no plans for future portal monitors.		
Q.No 31	Country United States of America	Article Article 28	Ref. in National Report Section E, Page 95-96
Question/ Comment	The report indicates there are no radiation monitors at the borders to detect orphan sources. To avoid the inadvertent importation of radioactive sources, are there any future plans for radiation monitoring at the borders?		
Answer	Currently, portal monitors are installed at container terminals of the Rotterdam harbour. In airports handheld radiation monitors are available. There are no plans for future portal monitors.		
Q.No 32	Country Australia	Article Article 32	Ref. in National Report Section B page 17

Question/ Comment: Is it envisaged that final, irreversible closure of the disposal facility will occur at some time?

Assuming that reversibility requires active management by future generations to maintain access to the repository, how does the policy of retrievability take into account the requirement of no burden on future generations?

Answer: According to the 1993 position paper, a disposal facility for radioactive waste and spent fuel should be designed in such a way that each step in the process from design to commissioning of the facility is reversible. This implies that retrievability is intended to remain after closure, leaving the possibility to future generations to apply other management techniques, if they would become available.
The issue of reversibility does imply an (extra) burden for future generations compared to a situation of an irreversible disposal facility, as closure of the disposal facility, though reversible, is still foreseen.

Q.No	Country	Article	Ref. in National Report
33	France	Article 32	B.32.1(iii) - p. 15-16

Question/ Comment: The Netherlands' policy on radwaste management is based on a report that was presented to parliament by the government in 1984. Netherlands chose to store the radwaste in buildings for a period of at least 100 years. During this time period, the deep geological disposal facility will be defined, constructed and commissioned. Since this decision, Netherlands postponed the closure of the Borssele NPP to 2033 (additional 30 years of operation) and in 2008, a owner-partner of the Borssele NPP announced that it would built a second unit at Borssele (1,000 to 1,600 MWe).
Could Netherlands indicate if these decisions will have an impact on the Netherlands' radwaste centralised storage facilities (COVRA site), more widely, on the Netherlands' policy on radwaste management?

Answer: The postponed closure of the Borssele NPP will imply an extra 30 years of waste and spent fuel generation, for which additional capacity at COVRA will have to be built, and for which extra capacity in the future disposal facility will have to be reserved. The owner of the Borssele NPP will have to pay for the extra costs.

Until today, in the Netherlands no license application for a new NPP was received. In the case a new NPP would be built in the Netherlands, corresponding additional storage and disposal capacity will have to be accounted for. The COVRA-site allows for these expansions, as it was originally designed for a much larger nuclear programme.

Basically, above-mentioned developments will have no impact on the national policy on radioactive waste and spent fuel. However, as was mentioned on page 16 of the National Report,

the additional 30 years of waste generation, as well as an additional 30 years of cost contribution to the disposal fund may mean that within a shorter period than 100 years a repository could become economically feasible.

Q.No	Country	Article	Ref. in National Report
34	France	Article 32	B.32.1(iv) - p. 20

Question/ Comment	In Netherlands, NORM materials with radioactivity concentrations in excess of the exemption limits are stored at some sites of raw materials processing industries (the quantities are estimated to amount to about 50,000 tonnes). Could Netherlands specify regulatory requirements and industrial practices for NORM materials storage facilities ? What are the paths considered to dispose of NORM materials with radioactivity concentration in excess of the exemption limits in the long-term?
Answer	It is important to note that the stored NORM materials on the sites of raw material processing industries are not considered as waste. It concerns for instance bulk materials like Uranium or Thorium-bearing ores or Zircone-oxides, for which some future use is foreseen. Generally speaking, the activity concentrations of these materials are above the exemption limits, but below ten times the exemption-limits, which implies that a notification to the authorities is sufficient. If the activity concentrations exceed ten times the exemption levels, a license is required. For these sites national radiation protection legislation applies. Examples of requirements are radiation protection measures for workers, dose constraints on the borders of the facilities and appropriate training. In case NORM material is declared as waste, and the activity concentration exceeds the exemption levels ten times or more, it is sent to COVRA. Examples of this kind of waste are Po-or Pb- bearing waste from high temperature phosphorus-production. In case NORM material is declared as waste, and the activity concentration levels are less than ten times the exemption levels, it can be disposed of at two dedicated disposal sites for hazardous materials. Examples of this kind of waste are sludges.

