SECOND REVIEW MEETING

JOINT CONVENTION ON THE SAFETY OF SPENT FUEL MANAGEMENT AND ON THE SAFETY OF RADIOACTIVE WASTE MANAGEMENT

Written questions to submitted to Luxembourg by:

Czech Republic:

Question 1:

Context: Article 24 section F Page: 14

Topic: operational radiation protection

Question: From the sentence related to the Article 24 it is not fully clear how the system works. Please provide additional details (e.g. implementation of EU directives).

Answer: The system of operational radiation protection is largely based on Directive 96/29/EURATOM. The licensee, is fully responsible to promote the ALARA principle, to classify workers and to organize individual dose monitoring, to ensure that the legally binding dose limits are respected, to define “controlled areas” and “supervised areas” and to take all appropriate steps to avoid incidents and accidents that could lead to the exposure of the workers, the public or the environment. This system applies to all holders of radioactive materials.

Users of unsealed sources have to include the proposed measures for the management, discharge or evacuation of the radioactive wastes into the license application. The license specifies the procedures for adequately handling, controlling and minimizing the releases of these radioactive substances.

Each licensee has to nominate a qualified radiation protection officer (RPO) responsible for the implementation of the above requirements.

Question 2:

Context: Article 19 section E Page: 10

Topic: *validity of licenses & safety reviews*

Question: What is a typical validity of an operational license and how is the periodical safety review process reflected in the licensing system?

Answer: The regulation in place does not define a validity for licenses. The established practise is to limit licenses for holding, storing and using radioactive materials to 10 years. Transport licenses are usually limited to a 5 years validity.

Depending .

Question 3:

Context: Article 25 section F Page: 14

Topic: *emergency planning*

Question: What is the periodicity for the verification of National Emergency Response Plan?

Answer: After the first release in 1986 the national emergency plan has been only once updated in 1994. Nevertheless a number of conclusions have been drawn from the international exercises in which Luxembourg participated. Since 1990, trilateral exercises have been organized every three years between the two German federal States, Sarreland and Rhineland-Palatinate, Luxembourg and France. Some of these exercises were simple communication or radiological data exchange exercises; others are more complex and aimed the execution of the national emergency plans. Furthermore, Luxembourg has participated in almost all INEX exercises, organized by the NEA of the OECD, all CONVEX exercises launched by the AIEA, as well as in JINEX 1.

Some of the conclusions serve to optimise procedures and practices within the Luxembourg emergency plan, as well as to update the annexes of that plan. As a result of these exercises, the structure of the command post as well as the organization for communication with the media was modified. All exercises have helped to:

- Improving the communication procedures and strategies, both on a national and international level;
- Establishing new communication technologies, giving preference to web technologies for the information of the administrations, the media and the foreign partners;
- Improving the coordination between the different partners in the information of the media. As example it was revealed that regular information messages of the actual situation have also to be transmitted to national authorities and services, which are not directly connected to the foreign crises centre. Also the specific technical language used for the exchange of information has to be revised in order to avoid misunderstandings;
- Installing and improving the different communication devices and using these devices in real time (log-file);
- Creating appropriate structures that guarantee that in the case of an emergency, the information is also available in English
- Introduction of a hot line, other than the emergency line of the civil protection, to satisfy the needs of the individual.
- Sharing the responsibilities between several agents in the aim to reduce the dependency on individual persons. (This represents a major issue for a small country like Luxembourg with limited human resources.)
- To recognize that measures taken to protect the population have to be harmonized between the concerned countries.

Question 4:

Context: Article 25 section F Page: 14

Topic: *internal emergency planning*

Question: What is the periodicity for the verification of internal emergency response plans?

Answer: Most licensed users of radioactive materials have a general internal emergency plan, covering all potential accidents. The DRP insists and verifies

that the radiological risk is properly reflected within that emergency plan, but does not impose a periodicity for its verification.

Question 5:

Context: Article 25 section F Page: 14

Topic: *training of rescue units*

Question: What is the period of refresher courses which are held for the emergency teams formed to assist in the event of a nuclear disaster?

Answer: Refresher courses are held twice per year for the members of the Radiological Protection Unit of the Rescue Services Agency. These courses cover both, practical and theoretical training. Members of other rescue units have to participate in a specific training program according to their tasks, as defined by regulation. Each of these training courses also comprises the basic elements of radiation protection and nuclear emergency preparedness.

Since 2005, a close cooperation has developed between the Radiological Protection Unit of the Rescue Services Agency and similar first responder teams from neighbour countries. This includes the exchange of experiences during seminars and the organisation of joint practical training exercises.

Question 6:

Context: Article General

Topic: *tritiated thymidine*

Question: How do you plan to manage 180 liters of 3H contaminated water with total activity less than 2 GBq (export to Belgium?)?

Answer: Given the organic properties of the product, a licensed clearance with other wastewaters is excluded as a potential option. An acceptable plan to manage the 180 liters of 3H contaminated water has thus to be agreed on between the licensee, the agency for waste management “SuperDrecksKescht”, the Ministry of environment and the DRP. At the moment several options are analysed but no solution has yet been proposed.

Germany:

Question 1:

Context: Article 17

Topic: *Accidental Contamination*

Question: “The interim storage facility will not be contaminated. Thus no specific measures, except of final contamination verification will be needed after closure.”

Are there any measures foreseen for accidental contamination by unintended spread of radioactive material?

Answer: Accidental spread during the manipulation of the wastes or as a result of a more server accidents like fire or flood may indeed occur. Depending on the degree of contamination, decontamination may be performed by own means and by the Radiological Protection Unit of the Rescue Services Agency.

Luxembourg is also increasingly cooperating with specialized rescue teams from neighbour countries that could assist in case of major accidents.

The DRP has further the possibility to contract a specialized private company. To this effect, a specially labelled credit of the state budget has been introduced in order to cover such non-predictable costs and a German company is licensed by the Minister of Health to perform decontamination activities in Luxembourg.

Ukraine:

Question 1:

Context: Article General

Topic: *transfer to ONDRAF*

Question: At regular intervals, the Belgian Waste Management Agency (ONDRAF/NIRAS) picks up this radioactive waste in Luxemburg and transfers it to the Belgian storage facility.– How often? How much is it paid for ONDRAF/NIRAS services?

Answer: The last two transfers were on December 2008 and October 2005. Before organizing a transfer, ONDRAF establishes an offer on the bases of quantities and involved nuclides. The prize is basically composed of the following costs:

- License from the Belgian authorities;
- Transport;
- Reception and interim storage;
- Treatment and conditioning;
- Provisions for final storage.

UK:

Question 1:

Context: Article 17

Topic: *Contamination of storage facility*

Question: Institutional Measures after closure - the report states that the interim storage facility 'will not be contaminated'.

Can Luxembourg identify how they can be so sure of this and are there arrangements in place should contamination occur?

Answer: The statement of excluding contamination as cited in the report refers to the building materials of the storage facility. Given the fact that there are mainly sealed sources and some other solid wastes stored, and assuming a normal operation only a surface contamination can occur that would be possible to be removed. In order to verify the absence of contamination the DRP carries out yearly wipe tests.

Should contamination occur under normal operation that cannot be removed by own means, the DRP would contract a specialized private company. To this effect, a German company is licensed by the Minister of Health to perform decontamination activities in Luxembourg. A specially labelled state budget has been introduced in order to cover such non-predictable costs.

Question 2:

Context: Article 16

Topic: *segregation of wastes*

Question: Operation of Facilities - the report notes that wastes are segregated.

Could Luxembourg identify where this occurs, who carries out the segregation? In particular, is waste segregation encouraged at the point of origin?