Q.No	Country	Article	Ref. in National Report
35	Germany	Article 32	p. 16; Sec. B

Question/ Comment	The Netherlands' policy on radioactive waste management has foreseen a long-term storage of at least 100 years. How will the availability of qualified staff be ensured for later actions after a waste storage time of 100 years? How will the preservation of the information on the stored waste and its history be ensured?
Answer	Ensuring the availability of qualified staff through the years always is a challenge in countries with a small nuclear programme. As COVRA is the only organisation in the Netherlands licensed to manage and store radioactive waste and spent fuel, it will have to preserve at least a minimum of

qualified staff for the foreseen storage period of 100 years. Additional expertise could be hired from abroad.
The preservation of information on the stored waste and its history is ensured by technical means: All data is preserved in a double archive, using both digital as well as conventional paper data storage. A distinction is made between the short-term archives (0 - 15 years) and the long-term archives (more than 15 years). For the long-term archive additional measures are taken. Paper information carriers are printed on certified durable paper with special ink and stored at two locations in conditioned rooms, together with digital information carriers.

Q.No	Country	Article	Ref. in National Report
36	Germany	Article 32	p. 17; Sec. B

Question/ Comment	Starting from page 17, some thoughts about disposal in the Netherlands are developed. It is stated that in your concept the retrieval of the waste always should be possible. Does this include the time after the closure of a repository? General thoughts about the possibility of a disposal facility are presented. Would it be the plan to dispose of all kinds of waste in only one facility?
Answer	According to the 1993 position paper, a disposal facility for radioactive waste and spent fuel should be designed in such a way that each step in the process from design to commissioning of the facility is reversible. This implies that retrievability is intended to remain after closure. Regarding the second question, it should be realized that the production (rate) of radioactive waste in the Netherlands is very low. The only way to make a deep underground disposal facility economically feasible is to dispose of all the radioactive waste, ranging from VLLW to heat-generating HLW, in this repository. The position paper also stated that an underground disposal facility could as well serve as a repository for highly toxic wastes, other than radioactive waste.

Q.No	Country	Article	Ref. in National Report
37	Germany	Article 32	p. 17; Sec. B

Question/ Comment	It shortly is described that LLW and ILW is cemented. Experiences with German waste products show corrosion problems after a few decades. Are there special measures taken in conditioning with a view to 100 years of storage?
Answer	Yes. First of all, the 100 years storage period was used as a design condition. To prevent corrosion problems various measures are applied, among which the most important are: - the galvanisation and painting of the waste drums, - the lowered air humidity in the storage building, which is monitored and kept around 60%, - the ratio cement/waste of at least 1/1. The layer of at least five centimetres of cement has a relatively high pH, which

reduces drum corrosion.
Furthermore, the physical distribution and the horizontal alignment of the drums in the stacks storage allow for easy inspection. The waste packages are standardised and limited in size - packages with a final volume of 200 litres or 1000 litres are used – in order to ease later handling and allow simple repair and reshuffling in case of degradation.

Further details of experiences can be found in annex II of the IAEA (draft) document “The Long Term Storage of Radioactive Waste and Spent Nuclear Fuel. Safety and Policy Considerations”.