Answer: As stated under article 12, only waste resulting from practises for which no license holder exists is stored at the waste interim storage facility. These are mainly smoke detectors from public or private buildings, radioactive lightening conductors, orphan sources and other consumer goods containing radioactive substances that have over the years been collected from private people. Segregation at the point of origin does not provide any benefit.

These items are first stored at the waste interim storage facility without any specific segregation. When sufficient items are collected, the DRP contracts AV Controlatom to perform the segregation according to the acceptance criteria of ONDRAF and to pack them ready for transport. This is performed within the interim storage facility.

USA:

Question 1:

Context: Article 19 Section E Page 7 and 10

Topic: *exemption versus clearance*

Question: Luxembourg classifies its facilities and licensing conditions based on levels and multiples of exemption limits in Euratom Council Directive 96/29. Luxembourg further invokes this Directive in laying down the basic standards of radiation protection (Article 18 – page 9). Furthermore, release and discharge standards additionally refer to the German Commission on Radiological Protection document Clearance of Materials, Buildings and Sites with Negligible Radioactivity from Practices Subject to Reporting or Authorization. Does Luxembourg specifically use Directive Table A exemption limits as its discharge limits? Please clarify how this information is integrated to arrive at consistent release and clearance levels.

Answer: The Directive Table A exemption limits are limits to define whether a practise needs to be licensed or not. Operators holding or using radioactive substances above these limits have to be licensed. From such utilities radioactive substances may be discharged to the environment without additional license if they are below the clearance levels. The clearance levels are for each nuclide below the exemption levels. Both are defined by the Grand-ducal regulation of

14 December 2000 concerning the protection of the population against the dangers arising from ionizing radiation. The German Commission on Radiological Protection document Clearance of Materials, Buildings and Sites with Negligible Radioactivity from Practices Subject to Reporting or Authorization is the source where these values were taken from.

Question 2:

Context: Article 19 Section E Page 11

Topic: *Inter-comparison with Ireland*

Question: Luxembourg started an inter-comparison of regulatory activities with the Radiological Protection Institute of Ireland, focusing in the implementation of Euratom Council Directive 96/29. The process between regulatory bodies was to be finalized by the end of 2008. Is this process complete? What matters of mutual benefit have been considered? What changes to regulatory requirements are anticipated from this effort?

Answer: In the preparation of the inter-comparison, a certain number items of mutual interest were identified. These topics were discussed and practises were compared during two meetings, one in Luxembourg and one in Dublin. It was up to each delegation to take own conclusions and benefits from this activity.

As a direct consequence, the following aspects will be implemented within 2009 in Luxembourg:

- Modification of the inspection form used, based partially on the questionnaires set by IAEA-TECDOC-1526 “Inspection of Radiation Sources and Regulatory Enforcement” and the inspection form used in Ireland during inspections.
- Development of a guide to implement general procedures on radiation safety.
- Development of a guide to perform risk assessments.
- Development of a guide on internal intervention planning.

Concerning a more general mutual benefit one should certainly mention a very valuable exchange of experiences, concerning mainly practical aspects of the relations between regulator and licensee. This includes licensing and registration processes, inspection activities, waste management and disposal activities, disused sources, quality controls, the roles of the qualified expert and the medical physicist, classification of workers, enforcement activities, security aspects, incident reporting practises, peer review projects and accreditation of inspection services.

Question 3:

Context: Article 19 Section J Page 10

Topic: *public involvement*

Question: Explain any provisions for public and other stakeholder involvement (e.g., regulatory proceedings, establishing requirements, environmental impact assessments).

Answer: Licensing procedures differ according to the category of the facility.

In each case the labour inspectorate under the Ministry of Work must asked for opinion. Other national or international bodies and/or experts may be asked for opinion.

The licensing procedures of facilities in category I and II provide for publication in the Municipalities were the facility is located and in Municipalities close to the facility, following a specified procedure. Applications for a category I facility have to be additionally an announced in 4 different daily newspapers. All interested parties may consult the full application at the respective Mayor houses. Their observations must be heard.