Q.No	Country	Article	Ref. in National Report
38	Ireland	Article 32	Page 19
Question/ Comment	It is noted that the Netherlands uses both terms “NORM” and “TENORM” in their report. Is a distinction made from a regulatory point of view?		
Answer	No, in fact there is no distinction between TENORM and NORM material in Dutch legislation.		
Q.No	Country	Article	Ref. in National Report
39	Ireland	Article 32	Page 19, first paragraph in subsection “
Question/ Comment	It is noted that Netherlands uses the exemption levels as specified in Table 1 of the Euratom Basic Safety Standards for wastes from ores –and other raw materials- generated in processing. It is recognised that these exemption levels only apply to “practices” as defined in this same document. Are (TE)NORM industries classified as practices in the Netherlands?		
Answer	No, handling material with radionuclides of natural origin, used for other reasons than for its radioactive properties is considered as a work activity. The same reasoning applies for handling radioactive waste containing radionuclides of natural origin that is generated in processing industries. In Dutch legislation no distinction is made between radionuclides of natural and artificial origin: the exemption levels as specified the Dutch Radiation Protection Decree apply for both work activities and practices. Please note, however, that for a few radionuclides these exemption levels differ from the levels as defined in Table 1 of the European Basic Safety Standards.		
Q.No	Country	Article	Ref. in National Report
40	Ireland	Article 32	Page 19, first paragraph in subsection “
Question/ Comment	It is noted that a licence is required under the Dutch regulatory regime in case the exemption levels as specified in Table 1 of the Euratom Basic Safety Standards are exceeded by a factor of 10. Can Netherlands explain the basis for using this particular factor?		
Answer	The factor of 10 is only applied for work activities. Below ten		

	times the exemption level, a notification to the authorities is deemed sufficient, based on the relatively low dose rates, compared to background levels. For work activities with activities and activity concentrations exceeding ten times the exemption level a license is required.		
Q.No 41	Country Ireland	Article Article 32	Ref. in National Report Page 19, first paragraph in subsection “
Question/ Comment	It is noted that a licence is required under the Dutch regulatory regime in case the exemption levels as specified in Table 1 of the Euratom Basic Safety Standards are exceeded by a factor of 10, but that below this – but above the exemption levels - a notification to the authorities is sufficient. Has any such a licence been issued or notification to the authorities by a (TE)NORM industry taken place in the Netherlands?		
Answer	Notifications are received regular basis. Until now, more than 20 of these licenses have been issued to raw material-processing facilities, producing (TE)NORM.		
Q.No 42	Country Ireland	Article Article 32	Ref. in National Report Page 19, first paragraph in subsection “
Question/ Comment	It is noted that a licence is required under the Dutch regulatory regime in case the exemption levels as specified in Table 1 of the Euratom Basic Safety Standards are exceeded by a factor of 10, but that below this – but above the exemption levels - a notification to the authorities is sufficient. It is well known that depending on the composition of the feed/raw material, large variations over time can arise in the waste produced. Is there a monitoring programme in place in the Netherlands to verify that activity concentrations and/or total activities in (TE)NORM wastes produced are kept below the required levels?		
Answer	A ‘positive’ list was drawn of raw material-processing facilities in the Netherlands whose work activities may exceed the exemption levels. An example of such a facility is a high temperature phosphorus production plant. These facilities are obliged to monitor their materials and processes on a regular basis, under supervision of the VROM-Inspectorate on behalf of the Regulatory Body.		
Q.No 43	Country Ireland	Article Article 32	Ref. in National Report Page 20, second paragraph
Question/ Comment	It is noted that “NORM materials with radioactivity concentrations in excess of the exemption limits are stored at some sites of raw materials processing industries. The quantities are estimated to amount to about 50,000 tonnes”. Could Netherlands give more information about the type of NORM materials and the number of sites concerned?		
Answer	It is important to note that the stored NORM materials on the sites of raw material processing industries are not considered as waste. Nowadays there are some 10 processing sites in the		

Netherlands, processing for instance bulk materials like Uranium or Thorium-bearing ores or Zircone-oxides, for which some future use is foreseen. Generally speaking, the activity concentrations of these materials are above the exemption limits, but below ten times the exemption-limits, which implies that a notification to the authorities is sufficient. If the activity concentrations exceed ten times the exemption levels, a license is required.
For these sites national radiation protection legislation applies. Examples of requirements are radiation protection measures for workers, dose constraints on the borders of the facilities and appropriate training.
In case NORM material is declared as waste, and the activity concentration exceeds the exemption levels ten times or more, it is sent to COVRA. Examples of this kind of waste are Po-or Pb- bearing waste from high temperature phosphorus-production.
In case NORM material is declared as waste, and the activity concentration levels are less than ten times the exemption levels, it can be disposed of at two dedicated disposal sites for hazardous materials. Examples of this kind of waste are sludges.

Q.No	Country	Article	Ref. in National Report
44	Romania	Article 32	page 38/138

Question/ Comment: Please provide us more information on the minimization of radioactive waste.

Answer: First of all, and in accordance with the Basic Safety Standards, Dutch regulation requires that the use of radioactive material shall be justified, meaning that they should be used only if there is no reasonable non-radioactive alternative available. Furthermore, according to the Dutch Radiation Protection Decree, a licensee in possession of radioactive material is obliged to minimise the generation of radioactive waste. The licensee is in principle free to choose its measures to achieve this. An example of such a measure is the preferred use of radionuclides with short decaytimes, allowing for a rapid decay below the exemption levels.In the case of materials (not declared as waste) containing radionuclides of natural origin with activity concentrations below ten times the exemption levels, Dutch legislation leaves the possibility to reuse these materials as far as reasonably practical. These materials can for instance be mixed with conventional bulk materials for the use in public works and infrastructure.

Q.No	Country	Article	Ref. in National Report
45	Spain	Article 32	Page 24 Point 32.2 (iii)

Question/ Comment: U3O8 storage.

COVRA stores depleted uranium in the form of U3O8 at Borssele facility. This waste might be retrieved and converted into fuel should future prices of uranium make it profitable. On the

	contrary, if prices don´t rise significantly, ¿is it foreseen its management as a radioactive waste? Has its funding been provisioned by the generator of this waste?
Answer	All waste producers contribute to the fund, even if they produce only short-lived, low-level waste or if there might be a future application for the waste. Contributions to the fund are calculated per unit volume (m3) and are different for HLW and LILW. Two-thirds of the costs of a future repository are charged to the HLW and one-third to the LILW. The situation for depleted uranium is not different. In the fee for U3O8 is included the LILW contribution to the waste fund.

Q.No	Country	Article	Ref. in National Report
46	Spain	Article 32	Pages 12 and 14

Question/ Comment	Spent fuel management practices from NPPs It is mentioned that since 2006 no transports of spent fuel have been carried out from Borssele NPP to AREVA (France) for reprocessing. The reason is that a new bilateral agreement must have been concluded between France and Netherlands due to new French legislation. Could the Netherlands provide some information about the status of this future agreement and when it is envisaged to be approved? It is also mentioned that "Regular transports ensure that the fuel pool inventory is kept to a practical minimum, as required by the plant operating license". How could this delay in the transports affect this requisite and the operating license of the plant? Has the operator established a contingency plan if the transports are delayed for more than expected?
Answer	The bilateral agreement was recently signed by the Dutch and the French governments. The next and final step is approval by the Dutch Parliament, which is expected before the summer 2009. After this approval the operator can apply for a transport license, and resume transports of spent fuel, probably before the end of 2009. To keep the source term for a potential radiological incident as low as possible, a practical minimum pool inventory is preferred. This is used as an inspection rule, but is not explicitly required by the operating license, as was incorrectly mentioned in the national report. As a conservative calculation estimates the pool capacity to be sufficient until 2014, there is no need for a contingency plan.

Q.No	Country	Article	Ref. in National Report
47	Spain	Article 32	Pages 17 and 18 Point 32.1

Question/ Comment	In 1993 the Government adopted and presented to the Parliament a position paper on the long-term underground disposal of radioactive and other highly toxic wastes. This forms the basis for further development of a national radioactive waste management disposal policy, which now requires that any underground disposal facility be designed in such a way that each step of the process is reversible. This means that retrieval of waste, if deemed necessary for whatever reason, would

always be possible.
Because the Netherlands has adopted the strategy of storage in dedicated surface facilities for at least 100 years, there is no immediate urgency to select a specific disposal site. However, further research is required to resolve outstanding issues, to preserve the expertise and knowledge, and to be prepared for site selection in case of any change to the current timetable, for example any arising from future European requirements .
On the other hand the CORA committee recommended further studies regarding some safety issues, to carry out co-operation with other countries (particularly on joint projects in underground laboratories), to pay attention to the requirements for monitoring of retrievable repositories etc.