Applications for a category I facility must be accompanied among others with assessments on demography, geography, topography, ecology, geology, seismology, hydrogeology and meteorology of the region within a 25 km radius.

Assessments on planed or accidental radioactive releases to the environment and there impact on the public health need to accompany applications for category I and II facilities.

Question 4:

Context: Article 25 Section F Page 14

Topic: Emergency response plan

Question: The answer to a question from the Czech Republic to Luxembourg on the Second national report stated the emergency management plan was most recently revised in December 1994. Please indicate any updates to the National Emergency Response Plan?

Answer: After the first release in 1986 the national emergency plan has been updated in 1994 due to lessons learned from the exercises and communications with our neighbouring countries. The procedures that figure in the annexes of the existing emergency preparedness plan are regularly adapted according to changes within administrations and corresponding infrastructures. Other updates are a result of lessons learnt from exercises and concern the documentation used in the crisis centre (eg: check lists. international contacts, notification sheets, log-files). More details are included in the answer to a similar question by the Czech Republic.

France:

Question 1:

Context: Article 12 Section H Page 15

Topic: Storage of used sources

Question: Could Luxembourg specify the storage average time of used sources before being picked up by ONRAF/NIRAS?

What are the criteria of choice, if any?

Are there waste types that will not be picked up by ONDRAF/NIRAS?

Answer: The storage time of the waste is not defined, neither limited, but oriented according to practical considerations. A transfer is normally organized when

sufficient waste of one type is available to reach the yearly quota. This concerns mainly smoke detectors and lightening rods of which the storage time is mostly below 5 years. Other types of wastes in very small quantities are stored longer.

Concerning the acceptance of all waste types, a meeting was arranged in early 2008 between the Belgian authority (AFCN/FANC), ONDRAF/NIRAS and the DRP, where ONDRAF/NIRAS reconfirmed the principle to accept all types radioactive waste that exist in Luxembourg.

Question 2:

Context: Article 26 Section F Page 14

Topic: Decommissioning of storage building

Question: Could Luxembourg specify licensing procedures implemented for the closure and decommissioning of the former Euratom storage building in 2007?

Was it entirely controlled by the DRP?

Was it performed on the basis of a Decommissioning Plan and of a dedicated Safety Analysis Report?

Answer: Following the Grand-ducal regulation of 14 December 2000 concerning the protection of the population against the dangers arising from ionizing radiation, any suspension of activities must be declared to the DRP who will define the conditions for decommissioning.

After all radioactive sources were removed the DRP inspected the storage location and verified the absence of potential contamination. On the basis of these verifications the DRP issued the permission to use the facility for other purposes.

Question 3:

Context: Article 32 Section D Page 9 / Annex 1

Topic: Disused sources of Euratom

Question: Could Luxembourg indicate if a waste interim storage is located in the Euratom building?

What is the evacuation path of used sources, if any?

Answer: No specific interim storage for waste is located in the Euratom building, but a strongroom for the storage of their sealed sources. Disused sources are returned to the Joint Research Centre of the European Commission in Karlsruhe, Germany.

Question 4:

Context: Article 32 Section B Page 7

Topic: Tritium

Question: Could Luxembourg detail the solution envisaged to evacuate the 180 L of tritiated thymidine stored in a hospital?

In a general way, could Luxembourg indicate how liquid waste whose activity is higher than clearance levels is evacuated?

Is there any special procedure?

Answer: The Minister of Health (category I and II facilities), respectively the Director of Health (category III and IV facilities) may issue licenses for clearance of liquid waste above the clearance levels. These cases are however rather exceptional. The general policy is to store short-lived substance before release and to minimise the use of long-lived nuclides.

The potential option of an authorized clearance with other wastewaters does however not apply to the liquid waste from tritiated thymidine because of its organic properties. This implies that an acceptable solution has to be agreed on between the licensee, the agency for waste management "SuperDrecksKescht", the Ministry of environment and the DRP. At the moment several options are analysed but no solution has yet been proposed.