Since the Netherlands has adopted the strategy of storage in surface facilities for at least 100 years, there is no immediate urgency to select a specific disposal site. However, as recognised in the Report some actions should be taken regarding further research, to preserve expertise and knowledge etc. Which actions are expected to be carried out and when?. As mentioned in the Report, although the Parliament has agreed with the proposed research programme, it has not started yet, due to lack of funds, as – in the opinion of the Dutch Government – the industry should pay for a substantial part of the costs. Doesn't it mean that there is not an established financing system to comply with the responsibilities of present generation regarding future generations? Could you please clarify and give a more extended information about the financing system?

Answer The issue here is that, on the one hand, the waste producers (including the nuclear industry) have to pay all costs associated with the management, storage and disposal of the radioactive waste and spent fuel. This includes the development and construction of a disposal facility. There is a clear financing system: the money required to develop and construct a repository is collected in a capital growth fund and will become available after the storage period of 100 years, leaving only the construction of the disposal itself as a task for the future.

On the other hand, the policy in the Netherlands is based on a step-wise decision process in which all decisions are taken to ensure safe disposal in a repository, but without excluding alternative solutions in the future. The outcome of this process should not be influenced by waste producers. Therefore, costs of the decision-making process whether to build a repository and where, to continue storage, or to use possible alternative future solutions for the radioactive waste are not necessarily to be financed by the nuclear industry alone. The government and other waste producers also have responsibilities. Similar reasons hold for the preservation of knowledge and research for a geological disposal facility, in particular when the government

introduces additional design features, such as retrievability.

After publication of the National report in 2008, COVRA and the Nuclear Research and consultancy Group (NRG) have formulated a proposal for a follow-up research programme for a national disposal facility, addressing both technical and non-technical aspects. The industry decided to provide a substantial part of the costs of this programme. However, as the current government postponed all decisions regarding nuclear power to a next government, a decision regarding co-financing by the government will be not taken before 2011.

Q.No	Country	Article	Ref. in National Report
48	United States of America	Article 32	Section 32.1(iv), Page 20

Question/ Comment	A dedicated hot cell facility is planned to condition and repackage high-level waste from four decades of nuclear research. The license application and EIA were submitted to the competent authorities in 2007 and a license was expected by the end of 2008. What is the status of this license application? What regulatory issues were raised on the application and how were they resolved? Please provide an update during the national presentation at the May 2009 meeting.
Answer	The license for the hot cell facility has been issued in 2008, there were no appeals against the issuing of the license. According to the license, all the high level waste present in the Waste Storage Facility (WSF) will have to be offered for storage to COVRA as soon as possible, with a maximum of eight years after commissioning of the facility. Construction of the facility is envisaged to start in 2009, first operations are expected in the end of 2010.

Q.No	Country	Article	Ref. in National Report
49	United States of America	Article 32	Section 32.1(iii), Page 13

Question/ Comment	Historical high-level waste at the Petten site will be repackaged and shipped to COVRA. A license application for the repackaging facility was submitted in 2007, and a license is expected in 2008. Has such a license been issued? Please describe during your national report presentation in May 2009 any lesssons learned in licensing this facility.
Answer	The license for the hot cell facility has been issued in 2008, there were no appeals against the issuing of the license. According to the license, all the high level waste present in the Waste Storage Facility (WSF) will have to be offered for storage to COVRA as soon as possible, with a maximum of eight years after commissioning of the facility. Construction of the facility is envisaged to start in 2009, first operations are expected in the end of 2010.