Bulgaria:

Question 1:

Context: Article 32

Topic: Clearance limits

Question: How will be implemented in practice the exemption/release from regulatory control of materials, in the course of application of the German legislation in this field and is any approximation of this legislation to the legislative system of Luxemburg envisaged?

Answer: The clearance levels are defined by the Grand-ducal regulation of 14 December 2000 concerning the protection of the population against the dangers arising from ionizing radiation. The German Commission on Radiological Protection document "Clearance of Materials, Buildings and Sites with Negligible Radioactivity from Practices Subject to Reporting or Authorization" is the source where these values were taken from.

Argentina:

Question 1:

Context: Article 32 Annex 1

Topic: NORM

In Annex I it is indicated that some NORMs were identified but it was not included in the inventory. Could you comment us what type of NORMS were identified and what activity concentration has?

Answer: Over the years the DRP has collected items containing NORM from private people, schools and pharmacies. They consist mainly of chemicals containing NORM, minerals with elevated NORM and small items containing Ra-226, such as watches. The total volume of all these items is rather small (below 30 litres). Specific and total activities have not yet been precisely determined.

Question 2:

Context: Article 27 Page 15

Topic: Transport

In cases of exportation of disused sealed sources to the supplier country which institution is the consigner and who controls the appropriated packaging of the sources?

Answer: The licensed holder of the disused source, who is responsible to organise the return of the source is the consignee and has to provide for appropriate packaging of the sources. The control of transport of radioactive material is a mission of the DRP.

Recognizing the difficulty for licensees who only seldom organise transfers with radiation sources to be familiar with the rather complex legislative requirements, the DRP may provide some support. This ranges from issuing guidelines up to being present when the sources are packed. In some cases it is also necessary for the licensee to contract specialised companies to appropriately pack the disused sources and to prepare all applicable documentation.

Australia:

Question 1:

Context: Article 12

Topic: existing facilities

Question: Are there any existing radioactive waste management facilities in Luxembourg for which a Safety Assessment consistent with current international guidance is not available?

Are there existing mining facilities or waste from past mining practices that require the safe management of radioactive waste?

Answer: The national legislation is based on European directives and other international guidance documents. The national radioactive waste interim storage facility fully complies with the national legislation and as such with international guidance.

No mining facilities or waste from past mining practices exists in Luxembourg.

Question 2:

Context: Article 17

Topic: Internal emergency plan

Question: Is there a plan in place to deal with the consequences of accidents when adding items to, or removing items from, the interim storage facility?

Are regular surveys carried out to check the integrity of all items in the interim store?

Are there procedures in place to deal with items in the interim store that might leak?

Answer: The consequences of an accident while moving items from or into the storage room or in case of a leak, the situation would be dealt with by own means and/or by the Radiological Protection Unit of the Rescue Services Agency.

The containers are verified once per year on potential outside contamination.

Depending on the degree of contamination, decontamination may be performed by own means, by the Radiological Protection Unit of the Rescue

Services Agency or by private company specialized in such services and licensed to this effect in Luxembourg. However specific written procedures do not exist.

Question 3:

Context: Article 18

Topic: National policy

Question: What is national policy in Luxembourg for “disposal” of radioactive waste?

Answer: Volume and activity of waste produced being very low, the Luxembourg Government takes the position that the option of a national management facility and of a final disposal facility would be unrealistic, because not at all commensurate. Therefore all disused sealed sources have to be returned either to the foreign supplier or to foreign company specialised in recycling radioactive source. If this turns out to be impossible disused sources are registered as radioactive waste. Concerning the small quantities of radioactive waste arising in Luxembourg, the Belgian government has exceptionally, and due to the small quantities, accepted to treat the waste coming from the Grand Duchy of Luxembourg, in Belgium.

Question 4:

Context: Article 26

Topic: decommissioning

Q1. Are decommissioning plans and regulations and requirements documented for decommissioning?

Q2. Is monitoring of discharge and operator doses required?

Q3. Are there regulatory actions specified if limits are exceeded?

Q4. What are the details of financing?

Answer: Given that no nuclear facility exists in Luxembourg, Article 26 is not applicable to Luxembourg. The spirit of Article 26 is nevertheless reflected in the practical implementation of the relevant regulations with regard to holders of radioactive materials, as reported throughout the report.

Question 5:

Context: Article 26

Topic: qualifies staff and adequate financial resources

Question: What steps are in place to ensure that qualified staff and adequate financial resources are available to carry out decommissioning activities?

Answer: Given that no nuclear facility exists in Luxembourg, Article 26 is not applicable. Thus, there is no need to ensure that qualified staff and adequate financial resources are available to carry out decommissioning activities of such facilities.

Question 6:

Context: Article 28

Topic: Disused sources

Question: What is national policy for management of disused sealed sources to ensure their safety and security and in a manner that does not impose an undue on future generations?

What options exist or are planned for disposal of orphan and other disused sealed radioactive sources where an option for return to the manufacturer does not exist – including legacy radium sources?

Answer: As reported on page 7 of the national report, under "Management of disused sealed sources", the priority is given to returning disused sources to the foreign supplier of the sources. If this turns out to be impossible, sources including legacy sources have to be sent to a foreign waste management facility, according to the bilateral agreement with Belgium.

Question 7:

Context: Article 28 Section B Page 7

Topic: disused sources

Question: The Report states, 'As part of the licensing procedure, the applicant must have written commitment from the foreign supplier, where the latter agrees to take back the sources if disused.'

Q. What happens if the applicant becomes bankrupt and abandons the site and/or source?

The report states, 'the user or holder is obliged to take all necessary administrative steps to send his disused source to any other supplier of radioactive sources or foreign waste management facility.'

Q. What happens to the source if the 'other ' supplier or foreign waste management facility will not accept the source?

Answer: In case of bankruptcy and abandon of the site, the radioactive sources become orphan sources. The DRP would thus immediately overtake the radioactive sources, transfer them to the interim storage facility and organize a return to the supplier according to the general policy. The related costs could, if all other possibilities fail, be covered by a specially labelled credit of the state budget. However several licensees operate dredging vessels worldwide that are registered in Luxembourg and use high activity sealed sources. If these licensees became bankrupt and abandon the vessel with the source, it could very difficult to maintain theses sources under regulatory control.

Concerning the 2nd question, the bilateral agreement with Belgium on accepting limited amounts of radioactive wastes comprises all types of disused sources.

Question 8:

Context: Article 32 Section B

Topic: storage of transition wastes

What are the details of the 'user's premises' used for the storage of transition radioactive waste until decay?

Answer: The national iodine-131 therapy centre is equipped with 3 retention tanks for all wastewaters from sanitary installations, each one capable to store up to 6

months of wastewater. These waters can only be released after taking a sample and measuring its remaining activity in the laboratory of the DRP.

Considering all other transition wastes, the licensees are obliged to implement and to follow clear procedures for the safe management of these wastes. In particular, type of storage containers, labelling of the containers, storage room, physical protection measures, clear guidelines on when and how a package may be released as non-radioactive waste and all related responsibilities have to be defined.

Greece:

Question 1:

Context: Article 16 page 12

Topic: Comment!

There is incoherence between the statements under art. 16, 17, regarding the presence or absence of possible contamination in the interim storage facility.

Answer: The verification on the absence of radioactive contamination, reported under article 16 refers to removable surface contamination on the packages and within the storage room. The statement of article 17 refers to contaminations of the storage facility itself that would imply important decontamination and decommissioning activities.

Question 2:

Context: Article 12 page 15

Topic: Interim storage

Question: Could Luxembourg provide a description of the interim storage facility?

Answer: The interim storage facility is located within the building of a hospital at the minus 2 level. It consists of two small rooms, used for storage and manipulating the sources, respectively. Access to the location is from a public accessible parking lot though a single door and limited to agents of the DRP.